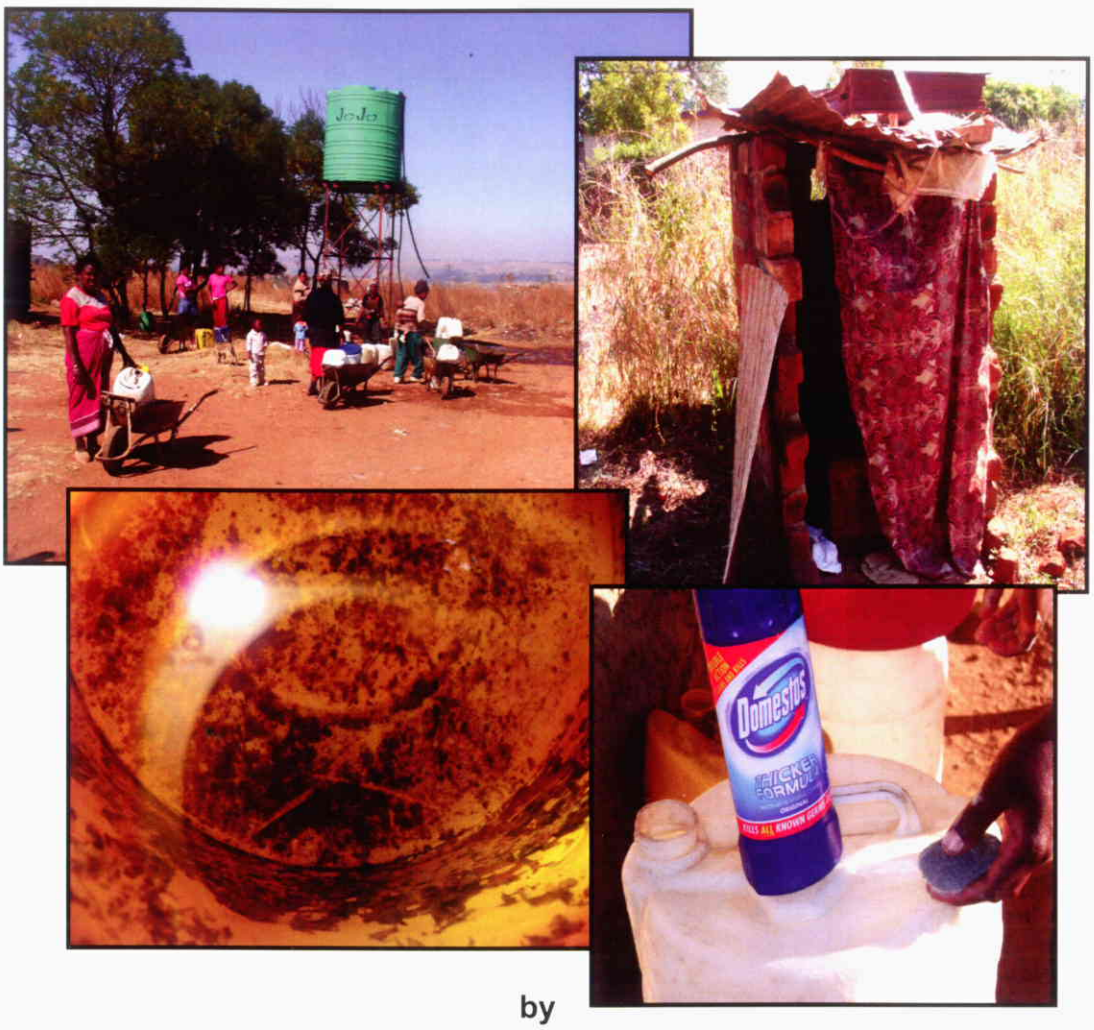
Impacts of the Provision of Water, Sanitation, Hygiene and Home Based Care Services to HIV and AIDS Infected People



by

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Project team

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March 2008

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Report to the
Water Research Commission

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CD attached consisting of full-colour copy of this report as well as Appendix: Household, water supply and sanitation line drawings and photographs

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PREFACE

How I perceive the HIV/AIDS pandemic

by

T. L. Mabale

The HIV/AIDS pandemic, its spread, control and the awareness thereof reached the helms of being abuzz during the middle of the year 2000. I was suffering from hypertension and went for medical attention at Malamulele Hospital where I was admitted for observation. Days went by without my blood pressure subsiding. It then crossed my mind that I must consent for VCT to make sure of my HIV status. I tested positive after my blood was tested. Instead of becoming sulky and negative minded I decided to accept my status and to go on spreading awareness so as to help others.

From there many things happened. I acquainted myself with the Department of Health which did a wonderful job for me and others as well. I am presently on ARVs from Malamulele Hospital. I decided to form a support group called Lemukisa at the Xigalo clinic. I have mostly female members who are very positive with life but males living with HIV/AIDS are still shy to come out in the open about their HIV+ status. But I say to them HIV/AIDS is not worth dying for. To live positively saves lives.

I appeal to those who are HIV- to stay that way and always follow the advice of the Department of Health. To those who are HIV+ I say there is hope at the end and being HIV+ is not the end of their lives. The Department of Health is doing all it can to help us. I support the Department of Health. I say to you by living positively I am healthy and very strong. Because of this many people doubt my status. All the members of the community accept and love me very much. I would like to expand Lemukisa support group to the point where HIV/AIDS are not more stigmatised.

Remember that God loves us all and we must live happily and positively.

Tsakani Lucas Mabale

EXECUTIVE SUMMARY

This report is the result of an eight month study, commissioned by the World Health Organization (WHO) through the Water Research Commission. However, it was soon realised during the initial phases of the study that this study could provide very useful information in the provision and planning of services to HIV and AIDS affected people in South Africa. The study was expanded to include aspects of importance to South Africa and the Water Research Commission funded the additional research done by the project team.

BACKGROUND

The spread of the human immunodeficiency virus (HIV), which causes Acquired Immunodeficiency Syndrome (AIDS) in sub–Saharan Africa, is taking place at an alarming rate. More than 70% of all adults and children infected with HIV/AIDS (25.3 million people) live in sub-Saharan countries (Crewe, 2000; UNAIDS, 2000a; 2000b). Approximately 3.8 million adults and children had died during 2000 as a direct result of HIV and AIDS or AIDS related diseases (Karim, 2000; UNAIDS, 2000b). South Africa faces major challenges in addressing the severe impact of the HIV and AIDS epidemic. At the end of 2005 the estimated number of adults and children living with HIV and AIDS in South Africa, was 5.3 million (USAID, 20053). HIV and AIDS typically strikes adults in the prime of their lives when these people are the most economically active, and although rates of infection are higher in women than men, infection rates peak between 18 to 40 years for both men and woman (World Bank, 1999; Karim, 2000; UNAIDS, 2000A; 2000B). Children are also at risk of infection, and at the end of 2001, approximately 250 000 children between the ages of 0 and 15 years were infected with HIV in South Africa (Whiteside and Sunter, 2000). Not only does the HIV and AIDS epidemic hold a devastating effect on the health and well-being of the South African nation, but it also holds grave consequences for the socio-economic development of South Africa.

HIV and AIDS is not a water-borne disease. Water, HIV and AIDS therefore appear to bear very little relation to each other. However, closer scrutiny reveals significant linkages between HIV and AIDS and water. These linkages hold serious long-term implications for the effective management of water resources and, above all, the provision of safe water to individuals and communities. Studies in Canada have suggested that 35% of endemic gastrointestinal illness in a community might be due to drinking water (Payment et al., 1991; 1997). Provision of safe water to HIV positive and AIDS individuals is paramount because they live with compromised immune systems and are therefore more susceptible to water-borne diseases (USAID, 2004). In reality their requirements for safe water are greater than that of uninfected individuals (Ashton, 2000). In developing countries, many people are living in rural communities and have to collect their drinking water some distances away from the household and transport it back in various types of containers (Sobsey, 2002). Microbiological contamination of the water may occur between the collection point and the point of use in the household due to unhygienic practices causing the water to become a health risk (Sobsey, 2002). Even if the water supply is of acceptable microbiological quality, other transmission routes of diarrhoea such as presence of animals on the dwelling, poor hygiene practices, inadequate excreta disposal, unsafe handling of foods and improper water storage conditions, could be associated with the risk of diarrhoeal diseases, especially in people living with HIV and AIDS (Moe et al., 1991; Curtis et al., 2000; Sobsey, 2002). Hayes and co-workers (2003) have shown that people with HIV and AIDS are more susceptible to serious food- and waterborne illnesses and that secondary infections transmitted through food and water contribute greatly to the morbidity and mortality of HIV infected individuals.

The majority of HIV and AIDS patients are cared for within their local communities. During 2001 and 2002, the South African Department of Health has conducted an audit of all home/community-based care projects in the country (DOH, 2003). The results indicated that there were 892 home/community-based care related projects around the country of which 50.4% were non-governmental organizations (NGO's) and 36% were community-based organizations (CBO's) (DOH, 2003). These caregivers need water for bathing patients, washing soiled linen and clothing, keeping the home environment clean, assisting the patients in taking medicine and preparation of food. Water supply points and latrines have to be accessible and close to where they are needed to reduce the burden of a long walk and to maintain the dignity of patients and caregivers. Therefore the caregivers needs to be properly trained in safe water handling and sanitation practices, personal hygiene, domestic hygiene, food hygiene and safe waste water disposal and drainage to effectively reduce the exposure to water and sanitation related diseases.

The situation for HIV and AIDS infected individuals living in sub-Saharan Africa is exacerbated by the fact that a large proportion of the African population has no access to safe water or adequate sanitation. In rural Africa 65% do not have access to an adequate supply of safe water and 73% are without adequate sanitation (ECA, 2001). In urban areas, 25% and 43% have no access to safe water or sanitation respectively. High numbers of rural and urban Africans therefore suffer from water related diseases. The far reaching political and development implications with regard to the lack of access to safe water and adequate sanitation in South Africa are similar to those of the rest of Africa. In 2001 there were 44.8 million people living in South Africa. Of these, 5 million (11%) had no access to safe water supply and 18.1 million (41%) did not have adequate sanitation services (Statistics South Africa Census, 2001). However, South Africa has reduced this inequality and it is estimated that 9 million people have been provided with water supply since 1994 (Strategic Framework for Water Services, September 2003).

METHODOLOGY

This report is based on the following:

- National review of policies on water, sanitation and home-based care and HIV and AIDS
- Key informant interviews (Semi-structured interviews based on a list guiding questions conducted with staff of the NGO's, Voluntary Counselling and Testing centres (VCT), nurses in the clinics serving the study areas, representatives of the local Municipalities and people living with HIV and AIDS) were administered to assess to what extent these policies were impacting at various levels and to determine the general state/condition of water, sanitation, health and home based care services
- Review of local water and sanitation facilities and the type and state of water and sanitation infrastructures in the study areas
- The water and sanitation coverage in the study areas
- The continuity of the water supplies in the communities
- The consumer patterns of water in the households
- The different uses of water in the households
- The condition and placing of sanitation systems at the households

RESULTS

The results of this assessment demonstrated that the people in the study areas mostly lived below R1 500 a month. Most of the households only lived from the social grants that the government provided. These social grants included pension grants, disability grants (which HIV and AIDS infected people also received) and child support grants.

Most of these areas were serviced with safe water in some serviced form. They did not always have easy access to these water sources nor was the water always available to them. It could be concluded that this had an effect on the quantity of water that these people brought into their households. None of these areas brought in the minimum baseline of 25 lpppd according to the RDP guidelines. This meant that some area of their general well being related to water was suffering due to the lack of sufficient quantities of water.

Apart from the fact that the households brought in very little water for personal use, they also created opportunities for the water to get contaminated during storage at the point of use. They did not always take precautions to treat and protect their water. Many believed that the water provided by the government was treated water and they did not have to treat or protect it properly. The storage conditions were also not always the safest conditions to prevent water from being contaminated. These poor conditions included the dung smeared floors, root of the fires in the huts and insects which were also ever present in these huts due to the animals and the uncovered left-over food.

Collecting water from remote sources when the water is not available at the taps or the households not having tap water was a formidable task. To get to the rivers and springs, the water collectors had to walk through bushes and uneven terrain to get to the sources, climb over farm fences, many times through secluded areas or cross busy roads and walk in unbearable heat in the summer times or rain in the rainy seasons which were very exhausting for weak people. Those households whose only alternative water source was the next village's standpipes had to walk from 2 to 5 km to get there and then back again.

Although most of the households that participated in the study did have toilets, many of these toilets were constructed by the participants themselves and it was not safe to use. Toilets that were provided by the RDP schemes were not built according to VIP guidelines because they were given to local people to build and follow-up guidance were not efficient. These toilets were not only used by weak elderly people and young children, but also by people living with HIV and AIDS. The toilets bore ample opportunity to cause/transmit diseases but they also were structurally dangerous. These toilets were also not user friendly for Home Based Care (HBC) services where the caregivers had to assist their patients in using the toilets. The toilets were many times narrow and made it difficult for two people to fit into these toilets. The distance of the toilets from the households also made it difficult for weak patients to walk to.

An attitude of apathy also reigned in these areas. The people did not want to clean their toilets. Many felt that the toilets were not worth cleaning and felt that they would only clean their toilets if the government provided them with toilets, but even the RDP toilets (provided by the government), were not cleaned.

From the interviews it was clear that the households in the study were more likely to wash their hands after they had used the toilet and before eating their meals than any other time. Most of the households in all the areas disposed of their household waste in pits in their own yards because they did not have refuse removal, or burned it or dumped it in the open streets. The presence of animal faeces meant that animals did have access to these waste disposal sites in the yards and in the open streets. Children also had access to these sites because they were not fenced off. These waste disposal sites posed various dangers to the environment, animals and humans. The animal faeces and other waste could wash into the ground and water sources in the rainy seasons and thus polluting the water sources. Animals and children could also pick up various potential diseases from these sites and spread it inside the household cohort.

All the HBC groups were established quite recently. Various organizations were involved with HBC but it was the NGOs that played the more prominent roles in HBC as they managed these groups. The churches had their own relief groups that provided food parcels, clothes and prayer for the poor and sick. They were not closely working with HBC and did not see it as their sole duty. The communities were not 100% aware what HBC was or what they did. This meant that HBC was not as exposed to the communities as they wanted to or thought they were. Better exposure to the communities meant better community participation in caring for the sick and more community members could also volunteer for HBC and so alleviate stress on the caregivers. This could assist HBC in identifying those that urgently need HBC and in training family members to care for their own people in their homes and to avoid getting infected.

Water plays a very important role in HBC. Caregivers used water for hand washing, bathing the patients, brushing their teeth, cleaned the dwelling and the yard, cleaned the toilet, and did the laundry, drinking, cooking and preparing food. They also used it for medical purposes such as drinking medication, cleaning wounds and keep the patients and their environment hygienic to improve the lives of the patients and to have a positive impact in a given community.

The aim of this study was to provide insight into the extent to which water, sanitation and hygiene issues/practices are important and relevant for service providers and people living with HIV and AIDS, especially with regards to home-based care. In addition, it aimed to provide information on the development of water, sanitation and hygiene mechanisms and how HIV and AIDS infected individuals, their carers, and other household members' access to these services, especially in resource poor situations. Accordingly two rural and two peri-urban communities in different regions of South Africa with different cultural groups were selected. Therefore the objectives of the study were to:

- carry out a short-term assessment of water, sanitation and hygiene resources in rural and urban communities and households of HIV and AIDS infected individuals,
- establish needs assessment criteria:
- obtain information from people concerned, communities, service agencies about their experiences and recommendations for strategies related to water supply (domestic and productive), sanitation and hygiene at household, community and national levels
- provide information for advocacy on water, sanitation and hygiene in relation to home-based care through emphasizing the multi-sectoral character of HIV and AIDS.

RECOMMENDATIONS

The following is a summary of the specific recommendations, which are expanded upon in this report:

1. In the rural areas where people did not have easy access to the clinics, it is recommended that more mobile clinics should be mobilised more frequently to make it easier for these people to have access to primary health care.
2. More caregivers should be trained and deployed in the communities where they live. This would increase the effectiveness of HBC because more patients could be cared for in their own homes.
3. Good administrative systems should be developed and maintained by HBC and the NGOs. HBC groups lack resources such as their own office buildings, administrative resources such as computers and stationary to keep better record of patients and the volunteers, communication systems and transport. This would enable the caregivers to communicate

with each other and the clinics and hospitals and ensure faster reaction time when a patient urgently needs to go to the hospital or clinic.

4. The caregivers should be given training and suitable work schedules and could be employed in the health sector to ensure that they see as many patients as possible in a day. People lose interest in HBC because they either do not get paid at all or they are paid too little. This will also decrease the unemployment rate in the country.
5. More males should be encouraged to become caregivers. This will enable HBC to give care to male patients if they prefer male caregivers.
6. Support systems should be developed not only for the patients but also for the caregivers to help them deal with the illness and death that surrounds them in their working environment.
7. Funding to provide the caregivers with proper HBC kits and protective clothing is fundamental.
8. Community leaders and members should become more involved in HBC to assist the caregivers to make their jobs easier. More HIV and AIDS awareness campaigns should be done amongst the communities so that they understand the disease better and are more tolerant towards people living with HIV and AIDS. This will encourage the people to ask for assistance from HBC.
9. Although local governments are in the process of providing basic water services, they should reconsider the effectiveness of the current systems. Although they claim their water systems are according to RDP standards from this study, it is not the situation in all the areas. Larger water systems, more water supply points and treated/safe water supplies are needed to correct this problem. People do not collect enough water in their houses from water supply points because of the difficulty of collecting the water.
10. Educating people are a key factor that can lead to better health. People need to be better informed about the quality of water they receive. In some areas people believe that the ground water they receive is treated and therefore they do not need to treat their water at the point of use.
11. Sanitation systems should also be reconsidered. The communities that do not have toilets should become first priority. Existing toilets need to be upgraded to VIP toilets.
12. People in the communities should be equipped with skills needed to build the VIP toilets according to specifications. It is also imperative that this process is continually monitored to ensure that the sanitation systems are properly constructed.
13. Education on the dangers of unimproved pit toilets and veldt defecation should be provided to communities.
14. Education on how to operate and maintain the sanitation facility should be provided in order for households to understand the technical aspects of the system and the benefits the toilet has to their health.
15. Refuse removal should be more available to communities. This would ensure a clean environment. Education and awareness campaigns could assist and inform people to know how to keep their toilet clean and what the safest way of disposing of the household waste is.

KNOWLEDGE DISSEMINATION

Publications

Potgieter N, Koekemoer and Jagals P. A pilot assessment of water, sanitation, hygiene and home-based care services for people living with HIV/AIDS in rural and peri-urban communities in South Africa. Water, Science and Technology 2007; **56 (5)**: 125-131.

Research underpins the value of water in fight against AIDS. Water Wheel 2007; **July/August** Edition:18-21.

Presentations

Potgieter N, Koekemoer R and Jagals P (2007). A pilot assessment of water, sanitation, hygiene and home-based care services for people living with HIV/AIDS in rural and peri-urban communities in South Africa. IWA Advanced Sanitation Conference, Aachen, Germany. 13-15 March 2007.

Potgieter N, Koekemoer R, TG Barnard and Jagals P (2007). Sociology of water and sanitation as reflected by water and sanitation infrastructures/practices, health related microbial water quality and quantity at point of use in rural and peri urban households of people living with HIV and AIDS. IWA Water and Health Conference, Tokyo, Japan. 09-15 September 2007.

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- University of Venda, Thohoyandou, Limpopo Province, South Africa

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DOH, PHC clinics, NGOs and Municipalities:
- DOH: Limpopo, Mpumalanga, Northern Cape
- PHC: The clinics from Village A, Village B, Village C, Village D and Village E
- NGO: Centre for Positive Care
- NGO: Legatus
- Municipalities: Mutale, Thulamela, Sol Plaatje and Witbank

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ACRONYMS

AIDS	-	Acquired Immunodeficiency Syndrome
CBC	-	Community based care
CBO	-	Community based organisations
DOH	-	Department of Health
DOTS	-	Directly Observed Treatment Short-course
DWAF	-	Department of Water Affairs and Forestry
HBC	-	Home-based Care
HIV	-	Human Immunodeficiency Virus
NGO	-	Non – governmental Organisation
PHC	-	Primary Health Care
PMTCT	-	Prevention of Mother to Child Transmission
RDP	-	Reconstruction and Development Programme
STD	-	Sexually Transmitted Disease
TB	-	Tuberculosis
VCT	-	Voluntary, Counselling and Testing

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CHAPTER 1

INTRODUCTION

1.1 BACKGROUND

Sub-Saharan Africa remains the region that is the worst-affected by the HIV and AIDS epidemic due to factors such as poverty, social instability, high levels of sexually transmitted infections, low status of women, sexual violence, high mobility (particularly migrant labour), and lack of good governance which predispose people to infection (UNAIDS, 2006). Efforts to stem the tide of new infections have only had limited success because behaviour change and social change are long-term processes which cannot be addressed in short term goals. Vulnerability to, and the impact, of the HIV and AIDS epidemic is proving to be most catastrophic at community and household level.

South Africa has the sixth highest prevalence of HIV and AIDS in the world, with approximately 18.8% of the population estimated to be infected. During 2005, the UNAIDS 2006 Global Report, estimated that 320 000 people died of AIDS related deaths in South Africa (UNAIDS, 2006). However, new infections are still increasing with no signs of reaching a natural limit. At the end of 2005, it was estimated that almost 5.5 million South Africans are living with the virus (RSA, 2005). This annual survey was based on a statistical model to estimate the prevalence of HIV and AIDS among women tested at state antenatal clinics. The national average of HIV positive women attending antenatal clinics in 2005 was 30.2% with Kwa-Zulu Natal province having the highest prevalence at 39.1% and Mpumalanga province at 34.8% a close second (RSA, 2005).

HIV infection rates initially are higher in women than men, peaking between 18 to 40 years of age for both men and woman (UNAIDS, 2000). Adults are typically affected by HIV and AIDS in the prime of their lives when people are economically most active. The increased morbidity and mortality rates amongst the economically active population group, often constituting the breadwinners, will lead to a reduction in human capital and wasted resources on education, training and experience (Kelly et al., 2002). This will have a devastating effect on the health and well-being of the nation, as well as grave consequences for the socio-economic development of South Africa. It is only quite recently been accepted that HIV and AIDS is not only a health issue, but a development issue that affects the water, sanitation and hygiene sectors within the social dimension of a nation (Kammiga and Schuringa, 2005).

While HIV and AIDS is not a waterborne disease, a closer scrutiny shows significant linkages between HIV and AIDS, water, sanitation and hygiene (Kammiga and Schuringa, 2005). Provision of safe water to people living with HIV and AIDS is paramount because due to their compromised immune systems they are more susceptible to diseases associated with poor provision of water, sanitation and hygiene (WSH) (Kammiga and Schuringa, 2005).

In South Africa, provision of water and sanitation are driven by constitutional rights of people especially if seen as a basic human need. People affected by HIV and AIDS have these same rights especially as good WSH provision is expected to enhance dignity and prolong lives (Ashton, 2000). In a society where approximately 61% of South Africa's 18 million children live in poverty and 7.9 million people are unemployed (this equates to an unemployment rate of 40.9%), the following factors should be taken into consideration when water, sanitation, hygiene and home based care strategies are developed:

- The hardship for infected individuals and their families begins long before they pass away
- The stigma related to suspected infection
- The fear and despair that follows diagnosis
- The loss of income and support when a breadwinner or caregiver becomes ill
- The diversion of household resources to provide care
- The terrible burden upon family members, particularly children caring for terminally ill parents
- The trauma of bereavement
- Children becoming orphans who must be placed with new families or orphanages

Strong progress has been made in terms of improving access to water and sanitation by the South African government. Nevertheless, census figures showed that, in 2001, of the 44.8 million people living in South Africa, five million (11%) still had no access to safe water supply and 18.1 million (41%) did not have adequate sanitation services (Statistics South Africa Census, 2001). It is not sure to what extent these figures would be applicable to the part of the South African population living with HIV and AIDS, nor is it clear whether specific WSH strategies were in place at the various levels of governance for people living with HIV and AIDS.

Another related area of uncertainty was whether strategies were in place to support home based care (HBC) for people living with HIV and AIDS. HBC is defined as any form of care given to ill people in their homes; this includes terminal illnesses, disabilities and HIV and AIDS (Lindsey, 2002). HBC is a strategy increasingly relied on by many countries adversely affected by HIV and AIDS. In South Africa public financing of HIV and AIDS programmes have steadily been shifting away from prevention of HIV and AIDS and more towards treatment, care and support (particularly at home) of individuals that had contracted the disease.

The numbers of HIV and AIDS patients requiring long-term care and management threaten to overwhelm weak health systems and infrastructures. Water, sanitation and hygiene are important underpinnings to home care strategies to care for those affected by HIV and AIDS. Therefore, home and community-based care are support initiatives that are set to increase in South Africa (Kelly et al., 2002).

It has been predicted that by 2025 half of the world's population can be facing serious water shortages and South Africa will be one of these countries (Anon, 2002). South Africa is classified as a semi-arid country (RSA, 1993). According to Ashton and Rasamar (2002) the country's water resources needs to be successfully managed to ensure that water is available for al sectors of life because when water quantity and quality are compromised, proper health care cannot take place and mortality rates will increase.

This document is a review of the policies and strategies related to water and sanitation in South Africa on the one hand, and policies and strategies on home based care on the other. The reviewers also investigated possible links between the concepts in terms of strategic thinking and policy-making.

1.2 WATER STRATEGIES IN SOUTH AFRICA

The inception of the policy on community water supply and sanitation in 1994 provided the foundation for the legislative and regulatory framework governing the water sector in South Africa (RSA, 1994). This included the inception of a national programme to address backlogs of water and sanitation services especially those for the rural and the poor.

The new national water policy recognised that local governments would eventually take responsibility for service provision, although the majority of South Africa's poor people still lived in areas without any workable form of local government (RSA, 1994). The policy also referred to the right – later enshrined in the new South African constitution – of access to basic water and to an environment not harmful to the health or well-being of an individual.

The Department of Water Affairs and Forestry (DWAF) then launched the Community Water Supply and Sanitation Programme to put the policy into practice and start delivery of basic water services in the areas of greatest need. The subsequent experiences illustrate how the various aspects of a national water programme can relate to each other in order to provide an effective framework for sustainable implementation (RSA, 2001B).

1.2.1 POLICY AND LEGISLATIVE FRAMEWORK

Following the 1994 policy, the Water Services Act of 1997 gave legal basis to the constitutional right of access to sufficient water and an environment not harmful to health. It also set out how to implement the requirement that local government take responsibility for water services (RSA, 1997B). The main objectives of the Water Services Act were to provide for (RSA, 1997B):

- the right of access to basic water supply and basic sanitation in an equitable way
- the setting of national standards and norms and standards for tariffs in respect of water services
- the monitoring of water services
- financial assistance to water services institutions

The Act distinguished between water services authorities (which have a governance function) and water services providers (which have a provision function) (RSA, 1997B):

- A water services authority is a local government body responsible for services, which is legally obliged to consult communities in preparing its plans. There can only be one water services authority in any specific area (that is, water services authority areas cannot overlap) (RSA, 1994).
- A water services provider is an organisation that actually provides water services to the people – this might be the authority itself, another authority, a water board, a community-based structure or a private company. The Act regulates the relationship between authorities and providers and requires the relationship to be formalised in a contract (RSA, 1997B).

It is also important that Water Services Institutions provide all consumers with an ongoing programme of easy-to-understand information about correct water management practices within the home, as prescribed in the Regulations (DWAF, 2005). The Department of Water Affairs and Forestry (RSA, 1997A) has committed themselves to ensuring: "*Some, For All, For ever*", which sums up the goals of:

- access to a limited resource (some)
- on an equitable basis (for all)
- in a sustainable manner, now and in the future (for ever)

DWAF is the *de facto* WSP (water services provider) in many projects around the country, primarily in former homeland areas (DWAF, 2005). DWAF is responsible for:

- developing norms and standards for the provision of sanitation
- co-ordinating the development by the municipalities of their water services
- establish legislation, policies, norms and standards
- co-ordinate and monitor national programmes
- regulate service provision
- intervene where there is a lack of capacity

In 1998 a new National Water Act came to light. The purpose of the National Water Act (RSA, 1998) was to ensure that the nation's water resources were protected, used, developed, conserved, managed and controlled in ways which take into account amongst other factors:

- meeting the basic human needs of present and future generations
- promoting equitable access to water
- promoting the efficient, sustainable and beneficial use of water in the public interest
- providing for growing demand for water use

To ensure acceptable levels of service to the people, the Act instructs DWAF to regulate water services through compulsory national standards, norms and standards partners in delivery (RSA, 1998). By these means, between 1994 and 2002, new water services have been constructed for a design population of seven million people. This is one of the largest and most rapid programmes of service provision in Africa (RSA, 1998).

In the absence of a local government planning framework, area forums were set up throughout the country to prioritise projects. At the project level, community-based Project Steering Committees (later led by elected local government representatives) were set up (Malau, 2002). To help ensure sustainable services, DWAF prepared guidelines to help these committees to plan the implementation and maintenance of their projects. Some funds, particularly for stand-alone projects in small (less than 5,000 people) communities, were channelled through the Mvula Trust, which had developed community management delivery models (Malau, 2002).

In 1996, as the capital works programme expanded rapidly, DWAF recognised that progress was constrained by a shortage of delivery capacity. So it started four partnerships with private-sector consortia to undertake BoTT (Build, Operate, Train and Transfer) contracts in the four provinces (Eastern Cape, KwaZulu-Natal, Mpumalanga and Limpopo Province) where the backlog of services was the greatest. The aim was to achieve a flexible mechanism for speeding up delivery by minimising administration and bureaucracy, and by using the resources of the private sector to achieve the vision of the public sector (Anon, 2006).

These partnerships had mixed results. The extra capacity available through the BoTT contracts was not fully used since many Project Steering Committees preferred alternative arrangements, while the BoTT contractors were not able to respond with sufficient flexibility

to the unpredictable demands. This resulted in relatively high unit costs. In addition, although the BoTT consortia included skills in institutional development and social communication, there was little evidence that the BoTT system was any more successful than the traditional government system in transferring schemes to sustainable community management. Approaches that emphasise construction tend to mean that cost recovery and sustainability suffer, and the BoTT system was no exception (Anon, 2002).

1.2.2 EQUITY OF ACCESS, AND THE FREE BASIC WATER POLICY

Under the 1994 policy, the government funded the capital costs of new services infrastructure while the users covered operation and maintenance costs – a financial division that applies in many other countries (RSA, 1994). Towards the end of the 1990s, it became clear that the high running costs of many schemes meant that poorer people could not afford the charges and so this arrangement would not be adequate to ensure either sustainability or equity (RSA, 2001A). A substantial and important part of the population was being denied access to water and sanitation services, and community unity and support for those services were being undermined by conflict.

In response, using a combination of political and legislative mechanisms, the government developed a free basic water policy. Basic water supply means "*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 households, to support life and personal hygiene*" (DWAF, 2005). This encourages water services authorities to structure their charges for water to provide the first 6,000 litres per household per month free of charge (RSA, 2001A). The operating costs are covered by a combination of a rising block tariff above that consumption and a subsidy from the national budget to the local government specifically for basic service provision. With substantial political support, this policy had by 1 July 2002 been implemented in local government areas serving over 27 million people (RSA, 2001B).

The free basic water policy was, in 1999, heresy in an international context. The policy has, however, provided a valuable method to ensure that people's right of access to basic water supply is not limited by affordability (a principle increasingly recognised internationally) (RSA, 2001A). It has also helped to maintain the strong political impetus for the water and sanitation programme as responsibility is transferred from national to local government.

Basic water supply is summarised as access to clean drinking (safe, sufficient quality) water that is constantly available and accessible. The RDP standard of basic level of water supply is 25 litres of potable water per person per day (availability) within 200 meters from each dwelling (accessibility). Such services should be at least 98% reliable and be provided at a minimum flow rate of 10 litres per minute to satisfy typical peak demands of a communal street tap system. This amounts to about 6 000 litres per household per month for a household of 8 people. The volume of 6 000 litres per month has therefore been set as the target as a 'basic' level for all households in South Africa (RSA, 2001A).

According to the National Water Act of SA (RSA, 1998) a person may use water in or from a water resource for purposes such as reasonable domestic use, domestic gardening, animal watering, fire fighting and recreational use. For the purposes of this study, water use includes:

- taking water from a water resource
- storing water

- impeding or diverting the flow of water in a watercourse

According to Ward et al., (2001) the quality of water provided as a basic service must be in accordance with the currently accepted minimum standards with respect to health related chemical and microbial contaminants. In addition, it should be acceptable by consumers in terms of potability (taste, odour and appearance). In 2000, 80% of SA urban population had access to water facilities while only 50% of the rural population had access (Ashton and Rasamar, 2002). In rural and peri-urban areas, people prefer to use tap water because it is convenient, clean and generally considered safe to use. The children can also play safely at the taps (Ward et al., 2001).

Unfortunately, in areas where water is collected from yard taps or standpipes, it will be transported, stored and handled before it is consumed for drinking or preparing food. The people use 20 ℓ and 25 ℓ containers to transport the water in. Children helping their mothers use small 5 ℓ containers and vessels (Ward et al., 2001). These containers are transported by hand, head, wheelbarrow, animals driven carts and sometimes motor vehicles. There is generally ample opportunity for contamination of potable water during these intermediary steps. Collecting water is usually the women's work and it has its costs (Ward et al., 2001):

- endless hours lost for possible other activity
- physical effort in terms of exhaustion as well as neck, back and pelvic deformities
- threats of personal safety en route (rape, accidents on crossing roads)
- exposure to dangerous watering holes (animal attacks)

The three main uses of water are 1) direct consumption, 2) food preparation, and 3) personal hygiene. Where people have low level access to clean water, water is mainly used for food preparation and drinking and personal hygiene is not of importance. Personal hygiene is the most dispensable of the three water uses. If personal hygiene is ignored it could lead to water-washed diseases and infections which could be unfavourable to the immuno-compromised (Ward et al., 2001). Often the unhygienic practices are related to (RSA, 1996B):

- a lack of access to health and hygiene education
- inadequate water supplies
- poor facilities for the safe disposal of domestic waste
- inadequate sanitation

1.2.3 DEVOLUTION TO LOCAL GOVERNMENT

As part of their Integrated Development Plans, local government authorities are drawing up water services development plans to guide their operations. Through this process, local government authorities are setting targets for (RSA, 2000):

- The subsidy allocation which enables them to provide free basic water
- Tariff structures to be used for each category of user
- Percentage cost recovery which must be achieved
- Cost savings through leaks reduction and improved staff or technical efficiency

The newly established local governments are now taking up their planned responsibility for implementing projects; the benefit of having national or regional stand-by arrangements such as BoTT contracts is reducing.

1.2.4 ANALYSIS AND ONGOING ISSUES

1.2.4.1 Political context

The new government was elected democratically in 1994 on the promise of '*a better life for all*'. But with the elections in 1994 the South African government inherited a backlog of 14 million people without clean, safe water while 20 million people did not have access to adequate sanitation. Currently five million people still lack access to clean safe water, while 16 million people still lack access to adequate sanitation (www.local.gov.za, 2005).

The success of the national water and sanitation programme derived from the political context in which it was developed. It had a vision for South African society encapsulated in the aim of its Reconstruction and Development Programme (RDP) to '*provide peace and security for all, build the nation, link reconstruction and development, and deepen democracy*' (www.local.gov.za, 2005). The RDP emphasised that an improvement in the quality of life of the majority of South Africans was needed to enable economic growth, and that economic growth was needed to sustain that improved quality of life. There was thus a deep political commitment to programmes of service delivery (RSA, 1997A). The national water and sanitation programme was therefore part of a strong, shared national vision of a South Africa in which people would have opportunities to develop their skills and to use them productively to work for an income with which they could meet their basic needs. Therefore, the new Constitution of South Africa states that every person has the right to have access to (RSA, 1996A):

- health care services
- sufficient food and water
- social security, including, if they are unable to support themselves and their dependants, appropriate social assistance

It was also noticeable in the 1994 national elections that water was the second highest priority for rural voters (after jobs). The aims of the RDP were underpinned by the adoption in 1996 of a new constitution, which entrenched a Bill of Rights including extensive social, economic and environmental rights (RSA, 1996A). The community water supply and sanitation programme thus became not just a short-term activity by DWAF under the RDP, but an integral element of the whole nation's human rights programme.

1.2.4.2 Institutional capacity

Before 1994, DWAF already had a very substantial technical and operational capacity with a network of functional regional offices. This institutional capacity has been extremely important for the success of the programme to date, both for technical and project management and for the linkages to community, local government and provincial structures (RSA, 2000).

South Africa also has a relatively well-developed professional and industrial sector and can design, build, operate and provide equipment and materials required from within the country's resources (RSA, 2000).

Looking ahead, the main institutional questions relate to local government. It is difficult to transfer operational responsibility for water services in the poorest areas of the country from a relatively well-resourced national department to often weak local governments (RSA, 2000). Although the problems are very visible (through well-publicised public complaints), the success of the process will only be measured by the sustainability of services over the medium term.

1.2.4.3 Operational sustainability of the recently constructed water services

In only a few years, the national capital works programme has constructed an extremely large number of water supply schemes, designed to serve about seven million people. However, it is not certain that all those people are actually benefiting, since the user numbers were calculated on the basis of assumed rather than actual use (RSA, 1997B). Also, many of the schemes use comparatively high, engineering-driven standards that may be difficult for local authorities to maintain. So it will be important to ensure that all the schemes remain functional and do indeed continue to serve those numbers of people. An independent field survey could verify these large achievements and could generate useful lessons for the local authorities responsible for these services (RSA, 1997B).

1.2.4.4 Financial sustainability of the free basic water policy

The free basic water policy is a recent innovation in South Africa. It will take some years to assess whether it is financially viable and actually provides enough money for operation and maintenance. Its viability depends on the country containing enough rich people for them to subsidise the poor people, either directly through differential tariffs or indirectly through the taxation system and national budget (RSA, 2001A).

The initial indications are that in large urban areas such as Durban, where the policy originated before being nationally adopted, there are enough rich customers for the differential tariffs to raise enough money (RSA, 2001A). However, this is not the case in rural areas, so the water services providers there will rely on the subsidy from the national budget. This is, in effect, exactly what many African and other countries aimed to do in past decades but often failed to achieve due to national budget weakness (RSA, 2001A). South Africa is, however, a middle-income country with a strong tax base and better able to fund this without adverse fiscal impact if it remains a social priority.

The constitution mandates local government to receive an equitable share of national revenue for delivering basic services, and the present government is firmly committed to ensuring that this is a reliable source of income (RSA, 2001A). Looking to the future, however, the South African economy will need to be willing to continue to sustain the financial burden of both the operation and maintenance of existing services and the extension of these services to all the currently unserved people in the country.

1.2.4.5 DWAF's changing role

Now that the initial centrally planned capital works programme is passing into the hands of local government, DWAF will take on a regulatory and support role instead of a direct implementing role. A policy review process to plan and manage that change of role is currently under way. This will clarify and strengthen DWAF's regulatory role, not only over service delivery contracts, but also in the water services planning process, in the water services information system, and ultimately in ensuring that the people receive services of acceptable quality. The review will also need to consider how to overcome the inherent problem of a single organisation being the financier, policy maker and regulator. There may be a case for the separation of regulatory oversight – this would become particularly important if the current strong political support were to wane in the future.

1.2.4.6 Private sector participation

This is frequently a contentious topic. It has two quite different aspects (Malau, 2002):

- On the one hand, South Africa is fortunate to have a highly developed private sector that has been involved in many aspects of the water sector for years. Private companies undertake research, design, construction, spare parts manufacture and supply, even social consultation, training and participation processes and some project management
- On the other hand, the direct participation of the private sector in service provision has been tried but is not a major factor in service delivery. Only a few small and medium-sized towns have established long-term concession arrangements. As has already been described, the use of BoTT contracts to involve the private sector in DWAF's rural water service provision had only limited success. Given the current economic and political circumstances, it seems likely that future take-up of the private sector in service provision will be slow

1.3 SANITATION STRATEGIES IN SOUTH AFRICA

Sanitation is a critical area. The cholera epidemic of 2000 provided a huge stimulus to address the country's slow rate of progress in sanitation (DOH, 2000C). This slow progress was partly due to the fact that the communities themselves have always strongly prioritized water supply; it was also due to the absence of a good system for promoting improved sanitation at community level (DOH, 2000B).

While the system used for water is community based, that for sanitation should be household focused, which has not previously been the government's strength (RSA, 1996B). While the South African Government has made substantial progress on water, it has not yet developed an effective programme to address the sanitation problems of individual households and to promote health and hygiene awareness. The Cabinet has now recognised the importance of this issue and has given DWAF the mandate to co-ordinate the work of all other role players in sanitation. DWAF, in turn, has created a dedicated sanitation programme to do this work (RSA, 1996B).

Basic sanitation means *"the prescribed minimum standard of services necessary for the safe, hygienic and adequate collection, removal, disposal or purification of human excreta, domestic waste-water and sewage from households, including informal households*" (DWAF, 2005). Human faeces and urine contains disease causing organisms. It must be disposed in such a manner that the organisms cannot spread to healthy people. It also attracts flies which carry the organisms to drinking water, food and cooking utensils (Bester and Austin, 2000). In 2000, 79% of South Africa's urban population had access to sanitation facilities while only 40% of the rural population had access (Ashton and Rasamar, 2002). Effective sanitation focuses on people and their personal dignity, the emphasis is on health and hygiene improvements to ensure the long-term maintenance of public health.

The main responsibility for providing household sanitation rests with the family or household. The role of local government is to help make this possible, or to carry out those functions which can be done more efficiently at a community level. Both provincial and national government will support and assist local government to fulfil these responsibilities, which include (RSA, 1996B):

- provision, operation and maintenance of communal infrastructure (planning, programming, and financing)
- maintenance of public health (health education, pollution prevention and control)
- provision of technical assistance for upgrading on-site systems

1.3.1 SLOW PROGRESS ON SANITATION

South Africa's programme has rapidly expanded access to basic water supply in a potentially sustainable manner. Progress in sanitation has, however, been much slower. This reflects both the lower priority attributed to it by the people and the government, and the perceived difficulty of working at the household level (although it is interesting to note that other African countries have made better progress on this). The main consideration is whether the government must be solely responsible for sanitation infrastructure. The question that needs to be answered is whether people with the assistance of NGO's should not do it themselves with specific guidelines given by the government on what should be done. In addition to this people should take ownership of keeping their sanitation facilities in a proper condition.

1.3.2 SANITATION CONSIDERATIONS

Good sanitation is important for a number of reasons, not least of all human dignity. Poor sanitation has a range of impacts (RSA, 1997B):

- *on health*: poor sanitation impacts on the health and quality of life
- *on the economy*: poor health keeps families in a cycle of poverty and lost income
- *on the environment*: inadequate sanitation leads to environmental degradation, and in particular, the pollution of water sources

Improving hygiene practices and providing sanitation facilities could have a direct influence on a number of important public health problems besetting South Africa. The most common health problems associated with poor sanitation are (RSA, 2001B):

- diarrhoea and dysentery
- typhoid
- bilharzia
- malaria

- cholera
- worms
- eye infections and skin diseases
- increased risk from bacteria, infections and disease for people with reduced immune systems due to HIV AND AIDS

The following aspects should be considered when delivering sanitation services (RSA, 1996B):

- *Health aspects*: The sanitation systems must be designed and constructed to provide an effective barrier against disease transmission
- *Social and educational aspects*: The sanitation systems must be acceptable to the users. User education must be an integral part of sanitation projects
- *Affordability*: Acceptable sanitation systems must be affordable to poor communities to ensure that users remain in good health

1.3.3 ECONOMIC CONSIDERATIONS

Whilst the financial cost of providing a basic level of sanitation is easily quantifiable, the economic cost of inadequate sanitation on the health of the community and on the environment is not so easily quantified. Acceptable and adequate sanitation leads to (RSA, 2001B):

- reduced morbidity and mortality and increased life expectancy
- savings in health care costs
- reduced time caring and sick leave (back to work)
- higher worker productivity

1.3.4 TECHNICALITIES IN SANITATION PROVISION

Waterborne sanitation systems require abundant water, large capital investment, a high level of technical expertise for operations and maintenance, and incur substantial running costs. Excellent cost recovery mechanisms are needed to support a high level of service (RSA, 1997B). VIP technology is flexible and can be modified to suit different geological and social conditions, even where ground conditions are sensitive and settlements are dense. The VIP superstructure should provide privacy, comfort and shelter against the weather. A well constructed VIP should have good fly screen and ventilation systems to control the access of flies and odours in the toilet. The structure must also be adapted to the needs of the household, i.e. for disabled person, the structure must be big enough the fit two people if a person needs to be helped using the toilet. Most important aspect of the superstructure is that the hole must be higher than 2 m from the water bed and 30 m down hill from the nearest borehole (Bester and Austin, 2000).

VIP toilets are low tech, individualised, localised structures that are ideal for self-built approaches and not overly expensive (Ward et al., 2001). The VIP latrine is the minimum and cheapest level of acceptable service; full water borne sanitation is the most expensive. Both offer comparable health protection to end-user communities when properly installed and maintained. Many intermediate technical options are available. DWAF sanitation specialists are able to provide advice and support to the water services act (RSA, 1997B).

1.4 HOME BASED CARE (HBC) STRATEGIES IN SOUTH AFRICA

The coordination of care-giving is largely the responsibility of government Departments of Health (DOH) at all levels. In South Africa, quality home based care is directed by DOH guidelines. The provision of health care is largely the responsibility of the DOH at all levels. It is the policy of the DOH to (DOH, 2000A):

- raise awareness of HIV and AIDS and Sexually Transmitted Diseases (STDs)
- prohibit unfair discrimination on the basis of HIV and AIDS status
- provide a comprehensive programme to improve health and safety and not deal with HIV/ AIDS as isolated issues for people living with HIV and AIDS
- ensure the provision of free condoms and health education lessons on HIV and AIDS and STDs
- promote gender sensitive programmes that empower people to be able to protect themselves from HIV and AIDS

Non-governmental organisations training have been conducted and NGOs continue to receive funding to provide HBC (Health Summit, 2001). NGOs have considerable experience in various aspects of community-based sanitation and health improvement programmes. It is envisaged that NGOs will continue to play an important role and government will actively seek their support. Their existing experience and good contacts at community level will enable them to effectively carry out activities such as (RSA, 1996B):

- training and capacity building of community members and caregivers
- assist communities with the planning and implementation of projects
- providing health and hygiene education and sanitation promotion to the communities
- preparing communications materials on different health aspects
- financing of projects

However, quality of services is often inadequate due to the lack of resources, such as water and sanitation services, and high levels of poverty. The aims and objectives of HBC are as follows (DOH, 2000B):

- HBC is person centred and cultural sensitive. It maintains dignity and self-esteem
- the patient, the carer and the community are provided with appropriate targeted education
- community groups and individual home-based carers receive training from the nearest competent resource – NGOs or the local clinics or visiting health team
- community groups and clinics maintain records of home-care and its continuity and consistency
- protocols or manuals of care are provided to home-care patients from the local clinic on palliative care and the management of pain
- health staff assist in the development of case management plans which consider physical and psychological needs, environment social networks, diet, exercise and rest, personal habits, sexuality, recreation, dressing, washing, feeds, toilet, continence, hearing, seeing and home layout
- social workers assist with arranging legal assistance (e.g. wills) and application for disability grants and other social support
- the community care of AIDS patients involves a continuum of care, which links all available resources in a community

To facilitate the establishment of quality Home Based Care in the country, the DOH has ensured that (Health Summit, 2001):

- guidelines on HBC have been developed and limited training has been conducted
- different HBC options have been developed and costed and these have been provided to provinces to adapt and implement
- NGOs and CBOs continue to receive funding to provide home-based care

1.4.1 UNDERSTANDING HBC

No sector of South African society will escape the impact of HIV and AIDS. The health sector, however, will feel the brunt of the epidemic (Health Summit, 2001). HBC is a viable and cost-effective option. It is important, however, to ensure that these interventions are adequately resourced and supported to ensure that HBC does not degenerate into home neglect as communities battle to provide care for their loved ones who are ill (Health Summit, 2001). HBC schemes are most successful when caregivers are involved in planning and establishments of services (Kelly et al., 2002).

HBC is a viable and cost-effective option. It is important, however, to ensure that these interventions are adequately resourced and supported to ensure that HBC does not degenerate into home neglect as communities battle to provide care for their loved ones who are ill (Health Summit, 2001).

HIV and AIDS and other terminal illnesses greatly affect children's lives. Economic hardship often leads to malnutrition, prostitution, becoming street children or entering into early marriage. Children often have to leave school to care for sick family members or orphaned siblings. In addition, emotional suffering can lead to depression, aggression, drug abuse, insomnia and failure to thrive. Children affected by HIV and AIDS suffer from poverty, stigma, discrimination and multiple losses, including the deaths of family members and friends (Lindsey, 2002).

According to Lindsey (2002) research evidence clearly demonstrates that most people would rather be cared for at home and that effective home care improves the quality of life for ill people. Throughout the world, most caregivers are family members (usually women and young girls), and these caregivers are valued as the main source of care for ill people (Lindsey, 2002). HBC groups can also consist of family caregivers, health and social welfare personnel, community health workers and community volunteers. Other key stakeholders that may be included in the team are community and spiritual leaders, traditional healers, pharmacists, community health committees, neighbours, other community agencies or organisations and community groups (including groups of people living with HIV and AIDS, orphans, youth and women) (Lindsey, 2002).

Uys and Cameron (2003) describes the benefits of HBC as allowing patients and family to deal with illness, less expensive, care at home excludes transport and hospital fees, care is personalised, ill health and death are faced in familiar surrounding.

There are two types of HBC namely formal (where you find trained doctors, nurses, social workers etc. on the HBC team), and informal (where you find volunteers such as family and friends that have little or no training) (Campbell and Foulis, 2004). Informal caregivers typically come to this role without knowing a great deal about how care should be provided, how to navigate an often-complicated financing and delivery system, the likely course of

disability and illnesses, how to cope emotionally with the strains of caring for a very ill individual (WHO, 2003).

1.4.2 BASIC NEEDS OF HBC

HBC is a time consuming effort. The care givers could spend 3-7 hours a day at one home only on caring for the patients living with HIV AND AIDS (Campbell and Foulis, 2004). Not only do they have to see to the nursing care of the patients but they also have to see to the personal and household hygiene of the patients. Collecting water from source far from the households is time consuming and includes the risk of water getting contaminated during transport. Good hygiene ensures better health but inadequate sanitation is a major health risk for the patients. Patients need proper sanitation facilities to keep as healthy as possible. Even if they have enough clean water in the house bad sanitation will still have a negative influence on the patients' health. If patients get sick, it increases the work load of the caregivers and more time have to be spend with that patient which reduces the time that could be spend with other patients.

The first requirement for HBC is to ensure the basic needs of shelter, food, safe water, adequate sanitation and clothing are provided. Providing effective HBC is difficult if these basic needs are not being met (Lindsey, 2002). In some HBC programmes, 60% of local needs include helping people obtain clean water and sanitation because it is crucial to keeping opportunistic diseases at bay (Izindaba, 2001). In rural parts of the country the problem of nursing patients with HIV AND AIDS becomes more acute with the general absence of piped water, adequate sanitation and widespread unemployment leading to near starvation (Hutchings and Buijs, 2004). Caregivers indicate that they need at least 200 ℓ of fresh water a day to care for patients. Large quantities of water (75 ℓ to 100 ℓ) are needed daily for laundry and the rest for cooking, bathing and drinking (Potter and Molose, 2005).

The second requirement is that money and other resources need to be spent to train volunteers. Training not only provides them with the necessary skills to care for people but it also makes the caregivers employable (Uys and Cameron, 2003). If caregivers are not equipped with the knowledge and skills they need, they will not be able to function as part of the health team and the HBC programme will not succeed (Uys and Cameron, 2003).

The third requirement is that providers of HBC should try and ensure that family members and caregivers as well as patients are maximally protected against infection (Uys and Cameron, 2003). The caregiver should be protected against direct contact with bodily fluids to prevent infection but it is equally important to protect the patients from external sources of infection (Uys and Cameron, 2003).

The use of universal precautions should follow national guidelines. Universal precautions include hand-washing, cleaning linen with soap and water, using disinfectants and detergents and burning or safely disposing of household waste. These precautions should be taken regardless of the ill person's condition. Avoiding contact with blood or bodily fluids is especially important, and protective devices such as gloves and aprons should be used. In resource-limited settings, affording protective devices can be difficult, and creativity (such as using plastic bags) is needed (Lindsey, 2002).

1.5 CONCLUSION - LINKING WATER, SANITATION AND HYGIENE TO HEALTH

Political upheaval, high numbers of refugees in some developing countries, and the global appearances of squatter camps and shanty rural towns, which lack proper sanitation and water connections, have contributed to conditions under which disease causing microorganisms can replicate and thrive (Leclerc et al., 2002; Sobsey, 2002; Theron and Cloete, 2002). In many areas where HIV and AIDS infected people do not have access to antiretroviral treatment, safe drinking water helps them to avoid some opportunistic infections and diarrhoea (UNAID, 2006). Water is also needed for bathing, washing soiled linen and clothing, keeping the home environment clean, taking medicine and for the preparation of food. Water supply points and toilets have to be accessible and close to reduce the burden of walking long distances and to maintain the dignity of the people, especially people living with HIV and AIDS (UNAID, 2006).

The principle of improving access to water and sanitation is to improve health (Dunker, 2002). Knowing where services are needed most (eg. using the demographic profile of a region), is a key aspect in providing basic services such as health, water and sanitation (Ashton and Rasamar, 2002).

South Africa's response to the HIV and AIDS pandemic started as a health-centred response and as the disease spread they moved to a prevention and education response. Different sectors of the government (including DWAF and DOH) are included in these programmes to educate people in the spread, prevention and treatment of the disease as well as hygiene practises to give quality care at home (Kelly et al., 2002).

Health and hygiene awareness and education are aimed at increasing the demand for good sanitation and improved hygiene behaviour needs to precede and become an integral part of sanitation improvement programmes. The aim of health and hygiene education and promotion policy is to (RSA, 2001B):

- raise awareness of the diseases caused by unhealthy behaviour and practices
- support and provide health and hygiene education that will enable people to improve their health through correct hygienic practices

According to Dunker (2000), hygiene education is an indispensable part of water supply and sanitation projects. It informs communities about the correct use, storage and disposal of water and general hygiene. In addition, it plays an important role in breaking down transmission of diseases (Dunker, 2002). Understanding the attitudes and behaviours of South African communities towards water and sanitation will enable policy makers to formulate education programmes around those aspects.

Hygiene behaviours to target are (RSA, 2001B):

- personal hygiene: importance of washing hands with soap,
- household hygiene: importance of keeping the home and toilet clean, disposal of refuse and solid waste
- community hygiene: importance of the whole community working together for better health and a cleaner environment

In South Africa, progress with regard to water, sanitation and health infrastructures have been made. During the past ten years, a total of 1,345 new clinics were built and a further 263 were upgraded. However, whilst most clinics have reasonable infrastructure in terms of sanitation, water, electricity and telecommunications, about 10% do not have sanitation, electricity and telecommunications, 20% of clinics still do not have piped water (DOH, 2004). Only about 40% of facilities have primary health care (PHC) nurses. This means that the pace of training has been slower than planned (however migration has also impacted on these figures). In addition, only 30% of clinics are estimated to be visited by a doctor at least once a week (DOH, 2004).

Therefore it is reasonable to conclude that adequate water and sanitation alone will not suffice if people living with HIV and AIDS do not practice safe water and sanitation handling, personal hygiene, domestic hygiene and food hygiene to effectively reduce the exposure to water and sanitation related diseases.

The primary aim of this study was therefore to assess the quality and adequacy of water, sanitation and hygiene arrangements and the quality of home based care in South Africa. In short this study strived to identify the most critical measures to be taken by the health sector as well as the water and sanitation sector to provide short and medium-term solutions in the area of water, sanitation and hygiene support to home based care.

To accomplish the aim, the specific objectives of this study were therefore to:

- carry out a short term assessment of water, sanitation and hygiene resources in rural and urban communities and households of HIV and AIDS infected individuals,
- establish needs assessment criteria:
- obtain information from people concerned, communities, service agencies about their experiences and recommendations for strategies related to water supply (domestic and productive), sanitation and hygiene at household, community and national levels
- provide information for advocacy on water, sanitation and hygiene in relation to home-based care through emphasizing the multi-sectoral character of HIV AND AIDS.

CHAPTER 2

STUDY CONCEPT

2.1 LOCATION OF STUDY COMMUNITIES

This study investigated four (two rural and two peri-urban) communities, each in different geographical locations with different environmental circumstances.

Figure 2.1 Map of South Africa indicating the study areas

2.1.1 RURAL CLUSTERS

Village A and Village B were two rural communities selected in the Mutale district municipal area and Village C was selected in the Thulamela district municipal area (Figure 2.1). The selection of these particular villages was guided by the fact that these were very remote and out of any influence that the larger urban sphere of Thohoyandou or other large urban centres may have. While these people were from the same province, their ethnic bases were different as indicated by the different cultures. These study areas had a low socio-economic profile with a per-capita income

Mutale district municipality (population 78,921; principle language TsiVenda spoken by Venda people) was situated approximately 70 km north-east of Thohoyandou. The Mutale Municipality provided the following services: coordinating between the local people and government, providing houses, water and sanitation services, roads maintenance and electricity. They got money from the provincial government to provide their services. The

municipality did not provide the water and sanitation services. They coordinated the services between the ground level and the Department of Water Affairs and Forestry (DWAF). DWAF was responsible for providing water and sanitation services to the community. There were still areas that lacked basic water and sanitation services but they did have long and short term plans for these areas. It all depended on the budget for these plans to be implemented.

The Thulamela district municipality (population 584,560; principle language Xitsonga spoken by Shangaan people) was situated approximately 30 km south-east of Thohoyandou. The municipality provided the following services: water and sanitation services and management, building and maintaining roads, electricity and waste management. There were still areas that lacked basic water and sanitation services but they did have long and short term plans for these areas. They prioritised their areas according to their needs. Those with the highest needs received attention first.

A fair number of people lived in modern "western-style" housing as well as basic RDP housing provided by the South African government. The majority of people, however, lived in traditional mud huts with thatched roofs. Many of the housing stands accommodated a blend of both modern and traditional housing styles. The structures were often inter-connected with low mud-walls forming small open inner-courts. As is characteristic of the Venda as well as the Shangaan cultures, these structures were often decorated with traditional patterns and colours. Parts of the villages had water and sanitation services, others not. Refuse removal services did not exist in any of the three study areas. All the study villages had electricity except Village B, where electricity infrastructure was in the process of construction.

2.1.2 PERI-URBAN CLUSTERS

Of the peri-urban clusters, Village D was situated in the Sol Plaatje district municipality in the Northern Cape Province (Figure 2.1). The other peri-urban cluster was Village E (an informal settlement), situated in the Emalahleni district municipal area in the Mpumalanga Province. These particular study villages were selected because of the diversity of their people, which was very different from the villages in the rural areas. Village D was a formally established settlement (group of growing squatter camps) which had inadequate water and sanitation services, while Village E was not yet formally established, with most of what services there are, provided at a sub-basic level.

Sol Plaatje district municipality (population 201,462; principle language Afrikaans) served the greater Kimberley area and surrounding smaller towns of which Village D was one. People from various ethnic groups lived in this area with white (Caucasian) and coloured people being the predominant groups. While most of the Kimberley inhabitants had water and sanitation services, the informal settlements in the area mostly did not have adequate water and sanitation services. According to the municipality, the lack of resources (such as availability of water where people settle) made it difficult for them to provide infrastructure to the people, especially in the areas where people were settling illegally where there were no existing infrastructures. The municipality provided water and sanitation services to these areas and maintained the water and sanitation services. According to the Sol Plaatje district municipality, the whole Kimberley area used treated river water from the Vaal River which was treated at a treatment plant in Riverton. The Vaal River was used because it was the closets big water source.

The Emalahleni district municipality (population 227 320; main languages Afrikaans, English, Sepedi and Isizulu) served the greater Witbank area and surrounding smaller towns. People of diverse ethnicity lived in these areas. Most households in the formally established urban

areas had water and sanitation services as well as electricity. The largest part of Village E did not have these services nor did it have a refuse removal service.

2.2 FIELD STUDIES

Field studies were designed around techniques such as personal interviews, environmental surveys and group discussions.

2.2.1 INTERVIEWS

2.2.1.1 Household interviews

An initial robust target was set to interview a maximum of 100 households which would contain at least one HIV and AIDS infected individual – a maximum of 25 with a minimum of 10 (the WHO Terms of Reference requirement), from each community. In the end, seventy four (74) households were identified with the help of the Voluntary, Counselling and testing (VCT) sites through the Home Based Care NGO at the clinics. All 74 households had at least one person living with HIV and AIDS. From Village A and Village B respectively, ten (10) and twelve (12) households participated. Fifteen (15) people living with HIV and AIDS from Village C and their households participated. From Village D, sixteen (16) households were interviewed. In Village E, twenty one (21) households were interviewed.

2.2.1.2 Community interviews

In the rural and peri-urban areas, ten (10) community members each were chosen randomly from the communities and interviewed. Two (2) traditional healers each from Village A, Village B and Village C were interviewed because they formed a large part of the black cultures in South Africa. There were no traditional healers in Village D and no traditional healers could be found during the time of the study in Village E for interviews.

2.2.1.3 Faith Based Care groups (FBC) interviews

In the rural areas, only one (1) pastor from Village A was available to interview. Two (2) pastors from Village B were interviewed and the only (1) pastor from Village C was interviewed. In the peri-urban areas one (1) pastor each from Village D and Village E was available for the interviews.

2.2.1.4 Water and sanitation stakeholder interviews

Only one (1) interview with the Mutale district municipality was carried out because the municipality served both Village A and Village B communities. One (1) interview was carried out with the Thulamela district municipality which served Village C and one (1) interview was carried out with the Sol Plaatje district municipality which served Village D. No interviews were conducted with the Emalahleni district municipality which served Village E because they were not interested in participating in the study.

2.2.1.5 Non Governmental Organizations (NGO) interviews

Only one (1) NGO in the 3 rural study areas was interviewed because this NGO was the only NGO in the region involved with HBC. One (1) NGO in Village D was interviewed and the spokesperson for the Witbank Hospital (Home Based Care fell under the Government hospital and not under a NGO) - was interviewed in the peri-urban study areas.

2.2.1.6 Home Based Care (HBC) caregiver interviews

In each area interviews were only carried out with some of the caregivers in each group based on the different sub-areas they were assigned to in their specific region. All the co-ordinators of the different HBC groups were interviewed and only some of the clinic nurses were interviewed because not all nurses were part of HBC (Table 2.1).

Table 2.1 Number of home based care group individual interviews

Individual interviews	Rural areas			Peri-urban areas	
	Village A	Village B	Village C	Village D	Village E
Caregivers	6	4	4	4	4
HBC coordinators	1	2	1	1	1
Clinic nurses	0	0	1	1	1

2.2.2 ENVIRONMENTAL SURVEYS

Photographs were taken at all the participating households which included photos of the dwellings, water storage containers, water storage area in the dwelling and the sanitation facilities. Photographs were also taken of general sanitation and hygienic conditions of the household and study areas. GPS readings were taken at the households, the primary water sources and sanitation facilities to determine the distances of the water and sanitation infrastructures to the households.

2.2.3 GROUP DISCUSSIONS

All the group discussions were well attended by the caregivers and their co-ordinators but not by the clinic nurses. Although not all the nurses at these clinics were involved with the VCT sites and HBC, those that were involved did not participate actively in the discussions and in some areas in the individual interviews (Table 2.2).

Table 2.2 Number of people attending group discussions

Group discussions	Rural areas			Peri-urban areas	
	Village A	Village B	Village C	Village D	Village E
Caregivers	7	15	16	12	12
HBC coordinators	1	1	1	1	1
Clinic nurses	0	1	0	0	0

2.3 DATA ANALYSIS

Questionnaire data was entered within 5 days after each trip by a trained and experienced data entry clerk. Consistency of data was double checked by the social anthropologist on the research team. All analysis was performed using Sigmaplot version 9.0 and Microsoft Excel 2007. Cross tabulations were used to examine relationships between data variables. Line drawings were made using Corel Draw version 10 for Windows.

CHAPTER 3

STUDY POPULATION DEMOGRAPHICS

3.1 HOUSEHOLD STRUCTURES

3.1.1 RURAL HOUSEHOLDS

In Village A, nine of the ten households used huts as their dwellings. Seven of the huts were made of mud and had thatched roofs. Two huts were made of bricks. One hut had a thatched roof and the other had a tiled roof. The huts were used for water storage, sleeping and as kitchens. Four of the households also had a small flat build from bricks on the premises which had corrugated iron roofs. These flats had one or two rooms for sleeping, bathing and storage. Two of the households had RDP houses with their huts.

In Village B, six of the twelve households used huts as their dwellings. Six of the huts were made of mud and had thatched roofs. The huts were used for water storage, sleeping and as kitchens. All six these households also had flats on the premises build from bricks and the buildings had corrugated iron roofs. Two of the households lived in RDP houses with one of the households having additional huts. These flats had one or two rooms for sleeping, bathing and storage. Two of the households had "western style build" houses. The houses had living rooms, dining rooms, sleeping rooms, kitchens and rooms that used for bathing although it was not actual bathrooms (due to the lack of running water inside the households).

In Village C, fourteen of the fifteen households used huts as their dwellings. The huts were made of mud bricks and had thatched roofs. The huts were used for water storage, sleeping and as kitchens. One of the households also had a small flat build from bricks on the premises with corrugated iron roof. Two of the households with huts had shacks on the premises, made of corrugated iron. These flats/shacks also had one or two rooms for sleeping, bathing and storage. One household had a RDP house with the hut. There were two western type houses in Village C: one house had a hut while both houses had living rooms, dining rooms, sleeping rooms, kitchens and rooms that used for bathing although it was not actual bath rooms (due to the lack of running water inside the households).

Figure 3.1 Traditional huts connected by a wall in rural areas

Figure 3.2 Traditional hut and flat in rural areas

Figure 3.3 Western style built house in rural areas

Figure 3.4 RDP house in rural area next to a traditional hut

3.1.2 PERI-URBAN HOUSEHOLDS

Village D had a very interesting housing set up. The area originally started as a coloured settlement on the peripheral of Kimberley, Northern Cape Province. The people lived in small brick houses. As Kimberley grew, people moved to Village D from the rural areas looking for work in Kimberley and started to settle illegally on open stands. The houses had infrastructure such as water and sanitation services, electricity and refuse removal but the adjacent squatter camps did not have any infrastructure expect for a few taps and two toilets. Eight of the sixteen households lived in houses built from bricks with corrugated iron roofs. One of the houses' roofs was made of asbestos. Two households' houses were made of asbestos. One had an asbestos roof and the other corrugated iron roof. These houses had between two to five rooms and the rooms were used as kitchens, water storage, living rooms and sleeping rooms. Six of the households lived in shacks. The shacks were made of corrugated iron and scrap metal. Four of the shacks had only one room while two shacks contained two rooms each. The shacks were used for water storage, kitchens and sleeping rooms. The two asbestos houses were the first kind of RDP houses that were subsidised to the community and had yard taps and flush toilets outside.

In Village E, three of the twenty one households lived in square huts. These huts were made of small stones, wood and mud. Their roofs were either made of corrugated iron or scrap metal. Fourteen of the households lived in shacks that were constructed from corrugated iron or scrap metal. Many also had their shacks right beneath the high voltage power lines. Three households lived in small brick houses and one participant lived on his own in a caravan. The huts and shacks were used for water storage, kitchens and sleeping. Some of the shacks were big enough to be used as a small living room. There were no study participants that lived in RDP houses.

Figure 3.5 Brick house in peri-urban area

Figure 3.6 Asbestos house in peri-urban area

Figure 3.7 Typical shack in peri-urban area

Figure 3.8 Square hut in peri-urban area

3.2 ENERGY SOURCES OF STUDY POPULATION

The main energy source in Village A was electricity, although not all of the households could afford to pay for electricity. They mostly used wood to cook food and boil water. Even if they had electricity they did not have electrical stoves to cook on. Those that did not have electricity used candles for lighting. Two household also used paraffin lamps for lighting.

At the time of the study there was no electricity in Village B. The households mainly used wood to cook food and boil water. Two households also used coal to cook food and boil water. Only two of the villages surrounding Village B had electricity. Three of the households were from these villages and they used electricity to for lighting, cook food and to boil water. Three households used solar power for lighting while the other households used candles. One household used a paraffin lamp. There was also a household that used a car battery to power the appliances in the house.

Village C and the surrounding villages had electricity but two households did not use electricity because they could not afford to pay for it. The other households used the electricity for cooking food, boiling water and lighting. Those that did not have electricity or did not have electrical stoves

used wood to cook and boil water. One household used a paraffin lamp for lighting and the other used candles. The houses that had electricity used prepaid electricity meters. The households either made fire on the little verandas that their mud walls created or they made fire in the huts.

The main energy source in Village D was electricity although not all of the households could afford to pay for electricity. If the households' electricity was cut off they used paraffin stoves for cooking and candles for lighting. The shacks had no electricity services at all and used paraffin stoves and candles.

In Village E, only two households had electricity. One household was the man that lived in the caravan on the premises of his employers and the other was the one participant that lived in a small brick house. All the other households used paraffin, wood and coal (this was a coal mine area) as the main energy sources, but they mostly used candles for lighting.

Figure 3.9 Coal stove which is used by households in the peri-urban areas

Figure 3.10 Outside cooking in rural areas

3.3 AGE AND GENDER DISTRIBUTION OF STUDY POPULATION

3.3.1 AGE AND GENDER DISTRIBUTION OF STUDY POPULATION

The average family size of Village A households was 4.9. Females formed 52% of the composition of the households and males only 48%. The average family size of Village B households was 5.3. Females formed 58% of the composition of the households and males 42%. The average family size of Village C households was 5.2. Females formed 59% of the composition of the households and males 41%. The average family size of Village D was 4.4. Females formed 51% of the composition of the households and males only 49%. The average family size of Village E was 3.1. Females formed 53% of the composition of the households and males only 47%.

Table 3.1 Age and gender distribution of the study households

Age in years	Rural areas												Peri-urban areas							
	Village A Average family size = 4.9 Female = 52% : Male = 48%				Village B Average family size = 5.3 Female = 58% : Male = 42%				Village C Average family size = 5.2 Female = 59% : Male = 41%				Village D Average family size = 4.4 Female = 51% : Male = 49%				Village E Average family size = 3.1 Female = 53% : Male = 47%			
	F	M	Per age	%	F	M	Per age	%	F	M	Per age	%	F	M	Per age	%	F	M	Per age	%
Infant 0-1	1	1	2	**4**	1	3	4	**6**	1	3	4	**5**	2	0	2	**3**	0	0	0	**0**
Toddler >1-5	0	2	2	**4**	2	1	3	**5**	3	0	3	**4**	2	4	6	**8**	3	4	7	**11**
Child > 5-12	5	5	10	**21**	8	6	14	**23**	4	8	12	**16**	3	6	9	**13**	6	7	13	**20**
Adolescent >12-15	2	3	5	**10**	3	4	7	**11**	3	5	8	**11**	0	4	4	**6**	1	2	3	**5**
Adolescent >15-19	2	2	4	**8**	4	2	6	**10**	6	4	10	**13**	8	4	12	**17**	2	3	5	**8**
Adults 20-29	4	3	7	**15**	7	2	9	**15**	6	2	8	**11**	8	5	13	**18**	5	2	7	**11**
Adults 30-39	5	3	8	**18**	7	1	8	**13**	6	2	8	**11**	6	3	9	**13**	7	4	11	**17**
Adults 40-49	2	3	5	**10**	1	4	5	**8**	8	2	10	**13**	6	6	12	**17**	9	3	12	**18**
Adults 50-59	2	1	3	**6**	1	0	1	**2**	2	1	3	**4**	2	1	3	**4**	0	2	2	**3**
Adults 60-65	0	0	0	**0**	1	1	2	**3**	1	0	1	**1**	0	0	0	**0**	0	0	0	**0**
Adults >65	2	0	2	**4**	0	0	0	**0**	3	2	5	**7**	0	1	1	**1**	1	1	2	**3**
Ages not known	0	0	0	**0**	1	2	3	**5**	1	2	3	**4**	0	1	1	**1**	1	3	4	**7**

F = female
M = male
% = percentage

3.3.2 AGE AND GENDER DISTRIBUTION OF PEOPLE LIVING WITH HIV AND AIDS

Seven of the ten participants from Village A were female and three were male. The average age of the male participants were 39.5 years and the average age for the females participants were 38.6 years. In Village B, ten of the twelve participants were female and two were male. The average age of the male participants were 41.5 years and the average age for the females participants were 31.8 years. In Village C, eleven of the fifteen participants were female and four were male. The average age of the male participants were 43.8 years and the average age for the females participants were 40.4 years. Thirteen of the sixteen participants from Village D were female and three were male. The average age of the male participants were 38.6 years and the average age for the females participants were 34.7 years. Eighteen of the twenty one participants from Village E were female and three were male. The average age of the male participants were 50 years and the average age for the females participants were 36.5 years.

Table 3.2 Average age and gender distribution of the participants

Sex	Rural areas			Peri-urban areas	
	Village A	Village B	Village C	Village D	Village E
Female	38.6	31.8	40.4	34.7	36.5
Male	39.5	41.5	43.8	38.6	50.0
Average age	39.1	36.7	42.1	39.1	42.1

3.4 HIV AND AIDS STATUS OF STUDY COHORT AND HBC SUPPORT

3.4.1 RURAL AREAS

The participants of all three rural areas tested HIV positive in the past six years. In 2005 most of the participants tested for HIV. The participants were tested because they were ill and they did not get better. Nurses and doctors advised them to test so that they could treat the right disease.

The ten people living with HIV and AIDS in Village A tested positive in the following years: During 2001 two people, during 2002 one person, during 2003 two people, during 2004 one person and during 2005 four people. Four of Village A participants tested at the local clinic. The other six participants tested at the Donald Fraser Hospital. In Village A, five (42%) of the participants received HBC since 2005. They said they started making use of HBC because they got to weak to perform house chores and HBC assisted them in this.

The twelve people living with HIV and AIDS in Village B tested positive in the following years: During 2002 one person, during 2003 one person, during 2004 one person, during 2005 five people and during 2006 four people. Eleven of Village B participants tested at the local clinic. One person tested at Donald Fraser Hospital which is the closest government hospital. One person that tested at the local clinic was also tested in Mussina. None of the participants in Village B received HBC. The participants did not make use of services of HBC because they either did not know what HBC were or they were still strong enough to take care of themselves.

The fifteen people living with HIV and AIDS that were interviewed in Village C tested positive in the following years: During 2000 two people, during 2002 two people, during 2003 five people, during 2004 two people, during 2005 three people and during 2006 one person. Seven of Village C participants tested at the local clinic. Five tested at Malamulele Hospital, two tested at Tshikonelo clinic and one tested at Tshilidzini Hospital. In Village C the caregivers from HBC only cared for one of the participants. The leader of the support group was this participant and he only asked for

HBC to assist him during 2005 because he was interested to see what HBC was all about and he needed to get the support group started in the area. He mainly wanted to help the HBC caregivers and learn more of HBC activities. The other participants did not make use of the services of HBC because they either did not know what HBC was, what they did or where to find them.

In Village A, most of the family members of the participants accepted the statuses of the participants living with HIV and AIDS. The participants said their families were taking good care of them and nothing really changed in their family relationships. Four of the participants did not inform their friends of their statuses. One participant said her friends were now gossiping about her after she told them. Most of the partners of the participants did not accept the statuses of the participants. Four of the partners divorced the participants when they found out about their statuses. One of these participants said that her husband even raped their young daughter because he thought he would be cured of HIV and AIDS if he had sexual intercourse with a young virgin. She reported it to the police and her husband then chased her away and they got divorced. Only one participant was working when she got diagnosed and her employer chased her away after she told him she was HIV positive. In Village B, only two of the participants informed their families and friends about their statuses and they accepted their statuses; only five of the participants informed their partners about their statuses which all accepted their situations and one participant said her partner did not really understand what HIV and AIDS was. None of the participants were working when they got diagnosed with HIV and AIDS. In Village C, most of the family, friends and partners accepted the statuses of the HIV and AIDS people. Two of the participants did not inform their friends because they were afraid their friends would gossip behind their backs about their statuses. One person did not inform her family because she was afraid they would chase her away. One male participant did not inform his wife because he was afraid she would divorce him but he did inform his family and they accepted him.

Table 3.3 Participants of the rural study households' HIV and AIDS testing time line

Year	Village A	Village B	Village C	Number per year	Number receiving HBC
2000	-	-	2	**2**	**-**
2001	2	-	-	**2**	**-**
2002	1	1	2	**4**	**2**
2003	2	1	5	**8**	**1**
2004	1	1	2	**4**	**-**
2005	4	5	3	**12**	**3**
2006	-	4	1	**5**	**-**

3.4.2 PERI-URBAN AREAS

All the participants of the two peri-urban areas tested HIV positive in the past six years. During 2005 most of the participants tested for HIV. The sixteen people living with HIV and AIDS that were interviewed in Village D tested positive in the following years: During 2000 three people, during 2003 two people, during 2004 two people, during 2005 five people and during 2006 four people. Seven of the participants tested at the local clinic. Four of the participants tested at Kimberley Hospital. One participant tested at a private doctor, one participant tested at Kimberley City clinic, one participant tested at the Douglas prison, one participant tested at Beaconsfield clinic and one participant tested at Richie clinic. A total of 82% of the participants received HBC. Three of the participants from Village D did not receive any assistance from the HBC group because they felt they were still strong enough to take care of themselves. Of the 13 participants that did make use of HBC assistance, one person started during 2000, one person started during 2002, six people

started during 2005 and five people started during 2006 with HBC. These participants started to make use of HBC because they were sick and were sent travelling between the clinic and the hospital. In addition they needed care at their homes.

The twenty one people living with HIV and AIDS in Village E tested positive during the following years: During 2002 one person, during 2003 four people, during 2004 seven people, during 2005 seven people and during 2006 two people. Fourteen of the participants tested at their local clinics. Three of the participants tested at Witbank General Hospital. The last four participants tested at different clinics and hospitals than their local clinic and Witbank General Hospital. A total of 90% of the participants received HBC. Two participants did not receive any assistance from the HBC group because the one participant did not stay at home and the other was still strong enough to look after himself. Of the 20 participants that did make use of HBC one person started during 2002, two people started during 2003, six people started during 2004, seven people started during 2005 and four people during 2006 with HBC. The participants from the Witbank informal settlements started to make use of HBC because they were sick and needed assistance at home. One participant was pregnant and she needed help around the house.

In Village D, most of the family members of the participants were shocked when they found out about the patients' statuses, but they accepted their statuses and supported them. Four of the participants did not inform their friends of their statuses. Two participants said their friends turned their backs on them. They now made friends with the caregivers. The rest of the participants' friends accepted them although many of them were shocked. Six of the participants' partners accepted their statuses and most of them also tested positive. Four of the participants' partners left them when they found out. One participant's partner denied her status but he was still with her. One participant said she did not have a partner and did not know how she got infected. Two participants did not inform their partners. Only eight of the participants were employed when they were diagnosed. Those that did inform their employers about their statuses said the employers accepted it. However, they all quit their jobs because they got too weak and slow to do their work. In Village E, most of the family members of the participants accepted their statuses and they now helped to take care of them. Three of the participants did not inform their families. One participant said he did not have family, one participant wrote to her children in Cape Town about her status and they never replied back to her. Eight of the participants did not inform their friends about their statuses. The rest did tell them and they said their friends were very supportive of them. Nine of the participants informed their partners about their statuses. Seven of the partners accepted the situation and supported the participants. One partner was very angry in the beginning but he accepted his partner's status. Two of the participants' partners reacted very angry. They accused the participants of being bad people. None of the participants indicated if they worked and what their employers said about their statuses. Those that did not inform their families, friends and partners about their statuses said they were afraid of discrimination and that people would not keep their statuses confidential.

Table 3.4 Participants of the peri urban study households' HIV and AIDS testing time line

Year	Village D	Village E	Number per year	Number receiving HBC
2000	3	-	**3**	**1**
2001	-	-	**-**	**-**
2002	-	1	**1**	**2**
2003	2	4	**6**	**2**
2004	2	7	**9**	**6**
2005	5	7	**12**	**13**
2006	4	2	**6**	**9**

3.5 GENERAL HEALTH PROBLEMS IN STUDY POPULATION

The general health problems according to the community members and the traditional healers of the three rural areas were HIV and AIDS, diarrhoea, headaches, malaria, high blood pressure, sugar diabetes, stroke, influenza, TB, cholera and bilharzia. They all agreed that HIV and AIDS was a big problem in the community because they had seen many people that were infected with the disease and many had died from the disease. The community members and traditional healers in the three rural study areas said: "…*everybody could get HIV and AIDS but it was especially young people between the ages of 15 and 35 years and women which were vulnerable. These people got infected when they had unprotected sexual intercourse, if they came into contact with infected blood, blood transfusion, sharing drug needles, kissed a person for a long time, swallowed a lot of saliva from the HIV+ person and having many sexual partners….*". It was mostly believed that HIV and AIDS could not be cured but that there were drugs available to prolong life for five to fifteen years after they got infected with HIV if they took their medication. Two traditional healers believed that HIV and AIDS could be cured in the early stages but they all mostly agreed that HIV and AIDS can not be cured. The Village A and Village B community members and traditional healers said they could identify a person living with HIV and AIDS by lesions, sudden weight loss, dull skin colour, diarrhoea, vomiting, headaches, influenza, weakness, stress, pimples and inability to work. The Village C communities members said sometimes it was difficult to identify whether a person had HIV and AIDS or not and identified an infected individual when the person was ill for a long time and they did not get better, the person' behaviour was different from other people and their skin tightened, the person lost a lot of weight, they coughed a lot and they had sores on their bodies.

According to the community members of Village D and Village E, the common health problems in their community were HIV and AIDS, arthritis, high blood pressure, STIs, TB, pneumonia and alcoholism. The community members said: *"….everybody could get HIV and AIDS but it was especially young people between the ages of 12 and 25 years because they experimented with drugs and sex, although it mostly depended on their lifestyle. These people got infected when they had unprotected sexual intercourse, if they came into contact with infected blood, sharing drugs needles, mother–to–child transmission and sharing razors…..*". They could identified a person living with HIV and AIDS when they sweat profusely, had bad body language, sudden weight loss, they coughed a lot, had sores all over their bodies and their skin colour changed. They said infected people could live between five and thirty years after they got infected with HIV and AIDS and mostly agreed that HIV and AIDS cannot be cured but ARVs prolonged the lives of the people living with HIV and AIDS.

At the time of the interviews no participants in Village A had diarrhoea, one participant had diarrhoea in the three months prior to the interview and one participant had diarrhoea nine months prior to the interview. In Village B, one participant suffered from diarrhoea at the time of the interview, none of the participants had diarrhoea in the three months prior to the interview and one participant suffered from diarrhoea nine months prior to the interview. In Village C, none of the participants suffered from diarrhoea at the time of the interview, four of the participants had diarrhoea in the three months prior to the interview and three participants suffered from diarrhoea nine months prior to the interview. In Village D, three participants had diarrhoea at the time of the interviews, two participants had diarrhoea in the three months prior to the interviews and four participants had diarrhoea nine months prior to the interview. In Village E, one participant suffered from diarrhoea at the time of the interview, two participants had diarrhoea in the three months prior to the interviews and one participant suffered from diarrhoea nine months prior to the interview.

3.6 EDUCATIONAL LEVEL OF STUDY POPULATION

3.6.1 RURAL HOUSEHOLDS

In the rural areas, 20% of all the household members did not receive any form of education, at least 12% finished Gr. 10 and only 5% finish secondary school. Only Village C had two people that received a tertiary education which made up 1% of the total rural sample group. Of the 10 households in Village A, 21% of the people were not educated and 8% finished school. Of the 12 households in Village B, 24% of the people were not educated and 2% finished school. Of the 15 households in Village C, 16% of the people were not educated and 7% finished school.

3.6.2 PERI-URBAN HOUSEHOLDS

In the peri-urban areas, 27% of all the household members did not receive any form of education, at least 11% finished Gr. 10 and only 6% finish secondary school. Only Village D had one person that received a tertiary education which made up 0.7% of the total peri-urban sample group. Of the 16 households in Village D, 11% of the people were not educated and 6% finished school. Of the 21 households in Village E, 21% of the people were not educated and 6% finished school.

Table 3.5 Educational level of the peri-urban study households

Educational level	Village D				Village E			
	F	M	Number per age	%	F	M	Number per age	%
Pre-primary	0	1	1	**1**	3	0	3	**5**
Grade R	1	2	3	**4**	1	0	1	**2**
Grade 1	0	2	2	**3**	1	0	1	**2**
Grade 2	1	2	3	**4**	0	2	2	**3**
Grade 3	1	1	2	**3**	0	1	1	**2**
Grade 4	3	0	3	**4**	1	2	3	**5**
Grade 5	0	1	1	**1**	2	2	4	**6**
Grade 6	1	4	5	**7**	4	1	5	**8**
Grade 7	2	2	4	**6**	2	2	4	**6**
Grade 8	2	4	6	**8**	1	3	4	**6**
Grade 9	8	4	12	**17**	4	3	7	**11**
Grade 10	7	0	7	**10**	2	3	5	**8**
Grade 11	0	1	1	**1**	0	0	0	**0**
Grade 12	1	3	4	**6**	2	2	4	**6**
Tertiary education	0	1	1	**1**	0	0	0	**0**
ABET	1	1	2	**3**	0	0	0	**0**
None	5	3	8	**11**	9	5	14	**21**

F = female
M = male
% = percentage

Table 3.6 Educational level of the rural study households

Educational level	Village A				Village B				Village C			
	F	M	Number per age	%	F	M	Number per age	%	F	M	Number per age	%
Pre-primary	0	0	0	**0**	3	1	4	**6**	0	0	0	**0**
Grade R	1	0	1	**2**	0	1	1	**2**	0	1	1	**1**
Grade 1	1	1	2	**5**	1	1	2	**3**	2	1	3	**4**
Grade 2	0	1	1	**2**	4	4	8	**13**	3	0	3	**4**
Grade 3	1	1	2	**5**	2	0	2	**4**	1	2	3	**4**
Grade 4	1	1	2	**5**	1	2	3	**5**	3	3	6	**8**
Grade 5	0	0	0	**0**	2	2	4	**6**	1	1	2	**6**
Grade 6	1	3	4	**8**	2	1	3	**5**	0	1	1	**1**
Grade 7	2	5	7	**15**	5	1	6	**10**	3	4	7	**9**
Grade 8	3	2	5	**10**	1	0	1	**2**	4	3	7	**9**
Grade 9	5	0	5	**10**	4	3	7	**11**	3	1	4	**5**
Grade 10	1	2	3	**6**	1	2	3	**5**	12	4	16	**21**
Grade 11	1	1	2	**5**	1	1	2	**3**	2	1	3	**4**
Grade 12	2	2	4	**8**	1	0	1	**2**	3	2	5	**7**
Tertiary education	0	0	0	**0**	0	0	0	**0**	1	1	2	**6**
ABET	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**
None	7	3	10	**21**	8	7	15	**24**	7	5	12	**16**

F = female
M = male
% = percentage

3.7 HOUSEHOLD INCOME LEVEL

3.7.1 RURAL HOUSEHOLDS

All three rural areas were poverty stricken. The average incomes for Village A, Village B and Village C respectively was R870, R820 and R1 500. Some of the houses received less than half of these average amounts in a month. But there were households that received up to two disability grants and one pension grant which lifted the average income of the households. A large majority of the households in the study groups in the rural areas earned less than R500 a month which was almost 59% of the total income of the study group. Of this percentage, 93% were child support grants and 7% were people working locally in the areas. The second biggest part of the graph was people earning between R500 and R1 000 a month which was almost 39% of the total income of the study group. Of this percentage, 23% were old age pension grants and 77% were disability grants that mostly the participants living with HIV and AIDS received. The remaining 2% of the study group were two types of income: one type of income was a migrant labourer that earned between R1 000 and R2 000 a month; and the other income amount was remittances of R3 000 that one household received.

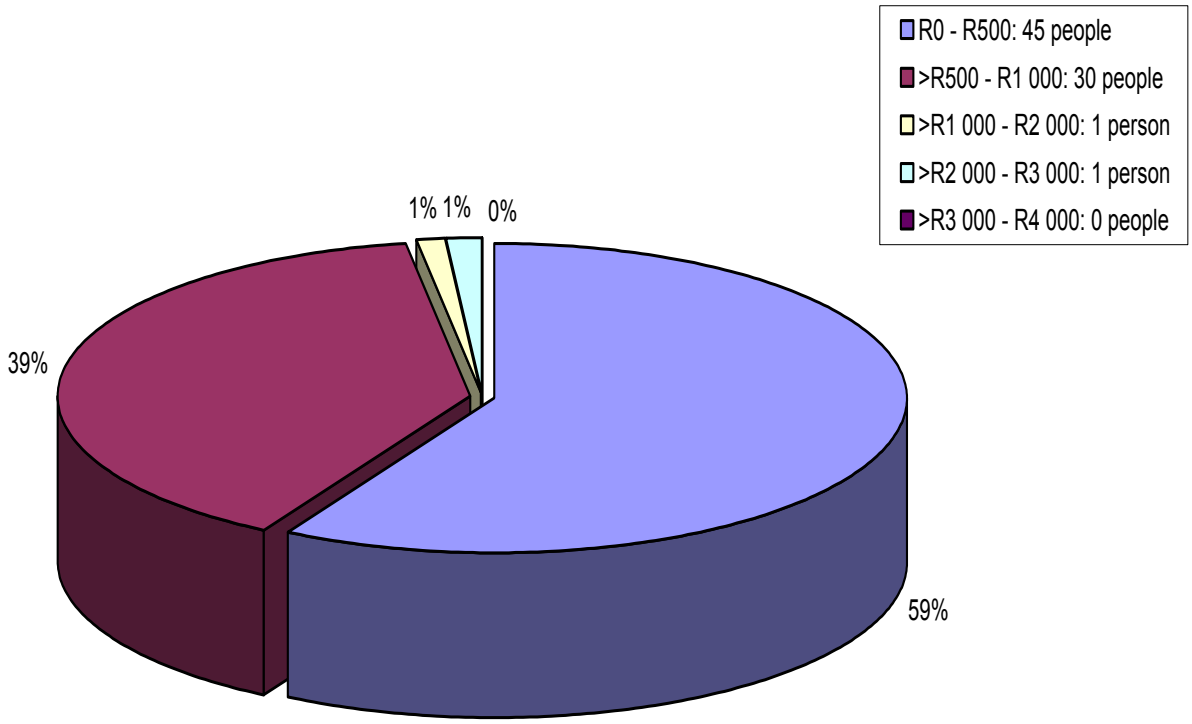

Figure 3.11 Income scales of rural study areas

A short summary of each village income: in Village A, 35% of the households that participated in the study lived from social grants given by the government. One household in Village A did not receive any income. Only one male from Village A had a part time job in the area and earned less than R500 a month. In Village B, 45% of the households in the study group lived from social grants. Two people in Village B had local jobs and earned less than R500 a month. In Village C, 36% of the households lived from social grants, one person received another kind of income due to migrant labour and earned between R1 000 and R2 000 a month. One household received a remittance of R4 000 a month. The grants were the only formal income most of these households received. One household in Village C did not receive any kind income in a month.

3.7.2 PERI-URBAN HOUSEHOLDS

The two peri-urban areas were also poverty stricken. The average income for Village D was R780 and for Village E the average income was R470. All of the households received some kind of income. Most of the study households earned less than R500 a month which was 54% of the total income of the study group. Of this 78% were child support grants and 22% were people working locally in the areas. The second biggest part of the graph was people earning between R500 and R1 000 a month which was 38% of the total income of the study group. Of this 4% was old age pension grants, 26% were people working locally in the area and 70% were disability grants that the participants living with HIV and AIDS received. The remaining 8% of the study group were other types of income: four people working locally that earned between R1 000 and R2 000 a month; one person worked locally and earned between R2 000 and R3 000 per month; and one person worked locally and earned between R3 000 and R4 000 per month.

A short summary of each village income: In Village D, 32% of the households that participated in the study lived from social government grants. Three males had part time jobs and six had full times jobs and only two of them earned less than R1 000 a month. One female had a full time job in the area although she earned less than R500 a month. In Village E, 39% of the households that participated in the study lived from social grants given by the government. Two households did not receive any income. Four males had part time jobs and two had full times jobs and all of them earned less than R1 000 a month. Two females had part time jobs in the area in which they earned less than R500 a month.

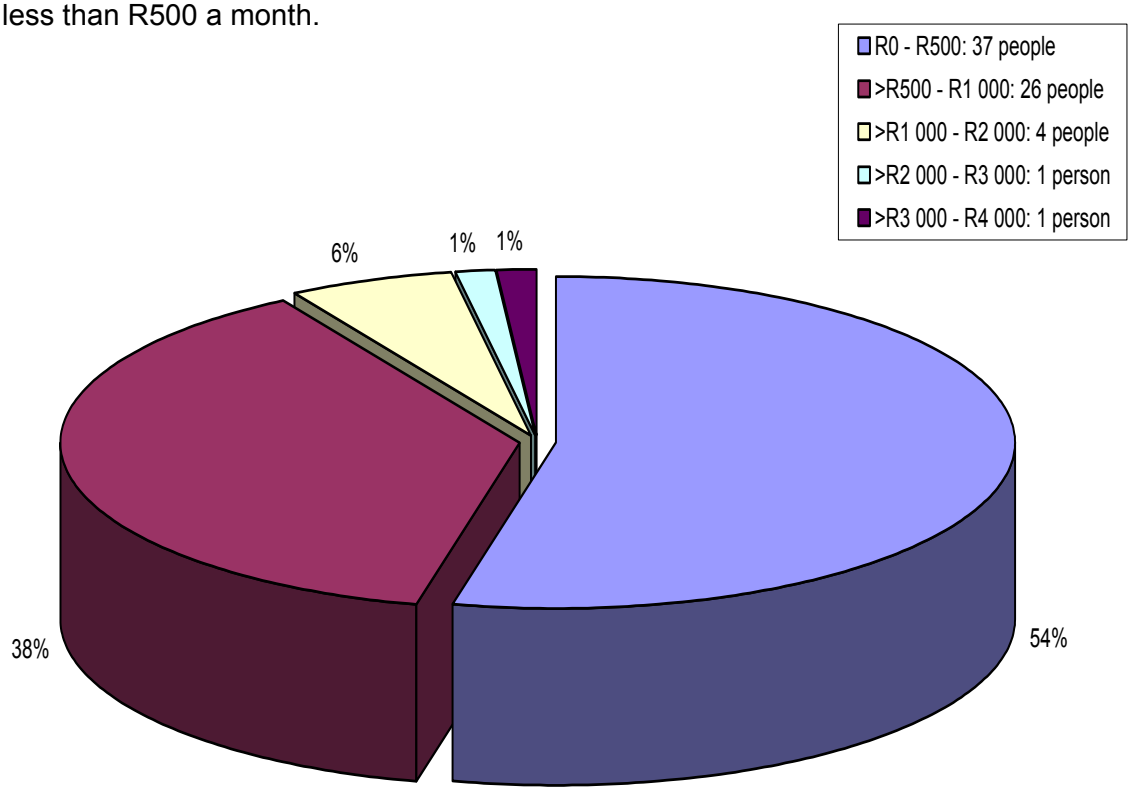

Figure 3.12 Income scale of the peri-urban study areas

Table 3.7 Income level of the rural study households

Type of income	Village A										Village B										Village C									
	R0 - R500		R500 ≤ R1 000		R1 000 ≤ R2 000		R2 000 ≤ R3 000		R3 000 ≤ R4 000		R0 - R500		R500 ≤ R1 000		R1 000 ≤ R2 000		R2 000 ≤ R3 000		R3 000 ≤ R4 000		R0 - R500		R500 ≤ R1 000		R1 000 ≤ R2 000		R2 000 ≤ R3 000		R3 000 ≤ R4 000	
	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M
Local employee (Full time)											1																			
Local employee (Part time)		1									1																			
Migrant labourer (Full time)																									1					
Migrant labourer (Part time)																														
Own business																														
Old age pension grant			2																				4	1						
Disability grant			2	3									4	3									4	7						
Child support grant	3	7									10	11									4	7								
Other																											1			

F = Female M = Male

Table 3.8 Income level of the peri-urban study households

Type of income	Village D										Village E									
	R0 - R500		R500 ≤ R1 000		R1 000 ≤ R2 000		R2 000 ≤ R3 000		R3 000 ≤ R4 000		R0 - R500		R500 ≤ R1 000		R1 000 ≤ R2 000		R2 000 ≤ R3 000		R3 000 ≤ R4 000	
	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M
Local employee (Full time)	1	1	1	1	2	2		1		1		1		1						
Local employee (Part time)		3									2	1		3						
Migrant labourer (Full time)																				
Migrant labourer (Part time)																				
Own business																				
Old age pension grant													1							
Disability grant			10	2									6	1						
Child support grant	5	6									6	11								
Other																				

F = Female M = Male

3.8 SUMMARY AND RECOMMENDATIONS ON STUDY POPULATION DEMOGRAPHICS

According to the TOR of the WHO, an assessment was carried out in three rural and two urban communities with a high HIV and AIDS disease burden, focusing on resource-poor households with HIV and AIDS patients. The rural communities represented different geographic/environmental circumstances, were still very traditional and stayed mostly in traditional mud huts. The urban communities represented an inner city slum/squatter settlement, and a peri-urban area: Village D originally started of as a settlement on the peripheral of Kimberley where people lived in small brick houses which had infrastructure such as water and sanitation services, electricity and refuse removal. As people started looking for work, they started to settle illegally on open stands in Village D and had no infrastructure expect for a few taps and two toilets. Village E was illegal squatter settlements and people lived in shacks without little if any water (only a few communal standpipes) and sanitation infrastructures.

3.8.1 STUDY POPULATION

In the general study population, the predominant age group in Village A (21%), Village B (23%), Village C (16%) and Village E (20%) households respectively was the ages between >5 – 12 years. They form 21% of the households. The predominant age groups in Village D study households was the ages between 20-29 years (18%), 16-19 years (17%) and 40-19 years (17%). In Village E, the age group 40-49 years were very close to the predominant age group. In the rural areas, many people are migrant labourers and leave their kids with the grand parents or other family members to look after.

3.8.2 EDUCATION LEVEL OF THE STUDY POPULATION

The main problem is illiteracy in poor communities, which could be seen in this study population. In the rural study households, 20% of all the household members did not receive any form of education, 12% finished Gr. 10, 5% finished secondary school and 1% had a tertiary education. In the peri-urban study households, 27% of all the household members did not receive any form of education, 11% finished Gr. 10, 6% finish secondary school and 0.7% had a tertiary education. There is a need therefore to measure the education trends in communities on the impacts, outcomes and costs of various initiatives already done or currently in place (e.g. using mass media) to ensure a more comprehensive approach and proper planning for any future promotions and programmes.

3.8.3 INCOME LEVEL OF STUDY POPULATION

Poverty is a key aspect of any initiative in risk management because it affects people's capacity to protect themselves and their ability to live in areas less exposed to risks. Poverty usually refers to a lack of access to resources and opportunities (Kiongo, 2005). The study households in the rural and peri-urban villages were all poverty stricken. In the rural areas, the people mostly lived below R1 500 a month and in the peri-urban areas, people mostly lived below R800 a month. The reason for the higher monthly income per household in the rural areas could be because these are more extensive families living together compared to the peri-urban households where smaller families are staying together. Generally when people become ill with HIV and AIDS, they will come back to the rural area to be cared for by family members. An increase in HIV and AIDS morbidity and mortality cases create a severe risk to food security and nutrition in households because families lose income earners and the grants received must cover non-food items such as medical costs and funerals, and resources may have to be shared with more dependents. According to the

caregivers from the peri-urban areas, poverty increased the prevalence of HIV and AIDS in their community because young women sold their bodies to prostitution to get money to support their families.

The impact of the HIV and AIDS epidemic is currently proving to be affecting people more seriously at the household level. The majority of households in the study communities only lived from the social grants that the government provided. HIV and AIDS has become such a normal part of the daily lives for many South Africans and with the appearance of ARVs and the easy access to social grants it was much easier for people to get disability grants as soon as they started ARVs which prolonged their lives.

3.8.4 HIV TESTING AND HEALTH STATUS OF STUDY POPULATION

The VCT sites in the study areas were only established after 2001 and therefore most of the participants tested at hospitals because they were ill and they did not get better. Nurses at the clinics and doctors at the hospitals advised the patients to test so that they can treat the right disease. Presently, many clinics now have a VCT site where people can get tested and treated for HIV and AIDS. This also reduces the burden on hospitals in rural regions of South Africa.

In the rural areas 42%, 0% and 6% respectively of the participants from Village A, Village B and Village C received HBC. Many of the HIV and AIDS infected participants were still strong and could function on their own. Many of them also lived with extended families and had people around the house that could assist with the household chores. In the peri-urban areas 88% and 90% of the participants respectively from Village D and Village E received HBC. The participants received HBC because they were starting to get weak and needed assistance around the house and many of them also had to receive treatment for TB. It seems that the majority of infected people only start using the services of HBC caregivers when they get weak and have no family members to assist with basic household responsibilities.

For many South Africans, especially if you are HIV and AIDS positive or suspect that you might be infected, open discussions about HIV and AIDS remains forbidden. This has major implications for research and other related programmes. During this study participants did disclose their statuses to close family members and partners with openness and was accepted. However, those participants that did not tell their family, friends and partners about their statuses said they were afraid of discrimination and that people would not accept them. They were afraid that people would laugh at them and expose them to people in the community. It is therefore important to take into consideration the role of stigmatisation, disclosure and sensitivity around the issues on HIV and AIDS. Programmes must therefore be developed which try to find a way around breaking the silence on HIV and AIDS and build support for those who are not afraid to disclose their status in order for them to be accepted in society and receive proper care with dignity.

CHAPTER 4

WATER SERVICES

4.1 WATER SERVICES OVERVIEW

The key areas on which this part of the study focussed included accessibility (distance to taps), availability (volume of water available per person per day) and water hygiene and maintenance practices. All but one of the study communities had piped-water distribution systems with communal and yard taps – generally on standpipes. The exception was a tanker-supply. For their daily needs households sourced water from these taps and tanks in containers and stored these at home during use.

4.1.1 THE SYSTEMS

The tap water supplied to the communities of Village A, Village B and Village C was sourced from untreated ground water. This was pumped from boreholes in and around the villages to high-lying reservoirs from where the water was piped to the communal standpipes.

In Village A, eight of the ten households used the communal standpipes. One household used the river and one household used the spring. Those that used the river and the spring said the river and the spring were much closer to their homes than the taps and therefore it was easier for them to collect water at these natural resources. In Village B, eleven of the twelve households used the communal standpipes. One household used the river because the only water services they had in the community was one water tank that was further away from her house than the river. Two of the households that used the communal standpipes also used the canal as their main water source. In Village C, eleven of the fifteen households used the communal standpipes. Three households had yard taps and one household used the river.

The “older” community of Village D mainly used yard taps. One exception was a recent and small informal settlement annexed to Village D that was serviced by two communal stand pipes for nearly 500 people. All the water in the taps was from fully treated municipal water sourced (the raw water sourced from a nearby river). Ten of the households had yard taps. Six households used the two communal standpipes available to the informal settlement. The yard taps were accessible to those that had them. Village E received treated municipal supply. Parts of the community sourced their water from a number of 2 kℓ tanks which were filled by municipal tanker vehicles during the working week. The other parts of the study community obtained their water from communal and yard taps linked to the municipal water distribution systems with a treated supply. Five of the households used tank water that was supplied by the municipality. One participant used the yard tap of his employers. Five households used yards taps and ten households used communal standpipes.

4.1.2 MAINTENANCE OF WATER SYSTEMS

According to officials of the Mutale district municipality, vandalism is a problem at standpipes. Community leaders were mostly relied on to stop vandalism in the areas. Thulamela district municipality were finalizing plans to fine vandals R5 000 if they were caught in the act of vandalising standpipes.

Illegal connections to nearby taps (usually with hosepipes) were also problematic. Households made these to get easier access to water. This lead to inequity in water availability as these connections often cause the storage reservoirs to empty more rapid than anticipated, leaving the rest of the community without water. Village B had a similar situation: suburbs which was a distance from the reservoir could only obtain water late in the day or not at all on the specific day because the suburbs closer to the reservoir lowered the water pressure to such an extent that the water did not reach the suburbs which was a distance away from the reservoir.

Generally study participants complained about slow and unreliable response from the municipalities to restore a service should it for some reason break down. This could take from one week to a month, compelling the community members to use alternative and often untreated sources. Community members from Village E reported that it could take one day to a week to fix problems with water infrastructure once it has been reported to the authorities.

4.1.3 PAYMENT FOR WATER SERVICES BY HOUSEHOLDS

Two of the participants in Village A paid R30 for water per month. The other eight did not pay for water. One participant said because she had to pay for water she could not afford certain necessities around her house. Only one of the participants of Village B paid R10 per month for her water. The other eleven did not pay for water. The participants from Village C did not pay for water.

In Village D, ten of the participants paid for their water because they had yard taps. They paid between R50 and R300 depending on how much water they used in a month. They had water meters that measured the water each month. They reported to pay R14 per kℓ. It was only in the informal settlement that people did not pay for their water. Six participants did not pay for water because they used communal standpipes. They reported that they would pay for water if the taps were in their yards. They felt that water was a natural resource and they should therefore not pay for water. In addition, they reported that if they had to pay for water there were other things that they would not be able to pay for such as food. Others reported that they had to pay for water otherwise the municipality cut their electricity off. The Emalahleni district municipal area participants did not pay for water. Some people thought that if they pay for water then the municipality would give them clean water and better infrastructures. Some thought they should not pay for water because the taps were too far from the houses. When the taps broke they had to wait up to a week before there were water at the taps and they did not have an alternative water source that was close to their dwellings. There was also no water meters or methods to measure how much water the people were using.

4.1.4 TIMES OF DRAUGHT

The rural study areas did experience water restrictions during times of drought. They were then only allowed to use water for basic purposes such as bathing, consumption and cooking. Sometimes they had to go to other villages to collect water and they paid people to transport them there with their containers to the nearest clean water source. They also paid people with private boreholes for their water. When they did not have any water in times of drought, DWAF would bring water to them in water trucks.

Village D did experience water restrictions in times of draught. During these restrictions they were only allowed to use water for basic purposes such as bathing, consumption and cooking. In Village E they did not experience water restrictions in times of drought. Those using the tanks were limited to certain water volumes because they could not collect a lot of water in the containers.

4.1.5 WATER AVAILABILITY

All the areas had sufficient supplies of water and according to the municipalities the water was constantly available. In the rural areas, the water systems were closed at night and in some areas also over weekends while pumps at boreholes were running to allow the reservoirs time to fill up. In case of breakages to the pipes or taps, the system would be shut down soon enough but then the breakage problem does not always seemed to be solved within a reasonable time period.

Table 4.2 shows the intermittent water availability in the various study areas and indicated the number of households which experienced water shortages at different times. Those households that had water shortages on a daily and weekly basis were predominantly those using communal standpipes that received water from the reservoirs.

Table 4.1 Water unavailability in study households

Availability	Rural areas			Peri-urban areas	
	Village A	Village B	Village C	Village D	Village E
Daily	0 households	4 households	4 households	0 households	2 households
Weekly	5 households	1 household	4 households	1 household	10 households
Monthly	3 households	1 household	3 households	9 households	6 households
Every other month	2 households	1 household	4 households	6 households	1 household

Figure 4.1 Water being pumped into the water tanks

Figure 4.2 A water tank tower in the peri-urban areas

Figure 4.3 Communal standpipe leaking water

Figure 4.4 Heads broken of the standpipes

4.1.6 WATER ACCESSIBILITY

Households carried water containers from the taps to their homes over distances that varied from 10 m (yard taps) up to 300 m (on average between 100 m and 200 m). They carry these by hand, balanced on their heads, or by using wheelbarrows, donkey-drawn carts and light delivery vehicles.

In Village A, most of the households were within 200 m from the taps as required by RDP guidelines. Only a small marginal group (20%) was further than 200 m from their taps. In Village B, most of the households were closer than 100 m to their taps, but 42% of the households were further than 200 m from the communal standpipes. Even though 93% of the households in Village C had access to taps (communal and yard), 53% of the households were more than 200 m away from these taps. Whenever water was not available at taps, people resorted to alternative water sources using the same containers. In Village A and Village B, people used water from nearby rivers, canals, boreholes and springs. These are generally situated at greater distances from the household than the taps. In Village C, the community members would collect water from neighbouring villages which were between 3 and 5 km away.

In Village D, those households that had yard taps had easy access to these taps. Not all the households that used the communal standpipes had easy access to the communal standpipes. All of them were further than the 200 m guideline required by the RDP. This was the same situation in Village E who used communal standpipes. A total of 33% of households had their tap supply further than 200 m from their dwelling. A total of 24% of the households that used the tank water also lived at distances more than 200 m from the tanks.

Table 4.2 Water sources used by the study households indicating the distances from the households

Water source	Rural areas															Peri-urban areas									
	Village A					Village B					Village C					Village D					Village E				
	0 - 10 m	10 ≤ 50 m	50 ≤ 100 m	100 ≤ 200 m	>200 m	0 - 10 m	10 ≤ 50 m	50 ≤ 100 m	100 ≤ 200 m	>200 m	0 - 10 m	10 ≤ 50 m	50 ≤ 100 m	100 ≤ 200 m	>200 m	0 - 10 m	10 ≤ 50 m	50 ≤ 100 m	100 ≤ 200 m	>200 m	0 - 10 m	10 ≤ 50 m	50 ≤ 100 m	100 ≤ 200 m	>200 m
River					1					1					1										
Canal									1																
Supply tap		2	2	3	1		1	4	2	4	4		1	2	7	7	3			6	3	2	2	2	7
Borehole																									
Spring		1																							5

4.1.7 WATER HYGIENE AND CONTAINER MAINTENANCE

Alternative surface water sources were mostly contaminated through laundry and bathing activities as well as animals that walked and defecated in the water – especially in Village A and Village B communities. Other activities at the taps, canal and river sources included animals drinking water at the puddles under the taps, people washing their clothes at the taps, children bathing at the taps as well as drinking water directly from taps or the canal. Groundwater in Village C was reported by inhabitants to be too saline, causing them to believe that nearby pit latrines contaminated the ground water. Whenever they had to use the borehole water, they reported to treat the water with sodium hypochlorite.

In Village E, the community members were also not satisfied with the tank-water supply because the tanks were not cleaned at all. They complained about pieces of biofilm dislodging from the inner tank walls and ending up in their container water. There were also reports of yellow sand sediments and worms in the tank water.

Figure 4.5 Animals drinking water from water puddles at taps

Figure 4.6 Children drinking water from untreated canal water

4.1.7.1 Water storage

All of the study communities had to store water in their dwellings and quite often they stored their water in the same containers they used to collect the water. The conditions these containers were stored in were not always favourable. Improper water handling, poorly maintained containers, dung covered floors, insects, animals and children that have access to these stored water containers created ample opportunity for the stored water to get contaminated. Containers were either stored inside the dwellings or outside in the shade. Each of these places had it own problems which added to poor storage conditions:

- Where containers were stored inside the huts they were exposed to cool, dark shady and dusty conditions. In most of the dwellings, especially the huts, the water containers were stored in the same hut where the fire was made. With little smoke extraction the water was exposed to smoke and root from the fire. The floors of the huts were also often covered in animal dung.
- Where containers were stored outside it was exposed to various environmental conditions.

- In- and outside stored containers had insects visible. Insect repellent were used to keep insects at bay but often this repellent were used near unprotected/open water containers.

In Village A, eight of the ten households stored their water inside their dwellings. One household stored the water outside and one household did not store any water. In Village B, all of the households stored their water inside their dwellings. In Village C, eleven of the fifteen households stored their water inside their dwellings. Four households stored their water outside their dwellings. In Village D, twelve of the sixteen households stored their water inside their dwellings. Two households stored the water outside and two households did not store water at all. In Village E, nineteen of the twenty one households stored their water inside their dwellings. One household stored their water outside and the participant that lived in the caravan did not store water.

Households used different types of cloth to cover their water. Containers varied in materials, shapes and sizes. Generally those used over longer distances were between 20 to 25 ℓ plastic drums with small orifices. The households that had yard taps, or lived close to their communal tap, used smaller (usually 10 ℓ), open-bucket type containers.

Figure 4.7 Storage of water inside a smokey hut

Figure 4.8 Cloth covering an open water container

Figure 4.9 Storage of 25 ℓ water containers in the rural households

Figure 4.10 Presence of 200 ℓ water storage containers outside the houses

4.1.7.2 Conditions of the water storage containers

Water got contaminated through direct use of the water. Many containers did not have lids or caps to protect the water. Containers with small openings did not get contaminated as easily as wide mouth buckets because their users had to tip the containers to extract the water. Where the users had to use wide mouth containers they scooped water with a beaker or scooping vessel into the bucket creating ample opportunity to contaminate the water. Apart from the fact that these households used old containers that were previously used for paint, food stuff and other dangerous chemicals, biofilm growth was seen in these containers which posed a health risk to the users of the water. Only 15% of all the households in all the areas had newly bought water containers. Most of the containers were previously used for other purposes: 67% was used for food stuff storing such sunflower oil and 53% of the containers were used for other chemicals such as old paint containers. All the households of the study had at least one 20 or 25 ℓ container. Table 4.3 gives a comprehensive description of the containers used in the various study areas.

In all three rural areas the screw top (small openings) containers' hygiene were very poor. These containers were more commonly used than wide mouth buckets in these areas and more difficult to clean because of the small openings. Washing the containers out with sand and soap (including disinfectant soap) was not good enough to get all the biofilm dislodge in the containers. Most of the containers were a light/transparent colour such as white or yellow which allowed light penetration into the containers which encouraged biofilm growth. Village B had an average of 88.1% of containers lined with biofilm. Village A and Village C had a much lower rate of between 60.5% and 57.4% of containers with biofilm. In the three rural these areas, where the households had wide mouth buckets, the buckets had been found to be cleaner (without biofilms) than the containers with small openings.

In Village D households, the hygiene of the water was better than the container hygiene in the Village E households. Village D mainly used wide mouth buckets which were easier to clean than the screw top containers. The households in Village E mainly used

screw top containers. The people were poor and could not afford good disinfectants. This was a coal mine area and the air was very dirty with coal sediment which caused the containers to become sticky very quickly. Although the households did try to keep their containers clean, the containers still got scratched on the outside because of handling and transportation activities. Dirt settled in these scratches making it considerably more difficult to clean.

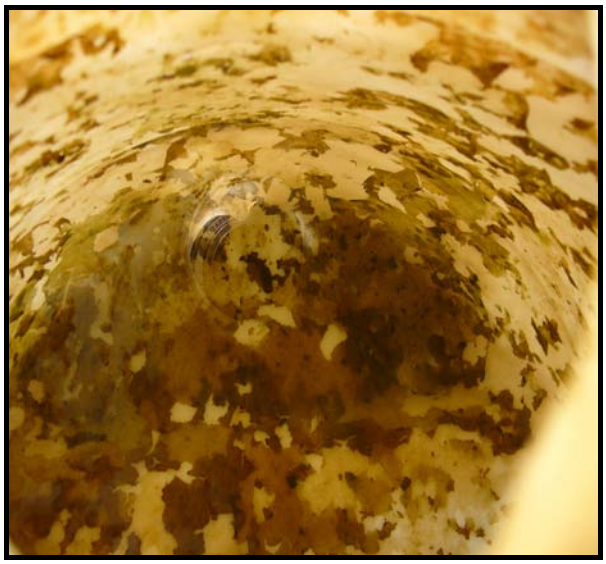

Figure 4.11 Container lined with biofilm

Figure 4.12 Clean container

Figure 4.13 Containers being washed with disinfectant soap

Figure 4.14 Old paint containers used for water storage

Table 4.3 Condition of water storage containers of study households

Container	Rural areas						Peri-urban areas				
	Village A		Village B		Village C		Village D			Village E	
	Screw tops (%)	Wide mouth buckets (%)	Screw tops (%)	Wide mouth buckets (%)	Screw tops (%)	Wide mouth buckets (%)	Screw tops (%)	Wide mouth buckets (plastic) (%)	Wide mouth buckets (metal) (%)	Screw tops (%)	Wide mouth buckets (%)
Inside condition											
Cleanliness	52.6	54.4	16.7	76.5	33	100	0	59	100	20	81
Loose particles	34.2	27.2	3.4	29.4	1.1	0	100	35	0	31	19
Biofilm	60.5	9.1	88.1	23.5	57.4	0	0	6	0	49	0
Outside condition											
Clean	36.8	36.4	26.2	70.6	3.1	100	25	35	100	20	81
Excessive scratches	94.7	72.7	47.6	23.5	71.2	0	50	47	0	29	19
Very dirty (sticky pigmentation)	2.6	0	31	23.5	24.5	0	25	18	0	51	0
Prior use											
Newly bought	0	0	14.3	0	16	100	25	24	100	31	38
Used for foodstuff storage	82	9.1	0	0	51.1	0	50	29	0	6	6
Used for chemicals	68.4	82	54.8	29.4	33	0	25	41	0	55	38
Other	28.9	18.2	31	76.4	14.9	0	0	6	0	8	18

4.2 WATER USAGE AND TREATMENT

People could estimate the water use due to the fact that they could only store small quantities of water at a time. Table 4.4 indicate the estimated water volumes of the various study areas. Village A households brought in an average of 68 ℓ of water per day. This meant that every person in the household used about 14 ℓ of water per day. They were, however, capable of bringing in an average of 257 ℓ per day. If they collected the total volumes of 257 ℓ per day then every person in the household could actually use 52 ℓ of water per day. Not one of these households treated their water before consuming it.

Village B households brought in an average of 82 ℓ of water per day. This meant that every person in the household used about 16 ℓ of water per day. They were capable of bringing in an average of 168 ℓ per day. If they collected the total volumes of 168 ℓ per day then every person in the household could have used 32 ℓ of water per day. Only one of the twelve households treated their water with bleach (sodium hypochlorite) before consumption.

Village C households brought in an average of 84 ℓ of water per day. This meant that every person in the household used about 16 ℓ of water per day. They were capable of bringing in an average of 145 ℓ per day. If they collected the total volumes of 145 ℓ per day then every person in the household could have used 28 ℓ of water per day. None of these households treated their water before consuming it.

Village D households brought in an average of 37 ℓ of water per day. This meant that every person in the household used about 8 ℓ of water per day. The baseline average of all the households capable of bringing in was 33 ℓ. It must be taken into consideration that most of these households had yard taps and that they only stored water for consumption. When they needed larger quantities of water for laundry or bathing they just went to the taps. Two households did not store water. Nine of the households did treat their water before consumption by boiling or by adding bleach (sodium hypochlorite) to the water.

Village E households brought in an average of 53 ℓ of water per day. This meant that every person in the household used about 16 ℓ of water per day. They were capable of bringing in 75 ℓ per day. If they collected the total volumes of 75 ℓ per day, then every person in the household could have used 23 ℓ of water per day. None of these households treated their water before consuming it.

Table 4.4 Average water volumes collected at study households

	Rural areas						**Peri-urban areas**			
	Village A		**Village B**		**Village C**		**Village D**		**Village E**	
	Volumes	Lpppd	Volumes	Lpppd	Volumes	Lpppd	Volumes	Lpppd	Volumes	Lpppd
Average actual collection	68 ℓ	14 ℓ	82 ℓ	16 ℓ	84 ℓ	16 ℓ	37 ℓ	8 ℓ	53 ℓ	16 ℓ
Average family baseline capacity	257 ℓ	52 ℓ	168 ℓ	32 ℓ	145 ℓ	28 ℓ	33 ℓ	7 ℓ	75 ℓ	23 ℓ

Lpppd = litres per person per day

Village A and Village B households reported larger amounts of water used per household compared to reported volumes from Village C households if one considers the volumes in Table 4.5. Investigation revealed that Village C households brought in more water per person. According to Table 4.5, Village A should roughly have brought in 155 ℓ, Village B should roughly have brought in 163 ℓ and Village C should roughly have brought in 137 ℓ of water. Village B's water usage was slightly higher than the other two villages. With water purposes such as laundry, bathing, house cleaning and watering gardens all of the areas used more than 25 ℓ of water. If one takes into consideration that they did not need all this water everyday because they did not need to water the gardens or do laundry everyday it was still a lot of water for a household to bring in. The actual volumes that the households did bring in looked as follows: Village A only brought in an average of 68 ℓ a day, Village B only brought in an average of 82 ℓ and Village C only brought in an average of 84 ℓ a day (Table 4.4).

It seems like the households did not bring in enough water for all the purposes they mentioned along with the volumes. If the households did not use their stored water for those purposes that used more than 25 ℓ and they collected the water as they needed it, then their water volumes used according to the purposes of the stored water would look as follows: Village A, 38 ℓ; Village B, 38 ℓ and Village C, 34 ℓ (those purposes >25 ℓ were deducted), then the households did bring enough water into the households for all the smaller purposes. But according to RDP guidelines every person should at least have a minimum of 25 litres per person per day (lpppd) to keep healthy. The reality was that Village A households only brought in 14 lpppd, Village B households brought in 16 lpppd and Village C households brought in 16 lpppd (Table 4.4). This meant that even if the households only collected the larger quantities of water when they needed it the households still collected less water than the prescribed RDP guidelines.

Village D and Village E households brought in nearly the same quantity of water if one considers the water use patterns (Table 4.5). Although the estimated water volumes showed that Village D households used more water, Village E households actually brought in more into their households. Village D households estimated that they used an average of 118.4 ℓ but they only brought in 37 ℓ a day. If one considered that they did not store large quantities of water for laundry and cleaning then they used an estimate average of 68.4 ℓ of water a day which was still more than what they actually collected in the day. Village E households estimated that they used an average of 121.1 ℓ of water a day while they only brought in 53 ℓ a day. Once again if the large quantities were deducted from this amount and then it come down to 28 ℓ a day. This meant they did collect more water than they estimated they used in a day. Village D households did actually bring in 4 ℓ more water in a day than their baseline capacity of 33 ℓ. Village E households brought in 20 ℓ less than they were capable (73 ℓ) of bringing in. If they did bring in their baseline capacity then they would be able to use more water for their various purposes and they could increase good hygiene conditions. Even though Village D households brought in more water than their baseline, they, along with Village E households, still did not meet the guidelines of the RDP of 25 lpppd for personal hygiene and consumption.

Table 4.5 Average water use patterns by study households

Water use	Rural areas			Peri-urban areas	
	Village A	Village B	Village C	Village D	Village E
Drinking	4.3 ℓ	5.7 ℓ	2.6 ℓ	4.5 ℓ	2.7 ℓ
Cooking	6.5 ℓ	6.9 ℓ	4.9 ℓ	3.5 ℓ	4.2 ℓ
Hand washing	2.4 ℓ	3.2 ℓ	1.9 ℓ	1.1 ℓ	1.7 ℓ
Food prep	4.1 ℓ	5.3 ℓ	5.4 ℓ	2.6 ℓ	0.8 ℓ
Dish washing	12.9 ℓ	14.2 ℓ	8.2 ℓ	6.4 ℓ	4.3 ℓ
Body washing	18.1 ℓ	> 25 ℓ	9.9 ℓ	19.4 ℓ	13.9 ℓ
Nappy washing	> 25 ℓ	> 25 ℓ	> 25 ℓ	10 ℓ	18 ℓ
Baby-milk Prep	500 mℓ	750 mℓ	500 mℓ	600 mℓ	500 mℓ
Laundry	> 25 ℓ	> 25 ℓ	> 25 ℓ	> 25 ℓ	> 25 ℓ
Animal drinking	6.6 ℓ	1.6 ℓ	1 ℓ	3.3 ℓ	0 ℓ
Garden water	> 25 ℓ	> 25 ℓ	> 25 ℓ	> 25 ℓ	> 25 ℓ
House cleaning	> 25 ℓ	> 25 ℓ	> 25 ℓ	17 ℓ	> 25 ℓ
Estimated total	**155.4 ℓ**	**162.7 ℓ**	**136.5 ℓ**	**118.4 ℓ**	**121.1 ℓ**

4.3 SUMMARY AND RECOMMENDATIONS OF WATER SERVICES

Water play a very important role in the care and well being of people infected with HIV and AIDS and the subsequent services provided by HBC caregivers. When people's health deteriorate to a stage where they cannot walk far distances (walking long distances dehydrated them) and don't have the physical strength to carry large volumes of water (carrying heavy containers made them tired and they got weak), HBC caregivers must be in the position to have access to clean, properly maintained water services with enough water available to look after the infected individual. Clean water is needed to cook healthy food, drink medication and keep the patients and their environment hygienic.

4.3.1 WATER SYSTEMS

In the rural areas, both municipalities serving the rural areas stated that their main objective was to give all the rural communities clean water. Both municipalities had short and long term solutions for providing water to the communities which they served. The short term solution was to drill boreholes with pumps in the communities. However, not all the communities had shallow ground water and therefore it made it more difficult to provide those communities with enough clean water. In some of the rural study areas the municipalities had to bring water with water tankers and store the water in big tanks. The long term solution for the rural areas was to build a dam where they would store and treat water that would then be piped to the communities. The ultimate goal was to give each household their own tap in the yard. The Thulamela district municipality even contemplated the idea of installing pre-paid water meters on these taps so that people could start paying for their water.

Both municipalities in the peri-urban areas were responsible for providing water and sanitation services to the various communities they served. Compared to the rural communities, all the peri-urban communities used treated water that was piped to the communal or yard taps. Some of the communities of Village E used tank water from six 2 000 ℓ tanks on towers while other communities used treated water supplied by the municipality. Sadly these water tankers did not solve the water shortage problem in the informal settlement because there were just too many people in need of water.

4.3.2 MAINTENANCE OF WATER SYSTEMS

The various municipalities were responsible for maintaining the systems in their respective jurisdictions. However, no evidence was found of any formal maintenance programmes. Generally it was found that the municipalities only reacted in response to broken-system reports from communities. It is therefore important that municipalities have a formal maintenance programme or structured plan on how to deal with breakdowns of water infrastructures in various communities.

4.3.3 WATER AVAILABILITY

Water availability means "*the water supply for each person must be sufficient and continuous for personal and domestic* uses" (WRC, 2005). For water quantity to act as an absolute constraint on hygiene, it must be available only in very small quantities. To act as a positive driver for improved hygiene, water must be available at higher service levels and ideally supplied at least through on tap on the house plot (WHO, 2003b). HBC caregivers needed water for their services. The caregivers in the rural areas said they need between 40 ℓ to 200 ℓ of water to tend to a patient. In the peri-urban areas the caregivers thought between 2 ℓ to 25 ℓ of water should be used to tend to a patient. During this study the results showed that this volume of water was more than what was actually available per person per day. It was interesting to note that all of the caregivers preferred to use tap water when they tended to a patient – it is the believe that water from a tap was safe.

According to the two municipalities in the rural study areas, water was constantly available in the communal taps accept for the cut off times when they deliberately switched the pumps off to give the reservoirs time to fill. The communities did not agree with this and approximately 86% of the households in the rural study areas complained that the water was not constantly available. When water was not available at the taps the people in these communities had to resort to alternative water sources. The river, canal, borehole and the spring were used as alternative sources. Most of these sources were a lot further than the taps. Another problem seen in the rural areas was that the municipalities had a shortage of water tankers and therefore water supplies did not get to the communities in time and this compelled some communities to go back to the river as their main water source.

In the peri-urban areas the water were constantly available except where a pipe burst or taps that were vandalised. This did not happen on a regular basis. It happened weekly or monthly but the people usually did not wait longer than a day for water to be available again. Sometimes it did take up to a week but this did not happen regularly. The water tanks in Village E got filled every weekday except over weekends. This also caused the inhabitants not to have enough water over weekends, especially over long weekends. Sometimes the tanks were filled more than once a day. In addition it was observed that water was wasted at these tanks. The users depleted the tanks as soon as the water became available and they had to wait for the next time the water tankers came to fill these storage tanks. These areas did not have any alternative water sources. When water was not available at the taps the people had to wait until the problems were fixed. If they really had

a problem with water at the taps they collected water at the primary school borehole or otherwise DWAF or the fire brigade brought water in water tankers to the community.

4.3.4 WATER QUALITY

During this study the microbiological and physico-chemical quality of the water sources or household water was not assessed because it was not part of the TOR. Nevertheless, the quality of water consumed is well recognised as an important transmission route for infectious and other diarrhoeal diseases (WHO, 2003b).

The participants, some of the HBC caregivers and all the community members who were interviewed in the rural villages felt that tap water was of good quality and that it could not have any effect on their health. Generally they presumed if DWAF puts in taps in the communities, then the water supplied through the taps are purified by DWAF. They did however know that the river water was not good quality water. The general consensus was that they had less diarrhoea since they started using tap water. Some of the HBC caregivers did not think that the river water was of good quality because humans and animals contaminated the water. Humans contaminated the river through doing their laundry in the river and bathing in the river. Animals walked and relieved themselves in the river. In the peri-urban villages the water from all the areas was treated water. However, the community members were not satisfied with the tank water because the tanks never got cleaned and the water sometimes had worms.

Educating people is a key factor that can lead to better health. People therefore need to be better informed about the kind of water they receive. In some areas people believe that the ground water they receive is treated and therefore they did not treat their water before consumption.

4.3.5 WATER ACCESSIBITLITY

Everyone must have safe and easy access to adequate facilities and services in order that clean drinking water is secured and useable (WHO, 2003a). According to the municipalities the rural households had easy access to the communal standpipes. However, an average of 30% of households with people living with HIV and AIDS did not have access to the communal standpipes because it was not within 200 m according to the RDP guidelines stipulates. In addition it was seen for all three rural areas that many of the households did not have working standpipes for periods up to a month. This made accessibility to their water sources even less. In the peri-urban areas about one third of the households did not have access to a water source within 200 m according to RDP guidelines.

When water has to be collected at distant sources, there are direct and indirect risks to health such as spinal injuries because of heavy loads, attacks on females and children missing school (WHO, 2003a). Where basic access service level has not been achieved, hygiene cannot be assured and consumption requirements may be at risk (WHO, 2003b). In all the rural areas where rivers and springs were used as alternative water sources, the distances from these households were more than 200 m. In addition, to get to these alternative sources, the water collectors had to walk through bushes and uneven terrain and sometimes they had to climb over farm fences. Generally these alternative sources were far, the roads dangerous with many wild animals such as snakes and leopards present. These sources were also very secluded areas where women could be raped and even killed. The participants complained that these distances were very exhausting which gave some of them chest and leg pains. Only one person said she sees the long walk as exercise.

4.3.6 WATER AFFORDABILITY

Water must be affordable for everyone – even the poor (WHO, 2003a). In the rural study areas where the participants used the communal stand pipes they did not pay for water. It formed part of the first 6 kℓ free basic water. It was difficult to control the water use in the rural areas because households had to share taps. The households were, however, willing to pay for tap water if it was running tap water in their houses. There were households in the rural areas that had yard taps with water meters and these households paid between R10 and R30 for their water per month.

In the peri-urban areas those who had yard taps with water meters had to pay between R50 and R300 depending on usage for their water. It was only the informal settlements that did not pay for their water because it was difficult to control water usage.

4.3.7 CONTAINER STORAGE

Source water contamination is likely to have a wide effect on the community because it can introduce new pathogens in the home environment (Sobsey, 2002). However, several studies have reported that the microbiological quality of the water deteriorates after collection, during transport and during storage at the point-of-use due to secondary contamination factors (Wright *et al*., 2004). Due to the distances and unavailability of piped water supplies on the dwelling or inside the households in many developing regions of the world, people are forced to store their drinking water (Sobsey, 2002). Other factors, which could contribute to the contamination of the water during storage at the point-of-use, included unsanitary and inadequately protected (open, uncovered, poorly covered) containers (Dunker, 2001). Storage containers need to be covered at all times to prevent flies, animals and small children from touching the water (Sobsey, 2002). The majority of the households in the study population stored their water containers inside the dwelling. Many of the huts in the rural villages were dusty and children and chickens had access to the containers. Most of the houses or shacks in the peri-urban villages where the containers were stored were clean and the containers either had caps or lids on them or the households covered it with cloths.

The material of the container is important because the chemical material of the storage container could be conducive to bacterial growth and survival of potentially pathogenic microorganisms if contamination of the water occurs (Patel and Isaacson, 1989). During this study only 15% of all the households in all the areas had newly bought water containers. The majority of containers used for water collection and storage purposes in poor households had previously been used for other purposes such as storing of sunflower oil and other chemicals – of which some are toxic to humans.

From this survey it was evident that the study communities have a lack of knowledge on knowledge of health, knowledge of waterborne diseases, hygiene, proper storage of water containers and proper handling of water containers. Therefore education, participation and motivation of communities on issues such as these must take high priority in any intervention programmes.

CHAPTER 5

SANITATION SERVICES

5.1 SANITATION SERVICES OVERVIEW

The key areas on which this part of the study focussed were latrine type, placing and support. Toilet systems varied from water-borne, pit-latrines to none at all, where residents had to use the open environment. Approximately 41% of the rural study households had to use the environment and 13.5% of the peri-urban study households did not have toilets although many of the septic tank users in the peri-urban areas resorted back to the environment if their tanks were not emptied.

5.1.1 THE SYSTEMS

5.1.1.1 Sanitation systems present in study areas

While some households in Village A and Village B had ventilated improved pit-latrines (VIP), most had standard/substandard pit latrines that they had to acquire for themselves. Five of the households in Village A had toilets and the remaining five did not have toilets. Four of them used the bush to relieve themselves. One person used the neighbour's toilet. Three of the toilets were VIP toilets. Two households had corrugated iron structures but none of the study households had substandard toilets. All the toilets were between 1 and 4 years old. Seven of the households in Village B had toilets and the remaining five did not have toilets. Four of them used the bush to relieve themselves. One person used the neighbour's toilet. Two households had VIP toilets supplied by the RDP. Three households had corrugated iron structures and two households had substandard toilets. All the toilets were between 1 and 12 years old. In Village C, the infrastructures were mostly substandard pit latrines which the households also had to acquire themselves. Ten of the households had toilets and the remaining five did not have toilets. Four of them used the bush to relieve themselves and one person used her neighbour's toilet. Two households had VIP latrines, five had corrugated iron structures and three households had substandard toilets. All the toilets were between 1 and 16 years old.

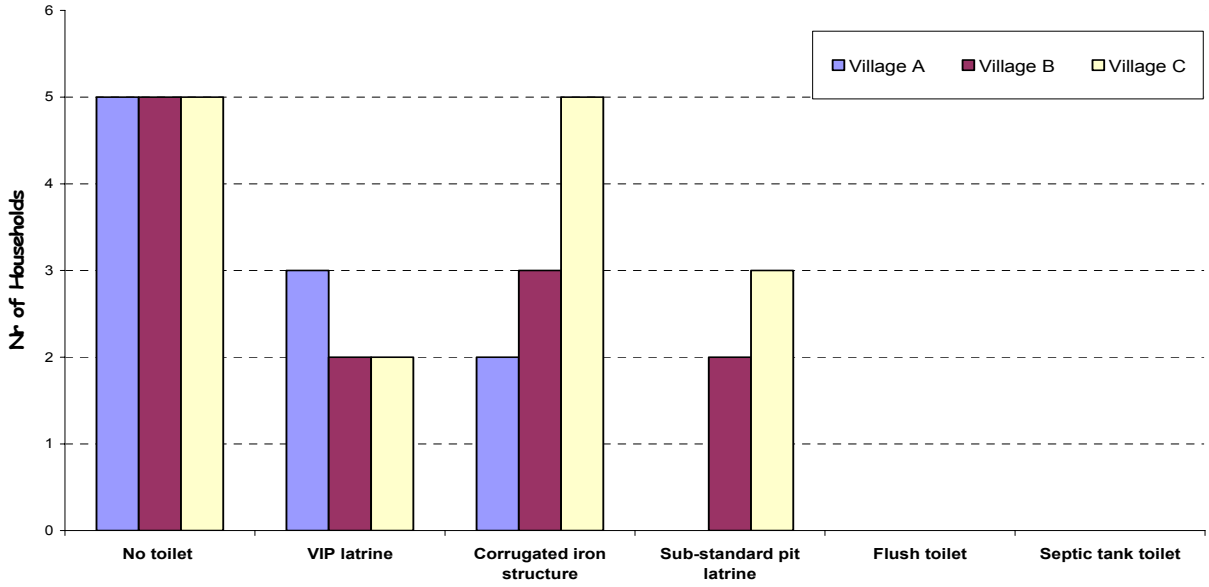

Figure 5.1 Toilets in rural study areas

Municipal officials reported that Village D once had a bucket-toilet system which was upgraded to flush toilets within the same super-structures. This explained why the toilets were outside. By contrast, the nearly 500 people in the informal settlement annexed to Village D, were served by two toilets, each on its own small collection tank. Ten of the households in Village D had flush toilets and the remaining six did not have any toilets. These toilets were outside their houses. They were supposed to use the septic tank toilets provided by the municipality but they rarely used it. Two of the participants that did not have toilets used their sisters–in–law's toilets. One participant used a small bucket at night but during the day she used the veldt. One participant also used a small bucket at night but used her mother's toilet during the day. One participant asked other people if he could use their toilets. Only one participant used the public septic tank toilet of the informal settlement. She contributed money to the clean toilet. The toilets were three years and older.

None of the informal settlements in Village E had any form of sanitation service. Households with toilets had built those themselves – usually in the form of sub-standard pit latrines with shallow pits and using whatever they could find to build a covering structure. This consisted of stones, mud, corrugated iron, scrap metal, canvas and anything else that would make a structure to give them a bit of privacy. During rainy spells the shallow pits quickly filled with water and overflowed, pushing faeces onto the household yard surfaces. The structures often collapsed during rain. The toilets were small, malodorous with the faeces visible – perpetuating very unhygienic conditions. Those that did not have toilets used the bush. In Village E, sixteen of the participants had toilets and the remaining five did not have toilets. Four of them used their neighbours' toilets and one person used the bush to relieve herself. The participants with toilets built their own toilets from scrap materials that they did not pay for (substandard toilets). The toilets were between a few months and 14 years old. One participant built his own flush toilet. It was not waterborne sanitation. He lived close to a stream and built his toilet over this stream so that when a person used the toilets the excrement would fall directly into this stream and it would be taken away by the stream.

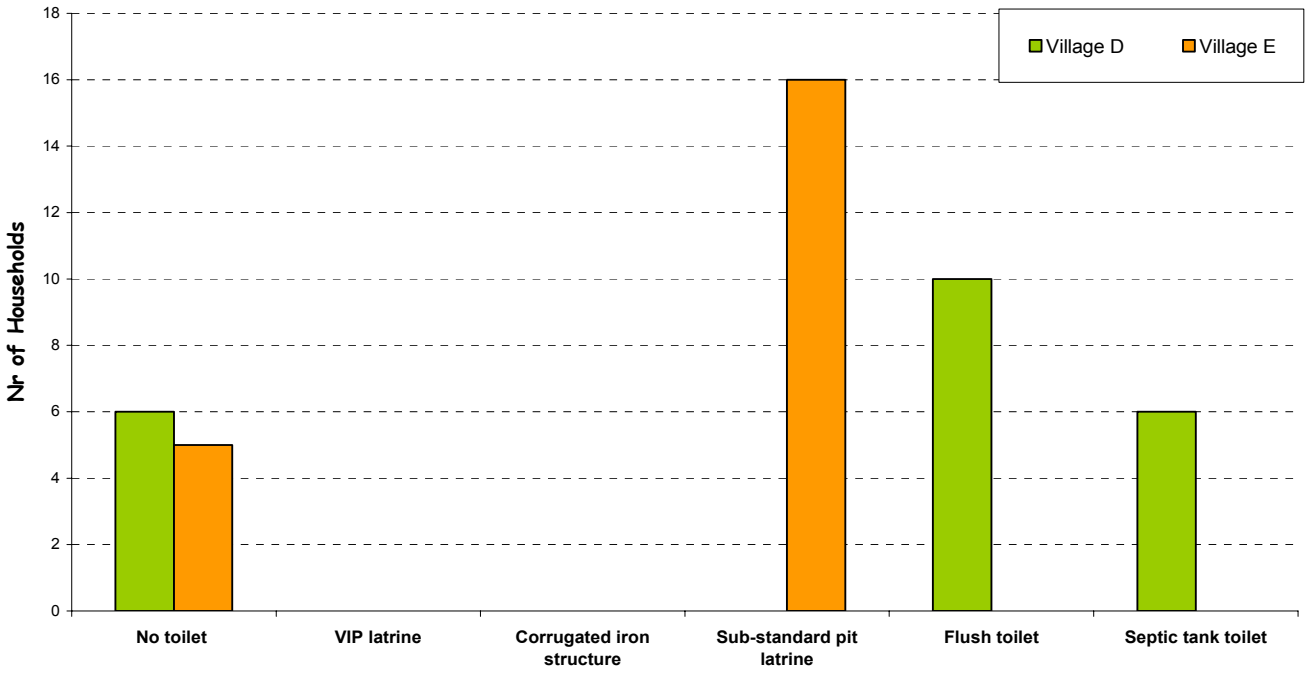

Figure 5.2 Toilets in peri-urban study areas

5.1.1.2 Details on sanitation structures in study areas

5.1.1.2.1 VIP Toilets

Only 19% of the rural study households had VIP toilets and none of the peri-urban households had VIP toilets. The VIP toilets (provided by RDP), however, were not completely built according to RDP guidelines. The toilets were built from bricks and were stable. The roofs were made from corrugated iron which got very hot even in winter times. The roofs sloped away from the doors, they were tightly attached to the walls and they were water proof. The toilets had strong metal doors that were framed but many of them were already starting to rust. The toilets did have ventilation pipes. The pipes were higher than the structures but they were outside of the structures and fixed to the cover slab. The pipes was white (not black) and without proper fly screens on the pipe openings. The ventilation openings also did not have fly screens. The floors were cement cover slabs but many had already started to crack. On the inside, the actual toilets were toilet bowls (not bench seats) without toilet seat covers. These VIP toilets had odours and there was a lot of insect activity.

Figure 5.3 VIP toilet provided by RDP

Figure 5.4 Toilet of VIP latrine inside

5.1.1.2.2 Sub standard pit latrines

Only 13.5% of the study households in the rural areas had sub-standard pit latrines and 43% of the peri-urban study households had substandard pit latrines. The sub-standard toilets were made of loose pieces of scrap metal or with mud, wood and stones. They either had corrugated iron roofs or no roofs at all. Some houses did make use of so kind of canvas to serve as roofs or doors. Others had metal or wooden doors. They mostly had bench seats. All the toilets in all three areas were outside the houses because it was pit latrines. This was to prevent odours, insects and contamination.

Figure 5.5 Sub-standard toilet structure in rural areas

Figure 5.6 Sub-standard toilet inside

Figure 5.7 Sub-standard toilet structure in peri-urban areas

Figure 5.8 Sub-standard toilet inside

5.1.1.2.3 Corrugated iron toilet structures

Approximately 27% of the rural households used ready made corrugated iron structures that they bought at the local hardware stores. None of the peri-urban study households had these structures. The walls, roofs and doors were made of corrugated iron. Households only had to dig the hole, lay a concrete foundation, erect the structure over the hole and either built a bench seat over the hole or put a toilet bowl over the hole. Very little of the households actually had ventilation pipes with these structures. There were no fly screens on the ventilation openings. Odours and insects were visible at these toilets.

Figure 5.9 Ready made corrugated iron toilet structure

Figure 5.10 Corrugated iron toilet inside

5.1.1.2.4 Flush toilets

Approximately 27% of the peri-urban households and none of the rural study households had flush toilets. The households (16%) in Village D were served by two toilets, each on its own small collection tank. The newly built RDP houses had waterborne sanitation inside their houses but none of the households in the study group lived in one of these houses.

Figure 5.11 RDP flush toilet in peri-urban area

Figure 5.12 RDP flush toilet inside

Figure 5.13 Flush toilet in peri-urban area

Figure 5.14 Flush toilet inside

Figure 5.15 Septic tank in peri-urban area

Figure 5.16 Septic toilet inside

Table 5.1 Sanitation structures of households

Toilet structure	Rural areas			Peri-urban areas	
	Village A (n = 5)	Village B (n = 7)	Village C (n = 10)	Village D (n = 10)	Village E (n = 16)
Materials of walls					
Brick	3	3	3	5	0
Concrete blocks	0	0	1	0	1
Corrugated iron	2	3	6	5	8
Mud	0	0	0	0	1
Other		Metal plates			6
Materials of roof					
Corrugated iron	5	6	10	9	7
Thatch	0	0	0	0	0
Concrete slab	0	0	0	1	1
No roof	0	1	0	0	3
Other	0	0	0	0	5
Materials of door					
Wood	0	1	0	2	1
Corrugated iron	2	4	7	5	4
No door	0	0	2	0	3
Other	3 Metal doors from RDP	3 Metal doors from RDP	1 Metal door from RDP	3	8
Materials of floor					
Concrete floor/slab	5	6	7	10	1
Corrugated iron floor	0	1	2	0	0
Dirt floor	0	0	1	0	12
Dung floor	0	0	0	0	1
Other	0	0	0	1	2
Safety of structure					
Accessible to children	5	7	8	10	14
Walls stable	3	4	9	10	10
Walls water proof	5	5	10	10	10
Roof tightly attached to walls	5	5	10	10	8
Roof water proof	5	5	9	10	5
Roof slope away from door	5	5	9	9	6
Door is framed	5	5	8	3	2
Metal in structure not rusted	2	4	4	2	3
Bench seat	2	5	10	0	13
Seat cover	1	2	6	4	0
Seat height 450 mm at least	5	7	9	10	7
Seat width 300 mm	5	7	9	10	6

n = number of toilets

5.1.2 HYGIENIC CONDITION OF TOILETS

In Village A, only two of the five toilet owners cleaned their toilets. They used powder soap and water to clean their toilets. One household also wore gloves when she cleaned the toilet. Six of the households with toilets in Village B cleaned their toilets. The toilets were cleaned at least once a week. Four of the households used powder soap and water. One household only used clean water to clean the toilet and one household only swept their toilet floor. One household did not clean their toilet because the toilet was old and crammed to the top with excrement. In Village C only five of the households that had toilets cleaned their toilets at least once a week. They used powder soap and water. One household used commercial toilet soap to clean the toilet. In Village D only eight of the ten toilet owners cleaned their toilets. Five toilets used powder soap and water. Three households cleaned their toilets with commercial toilet soap and water. In Village E only two of the households that had toilets cleaned their toilets at least once a week using soap and water.

Table 5.2 Hygiene condition of the sanitation structures

Toilet structure	Rural areas			Peri urban areas	
	Village A (n = 5)	Village B (n = 7)	Village C (n = 10)	Village D (n = 10)	Village E (n = 16)
Toilet private	5	6	8	10	7
Toilet dark	0	2	9	9	7
Insect activity at toilet	5	5	4	1	7
Odour present	2	7	5	3	12
Faeces visible	5	4	3	2	11
Walls ventilation openings	5	7	7	4	14
Fly screens on ventilation openings	0	0	3	0	5
Door kept shut	5	4	5	6	5
Ventilation pipe	5	3	5	0	0
Pipe higher than structure	5	2	4	0	0
Pipe straight	5	3	5	0	0
Fly screen on pipe	2	1	3	0	0
Pipe outside structure	5	3	3	0	0
Light entry at pipe	5	3	5	0	0
Black ventilation pipe	0 – all white pipes	0 – all white pipes	1 – other colours were metal, blue and white	0	0
Pipe fixed to cover slab	5	3	4	0	0
Dry floor	5	6	7	7	1
Cover slab well sealed	2	5	6	7	0
Cover slab at least 75 mm thick	5	7	6	8	0
Upper part of pit lined (1 m)	3	5	8	0	0

5.1.3 PLACEMENT OF SANITATION STRUCTURES

In Village A the average distance of the toilets from the houses was 30 m. In Village B the average distance of the toilets from the houses was 40 m. In Village C the average distance of the toilets from the houses was 38 m. In Village D, the average distance of the flush toilets from the houses was 15 m and in Village E, the average distance of toilets from the houses was 16 m (Appendix A).

5.1.4 SUPPORT FOR SANITATION INFRASTRUCTURE

Home-owners in the study areas who had pit latrines were largely responsible for constructing and maintaining their own facility. Toilets that were given to the households were supplied either by the local municipalities or by the Department of Housing as part of the RDP housing packages (a RDP initiative).

In the Mutale district municipal area (serving Village A and Village B), the municipality provided materials and also made use of local community members to build the toilets, which led to some job creation in the communities. The households in Village C were responsible for providing materials and labour for their own toilets. However in situations where the breadwinner of the house was indigent, the municipality will build the latrine as part of government policy of providing basic services to those that could not afford it. Non-governmental organisations also contribute to this cause with the Mvula Trust NGO assisting many households to build their own toilets by donating money and materials for the toilets.

In Village D, local government subsidised the replacement of the bucket system with flush toilets by providing materials. Community members built the toilets as part of a subsequent job creation programme. According to the municipality, the two conservancy tanks for the informal settlement were emptied every month by vacuum tanker. The community disagreed, stating that it sometimes took up to three months for the municipality to empty the tanks. Because of this, the tanks would begin to overflow, depositing faecal material on the land surface and creating unhygienic conditions. Not all of the community members used the two toilets. One toilet was kept locked by a few households that had decided to put money together to clean the toilet in turns. They then locked the toilet so that only those who contributed to cleaning were allowed to use the toilet. The other one was never cleaned. According to the inhabitants of Village E, their local municipality was reluctant to provide and support sanitation services because the inhabitants were deemed to have settled illegally at this location and were to be evicted.

5.2 SUMMARY AND RECOMMENDATIONS OF SANITATION SERVICES

The key areas on which this part of the study had focussed included the presence of sanitation infrastructures in the study communities and households, accessibility (distance to toilet) and sanitation hygiene and maintenance practices. Mitigation of HIV and AIDS pandemic in South Africa will rest on programmes to educate people and promote issues regarding water, sanitation and hygiene practices. In the water and sanitation sector there is a need to develop strategies that enables poor communities and households to sustain and use safe water supply and sanitation provisions to improve the quality of life (Kgalushi et al., 2002).

5.2.1 SANITATION SYSTEMS

Mutale district municipality said they were first giving the rural communities pit latrines because presently it was the best and most affordable option due to limited amount of water available. All the legal settlements in the Sol Plaatje district municipal areas had waterborne sanitation and the

municipality provided sanitation to those that could not afford to build their own toilets. About 6 000 people still used the bucket system toilets in the area because they were waiting for waterborne sanitation. Due to a large number of informal settlers that clustered their shacks together, it was difficult for the municipality to give people their own toilets. The municipality were in the process of moving the squatters to RDP houses although this was a slow process. Therefore the municipality provided the informal settlers with two septic tank toilets as an alternative to using the veldt. The municipality wanted to be rid of the bucket system by 2009 and was working towards this goal.

5.2.2 SANITATION STRUCTURES

Some of the toilets seen in this study were old and they were starting to collapse while some toilets were newly built VIP toilets from the government. Generally the majority of toilets were not kept clean which were hazardous to the health of the patients using those toilets. The toilets were also far from the houses and this made it difficult for weak patients to use the toilets. People mostly complained about the presence of flies and mosquitoes in the toilets. In addition the old toilets could either collapse on the patient or the patients could fall into the toilet. The toilets were also very small. During the interviews the community members did not think HBC patients should have special toilets because people living with HIV and AIDS were the same as everybody else and they should not be separated from the community. However, they did think disabled people must be provided with special toilets.

The recommendation from this study is that sanitation systems should be reconsidered. Those that do not have toilets should become first priority. Toilets need to be upgraded to VIP toilets and people should be properly equipped with skills needed to build the toilet according to guidelined specifications.

5.2.3 HYGIENIC CONDITIONS

Poor sanitation affects the quality of life, and in many cases, can result in deaths and diseases which place an additional financial and health burden on poor families (Tumwine et al., 2003). Only 60% of the study households that had toilets cleaned their toilets. The other 40% of study households that had toilets felt their toilets were old or full and they did not see the need to clean the toilets anymore. Generally the participants used soap and water. What is disturbing is the fact that most of the toilets had visible signs of faeces on the seats or walls, even at the toilets where the households said they cleaned their toilets. More educational programmes should be put into action because people need to know how to keep their toilet clean.

5.2.4 SANITATION PLACEMENT

In the rural as well as the peri-urban areas using the sub-standard pit latrines and the bush/veldt was unhygienic and dangerous. Using a sub-standard toilet that was outside and far from the house was dangerous and a health risk especially to those that was infected with HIV and AIDS. They had to battle the elements such as rain, strong wind, extreme heat and cold depending in which area they lived. Weak people struggled to get to the toilets especially during the night time. This all posed a risk to their health. In addition, the bush was not a safe option for women and children.

During the interviews, many of the community members in the study areas thought that a toilet should be between 2 m and 50 m from the house, although all agreed that a toilet inside the house was the ideal. However, there was no specific pattern in the placement of the various forms of latrines. Guidelines on this provided by municipal officials varied widely. According to the officials, municipalities could use guidelines that the distances between the dwelling and the sanitation

structure (pit latrines) should not be less than 40 m to prevent odours and insects reaching the inhabitants of the dwelling. This was quite impractical because almost all the stands in these areas were much smaller than this. On the other hand, officials indicated that toilets should be at least 5 m from a dwelling in a corner of the yard and if possible not visible from the road. This is a more practical guideline since stands in, for instance, Village D, was small and therefore the toilets were invariably close to the dwelling. By contrast, some of the community members from the informal settlement lived more than a kilometre from their toilets (septic tank). Those that lived close to it complained about the odours and heavy insect activity such as maggots when the septic tanks spill over, especially when the vacuum tanker that serviced the conservancy tanks broke down and the tanks overflowed.

5.2.5 SANITATION SUPPORT

The municipalities from the rural and peri-urban areas mostly provided the materials and created jobs by getting people from the community to learn how to build the toilets in order for the persons to be doing the work in a specific area. In the rural areas where participants with toilets built their own toilets, they reported to pay between R300 and R1 000. In the peri-urban areas the community members reported that it cost about R9 500 to build a toilet. It was generally found that although the objective of the municipalities were to create jobs for unemployed people in their jurisdiction, the training was not adequate and many of the sanitation structures did not conform to the standards originally set out to be achieved. Therefore it is advisable that proper training be given to people before they are sending out into the areas and follow-up visits should be done to determine the efficiency of the trainees.

CHAPTER 6
HYGIENE SERVICES

6.1 PERSONAL HYGIENE – HAND WASHING

6.1.1 RURAL AREAS

In Village A, Village B and Village C all the household members reported to wash their hands. These households did not have running water in their homes and they also did not have washing basins in bathrooms where the household members could wash their hands. Approximately 71% of all the households had their own small washing facility where they could wash their hands. It usually consisted of a plastic tub where they kept soap and water for the household members to use. Approximately 38% of the times these tubs were also used as the dish washing containers. Only 7% of the households washed their hands at the containers or used the scooping vessels with their dirty hands to scoop water out of the containers to wash their hands. If they had a yard tap some would just rinse their hands under the tap on their way back from the toilet. In all three areas, 76% of the households said that they used soap and clean water to wash their hands. Clean towels were use 57% of the time to dry their hands, 12% households admitted that they used dirty towels to dry their hands, 34% wiped their hands on their clothing and 7% of all the households did not dry their hands after they had washed them.

6.1.2 PERI-URBAN AREAS

In both peri-urban areas, 76% of the households said that they used soap and clean water to wash their hands. Clean towels were used 75% of the time to dry their hands, 20% of the households admitted that they used dirty towels to dry their hands and 6% wiped their hands on their clothing. In Village D all the households washed their hands. In Village E, one participant that lived alone reported not to wash his hands. The households in Village E did not have running water in their homes. Approximately 12% of the peri-urban households had their own small washing facility where they could wash their hands. It consisted out of a plastic tub where they kept soap and water for the household members to use. Approximately 59% of the times these tubs were also used as the dish washing containers. In Village D, 31% of the households washed their hands at the yard taps. In Village E, 14% of the households washed their hands at the water containers or used the scooping vessels with their dirty hands to scoop water out of the containers to wash their hands.

Table 6.1 Washing of hands by study household members

Washing hands	Rural areas			Peri-urban areas	
	Village A (%)	Village B (%)	Village C (%)	Village D (%)	Village E (%)
When					
When visibly soiled	10	0	13	25	5
After touching something contaminated	40	17	27	25	14
After toilet use	80	75	67	33	67
After changing nappies	0	17	0	0	0
Before preparing food	50	25	0	38	19
Before eating meals	80	50	73	44	81
Place					
Washing facility	100	92	20	13	10
At containers	0	0	13	0	14
Dish washing containers	0	17	60	50	67
Use drinking beaker to pour water	0	0	7	13	5
Cook pot with dirty water	0	0	0	0	0
Yard tap	0	0	7	31	0
Communal tap	0	0	0	0	0
River	0	0	0	0	0
Canal	0	0	0	0	0
Borehole	0	0	0	0	0
Tank	0	0	0	0	0
Spring	0	0	0	0	0
How					
Soap	90	75	60	75	76
Disinfectant	0	0	0	0	0
Clean water	40	33	27	63	24
Drying					
Clean cloth/towel	40	50	81	88	62
Dirty cloth/towel	10	17	10	6	33
Wipe on clothing	40	42	20	6	0
Drip drying	10	0	10	0	0

6.2 DOMESTIC AND FOOD HYGIENE

In all the study households, left over food was generally covered with cloths and pot lids to keep insects away. Four of the households in Village A, seven of the households respectively in Village B, six of the households respectively in Village C and Village E did not protect their left over food. One household in Village B, seven households in Village C, one household in Village E reported to use insect repellent to keep the insects away from the food. One peri-urban household used fly paper to catch the flies.

Figure 6.1 Left over food in pots

Figure 6.2 Uncovered left over food

Another tradition in especially the rural households is coating floors of homes with fresh cattle dung – including the rooms used to store the drinking water. When dry, these floors form a shiny and almost impervious surface where people often walk. The other parts would however tend to become dusty and will eventually break up, constituting a local dust source as well as environmental contamination hazard to water stored in open containers.

Figure 6.3 Dung used to smear floors

Figure 6.4 Dung floor

6.3 WASTE DISPOSAL

There were no formal refuse removal services for the households in the three rural study areas or for Village E in the peri-urban area. Households disposed self of their household waste either in pits around the household premises or by dumping it in public areas that were not fenced off away from their own premises. It was only Village D that indicated that 42% of the target households had some form of waste collection and disposal done by the municipality. The informal settlement of Village D had no refuse removal and disposed their wastes in street dumps. These disposal sites were usually no more than 10 to 30 m from the households. Flies, animals' faeces, plastic,

rusted cans, feathers, papers and other waste were visible to these sites. Animals and children had access since these sites were not fenced off.

Table 6.2 Waste disposal by study households

Waste disposal site	Rural areas			Peri-urban areas	
	Village A (%)	Village B (%)	Village C (%)	Village D (%)	Village E (%)
Own pit	30	17	60	13	14
Open space in yard	30	25	20	6	62
Open space in street	10	8	20	19	0
Burned waste	20	50	0	0	5
Disposed in remotes bush areas	0	17	0	0	19
Refuse removal	0	0	0	42	0

Figure 6.5 Rural area dumping site where the households burned their waste

Figure 6.6 Dumping waste site in the street of the peri-urban area

6.4 ANIMALS

In Village A, eight of the ten households had animals such as dogs and chickens. One household also had a cat. The animals stayed on the premises. The chickens slept in a coop at night or in one of the huts (usually where the water is stored). The dogs and cat also stayed close to the dwellings. In Village B, eight of the twelve households had animals such as dogs, goats and chickens. The animals stayed on the premises. The chickens slept in a coop at night or in one of the huts. The goats had lairs where they slept. The dogs also stayed close to the dwellings. In Village C, eight of the ten households had animals such as chickens and dogs. The chickens slept in a coop at night or in one of the huts. The dogs stayed close to the dwellings. These animals in the rural areas either drank water at the taps where the puddles of water formed, or they drank water from a bowl at the dwellings.

In Village D, five of the sixteen households had animals: two households had dogs, three households had cats and one household had pigeons that they kept in a coop. In Village E, only five of the twenty one households had animals: the participant that lived in the caravan had all kinds of animals on the premises where he lived such as emus, rain deer, goats and sheep to dogs

and ducks (his employer kept these animals); one household had a dog; and three households had chickens. All these animals stayed on the premises and either drank water at the taps where the puddles of water formed, or they drank water from a bowl at the dwellings.

6.5 SUMMARY AND RECOMMENDATIONS ON HYGIENIC CONDITIONS

The key areas on which this part of the study had focussed were personal hygiene practices, domestic hygiene conditions, husbandry practices and general waste disposal conditions.

6.5.1 PERSONAL, DOMESTIC AND FOOD HYGIENE

The survey showed that households were aware of the importance of washing hands after visiting the toilet and before eating meals. However, the majority reported not to wash hands before preparation of food, after changing nappies or when visibly soiled hands. This could either be attributed to ignorance or to poor water and sanitation infrastructures. This study also indicated poor food hygiene practices in the majority of study households. Inadequate cooking and containers/utensils used for preparing food, even when washed, may permit survival of bacteria (Potgieter et al., 2005). Boiling water and reheating foods before consumption could reduce the risk of contracting food and waterborne pathogens. However, poverty and the high cost of fuel may impede adequate cooking and reheating because the fuel cost for reheating will have to compete for the limited resources available for other cardinal activities (Gilman and Skillicorn, 1985). This once again strengthens the important linkage between water, sanitation and hygiene education programmes. Education of rural communities on the importance of maintaining good personal and environmental hygiene practices and income-generating programmes may be considered to be important factors for guaranteeing safe and effective administration of safe food in impoverished communities.

6.5.2 WASTE DISPOSAL

No refuse removal services were available in any of the study populations. Approximately 35% of the households in all the areas disposed of their household waste in pits in their own yards. About 25% did not go through all the trouble on digging pits in their yards and they just discarded the households waste any place in the yards. Some did burn their waste in their yards (about 23%). The open street was used for 13% as their waste disposal sites and only 6% of the households disposed of their waste in remote areas where humans and especially children did not come. These disposal sites were usually no more than 10 m to 30 m from the household. The waste disposal sites held various dangers: One obvious fact was that the households were polluting the environment. Animal faeces and other waste could wash into the ground and water sources in the rainy seasons and thus polluting the water that the households had to use. Children could cut themselves playing on the waste sites and animals and children could pick up various potential diseases and spread it to the dwelling and water containers without noticing it. It is therefore recommended that refuse removal should be made a priority by municipalities in order to clean up the environment and improves the quality of life of people. In addition, communities need to be educated on the importance of proper waste disposal practices.

6.5.3 ANIMALS

Zoonotic diseases can be transmitted from wild and domestic animals to humans and are a public health threat. At individual health level, zoonotic diseases are a concern for all who live or work with animals. Generally people from rural areas do have a tendency of living with various domestic animals and cattle on the premises. In addition, people living in peri-urban and informal

settlements do keep dogs, cats, goats and chickens. Most of the households in the rural and peri-urban study population had chickens which were primarily bred for eggs and meat. Chickens were cheap and low maintenance. The rural communities had cattle but the cattle were only slaughtered on special occasions such as weddings and funerals. Many households also had dogs and goats.

A recent comprehensive survey has shown that more than half of the more than 1400 different species of human pathogens known today are zoonotic (Taylor et al., 2001). Most of these pathogens are regarded as emerging or re-emerging (Morse, 1995). The risk is especially problematic for persons who are immunocompromised – and especially if these people are living in an environment with little or no basic sanitation and water infrastructures. The transmission route of these microorganisms could be due to the presence of animals on the dwelling, unhygienic practices, inadequate excreta disposal, unsafe handling of foods and improper water storage conditions could be associated with the risk of diarrhoeal diseases, especially in immunocompromised people (Moe et al., 1991; Curtis et al., 2000, Sobsey, 2002).

CHAPTER 7
HOME BASED CARE SERVICES

7.1 LINKING HOME BASED CARE TO HEALTH SERVICES

Primary health-care (PHC) clinics belonging to district municipalities offered essential support for HBC services in the selected study areas. This support was in the form of training caregivers on certain clinical procedures they needed to administer when working with people living with HIV and AIDS (the patients). The clinics also introduced HBC to communities and referred clinic patients to their HBC centre if and when it was necessary. Everything was done confidentially to protect the patients' right to privacy. Table 7.1 gives an overview of linkage between the various district municipalities' Health-Services and HBC in the study areas.

Table 7.1 Summary of the organisation of Primary Health Care in relation to HBC in study areas

Health services	Rural areas			Peri-urban areas	
	Village A	Village B	Village C	Village D	Village E
Clinic in Village	Yes	Yes	Yes	Yes	Yes
Mobile clinic in Village	Yes	No	Yes	No	Yes
VCT site at clinic	Yes	Yes	Yes	Yes	Yes
HBC group in Village	Yes	Yes	Yes	Yes	Yes
Hospital services proximity from clinic	100 km	140 km	15 km	10 km	10 – 25 km
Traditional healers as a service in Village	Yes	Yes	Yes	No	No
Home Based Care					
Established	2002	1984	2005	2000	2000
Number of communities served	8	5	9	2	More than 10
Total number of caregivers	7	15 – 25	15	16	40
Number of female caregivers	7	15 – 20	15	15	40
Number of male caregivers	0	5	0	1	0
Average age of caregivers	30	32	39	33	37
Working hours	08:00–13:00 (5h)	08:00–13:00 (5h)	08:00–16:00 (8h)	08:30–12:30 (4h)	08:00 – 15:30 (7.5h)
Office building	No	No	No	Yes	Yes / No
Administrative staff	Yes	Yes	No	Yes	Yes
Health care Supervisor	Yes	Yes	Yes	Yes	Yes
Provide community training	Yes	Yes	No	Yes	Yes
Financial aspects					
Clinic services to patients	Free	Free	Free	Free	Free
Medication to patients	Free	Free	Free	Free	Free
HBC services to patients	Free	Free	Free	Free	Free
Caregivers receive stipends	No	No	No	Yes	Yes
Free transport for patients / caregivers	No	No	No	No	No
Payment for public transport	Caregivers	Caregivers	Caregivers	Caregivers	Caregivers
Materials and instruments	Yes	No	No	Yes	Yes

The HBC groups for Village A and Village C were established quite recently (2002 and 2005 respectively). Although the HBC group in Village B had existed since 1984, it had also only recently been taken over by a NGO - the Centre for Positive Care (CPC). The HBC group in Village D was established in 2000. Because of over-crowed hospitals and clinics the Salvation Army decided that there was a need in the community for an external group to help the sick people that were not able to go to the clinic but also could not take care of themselves at home. Eventually the Legatus NGO took over from the Salvation Army for the DOH. The HBC groups in Village E were established in 2000 because these informal settlements did not have clinics nearby and they also needed people to help mobilise the mobile clinic.

The support of HBC to people living with HIV and AIDS and their families generally included food parcels, assistance with applying for social grants, preparing food, and providing basic domestic hygiene as well as nursing care. All the HBC centres except Village C facilitated HIV and AIDS awareness programmes in the communities in general and helped children orphaned by HIV and AIDS to apply for grants. HBC in Village C focussed only on creating awareness programmes amongst the youth. All clinics had Voluntary, Counselling and Testing (VCT) services as well as HBC groups. The VCT services tested people for, as well as provided counselling about, HIV and AIDS.

7.2 HBC SUPPORT STRUCTURES

7.2.1 HUMAN RESOURCES

The caregivers of Village A and Village C were mostly women 30 years and older. Village B was the only centre in the rural study areas with male caregivers which assisted only where needed e.g. when a male patient preferred a male to take care of them. Village A had seven caregivers that had to serve eight different communities in the vicinity of Village A. Village B had the largest number of caregivers (20-25) although this was not a fixed number. They served fewer communities than caregivers in the other two rural areas. The HBC group in Village B served seven communities. The HBC group in Village C served nine communities and had more caregivers (15) per capita in the communities they served which made it easier for this HBC group to get to their patients. The caregivers from Village D and Village E were mostly women 33 years and older. The HBC group in Village D had 16 caregivers and was the only peri-urban area with a male caregiver. They served two major community areas. Village E had more than 40 caregivers that served the informal communities.

The caregivers from Village A and Village B started to work at 08H00 until 13H00. They spend about two hours per patient to allow them enough time to complete all their duties. These two HBC groups did not indicate how many patients they attended to in a day. The HBC group in Village C worked a full eight hour day from 08H00 – 16H00 during the week. They consulted between three to thirteen patients a day. They spend about an hour per patient per day. None of the groups worked during weekends. In Village D, the caregivers reported every morning to the clinic when they opened at 07H45. HBC officially started to work at 08H30 in the mornings and they left at 12H30 in the afternoon. They did not work over weekends. They had two weeks leave in the year. They could take it any time except over December and January. They attended to between two and nine patients a day. They spend about 10 minutes to an hour with a patient to allow them enough time to complete all their duties. The Village E caregivers started to work at 08H00 in the mornings and they left at 15H30 in the afternoon. They did not work over weekends. If they needed a day off then they just took it. They attended to between five and 25 patients a day. They spend about 30

minutes to two hours with a patient depending on what needed to be done. Sometimes it could take up to four hours.

During the study the following uncertainties were shown:

- A clear caregiver/patient ratio could not be established in the study areas
- The HBC groups could not establish the exact number of patients that received HBC.
- There were no formal records being kept of their patients.
- Patients only needed HBC assistance from time to time and this led to these people not being documented as patients.
- The caregivers had a general knowledge of the different kinds of diseases and disabilities the patients suffered from.
- Caregivers could not specify that they had a certain number of patients suffering from e.g. HIV and AIDS and which number of patients suffered from cancer.
- Most of the time the caregivers did not know what their patients suffered from. They only knew that the patient needed assistance.

7.2.2 ADMINISTRATION AND INFRASTRUCTURE

Usually the coordinators of the HBC groups are responsible for the administration of the group. These coordinators are either the counsellor at the VCT site or a caregiver. They could ask at time for other caregivers to assist them in their tasks. None of the rural HBC groups had an office from where they could do their work, which made it difficult to have an efficient HBC administrative system. For private meetings they used the nearest clinic facility where privacy was limited. The HBC group in Village D did have their own building situated about 500 m from the clinic. It was a one-roomed brick structure with a roof of corrugated sheet metal. The caregivers complained that this building was not big enough for all their work-related needs - especially for meetings with other caregivers or even with the patients since there was no privacy. They were planning to add more rooms to include a storeroom for their equipment and rooms where they could consult their patients in private. They also wanted to fence the building off for security purposes, paint the building and put up signs so that they were more visible to the community. Of the HBC groups in Village E, one community group did not have their own office building, while the other HBC group had a own building, which served a dual purpose: they fed more than a 100 children and adults at this building daily and patients could come and see the caregivers at this venue.

Figure 7.1 HBC office in peri-urban area

Figure 7.2 Caregivers in training

7.2.3 TRAINING

The HBC caregivers in Village A and Village B were trained in basic nursing care and health education, especially in HIV and AIDS awareness. They were subjected to Directly Observed Treatment Short-course (DOTS) strategy training, which was the care of TB patients. They were also trained how to handle psychiatric patients and special diseases such as diabetes. Caregivers were further trained on how to keep the status of patients confidential regardless the disease. Although the HBC group in Village C also fell under the same NGO as the HBC groups in Village A and Village B, many of their caregivers had not been trained yet. It was evident that HBC groups took caregivers in and let them tend to patients even if they had not received the most basic training. The Village D caregivers were trained in basic HBC and TB DOTS training. According to the NGO, the DOH was responsible for training the caregivers, although not a lot of training was taking place. The DOH did not have professional accredited people to train the caregivers and needed authorisation to train the caregivers. The caregivers from HBC groups in Village E were trained in HIV and AIDS programmes, Prevention of Mother To Child Transmission (PMTCT), infection control, communication, basic anatomy, making beds, basic nursing care, nutrition and feeding, TB DOTS, STDs, condom use and how to work together as a team.

All of these groups were continually educated on new and changing legislation regarding health care, even though some have not yet received HBC training. All caregivers said they did keep to these legislations when they cared for the patients. They were educated through workshops that were held for them. In the training sessions medical kits, manuals and posters were used to train the caregivers. The training sessions usually lasted for 59 days for about five hours a day. Most of the caregivers did feel that volunteers with little training could be useful to HBC because most of them had little training when they started and they were doing a good job. They did, however, feel that volunteers should receive some training later on. The caregivers felt money should be spent to train them but they would also needed money for transport to these training sessions.

7.2.4 MATERIALS AND EQUIPMENT

The HBC group in Village A was the only HBC group of all the study groups who had uniforms. The uniforms consisted of red golf shirts with the emblem of the Mutale district municipality on the left breast. These shirts were sponsored by the municipality. The HBC caregivers from Village A and Village B did have basic “HBC” kits because they also provided basic nursing care but these kits had to be shared since caregivers were not issued with personal kits. HBC group Caregivers from Village C were provided with very limited nursing care and therefore did not have any form of HBC kits. The Village D caregivers did not have basic HBC kits. They were out of stock and the government did not provide more equipment to them. The HBC groups in Village E did not have kits because the government did not supply them with kits. The only nursing care they gave to the patients was bathing them and giving them medication.

Table 7.2 The state of HBC equipment (HBC kit)

HBC kit	Rural areas			Peri-urban areas	
	Village A	Village B	Village C	Village D	Village E
Clinical thermometer (oral)	Yes	Yes	No	No	No
Scissors	Yes	Yes	No	No	No
Nail clippers	Yes	No	No	No	No
Notebook	Yes	Yes	No	No	No
Home visit reporting forms	Yes	Yes	No	No	No
Hand soap	Yes	Yes	No	No	No
Plastic soap box/container	Yes	No	No	No	No
Umbrella	Yes	Yes	No	No	No
Torch	No	No	No	No	No
Batteries	No	No	No	No	No
Linen savers	Yes	Yes	No	No	Yes
Disposable latex gloves	Yes	Yes	Yes	Yes	Yes
PVC washable apron	Yes	Yes	No	Yes	Yes
Mask	Yes	Yes	No	No	Yes
Napkins (adult)	Yes	Yes	No	No	No
Urosheaths	No	No	No	No	No
Urine bags	Yes	No	No	No	No
Sanitary pads	Yes	No	No	No	No
Syringe 10cc (feeding)	Yes	No	No	No	No
Bags for waste disposal	Yes	Yes	No	Yes	Yes
Spray bottle	Yes	No	No	No	No
Salt	Yes	No	No	No	No
Wooden spatulas	Yes	No	No	No	No
Gauze swabs	Yes	No	No	No	Yes
Sterile dressing packs	Yes	Yes	No	No	No
Gauze bandage 5 cm	Yes	Yes	No	No	No
Gauze bandage 10 cm	Yes	Yes	No	No	No
Condoms	Yes	Yes	No	No	No
Bedpan	Yes	No	No	No	No
Urinal	Yes	No	No	No	No
Bowl (for dressings)	Yes	Yes	No	No	No
Information brochures or sheets	Yes	No	No	No	No
Calamine lotion	Yes	Yes	No	No	No
Vaseline	Yes	No	No	No	No
Aqueous cream	Yes	No	No	No	Yes
Betadine ointment	Yes	No	No	No	Yes
Salt	Yes	No	No	No	No
Rehydration solution	Yes	No	No	No	No
Cough mixture	Yes	No	No	No	No
Valoid	Yes	No	No	No	No
Paracetamol tablets (500 mg)	Yes	Yes	No	No	No
Paracetamol syrup/tabs	Yes	Yes	No	No	No
Anti-diarrhoeal medication such as Loperamide	Yes	No	No	No	No
Paper or cloth cap	No	No	No	No	No
Eye protection	No	No	No	No	No
Paper/plastic overshoes	No	No	No	No	No

7.2.5 TRANSPORT

Transport was a big issue in all of these communities. All the caregivers had to walk to their patients households because they did not have money for transport. If they had to use public transport they had to pay from their own pockets. Some of the villages were quite far apart and it was difficult for the caregivers to get to all their patients because most of the working hours were spend walking to the next house. If the work was in small communities walking were more convenient because the houses were closer together and it was faster to walk than waiting for transport but when they had to go to the next village or the clinic, it became a problem.

7.2.6 REMUNERATION

There was a discrepancy on whether the caregivers from the rural study areas received any form of payment. According to the NGO they were being paid R200 per month. According to the caregivers however, this was not happening. Caregivers most often quit because they did not get paid. All three HBC groups in the rural areas did not receive any formal funding. The caregivers in Village A collected money from the community or they sold fruit and fire wood to get some money, while the caregivers in Village C sometimes collected up to R300 per month from the community. All the caregivers from the peri-urban study areas were receiving stipends for their services. This was paid by the DOH. In Village D the DOH had an umbrella NGO under which all the NGOs fell. This umbrella NGO kept the other NGOs going. They did not know what the national budget for HBC was but they knew that one existed. The national government handed the money to provincial government. The provincial government handed the money to local government and they handed the funding over to the umbrella NGO. They paid the caregivers and nurses working for HBC from this money. For handling fees they used 10% of this money. Medicine dispensary came from the DOH and not from this money. Although the DOH was responsible for funding the NGO, they also got private sponsors from Spoornet, Khuthala Mine, Greenside Mine and social services also assisted in funding the HBC groups. The caregivers received a monthly stipend of R1 000 a month and personal donations on a few occasions. The caregivers from Village E collected up to R300 on some months from the community. Social services gave R500 per HBC group to pay for equipment, stationary and transport. The DOH paid every caregiver a stipend of R1 000 per month for their services.

7.3 INVOLVEMENT OF THE COMMUNITY AND OTHER ORGANISATIONS IN HBC

It is not only the clinics and NGOs that were involved with HBC. As HBC was a community based initiative, various community organisations also played a role in HBC.

7.3.1 COMMUNITY LEADERS INVOLVEMENT

In all three rural villages the community leaders informed HBC if there were community members that needed their assistance with abused children or applying for social grants. They introduced HBC to the communities and assisted with recruiting volunteers. The community leaders talked to the government on behalf of HBC about payment for the caregivers. HBC caregivers also felt that the community leaders could assist them to acquire resources such as offices and infrastructure. The community leaders in the peri-urban areas did not really play a role in HBC. The caregivers felt that the community leaders must liaise between HBC and the local government, visit the patients with the caregivers so that they

could see what the HBC group did and informed the community about the advantages of HBC and build them bigger offices.

7.3.2 COMMUNITY MEMBERS INVOLVEMENT

The HBC caregivers from Village A and Village C felt that community members should become more involved in HBC through meetings where they could share their problems with the HBC group, give financial assistance, identify patients, and accept HBC into the community and volunteer for HBC. There were some community members that rejected the services of HBC because they either did not need the assistance of HBC or they did not trust the caregivers to keep their status confidential if they did not want to be exposed. The HBC groups from Village D and Village E felt the community members could become more involved in HBC by organising educational sessions for the community on HIV and AIDS and TB and identify potential patients that needed their help. HBC groups wanted the communities to start soup kitchens for the people that did not have food and also give them food parcels, donate old clothing and volunteer for HBC. The caregivers said there were community members that rejected their services because they did not want strangers to take care of them, they were afraid the caregivers would expose their HIV and AIDS status or gossip about them in their communities.

7.3.3 LOCAL GOVERNMENT INVOLVEMENT

The Mutale district municipality served an area of 78,921 people. The lack of resources (such as availability of water where people settled) made it difficult for the municipality to provide proper infrastructures. The municipality received money from the provincial government to provide the following services: co-ordination between the local people and government, providing houses, roads maintenance and electricity. The municipality did not provide the water and sanitation services. This was the responsibility of DWAF situated at the municipality. There were still areas that lacked basic water and sanitation services but they did have long- and short-term plans for these areas which all depended on the budget for these plans to be implemented. The Mutale district municipality was involved with the HBC groups in Village A and Village B. They provided education to the caregivers. The caregivers said this relationship promoted the HBC services to the community. The municipality encouraged the HBC groups, and provided food parcels to the orphans.

The Thulamela district municipality served an area of 582,560 people. They provided the following services: water and sanitation services and management, building and maintaining roads, electricity and waste management. The municipality did not have any kind of relationships with the HBC groups and felt that HBC was the responsibility of the DOH. The caregivers also confirmed this. The local municipality did not even know that a HBC group in the area existed. The lack of a relationship with the local municipality hindered the service provision of HBC because the caregivers felt nobody was acknowledging the good work which the HBC group was doing.

The Sol Plaatje district municipality served an area of 201,462 people. The lack of resources (such as availability of water where people settle illegally) made it difficult for the municipality to provide proper infrastructures especially in the areas where people were settling illegally where there were no infrastructures. The municipality provided and maintained water and sanitation services to these areas. Water provided by the Sol Plaatje district municipality came from the Vaal River and was treated at a treatment plant in Riverton. The Municipality was involved with HBC. A councillor of the municipality was stationed at an office in Village D

and if HBC needed anything from them they just had to ask them and they assisted in anyway that they could.

The Emalahleni district municipality served an area of 227,320 people. This municipality refused to be interviewed. Therefore it was not clear if the municipality could handle the areas which they served. All the communities did use treated water but it could not be determined from where the treated water came from. The two HBC groups did not have a relationship with the local municipality which hindered their service provision because they did not get the necessary support.

7.3.4 NGO'S INVOLVEMENT

In the rural areas only one NGO was assisting with HIV and AIDS care. They served four main areas of about four million people: The Vhembe district municipality area (which served Mutale and Thulamela district municipalities), the Mopani district municipal area, the Capricorn district municipal area and the Waterberg district municipal area. This NGO provided the following services: Management of HBC, care education programmes, orphans and vulnerable communities (OVC), VCT, PMTCT and income generating programmes. The NGO together with the local clinics and hospitals decided if HBC was needed in an area and then a needs assessment followed. It was the responsibility of the NGO and the government to maintain HBC groups once they were established. The NGO got funding from the government, Old Mutual Bank, Telkom and Shoprite.

In Village D, there were two NGOs involved with the HBC groups. The responsibilities of the NGOs were to pay the caregivers every month, solve the problems that might arise from the HBC groups, gave them feedback on government meetings and they also organised awareness programmes in the community. Besides these two NGO's, another two NGOs namely LOVE LIFE and YOUTH HEALTH, were also active in the informal settlements in the area. These two NGOs, however, were only involved with HIV and AIDS awareness programmes and not HBC. Love Life worked towards preventing the spread of HIV and AIDS through community education. Youth Health also did HIV and AIDS awareness in the communities, targeting specifically school-going children. In Village E, the HBC groups did not fall under an NGO but under the government hospital. They did, however, had the same functions as if a HBC group should fall under a NGO.

7.3.5 FAITH-BASED CARE INVOLVEMENT

In Village A, the pastor started his own care group at the church after he saw that the sick people had a need to be cared for. The care group looks after the patients spiritually, emotionally and physically. He was in charge of the group. They did not have any nursing kits. He was the only one that had a pair of latex cloves that he used for all his patients. He did not know who to ask to provide him with gloves for all the caregivers in his group. Because he was the only person with gloves he worked with the patients that had open wounds and the patients living with HIV and AIDS. The caregivers in his group did not have formal training but he did train them on how to communicate with the patients and provide treatment. Both the churches in Village B had their own care groups. The one church called it a stewardship. They also cooked and bathed the people that were sick. The pastor's wife was in charge of the care group in the one church and a member of the congregation was in charge of the stewardship at the other church. They did not have any nursing kits. The one church was right next to the clinic. If they needed anything regarding nursing care they could only go and ask them. Only the church where the wife was in charge of the group used protective devises and she also trained her caregivers how to protect them at all times. The

other church worked according to the manual of the stewardship. The church in Village C did not know what HBC was or what they did. The pastor said anybody that helped sick people was doing a good job because they were helping people. He thought the municipality was the one that decided when HBC was needed in an area. The church visited the sick people and only prayed for them and did not work with the local HBC group.

In Village D, the church that was interviewed reported that the people from the church went to the houses of the sick people and prayed for them. The church received donations from the community. They did not help members of the congregation to generate income because they did not have the funding or the resources to do so. The Roman Catholic Church, which was not interviewed, had been helping the community for a long time. Both churches had soup kitchens and handed out old clothing and blankets. The churches did not have their own care groups. The church that was interviewed in Village E, had a care group that cared for the patients and helped with food parcels to those that could not afford to buy food and gave old clothing especially warm clothing for the winter season. The pastor of this church also worked together with other pastors from other churches to provide services to the communities. They received funding from other churches. If the bread winners in the households could not provide for their families the church offered them jobs.

7.3.6 TRADITIONAL HEALERS' INVOLVEMENT

In the three rural villages no traditional healers assisted with HBC. The traditional healers said they did not assist HBC because HBC had not asked them to assist. They did think the HBC groups were doing a good job because they were helping people. The traditional healers did not wear protective devises when tending to their patients. One traditional healer did ask the clinic for gloves and they refused. The other one said that the patients came to him and if they were seriously sick he would refer them to the clinic. Only the one traditional healer from Village C thought that he could cure HIV and AIDS. He said he had many remedies to cure patients. Both traditional healers made use of protective devises when they tended to the patients. None of the traditional healers had any formal training and not one of them went to school. There were no traditional healers in Village D and the traditional healers from Village E could not be located.

The caregivers in the study areas were divided on the issue of traditional healers. Some preferred the assistance of traditional healers and others thought that traditional healers should not be part of HBC. Those that did prefer their assistance said that traditional healers had some remedies that could cure some STI's and boosted their immune systems. Those that did not want traditional healers to assist HBC said they did not believe in traditional healers and felt traditional healers were only after money and they did not measure their medication very well. In addition some felt that many of the patients were referred to the hospitals because of the remedies of the traditional healers.

The pastors from Village A, Village C and Village D did not think that traditional healers should become involved in HBC. The one pastor in Village B did think that HBC could benefit from the traditional healers and the other pastor thought that traditional healers should not help with HBC.

Some of the community members interviewed in this study believed if HBC and traditional healers worked together they could find a cure for HIV and AIDS. But most of them believed that traditional healers could not cure HIV and AIDS. Some of the community members felt that traditional healers could cure HIV and AIDS because they had medicine that doctors did not have. Others felt that traditional healers could not cure HIV and AIDS because even

qualified doctors struggled to cure HIV and AIDS. Many of the community members also believed that traditional healers were only after money.

7.4 TREATMENT AND PROVISION OF HOME BASED CARE

The participants from Village A, Village D and Village E were being cared for by their families and HBC groups. The participants from Village B were being cared for by their family and church members. The participants from Village C were being cared for by their family, HBC and the counsellor. Many of the participants in all the study areas were still strong enough to care for themselves (Tables 3.3 and 3.4). The clinics referred patients to HBC groups when they thought the patients needed assistance at home. The hospitals also referred patients when they got discharged from the hospital and they needed assistance at home. The participants from Village A received treatment from their local clinic, Tshilamba health care centre, Tshilinzini Hospital and Donald Fraser Hospital. They got support from their local clinic nurses, Donald Fraser Hospital, HBC, social workers and their family members. The participants from Village B received treatment from their local clinic and Donald Fraser Hospital. They got support from their local clinic nurses, social workers and their family members. In Village C, all the participants belonged to a support group that one of the participants started. The participants received treatment from their local clinic, Malamulele Hospital and Donald Fraser Hospital. The participants from Village D received treatment from their local clinic, Kimberley Hospital and Galashiwe clinic. The participants from Village E mostly received treatment from the Wellness clinic at Witbank Hospital, Klipfontein clinic, Poly clinic, Beaty clinic and Siphosembi clinic.

7.4.1 CONCEPT OF HBC ACCORDING TO HBC CAREGIVERS

The caregivers from Village A and Village B defined quality care as giving the patients good nursing care, a clean environment, enough stored water and advising them about their disease. They also educated the patients on how to live a healthy lifestyle so that they do not fall ill. The caregivers of Village C defined quality care as managing to solve patients problems such as obtaining their identity documents to apply for social grants, giving them their medication and attend to all the other needs that might arise. The caregivers of Village D defined quality care as giving the patients what they needed until they were satisfied. The caregivers from Village E defined quality care as good communication between the patient and the caregiver, attending to all the patient's needs and bathing patients if they could not do it themselves.

7.4.2 THE EFFECT OF HIV AND AIDS STATUS ON HBC TREATMENT

HIV and AIDS status of patients did not really prevent caregivers from doing their work but there were people that did not want the assistance of HBC because they did not want to be exposed and they were scared of gossiping. The caregivers did explain to the patients that they were bound by law to keep their statuses confidential, but the patients still had their concerns regarding exposure. In Village D, HIV and AIDS stigmas did prevent caregivers from doing their work because there were patients that felt if the caregivers worked with them they might get infected.

7.4.3 BENEFITS OF HBC TO PATIENTS

The caregivers generally attended to the social needs of the patients by giving them support and comfort and by arranging sports activities for the patients that could still play sports. They helped to guide the patients in their difficult times. They also gave the patients information on their diseases. The caregivers continually counselled and encouraged the patients to accept their statuses. To attend to the spiritual needs of the patients they preached to the patients about God and prayed for the patients. They also got pastors to come and pray for the patients at their homes. They kept the patients' houses clean, cooked for them, gave them old clothing and bathed them.

The benefits of HBC to the patients were that caregivers had a better understanding on how to care for the patients. Patients were getting better because there were people that took care of them. The caregivers gained knowledge of different diseases of the patients and were able to identify symptoms of different diseases and advised the patients to go to the clinic. Most of all the patients were taken care of in their own homes. The caregivers were relieving pressure from the clinic and the family members in caring for the patients. Patients received their medication on time, they received food parcels, blankets and old clothing, and obtained assistance to apply for their government grants.

7.4.4 BASIC CARE PROVIDED TO PATIENTS BY HBC GROUPS

The caregivers collected medication for the patients, prepared healthy food for the patients such as fruits, vegetables, tea, bread, cleaned the houses and yards, collected water, laundry, bathed the weak participants and gave moral support. Generally caregivers made use of protective devises when they tended to the patients. When they did not have protective devises available to them they would use condoms over their hands to protect themselves. They disposed of these protective devises by throwing it in the pit latrines of the patients after they had used them. The caregivers would not protect themselves if they did not have gloves.

Table 7.3 Care provided by HBC caregivers to patients

Activities	Rural areas			Peri urban areas	
	Village A	Village B	Village C	Village D	Village E
Colleting water	Yes	Yes	Yes	Yes	Yes
Bathing patients	Yes	Yes	Yes	Yes	Yes
Laundry	Yes	Yes	Yes	Yes	Yes
Clean dwelling	Yes	Yes	Yes	Yes	Yes
Clean yard	Yes	Yes	Yes	Yes	Yes
Dig pit for solid waste	No	No	No	No	No
Assist in social health	Yes	Yes	Yes	No	Yes
Provide counselling	Yes	Yes	No	Yes	No
Provide information and support	Yes	Yes	Yes	Yes	Yes
Maintain food garden	No	No	No	No	No
Collect medication	Yes	No	Yes	Yes	Yes/No
Give medication	Yes	Yes	Yes	Yes	Yes
Change dressings	Yes	Yes	Yes	Yes	Yes
Change adult nappies	Yes	Yes	Yes	Yes	Yes
Prepare food	Yes	Yes	Yes	Yes	Yes

7.4.5 HOME BASED CARE/TREATMENT BY CHURCH

The church in Village A had a tender care unit and counselled the family members. They took children in if they did not have parents or relatives that can take care of them. They also donated food and clothing to orphans and helped to place the orphans with family members. The two churches in Village B focused more on the patients and less on the family members. The one church also took orphans in if they did not have family members to go to. The church in Village C counselled the family members of the HIV and AIDS patients. The church did not think that orphans were a problem in the community and did not have any money to take care of the children. In Village D, the churches assisted the orphans with soup kitchens but other than that social welfare was the only organisation that helped with orphans. The church in Village E said if the patients were too sick to take care of the children or they pass away the church would take the children and contact social welfare to come and take the children. They placed the children in new homes, either with family members and/or the orphanage.

7.4.6 HOME BASED CARE/TREATMENT BY TRADITIONAL HEALERS

The majority of traditional healers asked money for their services and many of the participants did not have money to pay for the traditional healers. The participants that did go to traditional healers paid between R50 and R250 for the services and the remedies provided by the traditional healers. One of the traditional healer's services in Village C was free of charge and the patients only had to pay for the remedies.

Eight of the ten participants in Village A did not visit traditional healers. They had various reasons that ranged from they did not believe in traditional healers, they did not have faith in them, they were afraid of traditional healers, they were not interested, they did not want to mix their hospital medication with those of the traditional healers. Two participants did visit traditional healers. They said traditional healers could assist them with their disease. Only one patient thought that traditional healers could cure HIV and AIDS. Ironically this was not the participant that went to a traditional healer.

Eleven of the participants from Village B did not visit traditional healers. They had various reasons that ranged from they were not interested, they were not used to going to traditional healers, they were Christians, they were afraid the traditional healers will expose their statuses and they did not believe in traditional healers. One participant did visit a traditional healer. Her family believed that traditional healers could cure any disease. None of the participants thought that traditional healers can cure HIV and AIDS.

Only three people in Village C visited a traditional healer because they were very sick and thought the traditional healers could cure them. One person said she used the medication of the traditional healer and she did not get better. One person said he got a lot stronger when he used the medication of the traditional healers. Twelve of the participants in Village C did not visit traditional healers. They had various reasons that ranged from they did not believe in traditional healers, they rather believed in God. They were not used to going to traditional healers and they did not trust traditional healers, they believed that they tell lies. Two participants thought traditional healers could cure HIV and AIDS.

None of the participants from Village D visit traditional healers. They had various reasons that ranged from they did not believe in traditional healers, they were not interested, they did not have money to go to traditional healers, they did not know any traditional healers, they only trust in God and the medicine they got from the clinic. The virus was already in their bodies, there was nothing anybody could do about it. Two participants did believe that traditional

healers can cure HIV and AIDS because there were remedies that will cure the disease according to them. The participant did not want to drink this remedy because she was told not to mix it with her medication she got from the clinic.

In Village E, two of the participants did not know if traditional healers could cure HIV and AIDS, two participants believed that traditional healers could cure HIV and AIDS and seventeen participants did not think traditional healers could cure HIV and AIDS because they did not believe in traditional healers, traditional healers were only after money, they were full of myths, they were failing to find a cure, they were afraid of the remedies, their remedies were not analysed and they made people weak. One participant visited a traditional healer before she got tested and she was sick, but never got cured from the remedies provided.

7.4.7 HOME BASED CARE/TREATMENT BY FAMILY MEMBERS

Families supported the participants by preparing food, do the laundry, assist in caring for the children, making sure the participants drank their medication, collecting water for the household and helping to clean the house and the yard. In all three the rural areas the children did help out around the house. They helped with the everyday chores of cleaning, cooking and laundry. In none of the rural areas were there children that skipped school to help out around the house. All of them helped before or after school and over the weekends. Only five of the ten participants from Village A had children between 11 and 17 years old to help to care for them. Two of the participants said their children missed out to play with other children because they had to help out around the house. Some of the participants did have children older than 18 that also helped around the house. One participant's daughter was 24 years old but she left school to take care if her mother and now she wished her daughter can go back and finish school. Only three of the 12 participants from Village B had children that helped to care for them. There were other participants that had children but they were too young to help around the house. The children were between 10 and 14 years old. Some of the participants did have children older than 18 that also helped around the house. Five of the in Village C participants did not have children that helped to take care of them because they did not have children or the children were too young to assist. Ten of the participants had children that took care of them. The children were between 9 and 18 years old. Some of the participants did have children older than 18 that also helped around the house. One participant's children even helped him financially. Only eight of the 16 participants from Village D had children that helped to care for them. The other eight participants either did not have children or the children were too young or in the orphanage. Three of the participants said their children missed out to play with other children and school sports activities because they had to help out around the house. One participant was afraid her daughter would miss out on university because she had to take care of her mother. In Village E, thirteen of the participants' children did not care for them. Eight participants' children did care for them.

7.5 SUMMARY AND RECOMMENDATIONS ON HOME BASED CARE SERVICES

Generally people living with HIV and AIDS either find comfort and support, or suffer rejection and discrimination in their communities. This is where awareness is spread or ignorance reinforced because only through people's daily interactions with one another a climate of compassion and solidarity or of fear and neglect is created. The community-based response has a number of benefits:

- It is more cost effective and sustainable - IF PROPERLY RESOURCED AND SUPPORTED

- Caregivers are in close proximity to their patients
- Caregivers can mobilise support from within the community to assist affected families with.

Therefore, as more and more people are able to access ARV treatment, community support and understanding will be critical in terms of identifying and referring patients and monitoring and supporting patients to ensure adherence and proper management. Therefore the following recommendations with regard to HBC services could be proposed:

- It is recommended that more mobile clinics should be mobilised more frequently to make it easier for these people to have access to primary health care because in rural areas where people did not have easy access to the clinics, the people must use public transport and pay between R8 and R12 per return trip to the clinics.
- More caregivers should be trained and deployed in the communities where they live. This would increase the effectiveness of HBC because more people would be cared for in their own homes.
- The caregivers should be given proper/regular training and suitable work schedules.
- Volunteers should be appropriately trained and could be employed/deployed in the health sector. People loose interest in HBC because they either do not get paid at all or they are paid too little. This will also decrease the unemployment rate in the country.
- More males should be encouraged to become caregivers. This will enable HBC to give care to male patients if they prefer male caregivers.
- Support systems should be developed not only for the patients but also for the caregivers to help them deal with the illness and death that surrounds them in their working environment. The establishment of support structures for HBC caregivers is fundamental in their training. They need the support to counsel one another when they wanted to talk about something.
- Community leaders and members should become more involved in HBC to assist the caregivers to make their jobs easier.
- More HIV and AIDS awareness campaigns should be done amongst the communities so that that understand the disease better and are more tolerant towards people living with HIV and AIDS and this will encourage these people to ask for assistance from HBC.
- Good administrative systems should be developed and maintained by HBC and the NGOs. Lack of resources currently prevents this from happening. HBC groups should have their own office buildings that are big enough for all their needs. They should also have administrative resources such as computers and stationary to keep better record of patients and the volunteers. The government should also subsidise proper communication systems and transport. This would enable the caregivers to communicate with each other and the clinics and hospitals. This would also ensure faster reaction time when a patient urgently needs to go to the hospital or clinic.
- Along with a good administration system the caregivers should be given proper working hours to ensure that they are able to see as many patients as possible in a day. This will only be achieved if the caregivers are paid according to these hours.
- Proper funding is also needed to provide the caregivers with proper HBC kits and protective clothing. Uniforms should also be given to the caregivers to make them more recognisable in the communities.
- Transport was a big problem for the caregivers in all of these communities. All the caregivers had to walk to their patients houses because they did not have money for transport. If they had to use transport they have to pay from their own pockets. Therefore, a small travel stipend is needed to effectively deal with patients staying far from the clinics.

- Local FBO must become more involved in the care giving of people at home. Although churches did support people with food parcels, old clothing, blankets and prayers, none of them assisted with HBC activities.
- The role of the traditional healer in HBC and treatment of people living with HIV and AIDS still need to be examined. Some 80% of South Africans consult traditional healers and use traditional African remedies, even if they also use Western medicines. In the climate of fear and shame that prevailed when people with HIV and AIDS started dying in large numbers, when testing was not widely available and only a minority could afford life-prolonging drugs, traditional healers used a wide range of treatments to alleviate the symptoms of HIV and AIDS. Some so-called healers falsely claimed to have cures for AIDS. There was mistrust between traditional healers and western medical practitioners and different approaches were seen as being in opposition to each other. In recent years, the government has tried to integrate traditional healers into the national health care system, promoting investment in the research, development of traditional remedies and the protection of related intellectual property. At community level, many organisations work closely with traditional healers in counselling, encouraging testing, promoting good nutrition and complementary remedies. There are many cases of traditional healers and clinic workers referring patients to each other. Improving understanding and cooperation between different medical traditions is important to promote the well-being of people living with HIV and AIDS and to prevent unnecessary conflict and misinformation.
- Community leaders must also become actively involved in HBC. They should be their link to government so that government could do more for HBC.
- Community members should be educated on HBC and the role this played in care taking of sick people in the communities.

CHAPTER 8

CONCLUDING ASSESSMENT OF STRENGHTS AND WEAKNESSES OF WATER, SANITATION, HYGIENE AND HOME BASED CARE INFRASTRUCTURES

During the course of this study we have witnessed remarkable concern and positive thinking on the context of the widespread HIV and AIDS disease burden that must be activated if the needs of infected individuals are to be addressed effectively with sustainable outcomes. Therefore, the target audience for this report is water, sanitation and health professionals in South Africa working for national and local governments, NGOs, sector resource centres and private sector firms whom all are important role players in water, sanitation and home/community-based care projects.

Although the sample size of this assessment was relatively small and is not representative of conditions of people living with HIV and AIDS in all of South Africa's provinces, all the study objectives were achieved and gave an example of the struggles of people living with HIV and AIDS in rural and peri-urban areas of South Africa.

In addition, this study has shown that in order to address the needs of people living with HIV and AIDS and to reduce the impact of the disease, it is important to consider the following:

- Caregivers must be educated on water, sanitation, hygiene and health related issues.
- Caregivers must have access to good quality water in adequate quantities.
- Existing home/community based care services must be enhanced and strengthened.
- The linkages between home based/community based care groups must be clear and competition for funding should be reduced.
- Water, sanitation and hygiene education must be combined in order to reduce the impact of HIV and AIDS. The issues surrounding HIV and AIDS must be included into all of these programmes. These messages must stress the importance of the hygienic use of water and sanitation infrastructures.
- Basic level of water and sanitation services for all must be ensured.

Table 8.1 indicates the strengths and weaknesses of the water, sanitation and hygiene levels in the households and the communities in the context of national policies on water, sanitation, hygiene and home-based care and the role of different organizations and communities to people living with HIV and AIDS.

Table 8.1 Summary of the strengths and weaknesses of water, sanitation, hygiene and HBC structures and the role of different organisations and the communities to people living with HIV AND AIDS

Indicators	Rural areas		Peri – urban areas	
	Strong points	**Weak points**	**Strong points**	**Weak points**
Households: Water sources	Ground water was pumped to communal standpipes closer to the homes of the community members. Distances to walk to the borehole were shorter.	None of the communities received treated water. All received untreated ground water. Some households even used natural sources such as the river and springs.	All of these areas had treated tap water.	Very few households had yard taps. Most of the households used communal standpipes or water tanks.
Households: Water volumes		None of the household brought in the quantity of water that they were capable of bringing in. This meant that because they did not bring in the volumes they were capable of bringing in, the households did not reach the 25 lpppd mark that is a guideline of the RDP for the minimum volumes of water a person need in a day for consumption and personal hygiene.	Only Village D brought in more water than their baseline capacity but it was still less than the 25 lpppd that is the guideline of the RDP.	Village E brought in less water than their baseline capacity and it was also less than the 25 lpppd guideline of the RDP.
Households: Water availability		Water was not constantly available at these taps which compelled the households to go and collect water from rivers, springs and canals or they had to walk long distances to the neighbouring villages to collect water.	Water was most of time available at the taps. An occasional burst pipe was the main reason if water was not available at the taps.	The water tanks were not filled over the weekends and the households had to store water.
Households: Water accessibility	Yard taps were right next to the households.	Most of the households that used the communal standpipes lived more than 200 m away from the standpipes. This was against the guideline of the RDP that states that a communal standpipe should be within 200 m of the households.	The yard taps were inside the yards right next to the houses.	Most of the communal stand pipes as well as the water tanks were further away than 200 m from the houses.
Households: Water treatment		Most of the households did not treat their water before consumption.	Only some of the households of Village D treated their water with sodium hypochlorite or by boiling it.	None of the household in Village E treated their water before consumption.
Households: Container hygiene	Most of the households washed their containers every time they went to collect water.	Biofilms grew inside storage containers if not cleaned properly	Most of the household washed the containers every time they collected water.	Biofilms in tank water and water tank never cleaned. Biofilms inside of storage containers if not cleaned properly
Households: Water storage		Most of the households had to store their water. Because of the nature of the mud huts, the environment was dusty and not always very clean.		Most of the households had to store their water. The shacks and mud houses were dusty and the environment was dirty.

Indicators	Rural areas		Peri – urban areas	
	Strong points	**Weak points**	**Strong points**	**Weak points**
Households: Available toilets		Most of the households that had toilets build their own toilets and it was not up to RDP standard. Even the VIP toilets were below the RDP guidelines. Those that did not have toilets either used the bush to relieve themselves or they used their neighbours' toilets. The toilets were far from the houses.	In Green Point the houses had water borne sanitation.	All of the households in the informal settlements that had toilets were self-built sub-standard pit latrines. Those that did not have toilets used the bush, veldt or the neighbours' toilets. All of the toilets were outside. They were much closer to the houses than in the rural areas but the patients still had to go outside in different weather conditions to use the toilets.
Households: Toilet cleaning	Nearly half of the households that had toilets cleaned their toilets.	Nearly half of the households that did have toilets did not clean their toilets.		Less than half of the households cleaned their toilets.
Households: Hand washing	All of the households washed their hands. They had different places where they washed their hands but most of them did wash their hands with water and soap.		All of the households washed their hands. They had different places where they washed their hands but most of them did wash their hands with water and soap.	
Households: Domestic animals		In many of the households the animals had access to the water containers.	Very few of the households had domestic animals and those that did have animals did not to let the animals near the stored water.	
Households: Waste disposal		These areas did not have refuse removal. Most of them disposed of their waste in the environment.	Only the houses in Village D had refuse removal.	All of the informal settlements did not have refuse removal and the households discarded their waste in the environment most of the time.
Households: Energy sources	Some had electricity.	Those that did not have electricity used wood to cook and boil water did in their huts where there were little or no extraction of the smoke and these people inhaled smoke when they had to cook in these huts.	The houses in Village D had electricity	Only a few households had electricity but not all of them could afford it. They mostly used paraffin in their shacks.
Family participation in home based care	These areas still had extended families. They were the main support that the participants received. Without their consent it would not have been possible for HBC to work in the houses of the patients. Good relationships with the families were necessary. Also educating the family members made them more tolerant of the diseases and disabilities of the patients.		Most of the families in these areas were nuclear families. This was the reason why many of the patients did not have family members to take care of them and the children but those that did have family did support the patients. HBC also educated the family to make them more tolerant of the diseases and disabilities of the patients.	The appearance of nuclear families in the peri-urban areas caused that some patients did not have family to take care of them.

Indicators	Rural areas		Peri – urban areas	
	Strong points	**Weak points**	**Strong points**	**Weak points**
Orphans	Because of the strong system of extended families in these areas, the orphans were taken in by them.		The social services placed orphans immediately into family care or orphanages – they did not let children stay alone	
Child-headed households		Child-headed households were seen in these areas. The caregivers thought that keeping the children in the parents' house would be more comfortable for them. There were no adult to protect them at night and they did not really receive guidance because of the lack of maturity in the households.	In Village D there were no households that were headed by children.	There were children headed households in Village E. Social welfare was trying to take these children into custody but the children preferred to stay in their deceased parent's houses.
Role of local government (Municipalities) in assisting home based care activities	Each area fell under a specific municipality that was responsible for providing water and sanitation services. Municipalities all had short term goals to provide rural communities with basic water and sanitation services.	Except for Mutale district municipality that did play a small role in the HBC groups of Village A and Village B, the Thulamela district municipality did not want to get involved with HBC in Village C. Therefore they did not have any way of knowing what the needs of HBC were regarding water and sanitation.	Both peri-urban areas fell under their respective municipalities. Village D HBC had a good relationship with their municipality.	It was not clear what kind of relationship the Emalahleni municipality had with the HBC groups from Village E because the municipality refused an interview but the caregivers did complain that the municipality did not acknowledge them.
Role of NGO in home based care	One NGO under which the HBC groups fell managed the HBC affairs. They are also the HBC link to the government.	The NGO had a large area to serve which could be the reason why Village C caregivers had not received training. They could not get to all the HBC when they had problems or needs because of the area that they had to serve.	In the peri-urban areas the NGOs were active in the organisation of the HBC groups. The NGOs or the Hospital in Village E managed the affairs of the HBC groups.	
Role of FBC in home based care	All the churches where involved with the sick people even if they only prayed for them. This showed that people in the communities cared. People trusted the church and they felt comfortable with the assistance the churches gave.	Those church groups that assisted to care for the sick people did not really protect themselves from getting infected and they did not have any training.	The churches in the peri-urban areas did assist HBC. They gave spiritual guidance to the patients. They also gave food parcels and soup kitchens.	None of the churches had their own care groups that physically cared for the participants.
Role of community leaders in home based care		The community leaders were only involved if the HBC groups asked their assistance such as introducing HBC to the communities.		The community leaders from both areas were not involved in HBC. The caregivers felt that this was why the community members either did not know about them or rejected their services.

Indicators	Rural areas		Peri – urban areas	
	Strong points	Weak points	Strong points	Weak points
Role of traditional healers in home based care	Some of the caregivers and community members thought it would be a good idea if traditional healers assisted in HBC.	Some of the care givers said that they should not assist in HBC.		No traditional healers could be found to interview but most of the caregivers, community members and participants from both areas thought that traditional healers should not assist HBC.
Role of community members in home based care	Most of the community members did know what HBC was.	Not many volunteers from the communities	Most of the community members did know what HBC was.	Not many volunteers from the communities
Government clinics	All the study areas had a government - subsidised clinic to make sure every person had access to free primary health care.	Due to distances and financial constraints, not all people could get to the clinics for treatment	All the study areas had a government subsidised clinic to make sure every person had access to free primary health care.	Due to distances and financial constraints, not all people could get to the clinics for treatment
VCT sites	All the clinics had VCT sites where the people could test confidentially for HIV and AIDS treatment.		All the clinics had VCT sites where the people could test confidentially for HIV and AIDS treatment.	
HBC groups	All of the clinics had HBC groups. They cared for the sick people at their homes and they also cared for the people that could not reach the clinic because they lived too far. They served the communities that did not have clinics. Took pressure of hospitals and clinics because they cared for patients at their homes.	All the HBC groups served between eight to nine communities. The communities were sometimes far apart and moving between the communities took time that could be spend with patients. They did not have very good communication methods because of the lack of resources. There was no network coverage in some areas and they did not always have money for phone airtime or public transport.	All of the clinics had HBC groups. They cared for the sick people at their homes and they also cared for the people that could not reach the clinic because they lived too far. They also assisted the community members to apply for their ID books. The HBC groups did take pressure of the clinics and hospitals. They could also communicate effectively with other organisations and clinics because they where in areas where they had network coverage.	All though the caregivers did not serve many communities like the rural areas, they did serve very large communities and they did not have enough caregivers to see to the needs of all the people. In Village D there was no method of reporting to the clinic on the health status of the patients. The clinic complained that the patients only came to them when they very ill because the caregivers did not report on the patients.
Office building for HBC		None of the groups had office buildings. This meant they had no place to meet with one another and they also did not have a place where they could privately meet with their patients.	Village D and one of Village E's HBC groups did have HBC offices although it was not completely sufficient for all their needs.	Some HBC groups from Village E did not have an office and this meant they did not have a private place where they could meet or consult patients.
HBC administrative staff	HBC in Village B had administrative staff.	Even though Village B had administrative staff they were not effective. This group was disorganised. Village A and Village C HBC did not have administrative staff. This all contributed to disorganisation in the groups.	All the HBC groups did have administrative staff to see to the administrative needs of the HBC group.	

Indicators	Rural areas		Peri – urban areas	
	Strong points	Weak points	Strong points	Weak points
HBC working times	All had time-tables and working hours. Time-tables indicated where and when they worked to fit all the patients in to their days. Village C HBC group worked full day and was more effective	Village A and Village B HBC groups did not work full day which meant there were potentially more patients that could be assisted in a full work day but they were not seen because they only worked half day.	The Village E HBC groups worked a full day to see as many patients as they could.	Village D caregivers only worked half day and could not see all the patients in a day.
HBC funding		None of the groups received formal funding for the groups. This meant there was no money for the caregivers for transport or money for air time to phone for work related aspects. Everything that the caregivers needed financially they had to pay from their own pockets.	All the HBC groups received funding every month. They received funding for all their work related needs except for transport.	
HBC group members stipend	According to the NGO the caregivers got R200 a month.	According to the caregivers they did not receive any stipend at all in a month. Most of them only received child support grants every month from the government to support their children. This meant that if they had to pay for transport or air time they had to take money from these grants. This is also causing caregivers to leave HBC and other not joining because they do not get paid.	All the caregivers were paid a stipend of R1 000 a month. The caregivers did, however, complain that this amount was not enough in a month to cover their monthly expenses.	
Payment for HBC services by patients	HBC services were free to the patients.		HBC services were free to the patients.	
HBC training	The Village A and Village B HBC caregivers were trained in basic HBC care, DOTS and other health related care.	Village C HBC caregivers did not received training although they fell under the same NGO as the other two groups.	All the HBC groups caregivers were trained in basic HBC care, DOTS, nursing and other health related care.	
Formal employment of HBC group members	Only the coordinators were formally employed.	All the caregivers were volunteers which made them more dispensable. No formal contract meant no hassle when legal issues arise such as asking a caregiver to leave the group if they did not do their work.	Only the coordinator of one of Village E and the retired nurse of Village D HBC were formally employed. Although the caregivers were volunteers, they were getting paid every month.	Most of the caregivers were volunteers which made them more dispensable. No formal contract meant no hassle when legal issues arise such as asking a caregiver to leave the group if they did not do their work.
HBC caregivers age	Most of the caregivers were 30 years and older. This made them more mature to work with sick people. This could at times be an emotional job and the caregivers needed to be emotionally mature for this.		Most of the caregivers were 33 years and older. This made them more mature to work with sick people. This could at times be an emotional job and the caregivers needed to be emotionally mature for this.	

Indicators	Rural areas		Peri – urban areas	
	Strong points	Weak points	Strong points	Weak points
Number of caregivers in HBC group		The number of caregivers differed between 8 and 25. The number of communities that they served was between eight and nine. This meant sometimes there were only one or two caregivers per area. This lack of caregivers also led to less patients being served because they had to cover such large areas with only a few caregivers.		The number of caregivers differed between 16 and 25. The number of communities that they served was between one and nine. This meant sometimes there were about two caregivers per area. This lack of caregivers also led to less patients being served because they had to cover such large areas with only a few caregivers.
HBC supervisors	All the groups had supervisors. The supervisors made sure the group members were doing their work correctly. Those that did not do their work were asked to leave the group. The supervisors were also educated people. They could assist the caregivers if they had trouble with the patients.		All the groups had supervisors. The supervisors made sure members were doing their work correctly. Those that did not do their work were disciplined by taking away their leave or stipend and if that did not serve as deterrent they were asked to leave the group. The supervisors were also educated people. They could assist the caregivers if they had trouble with the patients.	
Support group for people living with HIV AND AIDS	Only Village C had a support group. People living with HIV and AIDS got together to talk to one another about the disease and how it affects their lives and they support one another.	The other areas did not have any support groups that the clinic, HBC and the participants knew about. Therefore no support system for the participants beside HBC and their families existed.	The churches mostly supported the people living HIV and AIDS.	No HIV and AIDS support groups
HBC referral	Most of the time the clinics referred the patients to HBC which was good because then the clinic knew who the patients were that received HBC because there were no records being kept of the patients at the clinic that received HBC.		Most of the time the clinics referred the patients to HBC which was good because then the clinic knew who the patients were that received HBC. The caregivers also walk door to door to offer people their assistance.	
HBC activities provided to patients	Apart from the lack of nursing care the HBC groups did provide other activities that the patients were too weak to do. This meant that the patients had more time to get better.		Apart from the lack of nursing care the HBC groups did provide other activities that the patients were too weak to do. This meant that the patients had more time to get better.	Not all of the caregivers from Village D provided domestic activities and these activities had to be done by the weak patients.
HBC and water		The households collected less water than what HBC needed for their HBC activities.		The households collected less water than what HBC needed for their HBC activities.

CHAPTER 9
References

Anonymous (2002). **Water for All from Where?** Archimedes Vol 44 (1): 16-17.

Anonymous (2006). **Enabling Home-Based Care in South Africa** (online). URL: **http://www.jnj.com/community/aids/community/home.htm.**

Ashton PJ and Rasamar V (2002). **Water and AIDS: Some Strategic Considerations for Southern Africa.** Hydropolitics in the Developing World: A Southern African Perspective. Pretoria: African Water Issues Research Unit (AWIRU), p 217-235.

Bester JW and Austin LM (2000). **Design, Constrution, Operation and Maintenance of VIP in South Africa.** CSIR. Pretoria. WRC Report No 709/1/00. Water Research Commission, Pretoria, South Africa.

Campbell, C. & Foulis, C. 2004. **Creating Contexts for Effective Home-based Care of People Living with HIV/AIDS.** Denosa Curationus, Vol 27 (3), p5-14

Crewe M (2000). **South Africa: Touched by the vengeance of AIDS.** South African Journal of International Affairs 7: 2.

Curtis V, Cairncross S and Yonli R (2000). **Domestic hygiene and diarrhoea-pinpointing the problem.** Tropical Medicine and International Health 5: 22-32.

Department of Health (2000A). **HIV/AIDS and Sexually Transmitted Diseases in the Workplace.** Pretoria, South Africa.

Department of Health (2000B). **HIV/AIDS/STD Strategic Plan for South Africa 2000-2005.** Pretoria, South Africa.

Department of Health (2000C). **Cholera in KwaZulu Natal**. Internet URL: http://www.doh.gov.za.

Department of Health (2003). **Appraisal of home/community-based care projects in South Africa 2002-2003.** Pretoria, South Africa.

Department of Health (2004). **Strategic Priorities for the National health System 2004-2009.** Pretoria, South Africa.

Department of Water Affairs and Forestry (2005). **Annual Report. Programme 3: Water Services.** Pretoria, South Africa.

Dunker L (2001) **The KAP tool for Hygiene. A manual on: knowledge, attitudes and practices in the rural areas of South Africa.** Water Research Commission Report TT144/00. Water Research Commission, Pretoria, South Africa.

Dunker LC 2002. **Hygiene Awareness for Rural Water supply and Sanitation Projects.** Division of water, Environment and Forestry Technology (CSIR). Pretoria. WRC Report No 819/1/00 Water Research Commission, Pretoria, South Africa.

ECA (1999). **Integrated water resources management: Issues and options in selected African countries.** Publication FSSDD/ENV/044/98/rev, United Nations Economic Commission for Africa, Addis Ababa.

Gilman RH and Skillicorn P (1985). **Boiling of drinkingwater: can a fuel-scarce community afford it?** Bull World Health Organ 63:157-63.

Hayes C, Elliot E, Krales E and Downer G (2003). **Food and water safety for persons infected with human immunodeficiency virus.** Clinical Infectious Diseases 36: S106-S109.

Health Summit (2001). **HIV/AIDS and TB: The Dual Epidemic and Its Challenges.** Discussion Paper. Johannesburg, South Africa.

Hutchings A and Buijs G (2004). **Problems of Water, AIDS and Home-based Care: Case Study from Rural Northern KwaZulu Natal.** Africanus, Vol 34 (2), p77-78.

Izindaba (2001). **AIDS Economics = Home Economics.** South African Medical Journal 91(7): 712-713.

Kamminga E and Schuringa MW (2005). **HIV/AIDS and water, sanitation and hygiene.** International Water and Sanitation Centre Website.

Karim QA (2000). **Trends in HIV AND AIDS infection. Beyond current statistics.** South African Journal of International affairs 7: 2

Kelly K et al. (2002). **HIV/AIDS, Economics and Governance in South Africa: Key Issues in Understanding Response: A Review 2002.** Johannesburg: USAID

Kgslushi R, Smits S and Eales K (2002). **People living with HIV/AIDS in a context of rural poverty: the importance of water and sanitation services and hygiene education. A case study from Bolobedu (Limpopo Province, South Africa).** Mvula Trust, Pretoria, South Africa.

Kiongo JM (2005). **The Millennium Development Goal on poverty and the links with water supply, sanitation, hygiene and HIV/AIDS.** IRC International Water and Sanitation Centre.

Leclerc H, Schwartzbrod L and Dei-Cas E (2002). **Microbial agents associated with waterborne diseases.** Critical Reviews in Microbiology 28: 371-409.

Lindsey E (2002). **Community Home-based Care in Resource-limited Setting: A Framework of Action.** World Health Organization, Geneve.

Moe CL, Sobsey MD, Samsa GP and Mesolo V (1991). **Bacterial indicators of risk of diarrhoeal disease from drinking water in the Phillipines.** Bulletin of the World Health Organization 69:305-317.

Morse SS (1995). **Factors in the emergence of infectious diseases.** Emerg Infec Dis 1:7-15

Patel M and Isaacson M (1989). S**urvival of *Vibrio cholera* in African domestic water storage containers.** South African Medical Journal 76: 365-367.

Payment P, Siemiatycki J, Richardson L, Renaud G, Franco E and Prevost M (1997). **A prospective epidemiological study of gastrointestinal health aspects due to the consumption of drinking water.** International Journal of Environmental Health Research 7: 5-31.

Payment P, Richardson L, Siemiatycki J, Dewar R, Edwardes M and Franco E (1991). **A randomized trial to evaluate the risk of gastrointestinal disease due to consumption of drinking water meeting current microbiological standards.** American Journal of Public Health 81: 703-708.

Potgieter N, Obi CI, Bessong PO, Igumbor EO, Samie A and Nengobela R (2005). **Bacteriological contamination of vhuswa, a local weaning food, and stored drinking water in impoverished households in the Venda region of South Africa.** J Health, Pop Nutr 23(2): 150-155.

Potter A and Molose V (2005). **Access to Clean Water Crucial in Fight Against HIV/AIDS.** The Water Wheel 4(6):18-20.

Republic of South Africa (1993). **South African Water Quality Guidelines**. Vol 1: Domestic use. Department of Water Affairs and Forestry (DWAF). Pretoria: The Government Printer.

Republic of South Africa (1994). **White Paper on Water Supply and Sanitation Policy.** Department of Water Affairs and Forestry Directorate Communication Services. Pretoria.

Republic of South Africa (1996A). **Constitution of the Republic of South Africa, Act 108 of 1996.** Government Gazette. Vol. 378 (108). Cape Town.

Republic of South Africa (1996B). **National Sanitation Policy.** White Paper. Department of Water Affairs and Forestry (DWAF). Pretoria: Directorate Communication Services.

Republic of South Africa (1997A). **National Water Policy for South Africa.** White Paper. Department of Water Affairs and Forestry (DWAF). Pretoria: Directorate Communication Services.

Republic of South Africa (1997B). **Water Services Act.** Government Gazette. Vol 390. Cape town

Republic of South Africa (1998). **The National Water Act, Act No 36 of 1998** (online). URL: http://dwaf.pwv.gov.za/Documents/Policies/html.

Republic of South Africa (2001A). **Free Basic Water.** Strategy document. Department of Water Affairs and Forestry (DWAF). Pretoria: Directorate Communication Services.

Republic of South Africa (2001B). **Basic Household Sanitation.** White Paper. Department of Water Affairs and Forestry (DWAF). Pretoria: Directorate Communication Services.

Republic of South Africa (2004). **National Health Act no 61 of 2003.** Government Gazette. Vol 469. Cape town.

Republic of South Africa (2005). **National HIV and Syphilis antenatal sero-prevalence survey in South Africa 2005.** URL: www.health.gov.za.

Sobsey MD (2002). **Managing water in the home: Accelerated health gains from improved water supply.** World Health Organization Sustainable Development and Healthy Environments. World Health Organization, Geneva. WHO/SDE/WSH/02.07.

Stats SA (2001). **Statistics on South Africa**. URL: www.statssa.gov.za

Taylor LH, Lathham SM, Woolhouse ME (2001). **Risk factors for human disease emergence.** Philos Trans R Soc Lond B Biol Sci 356: 983-939.

Theron J and Cloete TE (2002). **Emerging waterborne infections: contributing factors, agents and detection tools.** Critical Reviews in Microbiology 28: 1-26.

Tumwine JK, Thomson J, Katuikatua M, Mujwahizi M, Johnstone N and Porras I (2003). **Sanitation and hygiene in urban and rural households in East Africa.** Environmental Health Research 13: 107-115.

UNAIDS (2000A). Report on the Global HIV AND AIDS epidemic. Geneva: Joint United Nations Programme on HIV AND AIDS.

UNAIDS (2000B). **AIDS epidemic update: December 2000.** Geneva: Joint United Nations Programme on HIV AND AIDS.

UNAIDS (2006). **Joint United Nations Programme on HIV/AIDS: South Africa.** Available from: http://www.unaids.org/en/geographical+area/by+country/south+africa.asp.

USAID (2004). **Safe water system improves health of people living with HIV**.

Uys L and Cameron S (2003). **Home-based HIV/AIDS Care.** Oxford: University Press, South Africa.

Ward S et al. (2001). **Incorporation of Water, Sanitation, Health and Hygiene Issues into Soul City, a Multi-media Edutainment Vehicle.** Soul City. WRC Report No 981/1/00. Water Research Commission, Pretoria, South Africa.

Whiteside AW and Sunter C (2000). **AIDS: The challenge for South Africa.** Cape Town: Human & Rosseau/Tafelberg.

WHO (2003A). **The right to water**. WHO, France.

WHO (2003B). **Domestic water quantity, service, level and health.** WHO, Geneva.

World Bank (1999). **Intensifying action against HIV AND AIDS in Africa. Responding to a development crises.** Washington DC: World Bank

World Health Organization (2003). **Key Policy Issues in Long Term Care** (Online)**.** Available from: http://www.who.int/ncd/long_term_care/index.htm (Accessed 20 December 2005)

WHO (2004). **Guidelines for drinking water quality, 3rd Ed, Volume 1. Recommendations**. World Health Organisation, Geneva.

http://www.local.gov.za/html (2005). August 4

WRC (2005). **Human rights project workbook 2**. WRC report TT 296/07. Water Research Commission, Pretoria, South Africa.

Wright JA, Gundry SW and Conroy R (2004). **Household drinking water in developing countries: A systematic review.** Tropical Medicine and International Health 9**:** 106-117.

Impacts of the Provision of Water, Sanitation, Hygiene and Home Based Care Services to HIV and AIDS Infected People

Report to the
Water Research Commission

by

Natasha Potgieter

with project team

Rachelle Potgieter & Paul Jagals

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CD attached consisting of full-colour copy of this report as well as Appendix: Household, water supply and sanitation line drawings and photographs

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PREFACE

How I perceive the HIV/AIDS pandemic

by

T. L. Mabale

The HIV/AIDS pandemic, its spread, control and the awareness thereof reached the helms of being abuzz during the middle of the year 2000. I was suffering from hypertension and went for medical attention at Malamulele Hospital where I was admitted for observation. Days went by without my blood pressure subsiding. It then crossed my mind that I must consent for VCT to make sure of my HIV status. I tested positive after my blood was tested. Instead of becoming sulky and negative minded I decided to accept my status and to go on spreading awareness so as to help others.

From there many things happened. I acquainted myself with the Department of Health which did a wonderful job for me and others as well. I am presently on ARVs from Malamulele Hospital. I decided to form a support group called Lemukisa at the Xigalo clinic. I have mostly female members who are very positive with life but males living with HIV/AIDS are still shy to come out in the open about their HIV+ status. But I say to them HIV/AIDS is not worth dying for. To live positively saves lives.

I appeal to those who are HIV- to stay that way and always follow the advice of the Department of Health. To those who are HIV+ I say there is hope at the end and being HIV+ is not the end of their lives. The Department of Health is doing all it can to help us. I support the Department of Health. I say to you by living positively I am healthy and very strong. Because of this many people doubt my status. All the members of the community accept and love me very much. I would like to expand Lemukisa support group to the point where HIV/AIDS are not more stigmatised.

Remember that God loves us all and we must live happily and positively.

Tsakani Lucas Mabale

EXECUTIVE SUMMARY

This report is the result of an eight month study, commissioned by the World Health Organization (WHO) through the Water Research Commission. However, it was soon realised during the initial phases of the study that this study could provide very useful information in the provision and planning of services to HIV and AIDS affected people in South Africa. The study was expanded to include aspects of importance to South Africa and the Water Research Commission funded the additional research done by the project team.

BACKGROUND

The spread of the human immunodeficiency virus (HIV), which causes Acquired Immunodeficiency Syndrome (AIDS) in sub–Saharan Africa, is taking place at an alarming rate. More than 70% of all adults and children infected with HIV/AIDS (25.3 million people) live in sub-Saharan countries (Crewe, 2000; UNAIDS, 2000a; 2000b). Approximately 3.8 million adults and children had died during 2000 as a direct result of HIV and AIDS or AIDS related diseases (Karim, 2000; UNAIDS, 2000b). South Africa faces major challenges in addressing the severe impact of the HIV and AIDS epidemic. At the end of 2005 the estimated number of adults and children living with HIV and AIDS in South Africa, was 5.3 million (USAID, 20053). HIV and AIDS typically strikes adults in the prime of their lives when these people are the most economically active, and although rates of infection are higher in women than men, infection rates peak between 18 to 40 years for both men and woman (World Bank, 1999; Karim, 2000; UNAIDS, 2000A; 2000B). Children are also at risk of infection, and at the end of 2001, approximately 250 000 children between the ages of 0 and 15 years were infected with HIV in South Africa (Whiteside and Sunter, 2000). Not only does the HIV and AIDS epidemic hold a devastating effect on the health and well-being of the South African nation, but it also holds grave consequences for the socio-economic development of South Africa.

HIV and AIDS is not a water-borne disease. Water, HIV and AIDS therefore appear to bear very little relation to each other. However, closer scrutiny reveals significant linkages between HIV and AIDS and water. These linkages hold serious long-term implications for the effective management of water resources and, above all, the provision of safe water to individuals and communities. Studies in Canada have suggested that 35% of endemic gastrointestinal illness in a community might be due to drinking water (Payment et al., 1991; 1997). Provision of safe water to HIV positive and AIDS individuals is paramount because they live with compromised immune systems and are therefore more susceptible to water-borne diseases (USAID, 2004). In reality their requirements for safe water are greater than that of uninfected individuals (Ashton, 2000). In developing countries, many people are living in rural communities and have to collect their drinking water some distances away from the household and transport it back in various types of containers (Sobsey, 2002). Microbiological contamination of the water may occur between the collection point and the point of use in the household due to unhygienic practices causing the water to become a health risk (Sobsey, 2002). Even if the water supply is of acceptable microbiological quality, other transmission routes of diarrhoea such as presence of animals on the dwelling, poor hygiene practices, inadequate excreta disposal, unsafe handling of foods and improper water storage conditions, could be associated with the risk of diarrhoeal diseases, especially in people living with HIV and AIDS (Moe et al., 1991; Curtis et al., 2000; Sobsey, 2002). Hayes and co-workers (2003) have shown that people with HIV and AIDS are more susceptible to serious food- and waterborne illnesses and that secondary infections transmitted through food and water contribute greatly to the morbidity and mortality of HIV infected individuals.

The majority of HIV and AIDS patients are cared for within their local communities. During 2001 and 2002, the South African Department of Health has conducted an audit of all home/community-based care projects in the country (DOH, 2003). The results indicated that there were 892 home/community-based care related projects around the country of which 50.4% were non-governmental organizations (NGO's) and 36% were community-based organizations (CBO's) (DOH, 2003). These caregivers need water for bathing patients, washing soiled linen and clothing, keeping the home environment clean, assisting the patients in taking medicine and preparation of food. Water supply points and latrines have to be accessible and close to where they are needed to reduce the burden of a long walk and to maintain the dignity of patients and caregivers. Therefore the caregivers needs to be properly trained in safe water handling and sanitation practices, personal hygiene, domestic hygiene, food hygiene and safe waste water disposal and drainage to effectively reduce the exposure to water and sanitation related diseases.

The situation for HIV and AIDS infected individuals living in sub-Saharan Africa is exacerbated by the fact that a large proportion of the African population has no access to safe water or adequate sanitation. In rural Africa 65% do not have access to an adequate supply of safe water and 73% are without adequate sanitation (ECA, 2001). In urban areas, 25% and 43% have no access to safe water or sanitation respectively. High numbers of rural and urban Africans therefore suffer from water related diseases. The far reaching political and development implications with regard to the lack of access to safe water and adequate sanitation in South Africa are similar to those of the rest of Africa. In 2001 there were 44.8 million people living in South Africa. Of these, 5 million (11%) had no access to safe water supply and 18.1 million (41%) did not have adequate sanitation services (Statistics South Africa Census, 2001). However, South Africa has reduced this inequality and it is estimated that 9 million people have been provided with water supply since 1994 (Strategic Framework for Water Services, September 2003).

METHODOLOGY

This report is based on the following:

- National review of policies on water, sanitation and home-based care and HIV and AIDS
- Key informant interviews (Semi-structured interviews based on a list guiding questions conducted with staff of the NGO's, Voluntary Counselling and Testing centres (VCT), nurses in the clinics serving the study areas, representatives of the local Municipalities and people living with HIV and AIDS) were administered to assess to what extent these policies were impacting at various levels and to determine the general state/condition of water, sanitation, health and home based care services
- Review of local water and sanitation facilities and the type and state of water and sanitation infrastructures in the study areas
- The water and sanitation coverage in the study areas
- The continuity of the water supplies in the communities
- The consumer patterns of water in the households
- The different uses of water in the households
- The condition and placing of sanitation systems at the households

RESULTS

The results of this assessment demonstrated that the people in the study areas mostly lived below R1 500 a month. Most of the households only lived from the social grants that the government provided. These social grants included pension grants, disability grants (which HIV and AIDS infected people also received) and child support grants.

Most of these areas were serviced with safe water in some serviced form. They did not always have easy access to these water sources nor was the water always available to them. It could be concluded that this had an effect on the quantity of water that these people brought into their households. None of these areas brought in the minimum baseline of 25 lpppd according to the RDP guidelines. This meant that some area of their general well being related to water was suffering due to the lack of sufficient quantities of water.

Apart from the fact that the households brought in very little water for personal use, they also created opportunities for the water to get contaminated during storage at the point of use. They did not always take precautions to treat and protect their water. Many believed that the water provided by the government was treated water and they did not have to treat or protect it properly. The storage conditions were also not always the safest conditions to prevent water from being contaminated. These poor conditions included the dung smeared floors, root of the fires in the huts and insects which were also ever present in these huts due to the animals and the uncovered left-over food.

Collecting water from remote sources when the water is not available at the taps or the households not having tap water was a formidable task. To get to the rivers and springs, the water collectors had to walk through bushes and uneven terrain to get to the sources, climb over farm fences, many times through secluded areas or cross busy roads and walk in unbearable heat in the summer times or rain in the rainy seasons which were very exhausting for weak people. Those households whose only alternative water source was the next village's standpipes had to walk from 2 to 5 km to get there and then back again.

Although most of the households that participated in the study did have toilets, many of these toilets were constructed by the participants themselves and it was not safe to use. Toilets that were provided by the RDP schemes were not built according to VIP guidelines because they were given to local people to build and follow-up guidance were not efficient. These toilets were not only used by weak elderly people and young children, but also by people living with HIV and AIDS. The toilets bore ample opportunity to cause/transmit diseases but they also were structurally dangerous. These toilets were also not user friendly for Home Based Care (HBC) services where the caregivers had to assist their patients in using the toilets. The toilets were many times narrow and made it difficult for two people to fit into these toilets. The distance of the toilets from the households also made it difficult for weak patients to walk to.

An attitude of apathy also reigned in these areas. The people did not want to clean their toilets. Many felt that the toilets were not worth cleaning and felt that they would only clean their toilets if the government provided them with toilets, but even the RDP toilets (provided by the government), were not cleaned.

From the interviews it was clear that the households in the study were more likely to wash their hands after they had used the toilet and before eating their meals than any other time. Most of the households in all the areas disposed of their household waste in pits in their own yards because they did not have refuse removal, or burned it or dumped it in the open streets. The presence of animal faeces meant that animals did have access to these waste disposal sites in the yards and in the open streets. Children also had access to these sites because they were not fenced off. These waste disposal sites posed various dangers to the environment, animals and humans. The animal faeces and other waste could wash into the ground and water sources in the rainy seasons and thus polluting the water sources. Animals and children could also pick up various potential diseases from these sites and spread it inside the household cohort.

All the HBC groups were established quite recently. Various organizations were involved with HBC but it was the NGOs that played the more prominent roles in HBC as they managed these groups. The churches had their own relief groups that provided food parcels, clothes and prayer for the poor and sick. They were not closely working with HBC and did not see it as their sole duty. The communities were not 100% aware what HBC was or what they did. This meant that HBC was not as exposed to the communities as they wanted to or thought they were. Better exposure to the communities meant better community participation in caring for the sick and more community members could also volunteer for HBC and so alleviate stress on the caregivers. This could assist HBC in identifying those that urgently need HBC and in training family members to care for their own people in their homes and to avoid getting infected.

Water plays a very important role in HBC. Caregivers used water for hand washing, bathing the patients, brushing their teeth, cleaned the dwelling and the yard, cleaned the toilet, and did the laundry, drinking, cooking and preparing food. They also used it for medical purposes such as drinking medication, cleaning wounds and keep the patients and their environment hygienic to improve the lives of the patients and to have a positive impact in a given community.

The aim of this study was to provide insight into the extent to which water, sanitation and hygiene issues/practices are important and relevant for service providers and people living with HIV and AIDS, especially with regards to home-based care. In addition, it aimed to provide information on the development of water, sanitation and hygiene mechanisms and how HIV and AIDS infected individuals, their carers, and other household members' access to these services, especially in resource poor situations. Accordingly two rural and two peri-urban communities in different regions of South Africa with different cultural groups were selected. Therefore the objectives of the study were to:

- carry out a short-term assessment of water, sanitation and hygiene resources in rural and urban communities and households of HIV and AIDS infected individuals,
- establish needs assessment criteria:
- obtain information from people concerned, communities, service agencies about their experiences and recommendations for strategies related to water supply (domestic and productive), sanitation and hygiene at household, community and national levels
- provide information for advocacy on water, sanitation and hygiene in relation to home-based care through emphasizing the multi-sectoral character of HIV and AIDS.

RECOMMENDATIONS

The following is a summary of the specific recommendations, which are expanded upon in this report:

1. In the rural areas where people did not have easy access to the clinics, it is recommended that more mobile clinics should be mobilised more frequently to make it easier for these people to have access to primary health care.
2. More caregivers should be trained and deployed in the communities where they live. This would increase the effectiveness of HBC because more patients could be cared for in their own homes.
3. Good administrative systems should be developed and maintained by HBC and the NGOs. HBC groups lack resources such as their own office buildings, administrative resources such as computers and stationary to keep better record of patients and the volunteers, communication systems and transport. This would enable the caregivers to communicate

with each other and the clinics and hospitals and ensure faster reaction time when a patient urgently needs to go to the hospital or clinic.

4. The caregivers should be given training and suitable work schedules and could be employed in the health sector to ensure that they see as many patients as possible in a day. People lose interest in HBC because they either do not get paid at all or they are paid too little. This will also decrease the unemployment rate in the country.
5. More males should be encouraged to become caregivers. This will enable HBC to give care to male patients if they prefer male caregivers.
6. Support systems should be developed not only for the patients but also for the caregivers to help them deal with the illness and death that surrounds them in their working environment.
7. Funding to provide the caregivers with proper HBC kits and protective clothing is fundamental.
8. Community leaders and members should become more involved in HBC to assist the caregivers to make their jobs easier. More HIV and AIDS awareness campaigns should be done amongst the communities so that they understand the disease better and are more tolerant towards people living with HIV and AIDS. This will encourage the people to ask for assistance from HBC.
9. Although local governments are in the process of providing basic water services, they should reconsider the effectiveness of the current systems. Although they claim their water systems are according to RDP standards from this study, it is not the situation in all the areas. Larger water systems, more water supply points and treated/safe water supplies are needed to correct this problem. People do not collect enough water in their houses from water supply points because of the difficulty of collecting the water.
10. Educating people are a key factor that can lead to better health. People need to be better informed about the quality of water they receive. In some areas people believe that the ground water they receive is treated and therefore they do not need to treat their water at the point of use.
11. Sanitation systems should also be reconsidered. The communities that do not have toilets should become first priority. Existing toilets need to be upgraded to VIP toilets.
12. People in the communities should be equipped with skills needed to build the VIP toilets according to specifications. It is also imperative that this process is continually monitored to ensure that the sanitation systems are properly constructed.
13. Education on the dangers of unimproved pit toilets and veldt defecation should be provided to communities.
14. Education on how to operate and maintain the sanitation facility should be provided in order for households to understand the technical aspects of the system and the benefits the toilet has to their health.
15. Refuse removal should be more available to communities. This would ensure a clean environment. Education and awareness campaigns could assist and inform people to know how to keep their toilet clean and what the safest way of disposing of the household waste is.

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Publications

Potgieter N, Koekemoer and Jagals P. A pilot assessment of water, sanitation, hygiene and home-based care services for people living with HIV/AIDS in rural and peri-urban communities in South Africa. Water, Science and Technology 2007; **56 (5)**: 125-131.

Research underpins the value of water in fight against AIDS. Water Wheel 2007; **July/August** Edition:18-21.

Presentations

Potgieter N, Koekemoer R and Jagals P (2007). A pilot assessment of water, sanitation, hygiene and home-based care services for people living with HIV/AIDS in rural and peri-urban communities in South Africa. IWA Advanced Sanitation Conference, Aachen, Germany. 13-15 March 2007.

Potgieter N, Koekemoer R, TG Barnard and Jagals P (2007). Sociology of water and sanitation as reflected by water and sanitation infrastructures/practices, health related microbial water quality and quantity at point of use in rural and peri urban households of people living with HIV and AIDS. IWA Water and Health Conference, Tokyo, Japan. 09-15 September 2007.

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- PHC: The clinics from Village A, Village B, Village C, Village D and Village E
- NGO: Centre for Positive Care
- NGO: Legatus
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ACRONYMS

AIDS	-	Acquired Immunodeficiency Syndrome
CBC	-	Community based care
CBO	-	Community based organisations
DOH	-	Department of Health
DOTS	-	Directly Observed Treatment Short-course
DWAF	-	Department of Water Affairs and Forestry
HBC	-	Home-based Care
HIV	-	Human Immunodeficiency Virus
NGO	-	Non – governmental Organisation
PHC	-	Primary Health Care
PMTCT	-	Prevention of Mother to Child Transmission
RDP	-	Reconstruction and Development Programme
STD	-	Sexually Transmitted Disease
TB	-	Tuberculosis
VCT	-	Voluntary, Counselling and Testing

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CHAPTER 1

INTRODUCTION

1.1 BACKGROUND

Sub-Saharan Africa remains the region that is the worst-affected by the HIV and AIDS epidemic due to factors such as poverty, social instability, high levels of sexually transmitted infections, low status of women, sexual violence, high mobility (particularly migrant labour), and lack of good governance which predispose people to infection (UNAIDS, 2006). Efforts to stem the tide of new infections have only had limited success because behaviour change and social change are long-term processes which cannot be addressed in short term goals. Vulnerability to, and the impact, of the HIV and AIDS epidemic is proving to be most catastrophic at community and household level.

South Africa has the sixth highest prevalence of HIV and AIDS in the world, with approximately 18.8% of the population estimated to be infected. During 2005, the UNAIDS 2006 Global Report, estimated that 320 000 people died of AIDS related deaths in South Africa (UNAIDS, 2006). However, new infections are still increasing with no signs of reaching a natural limit. At the end of 2005, it was estimated that almost 5.5 million South Africans are living with the virus (RSA, 2005). This annual survey was based on a statistical model to estimate the prevalence of HIV and AIDS among women tested at state antenatal clinics. The national average of HIV positive women attending antenatal clinics in 2005 was 30.2% with Kwa-Zulu Natal province having the highest prevalence at 39.1% and Mpumalanga province at 34.8% a close second (RSA, 2005).

HIV infection rates initially are higher in women than men, peaking between 18 to 40 years of age for both men and woman (UNAIDS, 2000). Adults are typically affected by HIV and AIDS in the prime of their lives when people are economically most active. The increased morbidity and mortality rates amongst the economically active population group, often constituting the breadwinners, will lead to a reduction in human capital and wasted resources on education, training and experience (Kelly et al., 2002). This will have a devastating effect on the health and well-being of the nation, as well as grave consequences for the socio-economic development of South Africa. It is only quite recently been accepted that HIV and AIDS is not only a health issue, but a development issue that affects the water, sanitation and hygiene sectors within the social dimension of a nation (Kammiga and Schuringa, 2005).

While HIV and AIDS is not a waterborne disease, a closer scrutiny shows significant linkages between HIV and AIDS, water, sanitation and hygiene (Kammiga and Schuringa, 2005). Provision of safe water to people living with HIV and AIDS is paramount because due to their compromised immune systems they are more susceptible to diseases associated with poor provision of water, sanitation and hygiene (WSH) (Kammiga and Schuringa, 2005).

In South Africa, provision of water and sanitation are driven by constitutional rights of people especially if seen as a basic human need. People affected by HIV and AIDS have these same rights especially as good WSH provision is expected to enhance dignity and prolong lives (Ashton, 2000). In a society where approximately 61% of South Africa's 18 million children live in poverty and 7.9 million people are unemployed (this equates to an unemployment rate of 40.9%), the following factors should be taken into consideration when water, sanitation, hygiene and home based care strategies are developed:

- The hardship for infected individuals and their families begins long before they pass away
- The stigma related to suspected infection
- The fear and despair that follows diagnosis
- The loss of income and support when a breadwinner or caregiver becomes ill
- The diversion of household resources to provide care
- The terrible burden upon family members, particularly children caring for terminally ill parents
- The trauma of bereavement
- Children becoming orphans who must be placed with new families or orphanages

Strong progress has been made in terms of improving access to water and sanitation by the South African government. Nevertheless, census figures showed that, in 2001, of the 44.8 million people living in South Africa, five million (11%) still had no access to safe water supply and 18.1 million (41%) did not have adequate sanitation services (Statistics South Africa Census, 2001). It is not sure to what extent these figures would be applicable to the part of the South African population living with HIV and AIDS, nor is it clear whether specific WSH strategies were in place at the various levels of governance for people living with HIV and AIDS.

Another related area of uncertainty was whether strategies were in place to support home based care (HBC) for people living with HIV and AIDS. HBC is defined as any form of care given to ill people in their homes; this includes terminal illnesses, disabilities and HIV and AIDS (Lindsey, 2002). HBC is a strategy increasingly relied on by many countries adversely affected by HIV and AIDS. In South Africa public financing of HIV and AIDS programmes have steadily been shifting away from prevention of HIV and AIDS and more towards treatment, care and support (particularly at home) of individuals that had contracted the disease.

The numbers of HIV and AIDS patients requiring long-term care and management threaten to overwhelm weak health systems and infrastructures. Water, sanitation and hygiene are important underpinnings to home care strategies to care for those affected by HIV and AIDS. Therefore, home and community-based care are support initiatives that are set to increase in South Africa (Kelly et al., 2002).

It has been predicted that by 2025 half of the world's population can be facing serious water shortages and South Africa will be one of these countries (Anon, 2002). South Africa is classified as a semi-arid country (RSA, 1993). According to Ashton and Rasamar (2002) the country's water resources needs to be successfully managed to ensure that water is available for al sectors of life because when water quantity and quality are compromised, proper health care cannot take place and mortality rates will increase.

This document is a review of the policies and strategies related to water and sanitation in South Africa on the one hand, and policies and strategies on home based care on the other. The reviewers also investigated possible links between the concepts in terms of strategic thinking and policy-making.

1.2 WATER STRATEGIES IN SOUTH AFRICA

The inception of the policy on community water supply and sanitation in 1994 provided the foundation for the legislative and regulatory framework governing the water sector in South Africa (RSA, 1994). This included the inception of a national programme to address backlogs of water and sanitation services especially those for the rural and the poor.

The new national water policy recognised that local governments would eventually take responsibility for service provision, although the majority of South Africa's poor people still lived in areas without any workable form of local government (RSA, 1994). The policy also referred to the right – later enshrined in the new South African constitution – of access to basic water and to an environment not harmful to the health or well-being of an individual.

The Department of Water Affairs and Forestry (DWAF) then launched the Community Water Supply and Sanitation Programme to put the policy into practice and start delivery of basic water services in the areas of greatest need. The subsequent experiences illustrate how the various aspects of a national water programme can relate to each other in order to provide an effective framework for sustainable implementation (RSA, 2001B).

1.2.1 POLICY AND LEGISLATIVE FRAMEWORK

Following the 1994 policy, the Water Services Act of 1997 gave legal basis to the constitutional right of access to sufficient water and an environment not harmful to health. It also set out how to implement the requirement that local government take responsibility for water services (RSA, 1997B). The main objectives of the Water Services Act were to provide for (RSA, 1997B):

- the right of access to basic water supply and basic sanitation in an equitable way
- the setting of national standards and norms and standards for tariffs in respect of water services
- the monitoring of water services
- financial assistance to water services institutions

The Act distinguished between water services authorities (which have a governance function) and water services providers (which have a provision function) (RSA, 1997B):

- A water services authority is a local government body responsible for services, which is legally obliged to consult communities in preparing its plans. There can only be one water services authority in any specific area (that is, water services authority areas cannot overlap) (RSA, 1994).
- A water services provider is an organisation that actually provides water services to the people – this might be the authority itself, another authority, a water board, a community-based structure or a private company. The Act regulates the relationship between authorities and providers and requires the relationship to be formalised in a contract (RSA, 1997B).

It is also important that Water Services Institutions provide all consumers with an ongoing programme of easy-to-understand information about correct water management practices within the home, as prescribed in the Regulations (DWAF, 2005). The Department of Water Affairs and Forestry (RSA, 1997A) has committed themselves to ensuring: "*Some, For All, For ever*", which sums up the goals of:

- access to a limited resource (some)
- on an equitable basis (for all)
- in a sustainable manner, now and in the future (for ever)

DWAF is the *de facto* WSP (water services provider) in many projects around the country, primarily in former homeland areas (DWAF, 2005). DWAF is responsible for:

- developing norms and standards for the provision of sanitation
- co-ordinating the development by the municipalities of their water services
- establish legislation, policies, norms and standards
- co-ordinate and monitor national programmes
- regulate service provision
- intervene where there is a lack of capacity

In 1998 a new National Water Act came to light. The purpose of the National Water Act (RSA, 1998) was to ensure that the nation's water resources were protected, used, developed, conserved, managed and controlled in ways which take into account amongst other factors:

- meeting the basic human needs of present and future generations
- promoting equitable access to water
- promoting the efficient, sustainable and beneficial use of water in the public interest
- providing for growing demand for water use

To ensure acceptable levels of service to the people, the Act instructs DWAF to regulate water services through compulsory national standards, norms and standards partners in delivery (RSA, 1998). By these means, between 1994 and 2002, new water services have been constructed for a design population of seven million people. This is one of the largest and most rapid programmes of service provision in Africa (RSA, 1998).

In the absence of a local government planning framework, area forums were set up throughout the country to prioritise projects. At the project level, community-based Project Steering Committees (later led by elected local government representatives) were set up (Malau, 2002). To help ensure sustainable services, DWAF prepared guidelines to help these committees to plan the implementation and maintenance of their projects. Some funds, particularly for stand-alone projects in small (less than 5,000 people) communities, were channelled through the Mvula Trust, which had developed community management delivery models (Malau, 2002).

In 1996, as the capital works programme expanded rapidly, DWAF recognised that progress was constrained by a shortage of delivery capacity. So it started four partnerships with private-sector consortia to undertake BoTT (Build, Operate, Train and Transfer) contracts in the four provinces (Eastern Cape, KwaZulu-Natal, Mpumalanga and Limpopo Province) where the backlog of services was the greatest. The aim was to achieve a flexible mechanism for speeding up delivery by minimising administration and bureaucracy, and by using the resources of the private sector to achieve the vision of the public sector (Anon, 2006).

These partnerships had mixed results. The extra capacity available through the BoTT contracts was not fully used since many Project Steering Committees preferred alternative arrangements, while the BoTT contractors were not able to respond with sufficient flexibility

to the unpredictable demands. This resulted in relatively high unit costs. In addition, although the BoTT consortia included skills in institutional development and social communication, there was little evidence that the BoTT system was any more successful than the traditional government system in transferring schemes to sustainable community management. Approaches that emphasise construction tend to mean that cost recovery and sustainability suffer, and the BoTT system was no exception (Anon, 2002).

1.2.2 EQUITY OF ACCESS, AND THE FREE BASIC WATER POLICY

Under the 1994 policy, the government funded the capital costs of new services infrastructure while the users covered operation and maintenance costs – a financial division that applies in many other countries (RSA, 1994). Towards the end of the 1990s, it became clear that the high running costs of many schemes meant that poorer people could not afford the charges and so this arrangement would not be adequate to ensure either sustainability or equity (RSA, 2001A). A substantial and important part of the population was being denied access to water and sanitation services, and community unity and support for those services were being undermined by conflict.

In response, using a combination of political and legislative mechanisms, the government developed a free basic water policy. Basic water supply means "*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 households, to support life and personal hygiene*" (DWAF, 2005). This encourages water services authorities to structure their charges for water to provide the first 6,000 litres per household per month free of charge (RSA, 2001A). The operating costs are covered by a combination of a rising block tariff above that consumption and a subsidy from the national budget to the local government specifically for basic service provision. With substantial political support, this policy had by 1 July 2002 been implemented in local government areas serving over 27 million people (RSA, 2001B).

The free basic water policy was, in 1999, heresy in an international context. The policy has, however, provided a valuable method to ensure that people's right of access to basic water supply is not limited by affordability (a principle increasingly recognised internationally) (RSA, 2001A). It has also helped to maintain the strong political impetus for the water and sanitation programme as responsibility is transferred from national to local government.

Basic water supply is summarised as access to clean drinking (safe, sufficient quality) water that is constantly available and accessible. The RDP standard of basic level of water supply is 25 litres of potable water per person per day (availability) within 200 meters from each dwelling (accessibility). Such services should be at least 98% reliable and be provided at a minimum flow rate of 10 litres per minute to satisfy typical peak demands of a communal street tap system. This amounts to about 6 000 litres per household per month for a household of 8 people. The volume of 6 000 litres per month has therefore been set as the target as a 'basic' level for all households in South Africa (RSA, 2001A).

According to the National Water Act of SA (RSA, 1998) a person may use water in or from a water resource for purposes such as reasonable domestic use, domestic gardening, animal watering, fire fighting and recreational use. For the purposes of this study, water use includes:

- taking water from a water resource
- storing water

- impeding or diverting the flow of water in a watercourse

According to Ward et al., (2001) the quality of water provided as a basic service must be in accordance with the currently accepted minimum standards with respect to health related chemical and microbial contaminants. In addition, it should be acceptable by consumers in terms of potability (taste, odour and appearance). In 2000, 80% of SA urban population had access to water facilities while only 50% of the rural population had access (Ashton and Rasamar, 2002). In rural and peri-urban areas, people prefer to use tap water because it is convenient, clean and generally considered safe to use. The children can also play safely at the taps (Ward et al., 2001).

Unfortunately, in areas where water is collected from yard taps or standpipes, it will be transported, stored and handled before it is consumed for drinking or preparing food. The people use 20 ℓ and 25 ℓ containers to transport the water in. Children helping their mothers use small 5 ℓ containers and vessels (Ward et al., 2001). These containers are transported by hand, head, wheelbarrow, animals driven carts and sometimes motor vehicles. There is generally ample opportunity for contamination of potable water during these intermediary steps. Collecting water is usually the women's work and it has its costs (Ward et al., 2001):

- endless hours lost for possible other activity
- physical effort in terms of exhaustion as well as neck, back and pelvic deformities
- threats of personal safety en route (rape, accidents on crossing roads)
- exposure to dangerous watering holes (animal attacks)

The three main uses of water are 1) direct consumption, 2) food preparation, and 3) personal hygiene. Where people have low level access to clean water, water is mainly used for food preparation and drinking and personal hygiene is not of importance. Personal hygiene is the most dispensable of the three water uses. If personal hygiene is ignored it could lead to water-washed diseases and infections which could be unfavourable to the immuno-compromised (Ward et al., 2001). Often the unhygienic practices are related to (RSA, 1996B):

- a lack of access to health and hygiene education
- inadequate water supplies
- poor facilities for the safe disposal of domestic waste
- inadequate sanitation

1.2.3 DEVOLUTION TO LOCAL GOVERNMENT

As part of their Integrated Development Plans, local government authorities are drawing up water services development plans to guide their operations. Through this process, local government authorities are setting targets for (RSA, 2000):

- The subsidy allocation which enables them to provide free basic water
- Tariff structures to be used for each category of user
- Percentage cost recovery which must be achieved
- Cost savings through leaks reduction and improved staff or technical efficiency

The newly established local governments are now taking up their planned responsibility for implementing projects; the benefit of having national or regional stand-by arrangements such as BoTT contracts is reducing.

1.2.4 ANALYSIS AND ONGOING ISSUES

1.2.4.1 Political context

The new government was elected democratically in 1994 on the promise of '*a better life for all*'. But with the elections in 1994 the South African government inherited a backlog of 14 million people without clean, safe water while 20 million people did not have access to adequate sanitation. Currently five million people still lack access to clean safe water, while 16 million people still lack access to adequate sanitation (www.local.gov.za, 2005).

The success of the national water and sanitation programme derived from the political context in which it was developed. It had a vision for South African society encapsulated in the aim of its Reconstruction and Development Programme (RDP) to '*provide peace and security for all, build the nation, link reconstruction and development, and deepen democracy*' (www.local.gov.za, 2005). The RDP emphasised that an improvement in the quality of life of the majority of South Africans was needed to enable economic growth, and that economic growth was needed to sustain that improved quality of life. There was thus a deep political commitment to programmes of service delivery (RSA, 1997A). The national water and sanitation programme was therefore part of a strong, shared national vision of a South Africa in which people would have opportunities to develop their skills and to use them productively to work for an income with which they could meet their basic needs. Therefore, the new Constitution of South Africa states that every person has the right to have access to (RSA, 1996A):

- health care services
- sufficient food and water
- social security, including, if they are unable to support themselves and their dependants, appropriate social assistance

It was also noticeable in the 1994 national elections that water was the second highest priority for rural voters (after jobs). The aims of the RDP were underpinned by the adoption in 1996 of a new constitution, which entrenched a Bill of Rights including extensive social, economic and environmental rights (RSA, 1996A). The community water supply and sanitation programme thus became not just a short-term activity by DWAF under the RDP, but an integral element of the whole nation's human rights programme.

1.2.4.2 Institutional capacity

Before 1994, DWAF already had a very substantial technical and operational capacity with a network of functional regional offices. This institutional capacity has been extremely important for the success of the programme to date, both for technical and project management and for the linkages to community, local government and provincial structures (RSA, 2000).

South Africa also has a relatively well-developed professional and industrial sector and can design, build, operate and provide equipment and materials required from within the country's resources (RSA, 2000).

Looking ahead, the main institutional questions relate to local government. It is difficult to transfer operational responsibility for water services in the poorest areas of the country from a relatively well-resourced national department to often weak local governments (RSA, 2000). Although the problems are very visible (through well-publicised public complaints), the success of the process will only be measured by the sustainability of services over the medium term.

1.2.4.3 Operational sustainability of the recently constructed water services

In only a few years, the national capital works programme has constructed an extremely large number of water supply schemes, designed to serve about seven million people. However, it is not certain that all those people are actually benefiting, since the user numbers were calculated on the basis of assumed rather than actual use (RSA, 1997B). Also, many of the schemes use comparatively high, engineering-driven standards that may be difficult for local authorities to maintain. So it will be important to ensure that all the schemes remain functional and do indeed continue to serve those numbers of people. An independent field survey could verify these large achievements and could generate useful lessons for the local authorities responsible for these services (RSA, 1997B).

1.2.4.4 Financial sustainability of the free basic water policy

The free basic water policy is a recent innovation in South Africa. It will take some years to assess whether it is financially viable and actually provides enough money for operation and maintenance. Its viability depends on the country containing enough rich people for them to subsidise the poor people, either directly through differential tariffs or indirectly through the taxation system and national budget (RSA, 2001A).

The initial indications are that in large urban areas such as Durban, where the policy originated before being nationally adopted, there are enough rich customers for the differential tariffs to raise enough money (RSA, 2001A). However, this is not the case in rural areas, so the water services providers there will rely on the subsidy from the national budget. This is, in effect, exactly what many African and other countries aimed to do in past decades but often failed to achieve due to national budget weakness (RSA, 2001A). South Africa is, however, a middle-income country with a strong tax base and better able to fund this without adverse fiscal impact if it remains a social priority.

The constitution mandates local government to receive an equitable share of national revenue for delivering basic services, and the present government is firmly committed to ensuring that this is a reliable source of income (RSA, 2001A). Looking to the future, however, the South African economy will need to be willing to continue to sustain the financial burden of both the operation and maintenance of existing services and the extension of these services to all the currently unserved people in the country.

1.2.4.5 DWAF's changing role

Now that the initial centrally planned capital works programme is passing into the hands of local government, DWAF will take on a regulatory and support role instead of a direct implementing role. A policy review process to plan and manage that change of role is currently under way. This will clarify and strengthen DWAF's regulatory role, not only over service delivery contracts, but also in the water services planning process, in the water services information system, and ultimately in ensuring that the people receive services of acceptable quality. The review will also need to consider how to overcome the inherent problem of a single organisation being the financier, policy maker and regulator. There may be a case for the separation of regulatory oversight – this would become particularly important if the current strong political support were to wane in the future.

1.2.4.6 Private sector participation

This is frequently a contentious topic. It has two quite different aspects (Malau, 2002):

- On the one hand, South Africa is fortunate to have a highly developed private sector that has been involved in many aspects of the water sector for years. Private companies undertake research, design, construction, spare parts manufacture and supply, even social consultation, training and participation processes and some project management
- On the other hand, the direct participation of the private sector in service provision has been tried but is not a major factor in service delivery. Only a few small and medium-sized towns have established long-term concession arrangements. As has already been described, the use of BoTT contracts to involve the private sector in DWAF's rural water service provision had only limited success. Given the current economic and political circumstances, it seems likely that future take-up of the private sector in service provision will be slow

1.3 SANITATION STRATEGIES IN SOUTH AFRICA

Sanitation is a critical area. The cholera epidemic of 2000 provided a huge stimulus to address the country's slow rate of progress in sanitation (DOH, 2000C). This slow progress was partly due to the fact that the communities themselves have always strongly prioritized water supply; it was also due to the absence of a good system for promoting improved sanitation at community level (DOH, 2000B).

While the system used for water is community based, that for sanitation should be household focused, which has not previously been the government's strength (RSA, 1996B). While the South African Government has made substantial progress on water, it has not yet developed an effective programme to address the sanitation problems of individual households and to promote health and hygiene awareness. The Cabinet has now recognised the importance of this issue and has given DWAF the mandate to co-ordinate the work of all other role players in sanitation. DWAF, in turn, has created a dedicated sanitation programme to do this work (RSA, 1996B).

Basic sanitation means *"the prescribed minimum standard of services necessary for the safe, hygienic and adequate collection, removal, disposal or purification of human excreta, domestic waste-water and sewage from households, including informal households*" (DWAF, 2005). Human faeces and urine contains disease causing organisms. It must be disposed in such a manner that the organisms cannot spread to healthy people. It also attracts flies which carry the organisms to drinking water, food and cooking utensils (Bester and Austin, 2000). In 2000, 79% of South Africa's urban population had access to sanitation facilities while only 40% of the rural population had access (Ashton and Rasamar, 2002). Effective sanitation focuses on people and their personal dignity, the emphasis is on health and hygiene improvements to ensure the long-term maintenance of public health.

The main responsibility for providing household sanitation rests with the family or household. The role of local government is to help make this possible, or to carry out those functions which can be done more efficiently at a community level. Both provincial and national government will support and assist local government to fulfil these responsibilities, which include (RSA, 1996B):

- provision, operation and maintenance of communal infrastructure (planning, programming, and financing)
- maintenance of public health (health education, pollution prevention and control)
- provision of technical assistance for upgrading on-site systems

1.3.1 SLOW PROGRESS ON SANITATION

South Africa's programme has rapidly expanded access to basic water supply in a potentially sustainable manner. Progress in sanitation has, however, been much slower. This reflects both the lower priority attributed to it by the people and the government, and the perceived difficulty of working at the household level (although it is interesting to note that other African countries have made better progress on this). The main consideration is whether the government must be solely responsible for sanitation infrastructure. The question that needs to be answered is whether people with the assistance of NGO's should not do it themselves with specific guidelines given by the government on what should be done. In addition to this people should take ownership of keeping their sanitation facilities in a proper condition.

1.3.2 SANITATION CONSIDERATIONS

Good sanitation is important for a number of reasons, not least of all human dignity. Poor sanitation has a range of impacts (RSA, 1997B):

- *on health*: poor sanitation impacts on the health and quality of life
- *on the economy*: poor health keeps families in a cycle of poverty and lost income
- *on the environment*: inadequate sanitation leads to environmental degradation, and in particular, the pollution of water sources

Improving hygiene practices and providing sanitation facilities could have a direct influence on a number of important public health problems besetting South Africa. The most common health problems associated with poor sanitation are (RSA, 2001B):

- diarrhoea and dysentery
- typhoid
- bilharzia
- malaria

- cholera
- worms
- eye infections and skin diseases
- increased risk from bacteria, infections and disease for people with reduced immune systems due to HIV AND AIDS

The following aspects should be considered when delivering sanitation services (RSA, 1996B):

- *Health aspects*: The sanitation systems must be designed and constructed to provide an effective barrier against disease transmission
- *Social and educational aspects*: The sanitation systems must be acceptable to the users. User education must be an integral part of sanitation projects
- *Affordability*: Acceptable sanitation systems must be affordable to poor communities to ensure that users remain in good health

1.3.3 ECONOMIC CONSIDERATIONS

Whilst the financial cost of providing a basic level of sanitation is easily quantifiable, the economic cost of inadequate sanitation on the health of the community and on the environment is not so easily quantified. Acceptable and adequate sanitation leads to (RSA, 2001B):

- reduced morbidity and mortality and increased life expectancy
- savings in health care costs
- reduced time caring and sick leave (back to work)
- higher worker productivity

1.3.4 TECHNICALITIES IN SANITATION PROVISION

Waterborne sanitation systems require abundant water, large capital investment, a high level of technical expertise for operations and maintenance, and incur substantial running costs. Excellent cost recovery mechanisms are needed to support a high level of service (RSA, 1997B). VIP technology is flexible and can be modified to suit different geological and social conditions, even where ground conditions are sensitive and settlements are dense. The VIP superstructure should provide privacy, comfort and shelter against the weather. A well constructed VIP should have good fly screen and ventilation systems to control the access of flies and odours in the toilet. The structure must also be adapted to the needs of the household, i.e. for disabled person, the structure must be big enough the fit two people if a person needs to be helped using the toilet. Most important aspect of the superstructure is that the hole must be higher than 2 m from the water bed and 30 m down hill from the nearest borehole (Bester and Austin, 2000).

VIP toilets are low tech, individualised, localised structures that are ideal for self-built approaches and not overly expensive (Ward et al., 2001). The VIP latrine is the minimum and cheapest level of acceptable service; full water borne sanitation is the most expensive. Both offer comparable health protection to end-user communities when properly installed and maintained. Many intermediate technical options are available. DWAF sanitation specialists are able to provide advice and support to the water services act (RSA, 1997B).

1.4 HOME BASED CARE (HBC) STRATEGIES IN SOUTH AFRICA

The coordination of care-giving is largely the responsibility of government Departments of Health (DOH) at all levels. In South Africa, quality home based care is directed by DOH guidelines. The provision of health care is largely the responsibility of the DOH at all levels. It is the policy of the DOH to (DOH, 2000A):

- raise awareness of HIV and AIDS and Sexually Transmitted Diseases (STDs)
- prohibit unfair discrimination on the basis of HIV and AIDS status
- provide a comprehensive programme to improve health and safety and not deal with HIV/ AIDS as isolated issues for people living with HIV and AIDS
- ensure the provision of free condoms and health education lessons on HIV and AIDS and STDs
- promote gender sensitive programmes that empower people to be able to protect themselves from HIV and AIDS

Non-governmental organisations training have been conducted and NGOs continue to receive funding to provide HBC (Health Summit, 2001). NGOs have considerable experience in various aspects of community-based sanitation and health improvement programmes. It is envisaged that NGOs will continue to play an important role and government will actively seek their support. Their existing experience and good contacts at community level will enable them to effectively carry out activities such as (RSA, 1996B):

- training and capacity building of community members and caregivers
- assist communities with the planning and implementation of projects
- providing health and hygiene education and sanitation promotion to the communities
- preparing communications materials on different health aspects
- financing of projects

However, quality of services is often inadequate due to the lack of resources, such as water and sanitation services, and high levels of poverty. The aims and objectives of HBC are as follows (DOH, 2000B):

- HBC is person centred and cultural sensitive. It maintains dignity and self-esteem
- the patient, the carer and the community are provided with appropriate targeted education
- community groups and individual home-based carers receive training from the nearest competent resource – NGOs or the local clinics or visiting health team
- community groups and clinics maintain records of home-care and its continuity and consistency
- protocols or manuals of care are provided to home-care patients from the local clinic on palliative care and the management of pain
- health staff assist in the development of case management plans which consider physical and psychological needs, environment social networks, diet, exercise and rest, personal habits, sexuality, recreation, dressing, washing, feeds, toilet, continence, hearing, seeing and home layout
- social workers assist with arranging legal assistance (e.g. wills) and application for disability grants and other social support
- the community care of AIDS patients involves a continuum of care, which links all available resources in a community

To facilitate the establishment of quality Home Based Care in the country, the DOH has ensured that (Health Summit, 2001):

- guidelines on HBC have been developed and limited training has been conducted
- different HBC options have been developed and costed and these have been provided to provinces to adapt and implement
- NGOs and CBOs continue to receive funding to provide home-based care

1.4.1 UNDERSTANDING HBC

No sector of South African society will escape the impact of HIV and AIDS. The health sector, however, will feel the brunt of the epidemic (Health Summit, 2001). HBC is a viable and cost-effective option. It is important, however, to ensure that these interventions are adequately resourced and supported to ensure that HBC does not degenerate into home neglect as communities battle to provide care for their loved ones who are ill (Health Summit, 2001). HBC schemes are most successful when caregivers are involved in planning and establishments of services (Kelly et al., 2002).

HBC is a viable and cost-effective option. It is important, however, to ensure that these interventions are adequately resourced and supported to ensure that HBC does not degenerate into home neglect as communities battle to provide care for their loved ones who are ill (Health Summit, 2001).

HIV and AIDS and other terminal illnesses greatly affect children's lives. Economic hardship often leads to malnutrition, prostitution, becoming street children or entering into early marriage. Children often have to leave school to care for sick family members or orphaned siblings. In addition, emotional suffering can lead to depression, aggression, drug abuse, insomnia and failure to thrive. Children affected by HIV and AIDS suffer from poverty, stigma, discrimination and multiple losses, including the deaths of family members and friends (Lindsey, 2002).

According to Lindsey (2002) research evidence clearly demonstrates that most people would rather be cared for at home and that effective home care improves the quality of life for ill people. Throughout the world, most caregivers are family members (usually women and young girls), and these caregivers are valued as the main source of care for ill people (Lindsey, 2002). HBC groups can also consist of family caregivers, health and social welfare personnel, community health workers and community volunteers. Other key stakeholders that may be included in the team are community and spiritual leaders, traditional healers, pharmacists, community health committees, neighbours, other community agencies or organisations and community groups (including groups of people living with HIV and AIDS, orphans, youth and women) (Lindsey, 2002).

Uys and Cameron (2003) describes the benefits of HBC as allowing patients and family to deal with illness, less expensive, care at home excludes transport and hospital fees, care is personalised, ill health and death are faced in familiar surrounding.

There are two types of HBC namely formal (where you find trained doctors, nurses, social workers etc. on the HBC team), and informal (where you find volunteers such as family and friends that have little or no training) (Campbell and Foulis, 2004). Informal caregivers typically come to this role without knowing a great deal about how care should be provided, how to navigate an often-complicated financing and delivery system, the likely course of

disability and illnesses, how to cope emotionally with the strains of caring for a very ill individual (WHO, 2003).

1.4.2 BASIC NEEDS OF HBC

HBC is a time consuming effort. The care givers could spend 3-7 hours a day at one home only on caring for the patients living with HIV AND AIDS (Campbell and Foulis, 2004). Not only do they have to see to the nursing care of the patients but they also have to see to the personal and household hygiene of the patients. Collecting water from source far from the households is time consuming and includes the risk of water getting contaminated during transport. Good hygiene ensures better health but inadequate sanitation is a major health risk for the patients. Patients need proper sanitation facilities to keep as healthy as possible. Even if they have enough clean water in the house bad sanitation will still have a negative influence on the patients' health. If patients get sick, it increases the work load of the caregivers and more time have to be spend with that patient which reduces the time that could be spend with other patients.

The first requirement for HBC is to ensure the basic needs of shelter, food, safe water, adequate sanitation and clothing are provided. Providing effective HBC is difficult if these basic needs are not being met (Lindsey, 2002). In some HBC programmes, 60% of local needs include helping people obtain clean water and sanitation because it is crucial to keeping opportunistic diseases at bay (Izindaba, 2001). In rural parts of the country the problem of nursing patients with HIV AND AIDS becomes more acute with the general absence of piped water, adequate sanitation and widespread unemployment leading to near starvation (Hutchings and Buijs, 2004). Caregivers indicate that they need at least 200 ℓ of fresh water a day to care for patients. Large quantities of water (75 ℓ to 100 ℓ) are needed daily for laundry and the rest for cooking, bathing and drinking (Potter and Molose, 2005).

The second requirement is that money and other resources need to be spent to train volunteers. Training not only provides them with the necessary skills to care for people but it also makes the caregivers employable (Uys and Cameron, 2003). If caregivers are not equipped with the knowledge and skills they need, they will not be able to function as part of the health team and the HBC programme will not succeed (Uys and Cameron, 2003).

The third requirement is that providers of HBC should try and ensure that family members and caregivers as well as patients are maximally protected against infection (Uys and Cameron, 2003). The caregiver should be protected against direct contact with bodily fluids to prevent infection but it is equally important to protect the patients from external sources of infection (Uys and Cameron, 2003).

The use of universal precautions should follow national guidelines. Universal precautions include hand-washing, cleaning linen with soap and water, using disinfectants and detergents and burning or safely disposing of household waste. These precautions should be taken regardless of the ill person's condition. Avoiding contact with blood or bodily fluids is especially important, and protective devices such as gloves and aprons should be used. In resource-limited settings, affording protective devices can be difficult, and creativity (such as using plastic bags) is needed (Lindsey, 2002).

1.5 CONCLUSION - LINKING WATER, SANITATION AND HYGIENE TO HEALTH

Political upheaval, high numbers of refugees in some developing countries, and the global appearances of squatter camps and shanty rural towns, which lack proper sanitation and water connections, have contributed to conditions under which disease causing microorganisms can replicate and thrive (Leclerc et al., 2002; Sobsey, 2002; Theron and Cloete, 2002). In many areas where HIV and AIDS infected people do not have access to antiretroviral treatment, safe drinking water helps them to avoid some opportunistic infections and diarrhoea (UNAID, 2006). Water is also needed for bathing, washing soiled linen and clothing, keeping the home environment clean, taking medicine and for the preparation of food. Water supply points and toilets have to be accessible and close to reduce the burden of walking long distances and to maintain the dignity of the people, especially people living with HIV and AIDS (UNAID, 2006).

The principle of improving access to water and sanitation is to improve health (Dunker, 2002). Knowing where services are needed most (eg. using the demographic profile of a region), is a key aspect in providing basic services such as health, water and sanitation (Ashton and Rasamar, 2002).

South Africa's response to the HIV and AIDS pandemic started as a health-centred response and as the disease spread they moved to a prevention and education response. Different sectors of the government (including DWAF and DOH) are included in these programmes to educate people in the spread, prevention and treatment of the disease as well as hygiene practises to give quality care at home (Kelly et al., 2002).

Health and hygiene awareness and education are aimed at increasing the demand for good sanitation and improved hygiene behaviour needs to precede and become an integral part of sanitation improvement programmes. The aim of health and hygiene education and promotion policy is to (RSA, 2001B):

- raise awareness of the diseases caused by unhealthy behaviour and practices
- support and provide health and hygiene education that will enable people to improve their health through correct hygienic practices

According to Dunker (2000), hygiene education is an indispensable part of water supply and sanitation projects. It informs communities about the correct use, storage and disposal of water and general hygiene. In addition, it plays an important role in breaking down transmission of diseases (Dunker, 2002). Understanding the attitudes and behaviours of South African communities towards water and sanitation will enable policy makers to formulate education programmes around those aspects.

Hygiene behaviours to target are (RSA, 2001B):

- personal hygiene: importance of washing hands with soap,
- household hygiene: importance of keeping the home and toilet clean, disposal of refuse and solid waste
- community hygiene: importance of the whole community working together for better health and a cleaner environment

In South Africa, progress with regard to water, sanitation and health infrastructures have been made. During the past ten years, a total of 1,345 new clinics were built and a further 263 were upgraded. However, whilst most clinics have reasonable infrastructure in terms of sanitation, water, electricity and telecommunications, about 10% do not have sanitation, electricity and telecommunications, 20% of clinics still do not have piped water (DOH, 2004). Only about 40% of facilities have primary health care (PHC) nurses. This means that the pace of training has been slower than planned (however migration has also impacted on these figures). In addition, only 30% of clinics are estimated to be visited by a doctor at least once a week (DOH, 2004).

Therefore it is reasonable to conclude that adequate water and sanitation alone will not suffice if people living with HIV and AIDS do not practice safe water and sanitation handling, personal hygiene, domestic hygiene and food hygiene to effectively reduce the exposure to water and sanitation related diseases.

The primary aim of this study was therefore to assess the quality and adequacy of water, sanitation and hygiene arrangements and the quality of home based care in South Africa. In short this study strived to identify the most critical measures to be taken by the health sector as well as the water and sanitation sector to provide short and medium-term solutions in the area of water, sanitation and hygiene support to home based care.

To accomplish the aim, the specific objectives of this study were therefore to:

- carry out a short term assessment of water, sanitation and hygiene resources in rural and urban communities and households of HIV and AIDS infected individuals,
- establish needs assessment criteria:
- obtain information from people concerned, communities, service agencies about their experiences and recommendations for strategies related to water supply (domestic and productive), sanitation and hygiene at household, community and national levels
- provide information for advocacy on water, sanitation and hygiene in relation to home-based care through emphasizing the multi-sectoral character of HIV AND AIDS.

CHAPTER 2

STUDY CONCEPT

2.1 LOCATION OF STUDY COMMUNITIES

This study investigated four (two rural and two peri-urban) communities, each in different geographical locations with different environmental circumstances.

Figure 2.1 Map of South Africa indicating the study areas

2.1.1 RURAL CLUSTERS

Village A and Village B were two rural communities selected in the Mutale district municipal area and Village C was selected in the Thulamela district municipal area (Figure 2.1). The selection of these particular villages was guided by the fact that these were very remote and out of any influence that the larger urban sphere of Thohoyandou or other large urban centres may have. While these people were from the same province, their ethnic bases were different as indicated by the different cultures. These study areas had a low socio-economic profile with a per-capita income

Mutale district municipality (population 78,921; principle language TsiVenda spoken by Venda people) was situated approximately 70 km north-east of Thohoyandou. The Mutale Municipality provided the following services: coordinating between the local people and government, providing houses, water and sanitation services, roads maintenance and electricity. They got money from the provincial government to provide their services. The

municipality did not provide the water and sanitation services. They coordinated the services between the ground level and the Department of Water Affairs and Forestry (DWAF). DWAF was responsible for providing water and sanitation services to the community. There were still areas that lacked basic water and sanitation services but they did have long and short term plans for these areas. It all depended on the budget for these plans to be implemented.

The Thulamela district municipality (population 584,560; principle language Xitsonga spoken by Shangaan people) was situated approximately 30 km south-east of Thohoyandou. The municipality provided the following services: water and sanitation services and management, building and maintaining roads, electricity and waste management. There were still areas that lacked basic water and sanitation services but they did have long and short term plans for these areas. They prioritised their areas according to their needs. Those with the highest needs received attention first.

A fair number of people lived in modern "western-style" housing as well as basic RDP housing provided by the South African government. The majority of people, however, lived in traditional mud huts with thatched roofs. Many of the housing stands accommodated a blend of both modern and traditional housing styles. The structures were often inter-connected with low mud-walls forming small open inner-courts. As is characteristic of the Venda as well as the Shangaan cultures, these structures were often decorated with traditional patterns and colours. Parts of the villages had water and sanitation services, others not. Refuse removal services did not exist in any of the three study areas. All the study villages had electricity except Village B, where electricity infrastructure was in the process of construction.

2.1.2 PERI-URBAN CLUSTERS

Of the peri-urban clusters, Village D was situated in the Sol Plaatje district municipality in the Northern Cape Province (Figure 2.1). The other peri-urban cluster was Village E (an informal settlement), situated in the Emalahleni district municipal area in the Mpumalanga Province. These particular study villages were selected because of the diversity of their people, which was very different from the villages in the rural areas. Village D was a formally established settlement (group of growing squatter camps) which had inadequate water and sanitation services, while Village E was not yet formally established, with most of what services there are, provided at a sub-basic level.

Sol Plaatje district municipality (population 201,462; principle language Afrikaans) served the greater Kimberley area and surrounding smaller towns of which Village D was one. People from various ethnic groups lived in this area with white (Caucasian) and coloured people being the predominant groups. While most of the Kimberley inhabitants had water and sanitation services, the informal settlements in the area mostly did not have adequate water and sanitation services. According to the municipality, the lack of resources (such as availability of water where people settle) made it difficult for them to provide infrastructure to the people, especially in the areas where people were settling illegally where there were no existing infrastructures. The municipality provided water and sanitation services to these areas and maintained the water and sanitation services. According to the Sol Plaatje district municipality, the whole Kimberley area used treated river water from the Vaal River which was treated at a treatment plant in Riverton. The Vaal River was used because it was the closets big water source.

The Emalahleni district municipality (population 227 320; main languages Afrikaans, English, Sepedi and Isizulu) served the greater Witbank area and surrounding smaller towns. People of diverse ethnicity lived in these areas. Most households in the formally established urban

areas had water and sanitation services as well as electricity. The largest part of Village E did not have these services nor did it have a refuse removal service.

2.2 FIELD STUDIES

Field studies were designed around techniques such as personal interviews, environmental surveys and group discussions.

2.2.1 INTERVIEWS

2.2.1.1 Household interviews

An initial robust target was set to interview a maximum of 100 households which would contain at least one HIV and AIDS infected individual – a maximum of 25 with a minimum of 10 (the WHO Terms of Reference requirement), from each community. In the end, seventy four (74) households were identified with the help of the Voluntary, Counselling and testing (VCT) sites through the Home Based Care NGO at the clinics. All 74 households had at least one person living with HIV and AIDS. From Village A and Village B respectively, ten (10) and twelve (12) households participated. Fifteen (15) people living with HIV and AIDS from Village C and their households participated. From Village D, sixteen (16) households were interviewed. In Village E, twenty one (21) households were interviewed.

2.2.1.2 Community interviews

In the rural and peri-urban areas, ten (10) community members each were chosen randomly from the communities and interviewed. Two (2) traditional healers each from Village A, Village B and Village C were interviewed because they formed a large part of the black cultures in South Africa. There were no traditional healers in Village D and no traditional healers could be found during the time of the study in Village E for interviews.

2.2.1.3 Faith Based Care groups (FBC) interviews

In the rural areas, only one (1) pastor from Village A was available to interview. Two (2) pastors from Village B were interviewed and the only (1) pastor from Village C was interviewed. In the peri-urban areas one (1) pastor each from Village D and Village E was available for the interviews.

2.2.1.4 Water and sanitation stakeholder interviews

Only one (1) interview with the Mutale district municipality was carried out because the municipality served both Village A and Village B communities. One (1) interview was carried out with the Thulamela district municipality which served Village C and one (1) interview was carried out with the Sol Plaatje district municipality which served Village D. No interviews were conducted with the Emalahleni district municipality which served Village E because they were not interested in participating in the study.

2.2.1.5 Non Governmental Organizations (NGO) interviews

Only one (1) NGO in the 3 rural study areas was interviewed because this NGO was the only NGO in the region involved with HBC. One (1) NGO in Village D was interviewed and the spokesperson for the Witbank Hospital (Home Based Care fell under the Government hospital and not under a NGO) - was interviewed in the peri-urban study areas.

2.2.1.6 Home Based Care (HBC) caregiver interviews

In each area interviews were only carried out with some of the caregivers in each group based on the different sub-areas they were assigned to in their specific region. All the co-ordinators of the different HBC groups were interviewed and only some of the clinic nurses were interviewed because not all nurses were part of HBC (Table 2.1).

Table 2.1 Number of home based care group individual interviews

Individual interviews	Rural areas			Peri-urban areas	
	Village A	Village B	Village C	Village D	Village E
Caregivers	6	4	4	4	4
HBC coordinators	1	2	1	1	1
Clinic nurses	0	0	1	1	1

2.2.2 ENVIRONMENTAL SURVEYS

Photographs were taken at all the participating households which included photos of the dwellings, water storage containers, water storage area in the dwelling and the sanitation facilities. Photographs were also taken of general sanitation and hygienic conditions of the household and study areas. GPS readings were taken at the households, the primary water sources and sanitation facilities to determine the distances of the water and sanitation infrastructures to the households.

2.2.3 GROUP DISCUSSIONS

All the group discussions were well attended by the caregivers and their co-ordinators but not by the clinic nurses. Although not all the nurses at these clinics were involved with the VCT sites and HBC, those that were involved did not participate actively in the discussions and in some areas in the individual interviews (Table 2.2).

Table 2.2 Number of people attending group discussions

Group discussions	Rural areas			Peri-urban areas	
	Village A	Village B	Village C	Village D	Village E
Caregivers	7	15	16	12	12
HBC coordinators	1	1	1	1	1
Clinic nurses	0	1	0	0	0

2.3 DATA ANALYSIS

Questionnaire data was entered within 5 days after each trip by a trained and experienced data entry clerk. Consistency of data was double checked by the social anthropologist on the research team. All analysis was performed using Sigmaplot version 9.0 and Microsoft Excel 2007. Cross tabulations were used to examine relationships between data variables. Line drawings were made using Corel Draw version 10 for Windows.

CHAPTER 3

STUDY POPULATION DEMOGRAPHICS

3.1 HOUSEHOLD STRUCTURES

3.1.1 RURAL HOUSEHOLDS

In Village A, nine of the ten households used huts as their dwellings. Seven of the huts were made of mud and had thatched roofs. Two huts were made of bricks. One hut had a thatched roof and the other had a tiled roof. The huts were used for water storage, sleeping and as kitchens. Four of the households also had a small flat build from bricks on the premises which had corrugated iron roofs. These flats had one or two rooms for sleeping, bathing and storage. Two of the households had RDP houses with their huts.

In Village B, six of the twelve households used huts as their dwellings. Six of the huts were made of mud and had thatched roofs. The huts were used for water storage, sleeping and as kitchens. All six these households also had flats on the premises build from bricks and the buildings had corrugated iron roofs. Two of the households lived in RDP houses with one of the households having additional huts. These flats had one or two rooms for sleeping, bathing and storage. Two of the households had "western style build" houses. The houses had living rooms, dining rooms, sleeping rooms, kitchens and rooms that used for bathing although it was not actual bathrooms (due to the lack of running water inside the households).

In Village C, fourteen of the fifteen households used huts as their dwellings. The huts were made of mud bricks and had thatched roofs. The huts were used for water storage, sleeping and as kitchens. One of the households also had a small flat build from bricks on the premises with corrugated iron roof. Two of the households with huts had shacks on the premises, made of corrugated iron. These flats/shacks also had one or two rooms for sleeping, bathing and storage. One household had a RDP house with the hut. There were two western type houses in Village C: one house had a hut while both houses had living rooms, dining rooms, sleeping rooms, kitchens and rooms that used for bathing although it was not actual bath rooms (due to the lack of running water inside the households).

Figure 3.1 Traditional huts connected by a wall in rural areas

Figure 3.2 Traditional hut and flat in rural areas

Figure 3.3 Western style built house in rural areas

Figure 3.4 RDP house in rural area next to a traditional hut

3.1.2 PERI-URBAN HOUSEHOLDS

Village D had a very interesting housing set up. The area originally started as a coloured settlement on the peripheral of Kimberley, Northern Cape Province. The people lived in small brick houses. As Kimberley grew, people moved to Village D from the rural areas looking for work in Kimberley and started to settle illegally on open stands. The houses had infrastructure such as water and sanitation services, electricity and refuse removal but the adjacent squatter camps did not have any infrastructure expect for a few taps and two toilets. Eight of the sixteen households lived in houses built from bricks with corrugated iron roofs. One of the houses' roofs was made of asbestos. Two households' houses were made of asbestos. One had an asbestos roof and the other corrugated iron roof. These houses had between two to five rooms and the rooms were used as kitchens, water storage, living rooms and sleeping rooms. Six of the households lived in shacks. The shacks were made of corrugated iron and scrap metal. Four of the shacks had only one room while two shacks contained two rooms each. The shacks were used for water storage, kitchens and sleeping rooms. The two asbestos houses were the first kind of RDP houses that were subsidised to the community and had yard taps and flush toilets outside.

In Village E, three of the twenty one households lived in square huts. These huts were made of small stones, wood and mud. Their roofs were either made of corrugated iron or scrap metal. Fourteen of the households lived in shacks that were constructed from corrugated iron or scrap metal. Many also had their shacks right beneath the high voltage power lines. Three households lived in small brick houses and one participant lived on his own in a caravan. The huts and shacks were used for water storage, kitchens and sleeping. Some of the shacks were big enough to be used as a small living room. There were no study participants that lived in RDP houses.

Figure 3.5 Brick house in peri-urban area

Figure 3.6 Asbestos house in peri-urban area

Figure 3.7 Typical shack in peri-urban area

Figure 3.8 Square hut in peri-urban area

3.2 ENERGY SOURCES OF STUDY POPULATION

The main energy source in Village A was electricity, although not all of the households could afford to pay for electricity. They mostly used wood to cook food and boil water. Even if they had electricity they did not have electrical stoves to cook on. Those that did not have electricity used candles for lighting. Two household also used paraffin lamps for lighting.

At the time of the study there was no electricity in Village B. The households mainly used wood to cook food and boil water. Two households also used coal to cook food and boil water. Only two of the villages surrounding Village B had electricity. Three of the households were from these villages and they used electricity to for lighting, cook food and to boil water. Three households used solar power for lighting while the other households used candles. One household used a paraffin lamp. There was also a household that used a car battery to power the appliances in the house.

Village C and the surrounding villages had electricity but two households did not use electricity because they could not afford to pay for it. The other households used the electricity for cooking food, boiling water and lighting. Those that did not have electricity or did not have electrical stoves

used wood to cook and boil water. One household used a paraffin lamp for lighting and the other used candles. The houses that had electricity used prepaid electricity meters. The households either made fire on the little verandas that their mud walls created or they made fire in the huts.

The main energy source in Village D was electricity although not all of the households could afford to pay for electricity. If the households' electricity was cut off they used paraffin stoves for cooking and candles for lighting. The shacks had no electricity services at all and used paraffin stoves and candles.

In Village E, only two households had electricity. One household was the man that lived in the caravan on the premises of his employers and the other was the one participant that lived in a small brick house. All the other households used paraffin, wood and coal (this was a coal mine area) as the main energy sources, but they mostly used candles for lighting.

Figure 3.9 Coal stove which is used by households in the peri-urban areas

Figure 3.10 Outside cooking in rural areas

3.3 AGE AND GENDER DISTRIBUTION OF STUDY POPULATION

3.3.1 AGE AND GENDER DISTRIBUTION OF STUDY POPULATION

The average family size of Village A households was 4.9. Females formed 52% of the composition of the households and males only 48%. The average family size of Village B households was 5.3. Females formed 58% of the composition of the households and males 42%. The average family size of Village C households was 5.2. Females formed 59% of the composition of the households and males 41%. The average family size of Village D was 4.4. Females formed 51% of the composition of the households and males only 49%. The average family size of Village E was 3.1. Females formed 53% of the composition of the households and males only 47%.

Table 3.1 Age and gender distribution of the study households

Age in years	Rural areas												Peri-urban areas							
	Village A Average family size = 4.9 Female = 52% : Male = 48%				Village B Average family size = 5.3 Female = 58% : Male = 42%				Village C Average family size = 5.2 Female = 59% : Male = 41%				Village D Average family size = 4.4 Female = 51% : Male = 49%				Village E Average family size = 3.1 Female = 53% : Male = 47%			
	F	M	Per age	%	F	M	Per age	%	F	M	Per age	%	F	M	Per age	%	F	M	Per age	%
Infant 0-1	1	1	2	**4**	1	3	4	**6**	1	3	4	**5**	2	0	2	**3**	0	0	0	**0**
Toddler >1-5	0	2	2	**4**	2	1	3	**5**	3	0	3	**4**	2	4	6	**8**	3	4	7	**11**
Child > 5-12	5	5	10	**21**	8	6	14	**23**	4	8	12	**16**	3	6	9	**13**	6	7	13	**20**
Adolescent >12-15	2	3	5	**10**	3	4	7	**11**	3	5	8	**11**	0	4	4	**6**	1	2	3	**5**
Adolescent >15-19	2	2	4	**8**	4	2	6	**10**	6	4	10	**13**	8	4	12	**17**	2	3	5	**8**
Adults 20-29	4	3	7	**15**	7	2	9	**15**	6	2	8	**11**	8	5	13	**18**	5	2	7	**11**
Adults 30-39	5	3	8	**18**	7	1	8	**13**	6	2	8	**11**	6	3	9	**13**	7	4	11	**17**
Adults 40-49	2	3	5	**10**	1	4	5	**8**	8	2	10	**13**	6	6	12	**17**	9	3	12	**18**
Adults 50-59	2	1	3	**6**	1	0	1	**2**	2	1	3	**4**	2	1	3	**4**	0	2	2	**3**
Adults 60-65	0	0	0	**0**	1	1	2	**3**	1	0	1	**1**	0	0	0	**0**	0	0	0	**0**
Adults >65	2	0	2	**4**	0	0	0	**0**	3	2	5	**7**	0	1	1	**1**	1	1	2	**3**
Ages not known	0	0	0	**0**	1	2	3	**5**	1	2	3	**4**	0	1	1	**1**	1	3	4	**7**

F = female
M = male
% = percentage

3.3.2 AGE AND GENDER DISTRIBUTION OF PEOPLE LIVING WITH HIV AND AIDS

Seven of the ten participants from Village A were female and three were male. The average age of the male participants were 39.5 years and the average age for the females participants were 38.6 years. In Village B, ten of the twelve participants were female and two were male. The average age of the male participants were 41.5 years and the average age for the females participants were 31.8 years. In Village C, eleven of the fifteen participants were female and four were male. The average age of the male participants were 43.8 years and the average age for the females participants were 40.4 years. Thirteen of the sixteen participants from Village D were female and three were male. The average age of the male participants were 38.6 years and the average age for the females participants were 34.7 years. Eighteen of the twenty one participants from Village E were female and three were male. The average age of the male participants were 50 years and the average age for the females participants were 36.5 years.

Table 3.2 Average age and gender distribution of the participants

Sex	Rural areas			Peri-urban areas	
	Village A	Village B	Village C	Village D	Village E
Female	38.6	31.8	40.4	34.7	36.5
Male	39.5	41.5	43.8	38.6	50.0
Average age	39.1	36.7	42.1	39.1	42.1

3.4 HIV AND AIDS STATUS OF STUDY COHORT AND HBC SUPPORT

3.4.1 RURAL AREAS

The participants of all three rural areas tested HIV positive in the past six years. In 2005 most of the participants tested for HIV. The participants were tested because they were ill and they did not get better. Nurses and doctors advised them to test so that they could treat the right disease.

The ten people living with HIV and AIDS in Village A tested positive in the following years: During 2001 two people, during 2002 one person, during 2003 two people, during 2004 one person and during 2005 four people. Four of Village A participants tested at the local clinic. The other six participants tested at the Donald Fraser Hospital. In Village A, five (42%) of the participants received HBC since 2005. They said they started making use of HBC because they got to weak to perform house chores and HBC assisted them in this.

The twelve people living with HIV and AIDS in Village B tested positive in the following years: During 2002 one person, during 2003 one person, during 2004 one person, during 2005 five people and during 2006 four people. Eleven of Village B participants tested at the local clinic. One person tested at Donald Fraser Hospital which is the closest government hospital. One person that tested at the local clinic was also tested in Mussina. None of the participants in Village B received HBC. The participants did not make use of services of HBC because they either did not know what HBC were or they were still strong enough to take care of themselves.

The fifteen people living with HIV and AIDS that were interviewed in Village C tested positive in the following years: During 2000 two people, during 2002 two people, during 2003 five people, during 2004 two people, during 2005 three people and during 2006 one person. Seven of Village C participants tested at the local clinic. Five tested at Malamulele Hospital, two tested at Tshikonelo clinic and one tested at Tshilidzini Hospital. In Village C the caregivers from HBC only cared for one of the participants. The leader of the support group was this participant and he only asked for

HBC to assist him during 2005 because he was interested to see what HBC was all about and he needed to get the support group started in the area. He mainly wanted to help the HBC caregivers and learn more of HBC activities. The other participants did not make use of the services of HBC because they either did not know what HBC was, what they did or where to find them.

In Village A, most of the family members of the participants accepted the statuses of the participants living with HIV and AIDS. The participants said their families were taking good care of them and nothing really changed in their family relationships. Four of the participants did not inform their friends of their statuses. One participant said her friends were now gossiping about her after she told them. Most of the partners of the participants did not accept the statuses of the participants. Four of the partners divorced the participants when they found out about their statuses. One of these participants said that her husband even raped their young daughter because he thought he would be cured of HIV and AIDS if he had sexual intercourse with a young virgin. She reported it to the police and her husband then chased her away and they got divorced. Only one participant was working when she got diagnosed and her employer chased her away after she told him she was HIV positive. In Village B, only two of the participants informed their families and friends about their statuses and they accepted their statuses; only five of the participants informed their partners about their statuses which all accepted their situations and one participant said her partner did not really understand what HIV and AIDS was. None of the participants were working when they got diagnosed with HIV and AIDS. In Village C, most of the family, friends and partners accepted the statuses of the HIV and AIDS people. Two of the participants did not inform their friends because they were afraid their friends would gossip behind their backs about their statuses. One person did not inform her family because she was afraid they would chase her away. One male participant did not inform his wife because he was afraid she would divorce him but he did inform his family and they accepted him.

Table 3.3 Participants of the rural study households' HIV and AIDS testing time line

Year	Village A	Village B	Village C	Number per year	Number receiving HBC
2000	-	-	2	**2**	**-**
2001	2	-	-	**2**	**-**
2002	1	1	2	**4**	**2**
2003	2	1	5	**8**	**1**
2004	1	1	2	**4**	**-**
2005	4	5	3	**12**	**3**
2006	-	4	1	**5**	**-**

3.4.2 PERI-URBAN AREAS

All the participants of the two peri-urban areas tested HIV positive in the past six years. During 2005 most of the participants tested for HIV. The sixteen people living with HIV and AIDS that were interviewed in Village D tested positive in the following years: During 2000 three people, during 2003 two people, during 2004 two people, during 2005 five people and during 2006 four people. Seven of the participants tested at the local clinic. Four of the participants tested at Kimberley Hospital. One participant tested at a private doctor, one participant tested at Kimberley City clinic, one participant tested at the Douglas prison, one participant tested at Beaconsfield clinic and one participant tested at Richie clinic. A total of 82% of the participants received HBC. Three of the participants from Village D did not receive any assistance from the HBC group because they felt they were still strong enough to take care of themselves. Of the 13 participants that did make use of HBC assistance, one person started during 2000, one person started during 2002, six people

started during 2005 and five people started during 2006 with HBC. These participants started to make use of HBC because they were sick and were sent travelling between the clinic and the hospital. In addition they needed care at their homes.

The twenty one people living with HIV and AIDS in Village E tested positive during the following years: During 2002 one person, during 2003 four people, during 2004 seven people, during 2005 seven people and during 2006 two people. Fourteen of the participants tested at their local clinics. Three of the participants tested at Witbank General Hospital. The last four participants tested at different clinics and hospitals than their local clinic and Witbank General Hospital. A total of 90% of the participants received HBC. Two participants did not receive any assistance from the HBC group because the one participant did not stay at home and the other was still strong enough to look after himself. Of the 20 participants that did make use of HBC one person started during 2002, two people started during 2003, six people started during 2004, seven people started during 2005 and four people during 2006 with HBC. The participants from the Witbank informal settlements started to make use of HBC because they were sick and needed assistance at home. One participant was pregnant and she needed help around the house.

In Village D, most of the family members of the participants were shocked when they found out about the patients' statuses, but they accepted their statuses and supported them. Four of the participants did not inform their friends of their statuses. Two participants said their friends turned their backs on them. They now made friends with the caregivers. The rest of the participants' friends accepted them although many of them were shocked. Six of the participants' partners accepted their statuses and most of them also tested positive. Four of the participants' partners left them when they found out. One participant's partner denied her status but he was still with her. One participant said she did not have a partner and did not know how she got infected. Two participants did not inform their partners. Only eight of the participants were employed when they were diagnosed. Those that did inform their employers about their statuses said the employers accepted it. However, they all quit their jobs because they got too weak and slow to do their work. In Village E, most of the family members of the participants accepted their statuses and they now helped to take care of them. Three of the participants did not inform their families. One participant said he did not have family, one participant wrote to her children in Cape Town about her status and they never replied back to her. Eight of the participants did not inform their friends about their statuses. The rest did tell them and they said their friends were very supportive of them. Nine of the participants informed their partners about their statuses. Seven of the partners accepted the situation and supported the participants. One partner was very angry in the beginning but he accepted his partner's status. Two of the participants' partners reacted very angry. They accused the participants of being bad people. None of the participants indicated if they worked and what their employers said about their statuses. Those that did not inform their families, friends and partners about their statuses said they were afraid of discrimination and that people would not keep their statuses confidential.

Table 3.4 Participants of the peri urban study households' HIV and AIDS testing time line

Year	Village D	Village E	Number per year	Number receiving HBC
2000	3	-	**3**	**1**
2001	-	-	**-**	**-**
2002	-	1	**1**	**2**
2003	2	4	**6**	**2**
2004	2	7	**9**	**6**
2005	5	7	**12**	**13**
2006	4	2	**6**	**9**

3.5 GENERAL HEALTH PROBLEMS IN STUDY POPULATION

The general health problems according to the community members and the traditional healers of the three rural areas were HIV and AIDS, diarrhoea, headaches, malaria, high blood pressure, sugar diabetes, stroke, influenza, TB, cholera and bilharzia. They all agreed that HIV and AIDS was a big problem in the community because they had seen many people that were infected with the disease and many had died from the disease. The community members and traditional healers in the three rural study areas said: "…*everybody could get HIV and AIDS but it was especially young people between the ages of 15 and 35 years and women which were vulnerable. These people got infected when they had unprotected sexual intercourse, if they came into contact with infected blood, blood transfusion, sharing drug needles, kissed a person for a long time, swallowed a lot of saliva from the HIV+ person and having many sexual partners….*". It was mostly believed that HIV and AIDS could not be cured but that there were drugs available to prolong life for five to fifteen years after they got infected with HIV if they took their medication. Two traditional healers believed that HIV and AIDS could be cured in the early stages but they all mostly agreed that HIV and AIDS can not be cured. The Village A and Village B community members and traditional healers said they could identify a person living with HIV and AIDS by lesions, sudden weight loss, dull skin colour, diarrhoea, vomiting, headaches, influenza, weakness, stress, pimples and inability to work. The Village C communities members said sometimes it was difficult to identify whether a person had HIV and AIDS or not and identified an infected individual when the person was ill for a long time and they did not get better, the person' behaviour was different from other people and their skin tightened, the person lost a lot of weight, they coughed a lot and they had sores on their bodies.

According to the community members of Village D and Village E, the common health problems in their community were HIV and AIDS, arthritis, high blood pressure, STIs, TB, pneumonia and alcoholism. The community members said: *"….everybody could get HIV and AIDS but it was especially young people between the ages of 12 and 25 years because they experimented with drugs and sex, although it mostly depended on their lifestyle. These people got infected when they had unprotected sexual intercourse, if they came into contact with infected blood, sharing drugs needles, mother–to–child transmission and sharing razors…..*". They could identified a person living with HIV and AIDS when they sweat profusely, had bad body language, sudden weight loss, they coughed a lot, had sores all over their bodies and their skin colour changed. They said infected people could live between five and thirty years after they got infected with HIV and AIDS and mostly agreed that HIV and AIDS cannot be cured but ARVs prolonged the lives of the people living with HIV and AIDS.

At the time of the interviews no participants in Village A had diarrhoea, one participant had diarrhoea in the three months prior to the interview and one participant had diarrhoea nine months prior to the interview. In Village B, one participant suffered from diarrhoea at the time of the interview, none of the participants had diarrhoea in the three months prior to the interview and one participant suffered from diarrhoea nine months prior to the interview. In Village C, none of the participants suffered from diarrhoea at the time of the interview, four of the participants had diarrhoea in the three months prior to the interview and three participants suffered from diarrhoea nine months prior to the interview. In Village D, three participants had diarrhoea at the time of the interviews, two participants had diarrhoea in the three months prior to the interviews and four participants had diarrhoea nine months prior to the interview. In Village E, one participant suffered from diarrhoea at the time of the interview, two participants had diarrhoea in the three months prior to the interviews and one participant suffered from diarrhoea nine months prior to the interview.

3.6 EDUCATIONAL LEVEL OF STUDY POPULATION

3.6.1 RURAL HOUSEHOLDS

In the rural areas, 20% of all the household members did not receive any form of education, at least 12% finished Gr. 10 and only 5% finish secondary school. Only Village C had two people that received a tertiary education which made up 1% of the total rural sample group. Of the 10 households in Village A, 21% of the people were not educated and 8% finished school. Of the 12 households in Village B, 24% of the people were not educated and 2% finished school. Of the 15 households in Village C, 16% of the people were not educated and 7% finished school.

3.6.2 PERI-URBAN HOUSEHOLDS

In the peri-urban areas, 27% of all the household members did not receive any form of education, at least 11% finished Gr. 10 and only 6% finish secondary school. Only Village D had one person that received a tertiary education which made up 0.7% of the total peri-urban sample group. Of the 16 households in Village D, 11% of the people were not educated and 6% finished school. Of the 21 households in Village E, 21% of the people were not educated and 6% finished school.

Table 3.5 Educational level of the peri-urban study households

Educational level	Village D				Village E			
	F	M	Number per age	%	F	M	Number per age	%
Pre-primary	0	1	1	**1**	3	0	3	**5**
Grade R	1	2	3	**4**	1	0	1	**2**
Grade 1	0	2	2	**3**	1	0	1	**2**
Grade 2	1	2	3	**4**	0	2	2	**3**
Grade 3	1	1	2	**3**	0	1	1	**2**
Grade 4	3	0	3	**4**	1	2	3	**5**
Grade 5	0	1	1	**1**	2	2	4	**6**
Grade 6	1	4	5	**7**	4	1	5	**8**
Grade 7	2	2	4	**6**	2	2	4	**6**
Grade 8	2	4	6	**8**	1	3	4	**6**
Grade 9	8	4	12	**17**	4	3	7	**11**
Grade 10	7	0	7	**10**	2	3	5	**8**
Grade 11	0	1	1	**1**	0	0	0	**0**
Grade 12	1	3	4	**6**	2	2	4	**6**
Tertiary education	0	1	1	**1**	0	0	0	**0**
ABET	1	1	2	**3**	0	0	0	**0**
None	5	3	8	**11**	9	5	14	**21**

F = female
M = male
% = percentage

Table 3.6 Educational level of the rural study households

Educational level	Village A				Village B				Village C			
	F	M	Number per age	%	F	M	Number per age	%	F	M	Number per age	%
Pre-primary	0	0	0	**0**	3	1	4	**6**	0	0	0	**0**
Grade R	1	0	1	**2**	0	1	1	**2**	0	1	1	**1**
Grade 1	1	1	2	**5**	1	1	2	**3**	2	1	3	**4**
Grade 2	0	1	1	**2**	4	4	8	**13**	3	0	3	**4**
Grade 3	1	1	2	**5**	2	0	2	**4**	1	2	3	**4**
Grade 4	1	1	2	**5**	1	2	3	**5**	3	3	6	**8**
Grade 5	0	0	0	**0**	2	2	4	**6**	1	1	2	**6**
Grade 6	1	3	4	**8**	2	1	3	**5**	0	1	1	**1**
Grade 7	2	5	7	**15**	5	1	6	**10**	3	4	7	**9**
Grade 8	3	2	5	**10**	1	0	1	**2**	4	3	7	**9**
Grade 9	5	0	5	**10**	4	3	7	**11**	3	1	4	**5**
Grade 10	1	2	3	**6**	1	2	3	**5**	12	4	16	**21**
Grade 11	1	1	2	**5**	1	1	2	**3**	2	1	3	**4**
Grade 12	2	2	4	**8**	1	0	1	**2**	3	2	5	**7**
Tertiary education	0	0	0	**0**	0	0	0	**0**	1	1	2	**6**
ABET	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**
None	7	3	10	**21**	8	7	15	**24**	7	5	12	**16**

F = female
M = male
% = percentage

3.7 HOUSEHOLD INCOME LEVEL

3.7.1 RURAL HOUSEHOLDS

All three rural areas were poverty stricken. The average incomes for Village A, Village B and Village C respectively was R870, R820 and R1 500. Some of the houses received less than half of these average amounts in a month. But there were households that received up to two disability grants and one pension grant which lifted the average income of the households. A large majority of the households in the study groups in the rural areas earned less than R500 a month which was almost 59% of the total income of the study group. Of this percentage, 93% were child support grants and 7% were people working locally in the areas. The second biggest part of the graph was people earning between R500 and R1 000 a month which was almost 39% of the total income of the study group. Of this percentage, 23% were old age pension grants and 77% were disability grants that mostly the participants living with HIV and AIDS received. The remaining 2% of the study group were two types of income: one type of income was a migrant labourer that earned between R1 000 and R2 000 a month; and the other income amount was remittances of R3 000 that one household received.

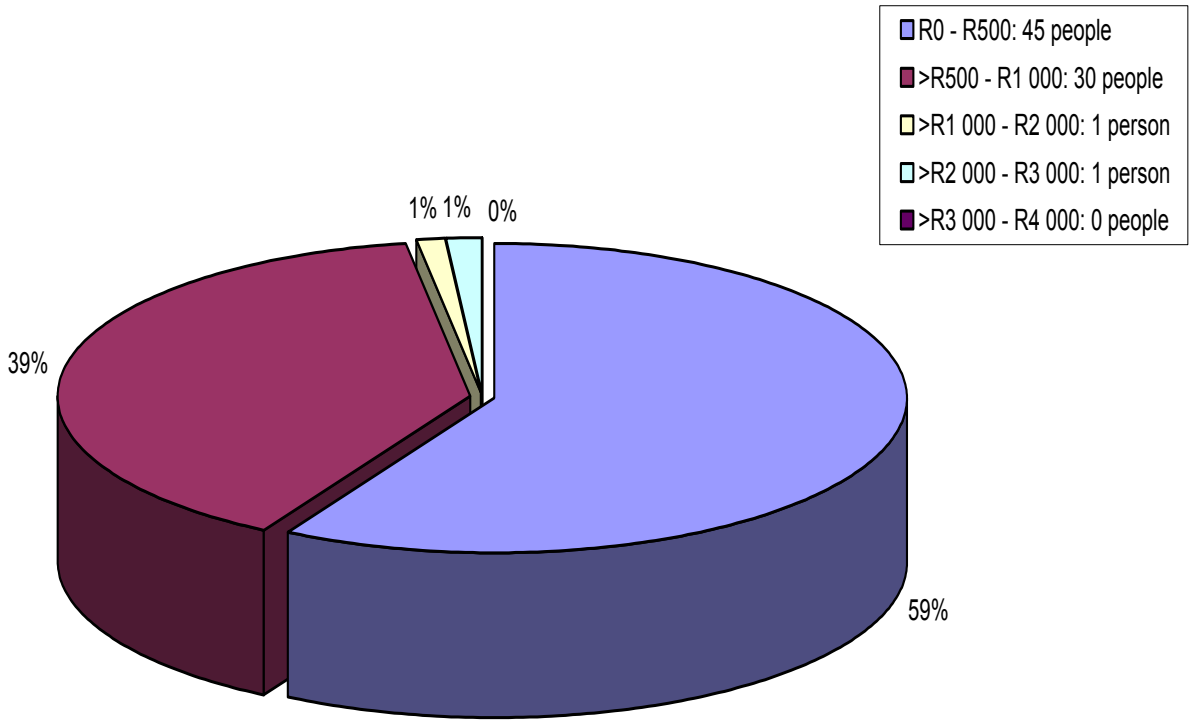


Figure 3.11 Income scales of rural study areas

A short summary of each village income: in Village A, 35% of the households that participated in the study lived from social grants given by the government. One household in Village A did not receive any income. Only one male from Village A had a part time job in the area and earned less than R500 a month. In Village B, 45% of the households in the study group lived from social grants. Two people in Village B had local jobs and earned less than R500 a month. In Village C, 36% of the households lived from social grants, one person received another kind of income due to migrant labour and earned between R1 000 and R2 000 a month. One household received a remittance of R4 000 a month. The grants were the only formal income most of these households received. One household in Village C did not receive any kind income in a month.

3.7.2 PERI-URBAN HOUSEHOLDS

The two peri-urban areas were also poverty stricken. The average income for Village D was R780 and for Village E the average income was R470. All of the households received some kind of income. Most of the study households earned less than R500 a month which was 54% of the total income of the study group. Of this 78% were child support grants and 22% were people working locally in the areas. The second biggest part of the graph was people earning between R500 and R1 000 a month which was 38% of the total income of the study group. Of this 4% was old age pension grants, 26% were people working locally in the area and 70% were disability grants that the participants living with HIV and AIDS received. The remaining 8% of the study group were other types of income: four people working locally that earned between R1 000 and R2 000 a month; one person worked locally and earned between R2 000 and R3 000 per month; and one person worked locally and earned between R3 000 and R4 000 per month.

A short summary of each village income: In Village D, 32% of the households that participated in the study lived from social government grants. Three males had part time jobs and six had full times jobs and only two of them earned less than R1 000 a month. One female had a full time job in the area although she earned less than R500 a month. In Village E, 39% of the households that participated in the study lived from social grants given by the government. Two households did not receive any income. Four males had part time jobs and two had full times jobs and all of them earned less than R1 000 a month. Two females had part time jobs in the area in which they earned less than R500 a month.

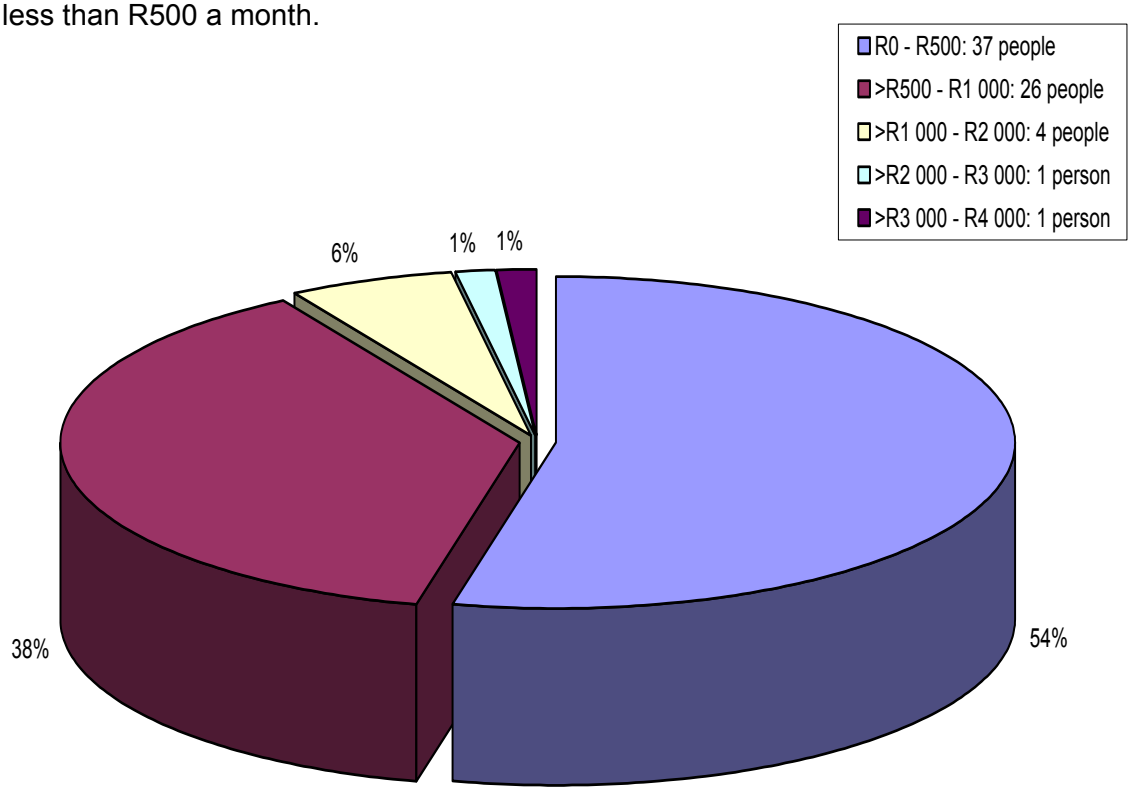


Figure 3.12 Income scale of the peri-urban study areas

Table 3.7 Income level of the rural study households

Type of income	Village A										Village B										Village C									
	R0 - R500		R500 ≤ R1 000		R1 000 ≤ R2 000		R2 000 ≤ R3 000		R3 000 ≤ R4 000		R0 - R500		R500 ≤ R1 000		R1 000 ≤ R2 000		R2 000 ≤ R3 000		R3 000 ≤ R4 000		R0 - R500		R500 ≤ R1 000		R1 000 ≤ R2 000		R2 000 ≤ R3 000		R3 000 ≤ R4 000	
	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M
Local employee (Full time)											1																			
Local employee (Part time)		1									1																			
Migrant labourer (Full time)																									1					
Migrant labourer (Part time)																														
Own business																														
Old age pension grant			2																				4	1						
Disability grant			2	3									4	3									4	7						
Child support grant	3	7									10	11									4	7								
Other																											1			

F = Female M = Male

Table 3.8 Income level of the peri-urban study households

Type of income	Village D										Village E									
	R0 - R500		R500 ≤ R1 000		R1 000 ≤ R2 000		R2 000 ≤ R3 000		R3 000 ≤ R4 000		R0 - R500		R500 ≤ R1 000		R1 000 ≤ R2 000		R2 000 ≤ R3 000		R3 000 ≤ R4 000	
	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M
Local employee (Full time)	1	1	1	1	2	2		1		1		1		1						
Local employee (Part time)		3									2	1		3						
Migrant labourer (Full time)																				
Migrant labourer (Part time)																				
Own business																				
Old age pension grant													1							
Disability grant			10	2									6	1						
Child support grant	5	6									6	11								
Other																				

F = Female M = Male

3.8 SUMMARY AND RECOMMENDATIONS ON STUDY POPULATION DEMOGRAPHICS

According to the TOR of the WHO, an assessment was carried out in three rural and two urban communities with a high HIV and AIDS disease burden, focusing on resource-poor households with HIV and AIDS patients. The rural communities represented different geographic/environmental circumstances, were still very traditional and stayed mostly in traditional mud huts. The urban communities represented an inner city slum/squatter settlement, and a peri-urban area: Village D originally started of as a settlement on the peripheral of Kimberley where people lived in small brick houses which had infrastructure such as water and sanitation services, electricity and refuse removal. As people started looking for work, they started to settle illegally on open stands in Village D and had no infrastructure expect for a few taps and two toilets. Village E was illegal squatter settlements and people lived in shacks without little if any water (only a few communal standpipes) and sanitation infrastructures.

3.8.1 STUDY POPULATION

In the general study population, the predominant age group in Village A (21%), Village B (23%), Village C (16%) and Village E (20%) households respectively was the ages between >5 – 12 years. They form 21% of the households. The predominant age groups in Village D study households was the ages between 20-29 years (18%), 16-19 years (17%) and 40-19 years (17%). In Village E, the age group 40-49 years were very close to the predominant age group. In the rural areas, many people are migrant labourers and leave their kids with the grand parents or other family members to look after.

3.8.2 EDUCATION LEVEL OF THE STUDY POPULATION

The main problem is illiteracy in poor communities, which could be seen in this study population. In the rural study households, 20% of all the household members did not receive any form of education, 12% finished Gr. 10, 5% finished secondary school and 1% had a tertiary education. In the peri-urban study households, 27% of all the household members did not receive any form of education, 11% finished Gr. 10, 6% finish secondary school and 0.7% had a tertiary education. There is a need therefore to measure the education trends in communities on the impacts, outcomes and costs of various initiatives already done or currently in place (e.g. using mass media) to ensure a more comprehensive approach and proper planning for any future promotions and programmes.

3.8.3 INCOME LEVEL OF STUDY POPULATION

Poverty is a key aspect of any initiative in risk management because it affects people's capacity to protect themselves and their ability to live in areas less exposed to risks. Poverty usually refers to a lack of access to resources and opportunities (Kiongo, 2005). The study households in the rural and peri-urban villages were all poverty stricken. In the rural areas, the people mostly lived below R1 500 a month and in the peri-urban areas, people mostly lived below R800 a month. The reason for the higher monthly income per household in the rural areas could be because these are more extensive families living together compared to the peri-urban households where smaller families are staying together. Generally when people become ill with HIV and AIDS, they will come back to the rural area to be cared for by family members. An increase in HIV and AIDS morbidity and mortality cases create a severe risk to food security and nutrition in households because families lose income earners and the grants received must cover non-food items such as medical costs and funerals, and resources may have to be shared with more dependents. According to the

caregivers from the peri-urban areas, poverty increased the prevalence of HIV and AIDS in their community because young women sold their bodies to prostitution to get money to support their families.

The impact of the HIV and AIDS epidemic is currently proving to be affecting people more seriously at the household level. The majority of households in the study communities only lived from the social grants that the government provided. HIV and AIDS has become such a normal part of the daily lives for many South Africans and with the appearance of ARVs and the easy access to social grants it was much easier for people to get disability grants as soon as they started ARVs which prolonged their lives.

3.8.4 HIV TESTING AND HEALTH STATUS OF STUDY POPULATION

The VCT sites in the study areas were only established after 2001 and therefore most of the participants tested at hospitals because they were ill and they did not get better. Nurses at the clinics and doctors at the hospitals advised the patients to test so that they can treat the right disease. Presently, many clinics now have a VCT site where people can get tested and treated for HIV and AIDS. This also reduces the burden on hospitals in rural regions of South Africa.

In the rural areas 42%, 0% and 6% respectively of the participants from Village A, Village B and Village C received HBC. Many of the HIV and AIDS infected participants were still strong and could function on their own. Many of them also lived with extended families and had people around the house that could assist with the household chores. In the peri-urban areas 88% and 90% of the participants respectively from Village D and Village E received HBC. The participants received HBC because they were starting to get weak and needed assistance around the house and many of them also had to receive treatment for TB. It seems that the majority of infected people only start using the services of HBC caregivers when they get weak and have no family members to assist with basic household responsibilities.

For many South Africans, especially if you are HIV and AIDS positive or suspect that you might be infected, open discussions about HIV and AIDS remains forbidden. This has major implications for research and other related programmes. During this study participants did disclose their statuses to close family members and partners with openness and was accepted. However, those participants that did not tell their family, friends and partners about their statuses said they were afraid of discrimination and that people would not accept them. They were afraid that people would laugh at them and expose them to people in the community. It is therefore important to take into consideration the role of stigmatisation, disclosure and sensitivity around the issues on HIV and AIDS. Programmes must therefore be developed which try to find a way around breaking the silence on HIV and AIDS and build support for those who are not afraid to disclose their status in order for them to be accepted in society and receive proper care with dignity.

CHAPTER 4

WATER SERVICES

4.1 WATER SERVICES OVERVIEW

The key areas on which this part of the study focussed included accessibility (distance to taps), availability (volume of water available per person per day) and water hygiene and maintenance practices. All but one of the study communities had piped-water distribution systems with communal and yard taps – generally on standpipes. The exception was a tanker-supply. For their daily needs households sourced water from these taps and tanks in containers and stored these at home during use.

4.1.1 THE SYSTEMS

The tap water supplied to the communities of Village A, Village B and Village C was sourced from untreated ground water. This was pumped from boreholes in and around the villages to high-lying reservoirs from where the water was piped to the communal standpipes.

In Village A, eight of the ten households used the communal standpipes. One household used the river and one household used the spring. Those that used the river and the spring said the river and the spring were much closer to their homes than the taps and therefore it was easier for them to collect water at these natural resources. In Village B, eleven of the twelve households used the communal standpipes. One household used the river because the only water services they had in the community was one water tank that was further away from her house than the river. Two of the households that used the communal standpipes also used the canal as their main water source. In Village C, eleven of the fifteen households used the communal standpipes. Three households had yard taps and one household used the river.

The “older” community of Village D mainly used yard taps. One exception was a recent and small informal settlement annexed to Village D that was serviced by two communal stand pipes for nearly 500 people. All the water in the taps was from fully treated municipal water sourced (the raw water sourced from a nearby river). Ten of the households had yard taps. Six households used the two communal standpipes available to the informal settlement. The yard taps were accessible to those that had them. Village E received treated municipal supply. Parts of the community sourced their water from a number of 2 kℓ tanks which were filled by municipal tanker vehicles during the working week. The other parts of the study community obtained their water from communal and yard taps linked to the municipal water distribution systems with a treated supply. Five of the households used tank water that was supplied by the municipality. One participant used the yard tap of his employers. Five households used yards taps and ten households used communal standpipes.

4.1.2 MAINTENANCE OF WATER SYSTEMS

According to officials of the Mutale district municipality, vandalism is a problem at standpipes. Community leaders were mostly relied on to stop vandalism in the areas. Thulamela district municipality were finalizing plans to fine vandals R5 000 if they were caught in the act of vandalising standpipes.

Illegal connections to nearby taps (usually with hosepipes) were also problematic. Households made these to get easier access to water. This lead to inequity in water availability as these connections often cause the storage reservoirs to empty more rapid than anticipated, leaving the rest of the community without water. Village B had a similar situation: suburbs which was a distance from the reservoir could only obtain water late in the day or not at all on the specific day because the suburbs closer to the reservoir lowered the water pressure to such an extent that the water did not reach the suburbs which was a distance away from the reservoir.

Generally study participants complained about slow and unreliable response from the municipalities to restore a service should it for some reason break down. This could take from one week to a month, compelling the community members to use alternative and often untreated sources. Community members from Village E reported that it could take one day to a week to fix problems with water infrastructure once it has been reported to the authorities.

4.1.3 PAYMENT FOR WATER SERVICES BY HOUSEHOLDS

Two of the participants in Village A paid R30 for water per month. The other eight did not pay for water. One participant said because she had to pay for water she could not afford certain necessities around her house. Only one of the participants of Village B paid R10 per month for her water. The other eleven did not pay for water. The participants from Village C did not pay for water.

In Village D, ten of the participants paid for their water because they had yard taps. They paid between R50 and R300 depending on how much water they used in a month. They had water meters that measured the water each month. They reported to pay R14 per kℓ. It was only in the informal settlement that people did not pay for their water. Six participants did not pay for water because they used communal standpipes. They reported that they would pay for water if the taps were in their yards. They felt that water was a natural resource and they should therefore not pay for water. In addition, they reported that if they had to pay for water there were other things that they would not be able to pay for such as food. Others reported that they had to pay for water otherwise the municipality cut their electricity off. The Emalahleni district municipal area participants did not pay for water. Some people thought that if they pay for water then the municipality would give them clean water and better infrastructures. Some thought they should not pay for water because the taps were too far from the houses. When the taps broke they had to wait up to a week before there were water at the taps and they did not have an alternative water source that was close to their dwellings. There was also no water meters or methods to measure how much water the people were using.

4.1.4 TIMES OF DRAUGHT

The rural study areas did experience water restrictions during times of drought. They were then only allowed to use water for basic purposes such as bathing, consumption and cooking. Sometimes they had to go to other villages to collect water and they paid people to transport them there with their containers to the nearest clean water source. They also paid people with private boreholes for their water. When they did not have any water in times of drought, DWAF would bring water to them in water trucks.

Village D did experience water restrictions in times of draught. During these restrictions they were only allowed to use water for basic purposes such as bathing, consumption and cooking. In Village E they did not experience water restrictions in times of drought. Those using the tanks were limited to certain water volumes because they could not collect a lot of water in the containers.

4.1.5 WATER AVAILABILITY

All the areas had sufficient supplies of water and according to the municipalities the water was constantly available. In the rural areas, the water systems were closed at night and in some areas also over weekends while pumps at boreholes were running to allow the reservoirs time to fill up. In case of breakages to the pipes or taps, the system would be shut down soon enough but then the breakage problem does not always seemed to be solved within a reasonable time period.

Table 4.2 shows the intermittent water availability in the various study areas and indicated the number of households which experienced water shortages at different times. Those households that had water shortages on a daily and weekly basis were predominantly those using communal standpipes that received water from the reservoirs.

Table 4.1 Water unavailability in study households

Availability	Rural areas			Peri-urban areas	
	Village A	Village B	Village C	Village D	Village E
Daily	0 households	4 households	4 households	0 households	2 households
Weekly	5 households	1 household	4 households	1 household	10 households
Monthly	3 households	1 household	3 households	9 households	6 households
Every other month	2 households	1 household	4 households	6 households	1 household

Figure 4.1 Water being pumped into the water tanks

Figure 4.2 A water tank tower in the peri-urban areas

Figure 4.3 Communal standpipe leaking water

Figure 4.4 Heads broken of the standpipes

4.1.6 WATER ACCESSIBILITY

Households carried water containers from the taps to their homes over distances that varied from 10 m (yard taps) up to 300 m (on average between 100 m and 200 m). They carry these by hand, balanced on their heads, or by using wheelbarrows, donkey-drawn carts and light delivery vehicles.

In Village A, most of the households were within 200 m from the taps as required by RDP guidelines. Only a small marginal group (20%) was further than 200 m from their taps. In Village B, most of the households were closer than 100 m to their taps, but 42% of the households were further than 200 m from the communal standpipes. Even though 93% of the households in Village C had access to taps (communal and yard), 53% of the households were more than 200 m away from these taps. Whenever water was not available at taps, people resorted to alternative water sources using the same containers. In Village A and Village B, people used water from nearby rivers, canals, boreholes and springs. These are generally situated at greater distances from the household than the taps. In Village C, the community members would collect water from neighbouring villages which were between 3 and 5 km away.

In Village D, those households that had yard taps had easy access to these taps. Not all the households that used the communal standpipes had easy access to the communal standpipes. All of them were further than the 200 m guideline required by the RDP. This was the same situation in Village E who used communal standpipes. A total of 33% of households had their tap supply further than 200 m from their dwelling. A total of 24% of the households that used the tank water also lived at distances more than 200 m from the tanks.

Table 4.2 Water sources used by the study households indicating the distances from the households

Water source	Rural areas															Peri-urban areas									
	Village A					Village B					Village C					Village D					Village E				
	0 - 10 m	10 ≤ 50 m	50 ≤ 100 m	100 ≤ 200 m	>200 m	0 - 10 m	10 ≤ 50 m	50 ≤ 100 m	100 ≤ 200 m	>200 m	0 - 10 m	10 ≤ 50 m	50 ≤ 100 m	100 ≤ 200 m	>200 m	0 - 10 m	10 ≤ 50 m	50 ≤ 100 m	100 ≤ 200 m	>200 m	0 - 10 m	10 ≤ 50 m	50 ≤ 100 m	100 ≤ 200 m	>200 m
River					1					1					1										
Canal									1																
Supply tap		2	2	3	1		1	4	2	4	4		1	2	7	7	3			6	3	2	2	2	7
Borehole																									
Spring		1																							5

4.1.7 WATER HYGIENE AND CONTAINER MAINTENANCE

Alternative surface water sources were mostly contaminated through laundry and bathing activities as well as animals that walked and defecated in the water – especially in Village A and Village B communities. Other activities at the taps, canal and river sources included animals drinking water at the puddles under the taps, people washing their clothes at the taps, children bathing at the taps as well as drinking water directly from taps or the canal. Groundwater in Village C was reported by inhabitants to be too saline, causing them to believe that nearby pit latrines contaminated the ground water. Whenever they had to use the borehole water, they reported to treat the water with sodium hypochlorite.

In Village E, the community members were also not satisfied with the tank-water supply because the tanks were not cleaned at all. They complained about pieces of biofilm dislodging from the inner tank walls and ending up in their container water. There were also reports of yellow sand sediments and worms in the tank water.

Figure 4.5 Animals drinking water from water puddles at taps

Figure 4.6 Children drinking water from untreated canal water

4.1.7.1 Water storage

All of the study communities had to store water in their dwellings and quite often they stored their water in the same containers they used to collect the water. The conditions these containers were stored in were not always favourable. Improper water handling, poorly maintained containers, dung covered floors, insects, animals and children that have access to these stored water containers created ample opportunity for the stored water to get contaminated. Containers were either stored inside the dwellings or outside in the shade. Each of these places had it own problems which added to poor storage conditions:

- Where containers were stored inside the huts they were exposed to cool, dark shady and dusty conditions. In most of the dwellings, especially the huts, the water containers were stored in the same hut where the fire was made. With little smoke extraction the water was exposed to smoke and root from the fire. The floors of the huts were also often covered in animal dung.
- Where containers were stored outside it was exposed to various environmental conditions.

- In- and outside stored containers had insects visible. Insect repellent were used to keep insects at bay but often this repellent were used near unprotected/open water containers.

In Village A, eight of the ten households stored their water inside their dwellings. One household stored the water outside and one household did not store any water. In Village B, all of the households stored their water inside their dwellings. In Village C, eleven of the fifteen households stored their water inside their dwellings. Four households stored their water outside their dwellings. In Village D, twelve of the sixteen households stored their water inside their dwellings. Two households stored the water outside and two households did not store water at all. In Village E, nineteen of the twenty one households stored their water inside their dwellings. One household stored their water outside and the participant that lived in the caravan did not store water.

Households used different types of cloth to cover their water. Containers varied in materials, shapes and sizes. Generally those used over longer distances were between 20 to 25 ℓ plastic drums with small orifices. The households that had yard taps, or lived close to their communal tap, used smaller (usually 10 ℓ), open-bucket type containers.

Figure 4.7 Storage of water inside a smokey hut

Figure 4.8 Cloth covering an open water container

Figure 4.9 Storage of 25 ℓ water containers in the rural households

Figure 4.10 Presence of 200 ℓ water storage containers outside the houses

4.1.7.2 Conditions of the water storage containers

Water got contaminated through direct use of the water. Many containers did not have lids or caps to protect the water. Containers with small openings did not get contaminated as easily as wide mouth buckets because their users had to tip the containers to extract the water. Where the users had to use wide mouth containers they scooped water with a beaker or scooping vessel into the bucket creating ample opportunity to contaminate the water. Apart from the fact that these households used old containers that were previously used for paint, food stuff and other dangerous chemicals, biofilm growth was seen in these containers which posed a health risk to the users of the water. Only 15% of all the households in all the areas had newly bought water containers. Most of the containers were previously used for other purposes: 67% was used for food stuff storing such sunflower oil and 53% of the containers were used for other chemicals such as old paint containers. All the households of the study had at least one 20 or 25 ℓ container. Table 4.3 gives a comprehensive description of the containers used in the various study areas.

In all three rural areas the screw top (small openings) containers' hygiene were very poor. These containers were more commonly used than wide mouth buckets in these areas and more difficult to clean because of the small openings. Washing the containers out with sand and soap (including disinfectant soap) was not good enough to get all the biofilm dislodge in the containers. Most of the containers were a light/transparent colour such as white or yellow which allowed light penetration into the containers which encouraged biofilm growth. Village B had an average of 88.1% of containers lined with biofilm. Village A and Village C had a much lower rate of between 60.5% and 57.4% of containers with biofilm. In the three rural these areas, where the households had wide mouth buckets, the buckets had been found to be cleaner (without biofilms) than the containers with small openings.

In Village D households, the hygiene of the water was better than the container hygiene in the Village E households. Village D mainly used wide mouth buckets which were easier to clean than the screw top containers. The households in Village E mainly used

screw top containers. The people were poor and could not afford good disinfectants. This was a coal mine area and the air was very dirty with coal sediment which caused the containers to become sticky very quickly. Although the households did try to keep their containers clean, the containers still got scratched on the outside because of handling and transportation activities. Dirt settled in these scratches making it considerably more difficult to clean.

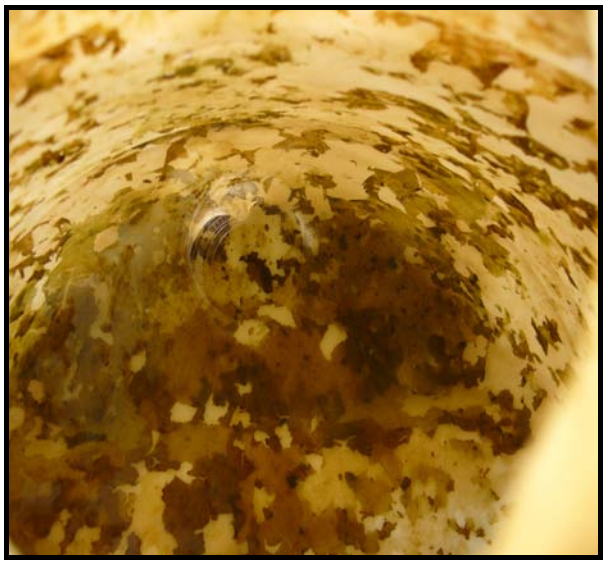


Figure 4.11 Container lined with biofilm

Figure 4.12 Clean container

Figure 4.13 Containers being washed with disinfectant soap

Figure 4.14 Old paint containers used for water storage

Table 4.3 Condition of water storage containers of study households

Container	Rural areas						Peri-urban areas				
	Village A		Village B		Village C		Village D			Village E	
	Screw tops (%)	Wide mouth buckets (%)	Screw tops (%)	Wide mouth buckets (%)	Screw tops (%)	Wide mouth buckets (%)	Screw tops (%)	Wide mouth buckets (plastic) (%)	Wide mouth buckets (metal) (%)	Screw tops (%)	Wide mouth buckets (%)
Inside condition											
Cleanliness	52.6	54.4	16.7	76.5	33	100	0	59	100	20	81
Loose particles	34.2	27.2	3.4	29.4	1.1	0	100	35	0	31	19
Biofilm	60.5	9.1	88.1	23.5	57.4	0	0	6	0	49	0
Outside condition											
Clean	36.8	36.4	26.2	70.6	3.1	100	25	35	100	20	81
Excessive scratches	94.7	72.7	47.6	23.5	71.2	0	50	47	0	29	19
Very dirty (sticky pigmentation)	2.6	0	31	23.5	24.5	0	25	18	0	51	0
Prior use											
Newly bought	0	0	14.3	0	16	100	25	24	100	31	38
Used for foodstuff storage	82	9.1	0	0	51.1	0	50	29	0	6	6
Used for chemicals	68.4	82	54.8	29.4	33	0	25	41	0	55	38
Other	28.9	18.2	31	76.4	14.9	0	0	6	0	8	18

4.2 WATER USAGE AND TREATMENT

People could estimate the water use due to the fact that they could only store small quantities of water at a time. Table 4.4 indicate the estimated water volumes of the various study areas. Village A households brought in an average of 68 ℓ of water per day. This meant that every person in the household used about 14 ℓ of water per day. They were, however, capable of bringing in an average of 257 ℓ per day. If they collected the total volumes of 257 ℓ per day then every person in the household could actually use 52 ℓ of water per day. Not one of these households treated their water before consuming it.

Village B households brought in an average of 82 ℓ of water per day. This meant that every person in the household used about 16 ℓ of water per day. They were capable of bringing in an average of 168 ℓ per day. If they collected the total volumes of 168 ℓ per day then every person in the household could have used 32 ℓ of water per day. Only one of the twelve households treated their water with bleach (sodium hypochlorite) before consumption.

Village C households brought in an average of 84 ℓ of water per day. This meant that every person in the household used about 16 ℓ of water per day. They were capable of bringing in an average of 145 ℓ per day. If they collected the total volumes of 145 ℓ per day then every person in the household could have used 28 ℓ of water per day. None of these households treated their water before consuming it.

Village D households brought in an average of 37 ℓ of water per day. This meant that every person in the household used about 8 ℓ of water per day. The baseline average of all the households capable of bringing in was 33 ℓ. It must be taken into consideration that most of these households had yard taps and that they only stored water for consumption. When they needed larger quantities of water for laundry or bathing they just went to the taps. Two households did not store water. Nine of the households did treat their water before consumption by boiling or by adding bleach (sodium hypochlorite) to the water.

Village E households brought in an average of 53 ℓ of water per day. This meant that every person in the household used about 16 ℓ of water per day. They were capable of bringing in 75 ℓ per day. If they collected the total volumes of 75 ℓ per day, then every person in the household could have used 23 ℓ of water per day. None of these households treated their water before consuming it.

Table 4.4 Average water volumes collected at study households

	Rural areas						**Peri-urban areas**			
	Village A		**Village B**		**Village C**		**Village D**		**Village E**	
	Volumes	Lpppd	Volumes	Lpppd	Volumes	Lpppd	Volumes	Lpppd	Volumes	Lpppd
Average actual collection	68 ℓ	14 ℓ	82 ℓ	16 ℓ	84 ℓ	16 ℓ	37 ℓ	8 ℓ	53 ℓ	16 ℓ
Average family baseline capacity	257 ℓ	52 ℓ	168 ℓ	32 ℓ	145 ℓ	28 ℓ	33 ℓ	7 ℓ	75 ℓ	23 ℓ

Lpppd = litres per person per day

Village A and Village B households reported larger amounts of water used per household compared to reported volumes from Village C households if one considers the volumes in Table 4.5. Investigation revealed that Village C households brought in more water per person. According to Table 4.5, Village A should roughly have brought in 155 ℓ, Village B should roughly have brought in 163 ℓ and Village C should roughly have brought in 137 ℓ of water. Village B's water usage was slightly higher than the other two villages. With water purposes such as laundry, bathing, house cleaning and watering gardens all of the areas used more than 25 ℓ of water. If one takes into consideration that they did not need all this water everyday because they did not need to water the gardens or do laundry everyday it was still a lot of water for a household to bring in. The actual volumes that the households did bring in looked as follows: Village A only brought in an average of 68 ℓ a day, Village B only brought in an average of 82 ℓ and Village C only brought in an average of 84 ℓ a day (Table 4.4).

It seems like the households did not bring in enough water for all the purposes they mentioned along with the volumes. If the households did not use their stored water for those purposes that used more than 25 ℓ and they collected the water as they needed it, then their water volumes used according to the purposes of the stored water would look as follows: Village A, 38 ℓ; Village B, 38 ℓ and Village C, 34 ℓ (those purposes >25 ℓ were deducted), then the households did bring enough water into the households for all the smaller purposes. But according to RDP guidelines every person should at least have a minimum of 25 litres per person per day (lpppd) to keep healthy. The reality was that Village A households only brought in 14 lpppd, Village B households brought in 16 lpppd and Village C households brought in 16 lpppd (Table 4.4). This meant that even if the households only collected the larger quantities of water when they needed it the households still collected less water than the prescribed RDP guidelines.

Village D and Village E households brought in nearly the same quantity of water if one considers the water use patterns (Table 4.5). Although the estimated water volumes showed that Village D households used more water, Village E households actually brought in more into their households. Village D households estimated that they used an average of 118.4 ℓ but they only brought in 37 ℓ a day. If one considered that they did not store large quantities of water for laundry and cleaning then they used an estimate average of 68.4 ℓ of water a day which was still more than what they actually collected in the day. Village E households estimated that they used an average of 121.1 ℓ of water a day while they only brought in 53 ℓ a day. Once again if the large quantities were deducted from this amount and then it come down to 28 ℓ a day. This meant they did collect more water than they estimated they used in a day. Village D households did actually bring in 4 ℓ more water in a day than their baseline capacity of 33 ℓ. Village E households brought in 20 ℓ less than they were capable (73 ℓ) of bringing in. If they did bring in their baseline capacity then they would be able to use more water for their various purposes and they could increase good hygiene conditions. Even though Village D households brought in more water than their baseline, they, along with Village E households, still did not meet the guidelines of the RDP of 25 lpppd for personal hygiene and consumption.

Table 4.5 Average water use patterns by study households

Water use	Rural areas			Peri-urban areas	
	Village A	Village B	Village C	Village D	Village E
Drinking	4.3 ℓ	5.7 ℓ	2.6 ℓ	4.5 ℓ	2.7 ℓ
Cooking	6.5 ℓ	6.9 ℓ	4.9 ℓ	3.5 ℓ	4.2 ℓ
Hand washing	2.4 ℓ	3.2 ℓ	1.9 ℓ	1.1 ℓ	1.7 ℓ
Food prep	4.1 ℓ	5.3 ℓ	5.4 ℓ	2.6 ℓ	0.8 ℓ
Dish washing	12.9 ℓ	14.2 ℓ	8.2 ℓ	6.4 ℓ	4.3 ℓ
Body washing	18.1 ℓ	> 25 ℓ	9.9 ℓ	19.4 ℓ	13.9 ℓ
Nappy washing	> 25 ℓ	> 25 ℓ	> 25 ℓ	10 ℓ	18 ℓ
Baby-milk Prep	500 mℓ	750 mℓ	500 mℓ	600 mℓ	500 mℓ
Laundry	> 25 ℓ	> 25 ℓ	> 25 ℓ	> 25 ℓ	> 25 ℓ
Animal drinking	6.6 ℓ	1.6 ℓ	1 ℓ	3.3 ℓ	0 ℓ
Garden water	> 25 ℓ	> 25 ℓ	> 25 ℓ	> 25 ℓ	> 25 ℓ
House cleaning	> 25 ℓ	> 25 ℓ	> 25 ℓ	17 ℓ	> 25 ℓ
Estimated total	**155.4 ℓ**	**162.7 ℓ**	**136.5 ℓ**	**118.4 ℓ**	**121.1 ℓ**

4.3 SUMMARY AND RECOMMENDATIONS OF WATER SERVICES

Water play a very important role in the care and well being of people infected with HIV and AIDS and the subsequent services provided by HBC caregivers. When people's health deteriorate to a stage where they cannot walk far distances (walking long distances dehydrated them) and don't have the physical strength to carry large volumes of water (carrying heavy containers made them tired and they got weak), HBC caregivers must be in the position to have access to clean, properly maintained water services with enough water available to look after the infected individual. Clean water is needed to cook healthy food, drink medication and keep the patients and their environment hygienic.

4.3.1 WATER SYSTEMS

In the rural areas, both municipalities serving the rural areas stated that their main objective was to give all the rural communities clean water. Both municipalities had short and long term solutions for providing water to the communities which they served. The short term solution was to drill boreholes with pumps in the communities. However, not all the communities had shallow ground water and therefore it made it more difficult to provide those communities with enough clean water. In some of the rural study areas the municipalities had to bring water with water tankers and store the water in big tanks. The long term solution for the rural areas was to build a dam where they would store and treat water that would then be piped to the communities. The ultimate goal was to give each household their own tap in the yard. The Thulamela district municipality even contemplated the idea of installing pre-paid water meters on these taps so that people could start paying for their water.

Both municipalities in the peri-urban areas were responsible for providing water and sanitation services to the various communities they served. Compared to the rural communities, all the peri-urban communities used treated water that was piped to the communal or yard taps. Some of the communities of Village E used tank water from six 2 000 ℓ tanks on towers while other communities used treated water supplied by the municipality. Sadly these water tankers did not solve the water shortage problem in the informal settlement because there were just too many people in need of water.

4.3.2 MAINTENANCE OF WATER SYSTEMS

The various municipalities were responsible for maintaining the systems in their respective jurisdictions. However, no evidence was found of any formal maintenance programmes. Generally it was found that the municipalities only reacted in response to broken-system reports from communities. It is therefore important that municipalities have a formal maintenance programme or structured plan on how to deal with breakdowns of water infrastructures in various communities.

4.3.3 WATER AVAILABILITY

Water availability means "*the water supply for each person must be sufficient and continuous for personal and domestic* uses" (WRC, 2005). For water quantity to act as an absolute constraint on hygiene, it must be available only in very small quantities. To act as a positive driver for improved hygiene, water must be available at higher service levels and ideally supplied at least through on tap on the house plot (WHO, 2003b). HBC caregivers needed water for their services. The caregivers in the rural areas said they need between 40 ℓ to 200 ℓ of water to tend to a patient. In the peri-urban areas the caregivers thought between 2 ℓ to 25 ℓ of water should be used to tend to a patient. During this study the results showed that this volume of water was more than what was actually available per person per day. It was interesting to note that all of the caregivers preferred to use tap water when they tended to a patient – it is the believe that water from a tap was safe.

According to the two municipalities in the rural study areas, water was constantly available in the communal taps accept for the cut off times when they deliberately switched the pumps off to give the reservoirs time to fill. The communities did not agree with this and approximately 86% of the households in the rural study areas complained that the water was not constantly available. When water was not available at the taps the people in these communities had to resort to alternative water sources. The river, canal, borehole and the spring were used as alternative sources. Most of these sources were a lot further than the taps. Another problem seen in the rural areas was that the municipalities had a shortage of water tankers and therefore water supplies did not get to the communities in time and this compelled some communities to go back to the river as their main water source.

In the peri-urban areas the water were constantly available except where a pipe burst or taps that were vandalised. This did not happen on a regular basis. It happened weekly or monthly but the people usually did not wait longer than a day for water to be available again. Sometimes it did take up to a week but this did not happen regularly. The water tanks in Village E got filled every weekday except over weekends. This also caused the inhabitants not to have enough water over weekends, especially over long weekends. Sometimes the tanks were filled more than once a day. In addition it was observed that water was wasted at these tanks. The users depleted the tanks as soon as the water became available and they had to wait for the next time the water tankers came to fill these storage tanks. These areas did not have any alternative water sources. When water was not available at the taps the people had to wait until the problems were fixed. If they really had

a problem with water at the taps they collected water at the primary school borehole or otherwise DWAF or the fire brigade brought water in water tankers to the community.

4.3.4 WATER QUALITY

During this study the microbiological and physico-chemical quality of the water sources or household water was not assessed because it was not part of the TOR. Nevertheless, the quality of water consumed is well recognised as an important transmission route for infectious and other diarrhoeal diseases (WHO, 2003b).

The participants, some of the HBC caregivers and all the community members who were interviewed in the rural villages felt that tap water was of good quality and that it could not have any effect on their health. Generally they presumed if DWAF puts in taps in the communities, then the water supplied through the taps are purified by DWAF. They did however know that the river water was not good quality water. The general consensus was that they had less diarrhoea since they started using tap water. Some of the HBC caregivers did not think that the river water was of good quality because humans and animals contaminated the water. Humans contaminated the river through doing their laundry in the river and bathing in the river. Animals walked and relieved themselves in the river. In the peri-urban villages the water from all the areas was treated water. However, the community members were not satisfied with the tank water because the tanks never got cleaned and the water sometimes had worms.

Educating people is a key factor that can lead to better health. People therefore need to be better informed about the kind of water they receive. In some areas people believe that the ground water they receive is treated and therefore they did not treat their water before consumption.

4.3.5 WATER ACCESSIBITLITY

Everyone must have safe and easy access to adequate facilities and services in order that clean drinking water is secured and useable (WHO, 2003a). According to the municipalities the rural households had easy access to the communal standpipes. However, an average of 30% of households with people living with HIV and AIDS did not have access to the communal standpipes because it was not within 200 m according to the RDP guidelines stipulates. In addition it was seen for all three rural areas that many of the households did not have working standpipes for periods up to a month. This made accessibility to their water sources even less. In the peri-urban areas about one third of the households did not have access to a water source within 200 m according to RDP guidelines.

When water has to be collected at distant sources, there are direct and indirect risks to health such as spinal injuries because of heavy loads, attacks on females and children missing school (WHO, 2003a). Where basic access service level has not been achieved, hygiene cannot be assured and consumption requirements may be at risk (WHO, 2003b). In all the rural areas where rivers and springs were used as alternative water sources, the distances from these households were more than 200 m. In addition, to get to these alternative sources, the water collectors had to walk through bushes and uneven terrain and sometimes they had to climb over farm fences. Generally these alternative sources were far, the roads dangerous with many wild animals such as snakes and leopards present. These sources were also very secluded areas where women could be raped and even killed. The participants complained that these distances were very exhausting which gave some of them chest and leg pains. Only one person said she sees the long walk as exercise.

4.3.6 WATER AFFORDABILITY

Water must be affordable for everyone – even the poor (WHO, 2003a). In the rural study areas where the participants used the communal stand pipes they did not pay for water. It formed part of the first 6 kℓ free basic water. It was difficult to control the water use in the rural areas because households had to share taps. The households were, however, willing to pay for tap water if it was running tap water in their houses. There were households in the rural areas that had yard taps with water meters and these households paid between R10 and R30 for their water per month.

In the peri-urban areas those who had yard taps with water meters had to pay between R50 and R300 depending on usage for their water. It was only the informal settlements that did not pay for their water because it was difficult to control water usage.

4.3.7 CONTAINER STORAGE

Source water contamination is likely to have a wide effect on the community because it can introduce new pathogens in the home environment (Sobsey, 2002). However, several studies have reported that the microbiological quality of the water deteriorates after collection, during transport and during storage at the point-of-use due to secondary contamination factors (Wright *et al*., 2004). Due to the distances and unavailability of piped water supplies on the dwelling or inside the households in many developing regions of the world, people are forced to store their drinking water (Sobsey, 2002). Other factors, which could contribute to the contamination of the water during storage at the point-of-use, included unsanitary and inadequately protected (open, uncovered, poorly covered) containers (Dunker, 2001). Storage containers need to be covered at all times to prevent flies, animals and small children from touching the water (Sobsey, 2002). The majority of the households in the study population stored their water containers inside the dwelling. Many of the huts in the rural villages were dusty and children and chickens had access to the containers. Most of the houses or shacks in the peri-urban villages where the containers were stored were clean and the containers either had caps or lids on them or the households covered it with cloths.

The material of the container is important because the chemical material of the storage container could be conducive to bacterial growth and survival of potentially pathogenic microorganisms if contamination of the water occurs (Patel and Isaacson, 1989). During this study only 15% of all the households in all the areas had newly bought water containers. The majority of containers used for water collection and storage purposes in poor households had previously been used for other purposes such as storing of sunflower oil and other chemicals – of which some are toxic to humans.

From this survey it was evident that the study communities have a lack of knowledge on knowledge of health, knowledge of waterborne diseases, hygiene, proper storage of water containers and proper handling of water containers. Therefore education, participation and motivation of communities on issues such as these must take high priority in any intervention programmes.

CHAPTER 5

SANITATION SERVICES

5.1 SANITATION SERVICES OVERVIEW

The key areas on which this part of the study focussed were latrine type, placing and support. Toilet systems varied from water-borne, pit-latrines to none at all, where residents had to use the open environment. Approximately 41% of the rural study households had to use the environment and 13.5% of the peri-urban study households did not have toilets although many of the septic tank users in the peri-urban areas resorted back to the environment if their tanks were not emptied.

5.1.1 THE SYSTEMS

5.1.1.1 Sanitation systems present in study areas

While some households in Village A and Village B had ventilated improved pit-latrines (VIP), most had standard/substandard pit latrines that they had to acquire for themselves. Five of the households in Village A had toilets and the remaining five did not have toilets. Four of them used the bush to relieve themselves. One person used the neighbour's toilet. Three of the toilets were VIP toilets. Two households had corrugated iron structures but none of the study households had substandard toilets. All the toilets were between 1 and 4 years old. Seven of the households in Village B had toilets and the remaining five did not have toilets. Four of them used the bush to relieve themselves. One person used the neighbour's toilet. Two households had VIP toilets supplied by the RDP. Three households had corrugated iron structures and two households had substandard toilets. All the toilets were between 1 and 12 years old. In Village C, the infrastructures were mostly substandard pit latrines which the households also had to acquire themselves. Ten of the households had toilets and the remaining five did not have toilets. Four of them used the bush to relieve themselves and one person used her neighbour's toilet. Two households had VIP latrines, five had corrugated iron structures and three households had substandard toilets. All the toilets were between 1 and 16 years old.

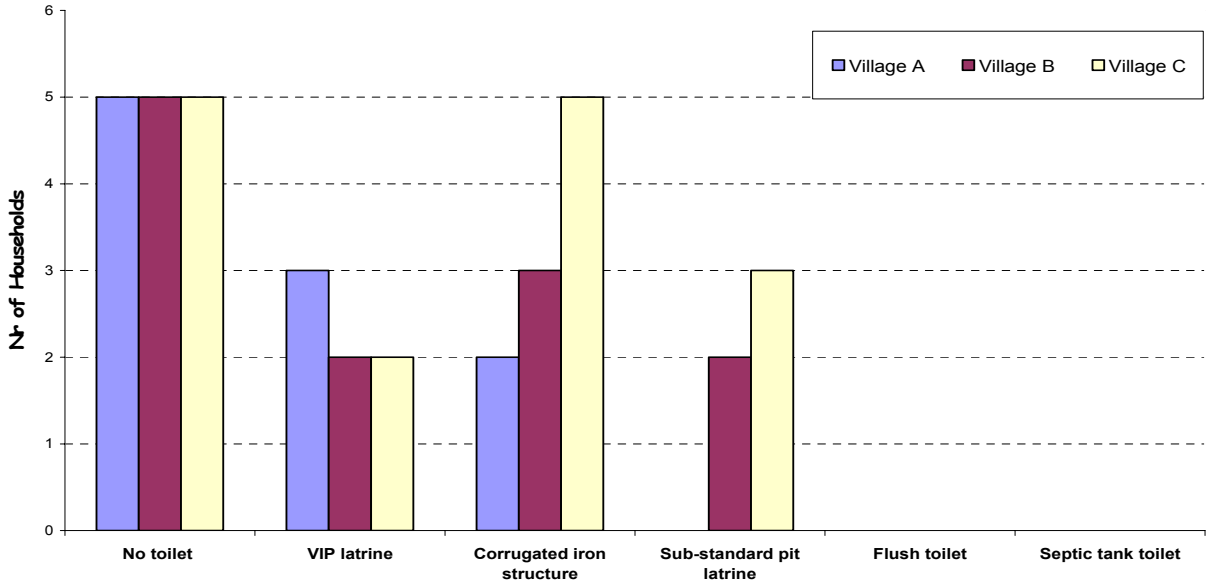


Figure 5.1 Toilets in rural study areas

Municipal officials reported that Village D once had a bucket-toilet system which was upgraded to flush toilets within the same super-structures. This explained why the toilets were outside. By contrast, the nearly 500 people in the informal settlement annexed to Village D, were served by two toilets, each on its own small collection tank. Ten of the households in Village D had flush toilets and the remaining six did not have any toilets. These toilets were outside their houses. They were supposed to use the septic tank toilets provided by the municipality but they rarely used it. Two of the participants that did not have toilets used their sisters–in–law's toilets. One participant used a small bucket at night but during the day she used the veldt. One participant also used a small bucket at night but used her mother's toilet during the day. One participant asked other people if he could use their toilets. Only one participant used the public septic tank toilet of the informal settlement. She contributed money to the clean toilet. The toilets were three years and older.

None of the informal settlements in Village E had any form of sanitation service. Households with toilets had built those themselves – usually in the form of sub-standard pit latrines with shallow pits and using whatever they could find to build a covering structure. This consisted of stones, mud, corrugated iron, scrap metal, canvas and anything else that would make a structure to give them a bit of privacy. During rainy spells the shallow pits quickly filled with water and overflowed, pushing faeces onto the household yard surfaces. The structures often collapsed during rain. The toilets were small, malodorous with the faeces visible – perpetuating very unhygienic conditions. Those that did not have toilets used the bush. In Village E, sixteen of the participants had toilets and the remaining five did not have toilets. Four of them used their neighbours' toilets and one person used the bush to relieve herself. The participants with toilets built their own toilets from scrap materials that they did not pay for (substandard toilets). The toilets were between a few months and 14 years old. One participant built his own flush toilet. It was not waterborne sanitation. He lived close to a stream and built his toilet over this stream so that when a person used the toilets the excrement would fall directly into this stream and it would be taken away by the stream.

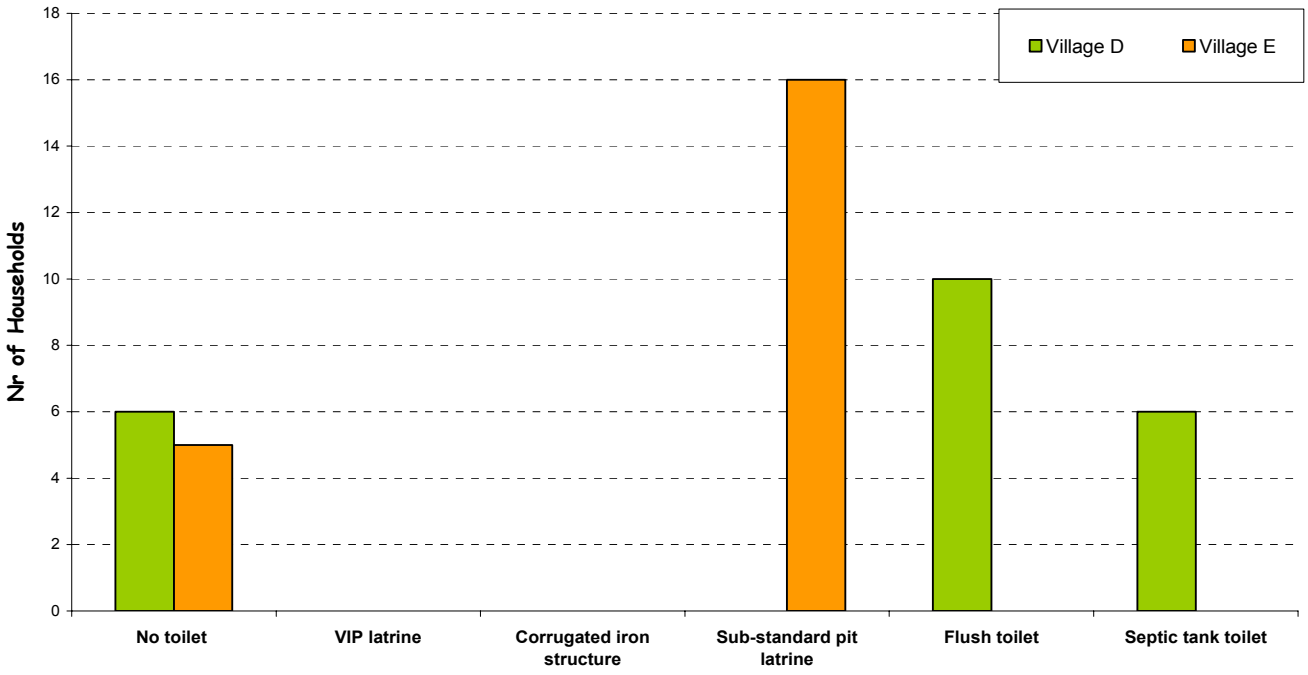


Figure 5.2 Toilets in peri-urban study areas

5.1.1.2 Details on sanitation structures in study areas

5.1.1.2.1 VIP Toilets

Only 19% of the rural study households had VIP toilets and none of the peri-urban households had VIP toilets. The VIP toilets (provided by RDP), however, were not completely built according to RDP guidelines. The toilets were built from bricks and were stable. The roofs were made from corrugated iron which got very hot even in winter times. The roofs sloped away from the doors, they were tightly attached to the walls and they were water proof. The toilets had strong metal doors that were framed but many of them were already starting to rust. The toilets did have ventilation pipes. The pipes were higher than the structures but they were outside of the structures and fixed to the cover slab. The pipes was white (not black) and without proper fly screens on the pipe openings. The ventilation openings also did not have fly screens. The floors were cement cover slabs but many had already started to crack. On the inside, the actual toilets were toilet bowls (not bench seats) without toilet seat covers. These VIP toilets had odours and there was a lot of insect activity.

Figure 5.3 VIP toilet provided by RDP

Figure 5.4 Toilet of VIP latrine inside

5.1.1.2.2 Sub standard pit latrines

Only 13.5% of the study households in the rural areas had sub-standard pit latrines and 43% of the peri-urban study households had substandard pit latrines. The sub-standard toilets were made of loose pieces of scrap metal or with mud, wood and stones. They either had corrugated iron roofs or no roofs at all. Some houses did make use of so kind of canvas to serve as roofs or doors. Others had metal or wooden doors. They mostly had bench seats. All the toilets in all three areas were outside the houses because it was pit latrines. This was to prevent odours, insects and contamination.

Figure 5.5 Sub-standard toilet structure in rural areas

Figure 5.6 Sub-standard toilet inside

Figure 5.7 Sub-standard toilet structure in peri-urban areas

Figure 5.8 Sub-standard toilet inside

5.1.1.2.3 Corrugated iron toilet structures

Approximately 27% of the rural households used ready made corrugated iron structures that they bought at the local hardware stores. None of the peri-urban study households had these structures. The walls, roofs and doors were made of corrugated iron. Households only had to dig the hole, lay a concrete foundation, erect the structure over the hole and either built a bench seat over the hole or put a toilet bowl over the hole. Very little of the households actually had ventilation pipes with these structures. There were no fly screens on the ventilation openings. Odours and insects were visible at these toilets.

Figure 5.9 Ready made corrugated iron toilet structure

Figure 5.10 Corrugated iron toilet inside

5.1.1.2.4 Flush toilets

Approximately 27% of the peri-urban households and none of the rural study households had flush toilets. The households (16%) in Village D were served by two toilets, each on its own small collection tank. The newly built RDP houses had waterborne sanitation inside their houses but none of the households in the study group lived in one of these houses.

Figure 5.11 RDP flush toilet in peri-urban area

Figure 5.12 RDP flush toilet inside

Figure 5.13 Flush toilet in peri-urban area

Figure 5.14 Flush toilet inside

Figure 5.15 Septic tank in peri-urban area

Figure 5.16 Septic toilet inside

Table 5.1 Sanitation structures of households

Toilet structure	Rural areas			Peri-urban areas	
	Village A (n = 5)	Village B (n = 7)	Village C (n = 10)	Village D (n = 10)	Village E (n = 16)
Materials of walls					
Brick	3	3	3	5	0
Concrete blocks	0	0	1	0	1
Corrugated iron	2	3	6	5	8
Mud	0	0	0	0	1
Other		Metal plates			6
Materials of roof					
Corrugated iron	5	6	10	9	7
Thatch	0	0	0	0	0
Concrete slab	0	0	0	1	1
No roof	0	1	0	0	3
Other	0	0	0	0	5
Materials of door					
Wood	0	1	0	2	1
Corrugated iron	2	4	7	5	4
No door	0	0	2	0	3
Other	3 Metal doors from RDP	3 Metal doors from RDP	1 Metal door from RDP	3	8
Materials of floor					
Concrete floor/slab	5	6	7	10	1
Corrugated iron floor	0	1	2	0	0
Dirt floor	0	0	1	0	12
Dung floor	0	0	0	0	1
Other	0	0	0	1	2
Safety of structure					
Accessible to children	5	7	8	10	14
Walls stable	3	4	9	10	10
Walls water proof	5	5	10	10	10
Roof tightly attached to walls	5	5	10	10	8
Roof water proof	5	5	9	10	5
Roof slope away from door	5	5	9	9	6
Door is framed	5	5	8	3	2
Metal in structure not rusted	2	4	4	2	3
Bench seat	2	5	10	0	13
Seat cover	1	2	6	4	0
Seat height 450 mm at least	5	7	9	10	7
Seat width 300 mm	5	7	9	10	6

n = number of toilets

5.1.2 HYGIENIC CONDITION OF TOILETS

In Village A, only two of the five toilet owners cleaned their toilets. They used powder soap and water to clean their toilets. One household also wore gloves when she cleaned the toilet. Six of the households with toilets in Village B cleaned their toilets. The toilets were cleaned at least once a week. Four of the households used powder soap and water. One household only used clean water to clean the toilet and one household only swept their toilet floor. One household did not clean their toilet because the toilet was old and crammed to the top with excrement. In Village C only five of the households that had toilets cleaned their toilets at least once a week. They used powder soap and water. One household used commercial toilet soap to clean the toilet. In Village D only eight of the ten toilet owners cleaned their toilets. Five toilets used powder soap and water. Three households cleaned their toilets with commercial toilet soap and water. In Village E only two of the households that had toilets cleaned their toilets at least once a week using soap and water.

Table 5.2 Hygiene condition of the sanitation structures

Toilet structure	Rural areas			Peri urban areas	
	Village A (n = 5)	Village B (n = 7)	Village C (n = 10)	Village D (n = 10)	Village E (n = 16)
Toilet private	5	6	8	10	7
Toilet dark	0	2	9	9	7
Insect activity at toilet	5	5	4	1	7
Odour present	2	7	5	3	12
Faeces visible	5	4	3	2	11
Walls ventilation openings	5	7	7	4	14
Fly screens on ventilation openings	0	0	3	0	5
Door kept shut	5	4	5	6	5
Ventilation pipe	5	3	5	0	0
Pipe higher than structure	5	2	4	0	0
Pipe straight	5	3	5	0	0
Fly screen on pipe	2	1	3	0	0
Pipe outside structure	5	3	3	0	0
Light entry at pipe	5	3	5	0	0
Black ventilation pipe	0 – all white pipes	0 – all white pipes	1 – other colours were metal, blue and white	0	0
Pipe fixed to cover slab	5	3	4	0	0
Dry floor	5	6	7	7	1
Cover slab well sealed	2	5	6	7	0
Cover slab at least 75 mm thick	5	7	6	8	0
Upper part of pit lined (1 m)	3	5	8	0	0

5.1.3 PLACEMENT OF SANITATION STRUCTURES

In Village A the average distance of the toilets from the houses was 30 m. In Village B the average distance of the toilets from the houses was 40 m. In Village C the average distance of the toilets from the houses was 38 m. In Village D, the average distance of the flush toilets from the houses was 15 m and in Village E, the average distance of toilets from the houses was 16 m (Appendix A).

5.1.4 SUPPORT FOR SANITATION INFRASTRUCTURE

Home-owners in the study areas who had pit latrines were largely responsible for constructing and maintaining their own facility. Toilets that were given to the households were supplied either by the local municipalities or by the Department of Housing as part of the RDP housing packages (a RDP initiative).

In the Mutale district municipal area (serving Village A and Village B), the municipality provided materials and also made use of local community members to build the toilets, which led to some job creation in the communities. The households in Village C were responsible for providing materials and labour for their own toilets. However in situations where the breadwinner of the house was indigent, the municipality will build the latrine as part of government policy of providing basic services to those that could not afford it. Non-governmental organisations also contribute to this cause with the Mvula Trust NGO assisting many households to build their own toilets by donating money and materials for the toilets.

In Village D, local government subsidised the replacement of the bucket system with flush toilets by providing materials. Community members built the toilets as part of a subsequent job creation programme. According to the municipality, the two conservancy tanks for the informal settlement were emptied every month by vacuum tanker. The community disagreed, stating that it sometimes took up to three months for the municipality to empty the tanks. Because of this, the tanks would begin to overflow, depositing faecal material on the land surface and creating unhygienic conditions. Not all of the community members used the two toilets. One toilet was kept locked by a few households that had decided to put money together to clean the toilet in turns. They then locked the toilet so that only those who contributed to cleaning were allowed to use the toilet. The other one was never cleaned. According to the inhabitants of Village E, their local municipality was reluctant to provide and support sanitation services because the inhabitants were deemed to have settled illegally at this location and were to be evicted.

5.2 SUMMARY AND RECOMMENDATIONS OF SANITATION SERVICES

The key areas on which this part of the study had focussed included the presence of sanitation infrastructures in the study communities and households, accessibility (distance to toilet) and sanitation hygiene and maintenance practices. Mitigation of HIV and AIDS pandemic in South Africa will rest on programmes to educate people and promote issues regarding water, sanitation and hygiene practices. In the water and sanitation sector there is a need to develop strategies that enables poor communities and households to sustain and use safe water supply and sanitation provisions to improve the quality of life (Kgalushi et al., 2002).

5.2.1 SANITATION SYSTEMS

Mutale district municipality said they were first giving the rural communities pit latrines because presently it was the best and most affordable option due to limited amount of water available. All the legal settlements in the Sol Plaatje district municipal areas had waterborne sanitation and the

municipality provided sanitation to those that could not afford to build their own toilets. About 6 000 people still used the bucket system toilets in the area because they were waiting for waterborne sanitation. Due to a large number of informal settlers that clustered their shacks together, it was difficult for the municipality to give people their own toilets. The municipality were in the process of moving the squatters to RDP houses although this was a slow process. Therefore the municipality provided the informal settlers with two septic tank toilets as an alternative to using the veldt. The municipality wanted to be rid of the bucket system by 2009 and was working towards this goal.

5.2.2 SANITATION STRUCTURES

Some of the toilets seen in this study were old and they were starting to collapse while some toilets were newly built VIP toilets from the government. Generally the majority of toilets were not kept clean which were hazardous to the health of the patients using those toilets. The toilets were also far from the houses and this made it difficult for weak patients to use the toilets. People mostly complained about the presence of flies and mosquitoes in the toilets. In addition the old toilets could either collapse on the patient or the patients could fall into the toilet. The toilets were also very small. During the interviews the community members did not think HBC patients should have special toilets because people living with HIV and AIDS were the same as everybody else and they should not be separated from the community. However, they did think disabled people must be provided with special toilets.

The recommendation from this study is that sanitation systems should be reconsidered. Those that do not have toilets should become first priority. Toilets need to be upgraded to VIP toilets and people should be properly equipped with skills needed to build the toilet according to guidelined specifications.

5.2.3 HYGIENIC CONDITIONS

Poor sanitation affects the quality of life, and in many cases, can result in deaths and diseases which place an additional financial and health burden on poor families (Tumwine et al., 2003). Only 60% of the study households that had toilets cleaned their toilets. The other 40% of study households that had toilets felt their toilets were old or full and they did not see the need to clean the toilets anymore. Generally the participants used soap and water. What is disturbing is the fact that most of the toilets had visible signs of faeces on the seats or walls, even at the toilets where the households said they cleaned their toilets. More educational programmes should be put into action because people need to know how to keep their toilet clean.

5.2.4 SANITATION PLACEMENT

In the rural as well as the peri-urban areas using the sub-standard pit latrines and the bush/veldt was unhygienic and dangerous. Using a sub-standard toilet that was outside and far from the house was dangerous and a health risk especially to those that was infected with HIV and AIDS. They had to battle the elements such as rain, strong wind, extreme heat and cold depending in which area they lived. Weak people struggled to get to the toilets especially during the night time. This all posed a risk to their health. In addition, the bush was not a safe option for women and children.

During the interviews, many of the community members in the study areas thought that a toilet should be between 2 m and 50 m from the house, although all agreed that a toilet inside the house was the ideal. However, there was no specific pattern in the placement of the various forms of latrines. Guidelines on this provided by municipal officials varied widely. According to the officials, municipalities could use guidelines that the distances between the dwelling and the sanitation

structure (pit latrines) should not be less than 40 m to prevent odours and insects reaching the inhabitants of the dwelling. This was quite impractical because almost all the stands in these areas were much smaller than this. On the other hand, officials indicated that toilets should be at least 5 m from a dwelling in a corner of the yard and if possible not visible from the road. This is a more practical guideline since stands in, for instance, Village D, was small and therefore the toilets were invariably close to the dwelling. By contrast, some of the community members from the informal settlement lived more than a kilometre from their toilets (septic tank). Those that lived close to it complained about the odours and heavy insect activity such as maggots when the septic tanks spill over, especially when the vacuum tanker that serviced the conservancy tanks broke down and the tanks overflowed.

5.2.5 SANITATION SUPPORT

The municipalities from the rural and peri-urban areas mostly provided the materials and created jobs by getting people from the community to learn how to build the toilets in order for the persons to be doing the work in a specific area. In the rural areas where participants with toilets built their own toilets, they reported to pay between R300 and R1 000. In the peri-urban areas the community members reported that it cost about R9 500 to build a toilet. It was generally found that although the objective of the municipalities were to create jobs for unemployed people in their jurisdiction, the training was not adequate and many of the sanitation structures did not conform to the standards originally set out to be achieved. Therefore it is advisable that proper training be given to people before they are sending out into the areas and follow-up visits should be done to determine the efficiency of the trainees.

CHAPTER 6
HYGIENE SERVICES

6.1 PERSONAL HYGIENE – HAND WASHING

6.1.1 RURAL AREAS

In Village A, Village B and Village C all the household members reported to wash their hands. These households did not have running water in their homes and they also did not have washing basins in bathrooms where the household members could wash their hands. Approximately 71% of all the households had their own small washing facility where they could wash their hands. It usually consisted of a plastic tub where they kept soap and water for the household members to use. Approximately 38% of the times these tubs were also used as the dish washing containers. Only 7% of the households washed their hands at the containers or used the scooping vessels with their dirty hands to scoop water out of the containers to wash their hands. If they had a yard tap some would just rinse their hands under the tap on their way back from the toilet. In all three areas, 76% of the households said that they used soap and clean water to wash their hands. Clean towels were use 57% of the time to dry their hands, 12% households admitted that they used dirty towels to dry their hands, 34% wiped their hands on their clothing and 7% of all the households did not dry their hands after they had washed them.

6.1.2 PERI-URBAN AREAS

In both peri-urban areas, 76% of the households said that they used soap and clean water to wash their hands. Clean towels were used 75% of the time to dry their hands, 20% of the households admitted that they used dirty towels to dry their hands and 6% wiped their hands on their clothing. In Village D all the households washed their hands. In Village E, one participant that lived alone reported not to wash his hands. The households in Village E did not have running water in their homes. Approximately 12% of the peri-urban households had their own small washing facility where they could wash their hands. It consisted out of a plastic tub where they kept soap and water for the household members to use. Approximately 59% of the times these tubs were also used as the dish washing containers. In Village D, 31% of the households washed their hands at the yard taps. In Village E, 14% of the households washed their hands at the water containers or used the scooping vessels with their dirty hands to scoop water out of the containers to wash their hands.

Table 6.1 Washing of hands by study household members

Washing hands	Rural areas			Peri-urban areas	
	Village A (%)	Village B (%)	Village C (%)	Village D (%)	Village E (%)
When					
When visibly soiled	10	0	13	25	5
After touching something contaminated	40	17	27	25	14
After toilet use	80	75	67	33	67
After changing nappies	0	17	0	0	0
Before preparing food	50	25	0	38	19
Before eating meals	80	50	73	44	81
Place					
Washing facility	100	92	20	13	10
At containers	0	0	13	0	14
Dish washing containers	0	17	60	50	67
Use drinking beaker to pour water	0	0	7	13	5
Cook pot with dirty water	0	0	0	0	0
Yard tap	0	0	7	31	0
Communal tap	0	0	0	0	0
River	0	0	0	0	0
Canal	0	0	0	0	0
Borehole	0	0	0	0	0
Tank	0	0	0	0	0
Spring	0	0	0	0	0
How					
Soap	90	75	60	75	76
Disinfectant	0	0	0	0	0
Clean water	40	33	27	63	24
Drying					
Clean cloth/towel	40	50	81	88	62
Dirty cloth/towel	10	17	10	6	33
Wipe on clothing	40	42	20	6	0
Drip drying	10	0	10	0	0

6.2 DOMESTIC AND FOOD HYGIENE

In all the study households, left over food was generally covered with cloths and pot lids to keep insects away. Four of the households in Village A, seven of the households respectively in Village B, six of the households respectively in Village C and Village E did not protect their left over food. One household in Village B, seven households in Village C, one household in Village E reported to use insect repellent to keep the insects away from the food. One peri-urban household used fly paper to catch the flies.

Figure 6.1 Left over food in pots

Figure 6.2 Uncovered left over food

Another tradition in especially the rural households is coating floors of homes with fresh cattle dung – including the rooms used to store the drinking water. When dry, these floors form a shiny and almost impervious surface where people often walk. The other parts would however tend to become dusty and will eventually break up, constituting a local dust source as well as environmental contamination hazard to water stored in open containers.

Figure 6.3 Dung used to smear floors

Figure 6.4 Dung floor

6.3 WASTE DISPOSAL

There were no formal refuse removal services for the households in the three rural study areas or for Village E in the peri-urban area. Households disposed self of their household waste either in pits around the household premises or by dumping it in public areas that were not fenced off away from their own premises. It was only Village D that indicated that 42% of the target households had some form of waste collection and disposal done by the municipality. The informal settlement of Village D had no refuse removal and disposed their wastes in street dumps. These disposal sites were usually no more than 10 to 30 m from the households. Flies, animals' faeces, plastic,

rusted cans, feathers, papers and other waste were visible to these sites. Animals and children had access since these sites were not fenced off.

Table 6.2 Waste disposal by study households

Waste disposal site	Rural areas			Peri-urban areas	
	Village A (%)	Village B (%)	Village C (%)	Village D (%)	Village E (%)
Own pit	30	17	60	13	14
Open space in yard	30	25	20	6	62
Open space in street	10	8	20	19	0
Burned waste	20	50	0	0	5
Disposed in remotes bush areas	0	17	0	0	19
Refuse removal	0	0	0	42	0

Figure 6.5 Rural area dumping site where the households burned their waste

Figure 6.6 Dumping waste site in the street of the peri-urban area

6.4 ANIMALS

In Village A, eight of the ten households had animals such as dogs and chickens. One household also had a cat. The animals stayed on the premises. The chickens slept in a coop at night or in one of the huts (usually where the water is stored). The dogs and cat also stayed close to the dwellings. In Village B, eight of the twelve households had animals such as dogs, goats and chickens. The animals stayed on the premises. The chickens slept in a coop at night or in one of the huts. The goats had lairs where they slept. The dogs also stayed close to the dwellings. In Village C, eight of the ten households had animals such as chickens and dogs. The chickens slept in a coop at night or in one of the huts. The dogs stayed close to the dwellings. These animals in the rural areas either drank water at the taps where the puddles of water formed, or they drank water from a bowl at the dwellings.

In Village D, five of the sixteen households had animals: two households had dogs, three households had cats and one household had pigeons that they kept in a coop. In Village E, only five of the twenty one households had animals: the participant that lived in the caravan had all kinds of animals on the premises where he lived such as emus, rain deer, goats and sheep to dogs

and ducks (his employer kept these animals); one household had a dog; and three households had chickens. All these animals stayed on the premises and either drank water at the taps where the puddles of water formed, or they drank water from a bowl at the dwellings.

6.5 SUMMARY AND RECOMMENDATIONS ON HYGIENIC CONDITIONS

The key areas on which this part of the study had focussed were personal hygiene practices, domestic hygiene conditions, husbandry practices and general waste disposal conditions.

6.5.1 PERSONAL, DOMESTIC AND FOOD HYGIENE

The survey showed that households were aware of the importance of washing hands after visiting the toilet and before eating meals. However, the majority reported not to wash hands before preparation of food, after changing nappies or when visibly soiled hands. This could either be attributed to ignorance or to poor water and sanitation infrastructures. This study also indicated poor food hygiene practices in the majority of study households. Inadequate cooking and containers/utensils used for preparing food, even when washed, may permit survival of bacteria (Potgieter et al., 2005). Boiling water and reheating foods before consumption could reduce the risk of contracting food and waterborne pathogens. However, poverty and the high cost of fuel may impede adequate cooking and reheating because the fuel cost for reheating will have to compete for the limited resources available for other cardinal activities (Gilman and Skillicorn, 1985). This once again strengthens the important linkage between water, sanitation and hygiene education programmes. Education of rural communities on the importance of maintaining good personal and environmental hygiene practices and income-generating programmes may be considered to be important factors for guaranteeing safe and effective administration of safe food in impoverished communities.

6.5.2 WASTE DISPOSAL

No refuse removal services were available in any of the study populations. Approximately 35% of the households in all the areas disposed of their household waste in pits in their own yards. About 25% did not go through all the trouble on digging pits in their yards and they just discarded the households waste any place in the yards. Some did burn their waste in their yards (about 23%). The open street was used for 13% as their waste disposal sites and only 6% of the households disposed of their waste in remote areas where humans and especially children did not come. These disposal sites were usually no more than 10 m to 30 m from the household. The waste disposal sites held various dangers: One obvious fact was that the households were polluting the environment. Animal faeces and other waste could wash into the ground and water sources in the rainy seasons and thus polluting the water that the households had to use. Children could cut themselves playing on the waste sites and animals and children could pick up various potential diseases and spread it to the dwelling and water containers without noticing it. It is therefore recommended that refuse removal should be made a priority by municipalities in order to clean up the environment and improves the quality of life of people. In addition, communities need to be educated on the importance of proper waste disposal practices.

6.5.3 ANIMALS

Zoonotic diseases can be transmitted from wild and domestic animals to humans and are a public health threat. At individual health level, zoonotic diseases are a concern for all who live or work with animals. Generally people from rural areas do have a tendency of living with various domestic animals and cattle on the premises. In addition, people living in peri-urban and informal

settlements do keep dogs, cats, goats and chickens. Most of the households in the rural and peri-urban study population had chickens which were primarily bred for eggs and meat. Chickens were cheap and low maintenance. The rural communities had cattle but the cattle were only slaughtered on special occasions such as weddings and funerals. Many households also had dogs and goats.

A recent comprehensive survey has shown that more than half of the more than 1400 different species of human pathogens known today are zoonotic (Taylor et al., 2001). Most of these pathogens are regarded as emerging or re-emerging (Morse, 1995). The risk is especially problematic for persons who are immunocompromised – and especially if these people are living in an environment with little or no basic sanitation and water infrastructures. The transmission route of these microorganisms could be due to the presence of animals on the dwelling, unhygienic practices, inadequate excreta disposal, unsafe handling of foods and improper water storage conditions could be associated with the risk of diarrhoeal diseases, especially in immunocompromised people (Moe et al., 1991; Curtis et al., 2000, Sobsey, 2002).

CHAPTER 7
HOME BASED CARE SERVICES

7.1 LINKING HOME BASED CARE TO HEALTH SERVICES

Primary health-care (PHC) clinics belonging to district municipalities offered essential support for HBC services in the selected study areas. This support was in the form of training caregivers on certain clinical procedures they needed to administer when working with people living with HIV and AIDS (the patients). The clinics also introduced HBC to communities and referred clinic patients to their HBC centre if and when it was necessary. Everything was done confidentially to protect the patients' right to privacy. Table 7.1 gives an overview of linkage between the various district municipalities' Health-Services and HBC in the study areas.

Table 7.1 Summary of the organisation of Primary Health Care in relation to HBC in study areas

Health services	Rural areas			Peri-urban areas	
	Village A	Village B	Village C	Village D	Village E
Clinic in Village	Yes	Yes	Yes	Yes	Yes
Mobile clinic in Village	Yes	No	Yes	No	Yes
VCT site at clinic	Yes	Yes	Yes	Yes	Yes
HBC group in Village	Yes	Yes	Yes	Yes	Yes
Hospital services proximity from clinic	100 km	140 km	15 km	10 km	10 – 25 km
Traditional healers as a service in Village	Yes	Yes	Yes	No	No
Home Based Care					
Established	2002	1984	2005	2000	2000
Number of communities served	8	5	9	2	More than 10
Total number of caregivers	7	15 – 25	15	16	40
Number of female caregivers	7	15 – 20	15	15	40
Number of male caregivers	0	5	0	1	0
Average age of caregivers	30	32	39	33	37
Working hours	08:00–13:00 (5h)	08:00–13:00 (5h)	08:00–16:00 (8h)	08:30–12:30 (4h)	08:00 – 15:30 (7.5h)
Office building	No	No	No	Yes	Yes / No
Administrative staff	Yes	Yes	No	Yes	Yes
Health care Supervisor	Yes	Yes	Yes	Yes	Yes
Provide community training	Yes	Yes	No	Yes	Yes
Financial aspects					
Clinic services to patients	Free	Free	Free	Free	Free
Medication to patients	Free	Free	Free	Free	Free
HBC services to patients	Free	Free	Free	Free	Free
Caregivers receive stipends	No	No	No	Yes	Yes
Free transport for patients / caregivers	No	No	No	No	No
Payment for public transport	Caregivers	Caregivers	Caregivers	Caregivers	Caregivers
Materials and instruments	Yes	No	No	Yes	Yes

The HBC groups for Village A and Village C were established quite recently (2002 and 2005 respectively). Although the HBC group in Village B had existed since 1984, it had also only recently been taken over by a NGO - the Centre for Positive Care (CPC). The HBC group in Village D was established in 2000. Because of over-crowed hospitals and clinics the Salvation Army decided that there was a need in the community for an external group to help the sick people that were not able to go to the clinic but also could not take care of themselves at home. Eventually the Legatus NGO took over from the Salvation Army for the DOH. The HBC groups in Village E were established in 2000 because these informal settlements did not have clinics nearby and they also needed people to help mobilise the mobile clinic.

The support of HBC to people living with HIV and AIDS and their families generally included food parcels, assistance with applying for social grants, preparing food, and providing basic domestic hygiene as well as nursing care. All the HBC centres except Village C facilitated HIV and AIDS awareness programmes in the communities in general and helped children orphaned by HIV and AIDS to apply for grants. HBC in Village C focussed only on creating awareness programmes amongst the youth. All clinics had Voluntary, Counselling and Testing (VCT) services as well as HBC groups. The VCT services tested people for, as well as provided counselling about, HIV and AIDS.

7.2 HBC SUPPORT STRUCTURES

7.2.1 HUMAN RESOURCES

The caregivers of Village A and Village C were mostly women 30 years and older. Village B was the only centre in the rural study areas with male caregivers which assisted only where needed e.g. when a male patient preferred a male to take care of them. Village A had seven caregivers that had to serve eight different communities in the vicinity of Village A. Village B had the largest number of caregivers (20-25) although this was not a fixed number. They served fewer communities than caregivers in the other two rural areas. The HBC group in Village B served seven communities. The HBC group in Village C served nine communities and had more caregivers (15) per capita in the communities they served which made it easier for this HBC group to get to their patients. The caregivers from Village D and Village E were mostly women 33 years and older. The HBC group in Village D had 16 caregivers and was the only peri-urban area with a male caregiver. They served two major community areas. Village E had more than 40 caregivers that served the informal communities.

The caregivers from Village A and Village B started to work at 08H00 until 13H00. They spend about two hours per patient to allow them enough time to complete all their duties. These two HBC groups did not indicate how many patients they attended to in a day. The HBC group in Village C worked a full eight hour day from 08H00 – 16H00 during the week. They consulted between three to thirteen patients a day. They spend about an hour per patient per day. None of the groups worked during weekends. In Village D, the caregivers reported every morning to the clinic when they opened at 07H45. HBC officially started to work at 08H30 in the mornings and they left at 12H30 in the afternoon. They did not work over weekends. They had two weeks leave in the year. They could take it any time except over December and January. They attended to between two and nine patients a day. They spend about 10 minutes to an hour with a patient to allow them enough time to complete all their duties. The Village E caregivers started to work at 08H00 in the mornings and they left at 15H30 in the afternoon. They did not work over weekends. If they needed a day off then they just took it. They attended to between five and 25 patients a day. They spend about 30

minutes to two hours with a patient depending on what needed to be done. Sometimes it could take up to four hours.

During the study the following uncertainties were shown:

- A clear caregiver/patient ratio could not be established in the study areas
- The HBC groups could not establish the exact number of patients that received HBC.
- There were no formal records being kept of their patients.
- Patients only needed HBC assistance from time to time and this led to these people not being documented as patients.
- The caregivers had a general knowledge of the different kinds of diseases and disabilities the patients suffered from.
- Caregivers could not specify that they had a certain number of patients suffering from e.g. HIV and AIDS and which number of patients suffered from cancer.
- Most of the time the caregivers did not know what their patients suffered from. They only knew that the patient needed assistance.

7.2.2 ADMINISTRATION AND INFRASTRUCTURE

Usually the coordinators of the HBC groups are responsible for the administration of the group. These coordinators are either the counsellor at the VCT site or a caregiver. They could ask at time for other caregivers to assist them in their tasks. None of the rural HBC groups had an office from where they could do their work, which made it difficult to have an efficient HBC administrative system. For private meetings they used the nearest clinic facility where privacy was limited. The HBC group in Village D did have their own building situated about 500 m from the clinic. It was a one-roomed brick structure with a roof of corrugated sheet metal. The caregivers complained that this building was not big enough for all their work-related needs - especially for meetings with other caregivers or even with the patients since there was no privacy. They were planning to add more rooms to include a storeroom for their equipment and rooms where they could consult their patients in private. They also wanted to fence the building off for security purposes, paint the building and put up signs so that they were more visible to the community. Of the HBC groups in Village E, one community group did not have their own office building, while the other HBC group had a own building, which served a dual purpose: they fed more than a 100 children and adults at this building daily and patients could come and see the caregivers at this venue.

Figure 7.1 HBC office in peri-urban area

Figure 7.2 Caregivers in training

7.2.3 TRAINING

The HBC caregivers in Village A and Village B were trained in basic nursing care and health education, especially in HIV and AIDS awareness. They were subjected to Directly Observed Treatment Short-course (DOTS) strategy training, which was the care of TB patients. They were also trained how to handle psychiatric patients and special diseases such as diabetes. Caregivers were further trained on how to keep the status of patients confidential regardless the disease. Although the HBC group in Village C also fell under the same NGO as the HBC groups in Village A and Village B, many of their caregivers had not been trained yet. It was evident that HBC groups took caregivers in and let them tend to patients even if they had not received the most basic training. The Village D caregivers were trained in basic HBC and TB DOTS training. According to the NGO, the DOH was responsible for training the caregivers, although not a lot of training was taking place. The DOH did not have professional accredited people to train the caregivers and needed authorisation to train the caregivers. The caregivers from HBC groups in Village E were trained in HIV and AIDS programmes, Prevention of Mother To Child Transmission (PMTCT), infection control, communication, basic anatomy, making beds, basic nursing care, nutrition and feeding, TB DOTS, STDs, condom use and how to work together as a team.

All of these groups were continually educated on new and changing legislation regarding health care, even though some have not yet received HBC training. All caregivers said they did keep to these legislations when they cared for the patients. They were educated through workshops that were held for them. In the training sessions medical kits, manuals and posters were used to train the caregivers. The training sessions usually lasted for 59 days for about five hours a day. Most of the caregivers did feel that volunteers with little training could be useful to HBC because most of them had little training when they started and they were doing a good job. They did, however, feel that volunteers should receive some training later on. The caregivers felt money should be spent to train them but they would also needed money for transport to these training sessions.

7.2.4 MATERIALS AND EQUIPMENT

The HBC group in Village A was the only HBC group of all the study groups who had uniforms. The uniforms consisted of red golf shirts with the emblem of the Mutale district municipality on the left breast. These shirts were sponsored by the municipality. The HBC caregivers from Village A and Village B did have basic “HBC” kits because they also provided basic nursing care but these kits had to be shared since caregivers were not issued with personal kits. HBC group Caregivers from Village C were provided with very limited nursing care and therefore did not have any form of HBC kits. The Village D caregivers did not have basic HBC kits. They were out of stock and the government did not provide more equipment to them. The HBC groups in Village E did not have kits because the government did not supply them with kits. The only nursing care they gave to the patients was bathing them and giving them medication.

Table 7.2 The state of HBC equipment (HBC kit)

HBC kit	Rural areas			Peri-urban areas	
	Village A	Village B	Village C	Village D	Village E
Clinical thermometer (oral)	Yes	Yes	No	No	No
Scissors	Yes	Yes	No	No	No
Nail clippers	Yes	No	No	No	No
Notebook	Yes	Yes	No	No	No
Home visit reporting forms	Yes	Yes	No	No	No
Hand soap	Yes	Yes	No	No	No
Plastic soap box/container	Yes	No	No	No	No
Umbrella	Yes	Yes	No	No	No
Torch	No	No	No	No	No
Batteries	No	No	No	No	No
Linen savers	Yes	Yes	No	No	Yes
Disposable latex gloves	Yes	Yes	Yes	Yes	Yes
PVC washable apron	Yes	Yes	No	Yes	Yes
Mask	Yes	Yes	No	No	Yes
Napkins (adult)	Yes	Yes	No	No	No
Urosheaths	No	No	No	No	No
Urine bags	Yes	No	No	No	No
Sanitary pads	Yes	No	No	No	No
Syringe 10cc (feeding)	Yes	No	No	No	No
Bags for waste disposal	Yes	Yes	No	Yes	Yes
Spray bottle	Yes	No	No	No	No
Salt	Yes	No	No	No	No
Wooden spatulas	Yes	No	No	No	No
Gauze swabs	Yes	No	No	No	Yes
Sterile dressing packs	Yes	Yes	No	No	No
Gauze bandage 5 cm	Yes	Yes	No	No	No
Gauze bandage 10 cm	Yes	Yes	No	No	No
Condoms	Yes	Yes	No	No	No
Bedpan	Yes	No	No	No	No
Urinal	Yes	No	No	No	No
Bowl (for dressings)	Yes	Yes	No	No	No
Information brochures or sheets	Yes	No	No	No	No
Calamine lotion	Yes	Yes	No	No	No
Vaseline	Yes	No	No	No	No
Aqueous cream	Yes	No	No	No	Yes
Betadine ointment	Yes	No	No	No	Yes
Salt	Yes	No	No	No	No
Rehydration solution	Yes	No	No	No	No
Cough mixture	Yes	No	No	No	No
Valoid	Yes	No	No	No	No
Paracetamol tablets (500 mg)	Yes	Yes	No	No	No
Paracetamol syrup/tabs	Yes	Yes	No	No	No
Anti-diarrhoeal medication such as Loperamide	Yes	No	No	No	No
Paper or cloth cap	No	No	No	No	No
Eye protection	No	No	No	No	No
Paper/plastic overshoes	No	No	No	No	No

7.2.5 TRANSPORT

Transport was a big issue in all of these communities. All the caregivers had to walk to their patients households because they did not have money for transport. If they had to use public transport they had to pay from their own pockets. Some of the villages were quite far apart and it was difficult for the caregivers to get to all their patients because most of the working hours were spend walking to the next house. If the work was in small communities walking were more convenient because the houses were closer together and it was faster to walk than waiting for transport but when they had to go to the next village or the clinic, it became a problem.

7.2.6 REMUNERATION

There was a discrepancy on whether the caregivers from the rural study areas received any form of payment. According to the NGO they were being paid R200 per month. According to the caregivers however, this was not happening. Caregivers most often quit because they did not get paid. All three HBC groups in the rural areas did not receive any formal funding. The caregivers in Village A collected money from the community or they sold fruit and fire wood to get some money, while the caregivers in Village C sometimes collected up to R300 per month from the community. All the caregivers from the peri-urban study areas were receiving stipends for their services. This was paid by the DOH. In Village D the DOH had an umbrella NGO under which all the NGOs fell. This umbrella NGO kept the other NGOs going. They did not know what the national budget for HBC was but they knew that one existed. The national government handed the money to provincial government. The provincial government handed the money to local government and they handed the funding over to the umbrella NGO. They paid the caregivers and nurses working for HBC from this money. For handling fees they used 10% of this money. Medicine dispensary came from the DOH and not from this money. Although the DOH was responsible for funding the NGO, they also got private sponsors from Spoornet, Khuthala Mine, Greenside Mine and social services also assisted in funding the HBC groups. The caregivers received a monthly stipend of R1 000 a month and personal donations on a few occasions. The caregivers from Village E collected up to R300 on some months from the community. Social services gave R500 per HBC group to pay for equipment, stationary and transport. The DOH paid every caregiver a stipend of R1 000 per month for their services.

7.3 INVOLVEMENT OF THE COMMUNITY AND OTHER ORGANISATIONS IN HBC

It is not only the clinics and NGOs that were involved with HBC. As HBC was a community based initiative, various community organisations also played a role in HBC.

7.3.1 COMMUNITY LEADERS INVOLVEMENT

In all three rural villages the community leaders informed HBC if there were community members that needed their assistance with abused children or applying for social grants. They introduced HBC to the communities and assisted with recruiting volunteers. The community leaders talked to the government on behalf of HBC about payment for the caregivers. HBC caregivers also felt that the community leaders could assist them to acquire resources such as offices and infrastructure. The community leaders in the peri-urban areas did not really play a role in HBC. The caregivers felt that the community leaders must liaise between HBC and the local government, visit the patients with the caregivers so that they

could see what the HBC group did and informed the community about the advantages of HBC and build them bigger offices.

7.3.2 COMMUNITY MEMBERS INVOLVEMENT

The HBC caregivers from Village A and Village C felt that community members should become more involved in HBC through meetings where they could share their problems with the HBC group, give financial assistance, identify patients, and accept HBC into the community and volunteer for HBC. There were some community members that rejected the services of HBC because they either did not need the assistance of HBC or they did not trust the caregivers to keep their status confidential if they did not want to be exposed. The HBC groups from Village D and Village E felt the community members could become more involved in HBC by organising educational sessions for the community on HIV and AIDS and TB and identify potential patients that needed their help. HBC groups wanted the communities to start soup kitchens for the people that did not have food and also give them food parcels, donate old clothing and volunteer for HBC. The caregivers said there were community members that rejected their services because they did not want strangers to take care of them, they were afraid the caregivers would expose their HIV and AIDS status or gossip about them in their communities.

7.3.3 LOCAL GOVERNMENT INVOLVEMENT

The Mutale district municipality served an area of 78,921 people. The lack of resources (such as availability of water where people settled) made it difficult for the municipality to provide proper infrastructures. The municipality received money from the provincial government to provide the following services: co-ordination between the local people and government, providing houses, roads maintenance and electricity. The municipality did not provide the water and sanitation services. This was the responsibility of DWAF situated at the municipality. There were still areas that lacked basic water and sanitation services but they did have long- and short-term plans for these areas which all depended on the budget for these plans to be implemented. The Mutale district municipality was involved with the HBC groups in Village A and Village B. They provided education to the caregivers. The caregivers said this relationship promoted the HBC services to the community. The municipality encouraged the HBC groups, and provided food parcels to the orphans.

The Thulamela district municipality served an area of 582,560 people. They provided the following services: water and sanitation services and management, building and maintaining roads, electricity and waste management. The municipality did not have any kind of relationships with the HBC groups and felt that HBC was the responsibility of the DOH. The caregivers also confirmed this. The local municipality did not even know that a HBC group in the area existed. The lack of a relationship with the local municipality hindered the service provision of HBC because the caregivers felt nobody was acknowledging the good work which the HBC group was doing.

The Sol Plaatje district municipality served an area of 201,462 people. The lack of resources (such as availability of water where people settle illegally) made it difficult for the municipality to provide proper infrastructures especially in the areas where people were settling illegally where there were no infrastructures. The municipality provided and maintained water and sanitation services to these areas. Water provided by the Sol Plaatje district municipality came from the Vaal River and was treated at a treatment plant in Riverton. The Municipality was involved with HBC. A councillor of the municipality was stationed at an office in Village D

and if HBC needed anything from them they just had to ask them and they assisted in anyway that they could.

The Emalahleni district municipality served an area of 227,320 people. This municipality refused to be interviewed. Therefore it was not clear if the municipality could handle the areas which they served. All the communities did use treated water but it could not be determined from where the treated water came from. The two HBC groups did not have a relationship with the local municipality which hindered their service provision because they did not get the necessary support.

7.3.4 NGO'S INVOLVEMENT

In the rural areas only one NGO was assisting with HIV and AIDS care. They served four main areas of about four million people: The Vhembe district municipality area (which served Mutale and Thulamela district municipalities), the Mopani district municipal area, the Capricorn district municipal area and the Waterberg district municipal area. This NGO provided the following services: Management of HBC, care education programmes, orphans and vulnerable communities (OVC), VCT, PMTCT and income generating programmes. The NGO together with the local clinics and hospitals decided if HBC was needed in an area and then a needs assessment followed. It was the responsibility of the NGO and the government to maintain HBC groups once they were established. The NGO got funding from the government, Old Mutual Bank, Telkom and Shoprite.

In Village D, there were two NGOs involved with the HBC groups. The responsibilities of the NGOs were to pay the caregivers every month, solve the problems that might arise from the HBC groups, gave them feedback on government meetings and they also organised awareness programmes in the community. Besides these two NGO's, another two NGOs namely LOVE LIFE and YOUTH HEALTH, were also active in the informal settlements in the area. These two NGOs, however, were only involved with HIV and AIDS awareness programmes and not HBC. Love Life worked towards preventing the spread of HIV and AIDS through community education. Youth Health also did HIV and AIDS awareness in the communities, targeting specifically school-going children. In Village E, the HBC groups did not fall under an NGO but under the government hospital. They did, however, had the same functions as if a HBC group should fall under a NGO.

7.3.5 FAITH-BASED CARE INVOLVEMENT

In Village A, the pastor started his own care group at the church after he saw that the sick people had a need to be cared for. The care group looks after the patients spiritually, emotionally and physically. He was in charge of the group. They did not have any nursing kits. He was the only one that had a pair of latex cloves that he used for all his patients. He did not know who to ask to provide him with gloves for all the caregivers in his group. Because he was the only person with gloves he worked with the patients that had open wounds and the patients living with HIV and AIDS. The caregivers in his group did not have formal training but he did train them on how to communicate with the patients and provide treatment. Both the churches in Village B had their own care groups. The one church called it a stewardship. They also cooked and bathed the people that were sick. The pastor's wife was in charge of the care group in the one church and a member of the congregation was in charge of the stewardship at the other church. They did not have any nursing kits. The one church was right next to the clinic. If they needed anything regarding nursing care they could only go and ask them. Only the church where the wife was in charge of the group used protective devises and she also trained her caregivers how to protect them at all times. The

other church worked according to the manual of the stewardship. The church in Village C did not know what HBC was or what they did. The pastor said anybody that helped sick people was doing a good job because they were helping people. He thought the municipality was the one that decided when HBC was needed in an area. The church visited the sick people and only prayed for them and did not work with the local HBC group.

In Village D, the church that was interviewed reported that the people from the church went to the houses of the sick people and prayed for them. The church received donations from the community. They did not help members of the congregation to generate income because they did not have the funding or the resources to do so. The Roman Catholic Church, which was not interviewed, had been helping the community for a long time. Both churches had soup kitchens and handed out old clothing and blankets. The churches did not have their own care groups. The church that was interviewed in Village E, had a care group that cared for the patients and helped with food parcels to those that could not afford to buy food and gave old clothing especially warm clothing for the winter season. The pastor of this church also worked together with other pastors from other churches to provide services to the communities. They received funding from other churches. If the bread winners in the households could not provide for their families the church offered them jobs.

7.3.6 TRADITIONAL HEALERS' INVOLVEMENT

In the three rural villages no traditional healers assisted with HBC. The traditional healers said they did not assist HBC because HBC had not asked them to assist. They did think the HBC groups were doing a good job because they were helping people. The traditional healers did not wear protective devises when tending to their patients. One traditional healer did ask the clinic for gloves and they refused. The other one said that the patients came to him and if they were seriously sick he would refer them to the clinic. Only the one traditional healer from Village C thought that he could cure HIV and AIDS. He said he had many remedies to cure patients. Both traditional healers made use of protective devises when they tended to the patients. None of the traditional healers had any formal training and not one of them went to school. There were no traditional healers in Village D and the traditional healers from Village E could not be located.

The caregivers in the study areas were divided on the issue of traditional healers. Some preferred the assistance of traditional healers and others thought that traditional healers should not be part of HBC. Those that did prefer their assistance said that traditional healers had some remedies that could cure some STI's and boosted their immune systems. Those that did not want traditional healers to assist HBC said they did not believe in traditional healers and felt traditional healers were only after money and they did not measure their medication very well. In addition some felt that many of the patients were referred to the hospitals because of the remedies of the traditional healers.

The pastors from Village A, Village C and Village D did not think that traditional healers should become involved in HBC. The one pastor in Village B did think that HBC could benefit from the traditional healers and the other pastor thought that traditional healers should not help with HBC.

Some of the community members interviewed in this study believed if HBC and traditional healers worked together they could find a cure for HIV and AIDS. But most of them believed that traditional healers could not cure HIV and AIDS. Some of the community members felt that traditional healers could cure HIV and AIDS because they had medicine that doctors did not have. Others felt that traditional healers could not cure HIV and AIDS because even

qualified doctors struggled to cure HIV and AIDS. Many of the community members also believed that traditional healers were only after money.

7.4 TREATMENT AND PROVISION OF HOME BASED CARE

The participants from Village A, Village D and Village E were being cared for by their families and HBC groups. The participants from Village B were being cared for by their family and church members. The participants from Village C were being cared for by their family, HBC and the counsellor. Many of the participants in all the study areas were still strong enough to care for themselves (Tables 3.3 and 3.4). The clinics referred patients to HBC groups when they thought the patients needed assistance at home. The hospitals also referred patients when they got discharged from the hospital and they needed assistance at home. The participants from Village A received treatment from their local clinic, Tshilamba health care centre, Tshilinzini Hospital and Donald Fraser Hospital. They got support from their local clinic nurses, Donald Fraser Hospital, HBC, social workers and their family members. The participants from Village B received treatment from their local clinic and Donald Fraser Hospital. They got support from their local clinic nurses, social workers and their family members. In Village C, all the participants belonged to a support group that one of the participants started. The participants received treatment from their local clinic, Malamulele Hospital and Donald Fraser Hospital. The participants from Village D received treatment from their local clinic, Kimberley Hospital and Galashiwe clinic. The participants from Village E mostly received treatment from the Wellness clinic at Witbank Hospital, Klipfontein clinic, Poly clinic, Beaty clinic and Siphosembi clinic.

7.4.1 CONCEPT OF HBC ACCORDING TO HBC CAREGIVERS

The caregivers from Village A and Village B defined quality care as giving the patients good nursing care, a clean environment, enough stored water and advising them about their disease. They also educated the patients on how to live a healthy lifestyle so that they do not fall ill. The caregivers of Village C defined quality care as managing to solve patients problems such as obtaining their identity documents to apply for social grants, giving them their medication and attend to all the other needs that might arise. The caregivers of Village D defined quality care as giving the patients what they needed until they were satisfied. The caregivers from Village E defined quality care as good communication between the patient and the caregiver, attending to all the patient's needs and bathing patients if they could not do it themselves.

7.4.2 THE EFFECT OF HIV AND AIDS STATUS ON HBC TREATMENT

HIV and AIDS status of patients did not really prevent caregivers from doing their work but there were people that did not want the assistance of HBC because they did not want to be exposed and they were scared of gossiping. The caregivers did explain to the patients that they were bound by law to keep their statuses confidential, but the patients still had their concerns regarding exposure. In Village D, HIV and AIDS stigmas did prevent caregivers from doing their work because there were patients that felt if the caregivers worked with them they might get infected.

7.4.3 BENEFITS OF HBC TO PATIENTS

The caregivers generally attended to the social needs of the patients by giving them support and comfort and by arranging sports activities for the patients that could still play sports. They helped to guide the patients in their difficult times. They also gave the patients information on their diseases. The caregivers continually counselled and encouraged the patients to accept their statuses. To attend to the spiritual needs of the patients they preached to the patients about God and prayed for the patients. They also got pastors to come and pray for the patients at their homes. They kept the patients' houses clean, cooked for them, gave them old clothing and bathed them.

The benefits of HBC to the patients were that caregivers had a better understanding on how to care for the patients. Patients were getting better because there were people that took care of them. The caregivers gained knowledge of different diseases of the patients and were able to identify symptoms of different diseases and advised the patients to go to the clinic. Most of all the patients were taken care of in their own homes. The caregivers were relieving pressure from the clinic and the family members in caring for the patients. Patients received their medication on time, they received food parcels, blankets and old clothing, and obtained assistance to apply for their government grants.

7.4.4 BASIC CARE PROVIDED TO PATIENTS BY HBC GROUPS

The caregivers collected medication for the patients, prepared healthy food for the patients such as fruits, vegetables, tea, bread, cleaned the houses and yards, collected water, laundry, bathed the weak participants and gave moral support. Generally caregivers made use of protective devises when they tended to the patients. When they did not have protective devises available to them they would use condoms over their hands to protect themselves. They disposed of these protective devises by throwing it in the pit latrines of the patients after they had used them. The caregivers would not protect themselves if they did not have gloves.

Table 7.3 Care provided by HBC caregivers to patients

Activities	Rural areas			Peri urban areas	
	Village A	Village B	Village C	Village D	Village E
Colleting water	Yes	Yes	Yes	Yes	Yes
Bathing patients	Yes	Yes	Yes	Yes	Yes
Laundry	Yes	Yes	Yes	Yes	Yes
Clean dwelling	Yes	Yes	Yes	Yes	Yes
Clean yard	Yes	Yes	Yes	Yes	Yes
Dig pit for solid waste	No	No	No	No	No
Assist in social health	Yes	Yes	Yes	No	Yes
Provide counselling	Yes	Yes	No	Yes	No
Provide information and support	Yes	Yes	Yes	Yes	Yes
Maintain food garden	No	No	No	No	No
Collect medication	Yes	No	Yes	Yes	Yes/No
Give medication	Yes	Yes	Yes	Yes	Yes
Change dressings	Yes	Yes	Yes	Yes	Yes
Change adult nappies	Yes	Yes	Yes	Yes	Yes
Prepare food	Yes	Yes	Yes	Yes	Yes

7.4.5 HOME BASED CARE/TREATMENT BY CHURCH

The church in Village A had a tender care unit and counselled the family members. They took children in if they did not have parents or relatives that can take care of them. They also donated food and clothing to orphans and helped to place the orphans with family members. The two churches in Village B focused more on the patients and less on the family members. The one church also took orphans in if they did not have family members to go to. The church in Village C counselled the family members of the HIV and AIDS patients. The church did not think that orphans were a problem in the community and did not have any money to take care of the children. In Village D, the churches assisted the orphans with soup kitchens but other than that social welfare was the only organisation that helped with orphans. The church in Village E said if the patients were too sick to take care of the children or they pass away the church would take the children and contact social welfare to come and take the children. They placed the children in new homes, either with family members and/or the orphanage.

7.4.6 HOME BASED CARE/TREATMENT BY TRADITIONAL HEALERS

The majority of traditional healers asked money for their services and many of the participants did not have money to pay for the traditional healers. The participants that did go to traditional healers paid between R50 and R250 for the services and the remedies provided by the traditional healers. One of the traditional healer's services in Village C was free of charge and the patients only had to pay for the remedies.

Eight of the ten participants in Village A did not visit traditional healers. They had various reasons that ranged from they did not believe in traditional healers, they did not have faith in them, they were afraid of traditional healers, they were not interested, they did not want to mix their hospital medication with those of the traditional healers. Two participants did visit traditional healers. They said traditional healers could assist them with their disease. Only one patient thought that traditional healers could cure HIV and AIDS. Ironically this was not the participant that went to a traditional healer.

Eleven of the participants from Village B did not visit traditional healers. They had various reasons that ranged from they were not interested, they were not used to going to traditional healers, they were Christians, they were afraid the traditional healers will expose their statuses and they did not believe in traditional healers. One participant did visit a traditional healer. Her family believed that traditional healers could cure any disease. None of the participants thought that traditional healers can cure HIV and AIDS.

Only three people in Village C visited a traditional healer because they were very sick and thought the traditional healers could cure them. One person said she used the medication of the traditional healer and she did not get better. One person said he got a lot stronger when he used the medication of the traditional healers. Twelve of the participants in Village C did not visit traditional healers. They had various reasons that ranged from they did not believe in traditional healers, they rather believed in God. They were not used to going to traditional healers and they did not trust traditional healers, they believed that they tell lies. Two participants thought traditional healers could cure HIV and AIDS.

None of the participants from Village D visit traditional healers. They had various reasons that ranged from they did not believe in traditional healers, they were not interested, they did not have money to go to traditional healers, they did not know any traditional healers, they only trust in God and the medicine they got from the clinic. The virus was already in their bodies, there was nothing anybody could do about it. Two participants did believe that traditional

healers can cure HIV and AIDS because there were remedies that will cure the disease according to them. The participant did not want to drink this remedy because she was told not to mix it with her medication she got from the clinic.

In Village E, two of the participants did not know if traditional healers could cure HIV and AIDS, two participants believed that traditional healers could cure HIV and AIDS and seventeen participants did not think traditional healers could cure HIV and AIDS because they did not believe in traditional healers, traditional healers were only after money, they were full of myths, they were failing to find a cure, they were afraid of the remedies, their remedies were not analysed and they made people weak. One participant visited a traditional healer before she got tested and she was sick, but never got cured from the remedies provided.

7.4.7 HOME BASED CARE/TREATMENT BY FAMILY MEMBERS

Families supported the participants by preparing food, do the laundry, assist in caring for the children, making sure the participants drank their medication, collecting water for the household and helping to clean the house and the yard. In all three the rural areas the children did help out around the house. They helped with the everyday chores of cleaning, cooking and laundry. In none of the rural areas were there children that skipped school to help out around the house. All of them helped before or after school and over the weekends. Only five of the ten participants from Village A had children between 11 and 17 years old to help to care for them. Two of the participants said their children missed out to play with other children because they had to help out around the house. Some of the participants did have children older than 18 that also helped around the house. One participant's daughter was 24 years old but she left school to take care if her mother and now she wished her daughter can go back and finish school. Only three of the 12 participants from Village B had children that helped to care for them. There were other participants that had children but they were too young to help around the house. The children were between 10 and 14 years old. Some of the participants did have children older than 18 that also helped around the house. Five of the in Village C participants did not have children that helped to take care of them because they did not have children or the children were too young to assist. Ten of the participants had children that took care of them. The children were between 9 and 18 years old. Some of the participants did have children older than 18 that also helped around the house. One participant's children even helped him financially. Only eight of the 16 participants from Village D had children that helped to care for them. The other eight participants either did not have children or the children were too young or in the orphanage. Three of the participants said their children missed out to play with other children and school sports activities because they had to help out around the house. One participant was afraid her daughter would miss out on university because she had to take care of her mother. In Village E, thirteen of the participants' children did not care for them. Eight participants' children did care for them.

7.5 SUMMARY AND RECOMMENDATIONS ON HOME BASED CARE SERVICES

Generally people living with HIV and AIDS either find comfort and support, or suffer rejection and discrimination in their communities. This is where awareness is spread or ignorance reinforced because only through people's daily interactions with one another a climate of compassion and solidarity or of fear and neglect is created. The community-based response has a number of benefits:

- It is more cost effective and sustainable - IF PROPERLY RESOURCED AND SUPPORTED

- Caregivers are in close proximity to their patients
- Caregivers can mobilise support from within the community to assist affected families with.

Therefore, as more and more people are able to access ARV treatment, community support and understanding will be critical in terms of identifying and referring patients and monitoring and supporting patients to ensure adherence and proper management. Therefore the following recommendations with regard to HBC services could be proposed:

- It is recommended that more mobile clinics should be mobilised more frequently to make it easier for these people to have access to primary health care because in rural areas where people did not have easy access to the clinics, the people must use public transport and pay between R8 and R12 per return trip to the clinics.
- More caregivers should be trained and deployed in the communities where they live. This would increase the effectiveness of HBC because more people would be cared for in their own homes.
- The caregivers should be given proper/regular training and suitable work schedules.
- Volunteers should be appropriately trained and could be employed/deployed in the health sector. People loose interest in HBC because they either do not get paid at all or they are paid too little. This will also decrease the unemployment rate in the country.
- More males should be encouraged to become caregivers. This will enable HBC to give care to male patients if they prefer male caregivers.
- Support systems should be developed not only for the patients but also for the caregivers to help them deal with the illness and death that surrounds them in their working environment. The establishment of support structures for HBC caregivers is fundamental in their training. They need the support to counsel one another when they wanted to talk about something.
- Community leaders and members should become more involved in HBC to assist the caregivers to make their jobs easier.
- More HIV and AIDS awareness campaigns should be done amongst the communities so that that understand the disease better and are more tolerant towards people living with HIV and AIDS and this will encourage these people to ask for assistance from HBC.
- Good administrative systems should be developed and maintained by HBC and the NGOs. Lack of resources currently prevents this from happening. HBC groups should have their own office buildings that are big enough for all their needs. They should also have administrative resources such as computers and stationary to keep better record of patients and the volunteers. The government should also subsidise proper communication systems and transport. This would enable the caregivers to communicate with each other and the clinics and hospitals. This would also ensure faster reaction time when a patient urgently needs to go to the hospital or clinic.
- Along with a good administration system the caregivers should be given proper working hours to ensure that they are able to see as many patients as possible in a day. This will only be achieved if the caregivers are paid according to these hours.
- Proper funding is also needed to provide the caregivers with proper HBC kits and protective clothing. Uniforms should also be given to the caregivers to make them more recognisable in the communities.
- Transport was a big problem for the caregivers in all of these communities. All the caregivers had to walk to their patients houses because they did not have money for transport. If they had to use transport they have to pay from their own pockets. Therefore, a small travel stipend is needed to effectively deal with patients staying far from the clinics.

- Local FBO must become more involved in the care giving of people at home. Although churches did support people with food parcels, old clothing, blankets and prayers, none of them assisted with HBC activities.
- The role of the traditional healer in HBC and treatment of people living with HIV and AIDS still need to be examined. Some 80% of South Africans consult traditional healers and use traditional African remedies, even if they also use Western medicines. In the climate of fear and shame that prevailed when people with HIV and AIDS started dying in large numbers, when testing was not widely available and only a minority could afford life-prolonging drugs, traditional healers used a wide range of treatments to alleviate the symptoms of HIV and AIDS. Some so-called healers falsely claimed to have cures for AIDS. There was mistrust between traditional healers and western medical practitioners and different approaches were seen as being in opposition to each other. In recent years, the government has tried to integrate traditional healers into the national health care system, promoting investment in the research, development of traditional remedies and the protection of related intellectual property. At community level, many organisations work closely with traditional healers in counselling, encouraging testing, promoting good nutrition and complementary remedies. There are many cases of traditional healers and clinic workers referring patients to each other. Improving understanding and cooperation between different medical traditions is important to promote the well-being of people living with HIV and AIDS and to prevent unnecessary conflict and misinformation.
- Community leaders must also become actively involved in HBC. They should be their link to government so that government could do more for HBC.
- Community members should be educated on HBC and the role this played in care taking of sick people in the communities.

CHAPTER 8

CONCLUDING ASSESSMENT OF STRENGHTS AND WEAKNESSES OF WATER, SANITATION, HYGIENE AND HOME BASED CARE INFRASTRUCTURES

During the course of this study we have witnessed remarkable concern and positive thinking on the context of the widespread HIV and AIDS disease burden that must be activated if the needs of infected individuals are to be addressed effectively with sustainable outcomes. Therefore, the target audience for this report is water, sanitation and health professionals in South Africa working for national and local governments, NGOs, sector resource centres and private sector firms whom all are important role players in water, sanitation and home/community-based care projects.

Although the sample size of this assessment was relatively small and is not representative of conditions of people living with HIV and AIDS in all of South Africa's provinces, all the study objectives were achieved and gave an example of the struggles of people living with HIV and AIDS in rural and peri-urban areas of South Africa.

In addition, this study has shown that in order to address the needs of people living with HIV and AIDS and to reduce the impact of the disease, it is important to consider the following:

- Caregivers must be educated on water, sanitation, hygiene and health related issues.
- Caregivers must have access to good quality water in adequate quantities.
- Existing home/community based care services must be enhanced and strengthened.
- The linkages between home based/community based care groups must be clear and competition for funding should be reduced.
- Water, sanitation and hygiene education must be combined in order to reduce the impact of HIV and AIDS. The issues surrounding HIV and AIDS must be included into all of these programmes. These messages must stress the importance of the hygienic use of water and sanitation infrastructures.
- Basic level of water and sanitation services for all must be ensured.

Table 8.1 indicates the strengths and weaknesses of the water, sanitation and hygiene levels in the households and the communities in the context of national policies on water, sanitation, hygiene and home-based care and the role of different organizations and communities to people living with HIV and AIDS.

Table 8.1 Summary of the strengths and weaknesses of water, sanitation, hygiene and HBC structures and the role of different organisations and the communities to people living with HIV AND AIDS

Indicators	Rural areas		Peri – urban areas	
	Strong points	**Weak points**	**Strong points**	**Weak points**
Households: Water sources	Ground water was pumped to communal standpipes closer to the homes of the community members. Distances to walk to the borehole were shorter.	None of the communities received treated water. All received untreated ground water. Some households even used natural sources such as the river and springs.	All of these areas had treated tap water.	Very few households had yard taps. Most of the households used communal standpipes or water tanks.
Households: Water volumes		None of the household brought in the quantity of water that they were capable of bringing in. This meant that because they did not bring in the volumes they were capable of bringing in, the households did not reach the 25 lpppd mark that is a guideline of the RDP for the minimum volumes of water a person need in a day for consumption and personal hygiene.	Only Village D brought in more water than their baseline capacity but it was still less than the 25 lpppd that is the guideline of the RDP.	Village E brought in less water than their baseline capacity and it was also less than the 25 lpppd guideline of the RDP.
Households: Water availability		Water was not constantly available at these taps which compelled the households to go and collect water from rivers, springs and canals or they had to walk long distances to the neighbouring villages to collect water.	Water was most of time available at the taps. An occasional burst pipe was the main reason if water was not available at the taps.	The water tanks were not filled over the weekends and the households had to store water.
Households: Water accessibility	Yard taps were right next to the households.	Most of the households that used the communal standpipes lived more than 200 m away from the standpipes. This was against the guideline of the RDP that states that a communal standpipe should be within 200 m of the households.	The yard taps were inside the yards right next to the houses.	Most of the communal stand pipes as well as the water tanks were further away than 200 m from the houses.
Households: Water treatment		Most of the households did not treat their water before consumption.	Only some of the households of Village D treated their water with sodium hypochlorite or by boiling it.	None of the household in Village E treated their water before consumption.
Households: Container hygiene	Most of the households washed their containers every time they went to collect water.	Biofilms grew inside storage containers if not cleaned properly	Most of the household washed the containers every time they collected water.	Biofilms in tank water and water tank never cleaned. Biofilms inside of storage containers if not cleaned properly
Households: Water storage		Most of the households had to store their water. Because of the nature of the mud huts, the environment was dusty and not always very clean.		Most of the households had to store their water. The shacks and mud houses were dusty and the environment was dirty.

Indicators	Rural areas		Peri – urban areas	
	Strong points	**Weak points**	**Strong points**	**Weak points**
Households: Available toilets		Most of the households that had toilets build their own toilets and it was not up to RDP standard. Even the VIP toilets were below the RDP guidelines. Those that did not have toilets either used the bush to relieve themselves or they used their neighbours' toilets. The toilets were far from the houses.	In Green Point the houses had water borne sanitation.	All of the households in the informal settlements that had toilets were self-built sub-standard pit latrines. Those that did not have toilets used the bush, veldt or the neighbours' toilets. All of the toilets were outside. They were much closer to the houses than in the rural areas but the patients still had to go outside in different weather conditions to use the toilets.
Households: Toilet cleaning	Nearly half of the households that had toilets cleaned their toilets.	Nearly half of the households that did have toilets did not clean their toilets.		Less than half of the households cleaned their toilets.
Households: Hand washing	All of the households washed their hands. They had different places where they washed their hands but most of them did wash their hands with water and soap.		All of the households washed their hands. They had different places where they washed their hands but most of them did wash their hands with water and soap.	
Households: Domestic animals		In many of the households the animals had access to the water containers.	Very few of the households had domestic animals and those that did have animals did not to let the animals near the stored water.	
Households: Waste disposal		These areas did not have refuse removal. Most of them disposed of their waste in the environment.	Only the houses in Village D had refuse removal.	All of the informal settlements did not have refuse removal and the households discarded their waste in the environment most of the time.
Households: Energy sources	Some had electricity.	Those that did not have electricity used wood to cook and boil water did in their huts where there were little or no extraction of the smoke and these people inhaled smoke when they had to cook in these huts.	The houses in Village D had electricity	Only a few households had electricity but not all of them could afford it. They mostly used paraffin in their shacks.
Family participation in home based care	These areas still had extended families. They were the main support that the participants received. Without their consent it would not have been possible for HBC to work in the houses of the patients. Good relationships with the families were necessary. Also educating the family members made them more tolerant of the diseases and disabilities of the patients.		Most of the families in these areas were nuclear families. This was the reason why many of the patients did not have family members to take care of them and the children but those that did have family did support the patients. HBC also educated the family to make them more tolerant of the diseases and disabilities of the patients.	The appearance of nuclear families in the peri-urban areas caused that some patients did not have family to take care of them.

Indicators	Rural areas		Peri – urban areas	
	Strong points	**Weak points**	**Strong points**	**Weak points**
Orphans	Because of the strong system of extended families in these areas, the orphans were taken in by them.		The social services placed orphans immediately into family care or orphanages – they did not let children stay alone	
Child-headed households		Child-headed households were seen in these areas. The caregivers thought that keeping the children in the parents' house would be more comfortable for them. There were no adult to protect them at night and they did not really receive guidance because of the lack of maturity in the households.	In Village D there were no households that were headed by children.	There were children headed households in Village E. Social welfare was trying to take these children into custody but the children preferred to stay in their deceased parent's houses.
Role of local government (Municipalities) in assisting home based care activities	Each area fell under a specific municipality that was responsible for providing water and sanitation services. Municipalities all had short term goals to provide rural communities with basic water and sanitation services.	Except for Mutale district municipality that did play a small role in the HBC groups of Village A and Village B, the Thulamela district municipality did not want to get involved with HBC in Village C. Therefore they did not have any way of knowing what the needs of HBC were regarding water and sanitation.	Both peri-urban areas fell under their respective municipalities. Village D HBC had a good relationship with their municipality.	It was not clear what kind of relationship the Emalahleni municipality had with the HBC groups from Village E because the municipality refused an interview but the caregivers did complain that the municipality did not acknowledge them.
Role of NGO in home based care	One NGO under which the HBC groups fell managed the HBC affairs. They are also the HBC link to the government.	The NGO had a large area to serve which could be the reason why Village C caregivers had not received training. They could not get to all the HBC when they had problems or needs because of the area that they had to serve.	In the peri-urban areas the NGOs were active in the organisation of the HBC groups. The NGOs or the Hospital in Village E managed the affairs of the HBC groups.	
Role of FBC in home based care	All the churches where involved with the sick people even if they only prayed for them. This showed that people in the communities cared. People trusted the church and they felt comfortable with the assistance the churches gave.	Those church groups that assisted to care for the sick people did not really protect themselves from getting infected and they did not have any training.	The churches in the peri-urban areas did assist HBC. They gave spiritual guidance to the patients. They also gave food parcels and soup kitchens.	None of the churches had their own care groups that physically cared for the participants.
Role of community leaders in home based care		The community leaders were only involved if the HBC groups asked their assistance such as introducing HBC to the communities.		The community leaders from both areas were not involved in HBC. The caregivers felt that this was why the community members either did not know about them or rejected their services.

Indicators	Rural areas		Peri – urban areas	
	Strong points	Weak points	Strong points	Weak points
Role of traditional healers in home based care	Some of the caregivers and community members thought it would be a good idea if traditional healers assisted in HBC.	Some of the care givers said that they should not assist in HBC.		No traditional healers could be found to interview but most of the caregivers, community members and participants from both areas thought that traditional healers should not assist HBC.
Role of community members in home based care	Most of the community members did know what HBC was.	Not many volunteers from the communities	Most of the community members did know what HBC was.	Not many volunteers from the communities
Government clinics	All the study areas had a government - subsidised clinic to make sure every person had access to free primary health care.	Due to distances and financial constraints, not all people could get to the clinics for treatment	All the study areas had a government subsidised clinic to make sure every person had access to free primary health care.	Due to distances and financial constraints, not all people could get to the clinics for treatment
VCT sites	All the clinics had VCT sites where the people could test confidentially for HIV and AIDS treatment.		All the clinics had VCT sites where the people could test confidentially for HIV and AIDS treatment.	
HBC groups	All of the clinics had HBC groups. They cared for the sick people at their homes and they also cared for the people that could not reach the clinic because they lived too far. They served the communities that did not have clinics. Took pressure of hospitals and clinics because they cared for patients at their homes.	All the HBC groups served between eight to nine communities. The communities were sometimes far apart and moving between the communities took time that could be spend with patients. They did not have very good communication methods because of the lack of resources. There was no network coverage in some areas and they did not always have money for phone airtime or public transport.	All of the clinics had HBC groups. They cared for the sick people at their homes and they also cared for the people that could not reach the clinic because they lived too far. They also assisted the community members to apply for their ID books. The HBC groups did take pressure of the clinics and hospitals. They could also communicate effectively with other organisations and clinics because they where in areas where they had network coverage.	All though the caregivers did not serve many communities like the rural areas, they did serve very large communities and they did not have enough caregivers to see to the needs of all the people. In Village D there was no method of reporting to the clinic on the health status of the patients. The clinic complained that the patients only came to them when they very ill because the caregivers did not report on the patients.
Office building for HBC		None of the groups had office buildings. This meant they had no place to meet with one another and they also did not have a place where they could privately meet with their patients.	Village D and one of Village E's HBC groups did have HBC offices although it was not completely sufficient for all their needs.	Some HBC groups from Village E did not have an office and this meant they did not have a private place where they could meet or consult patients.
HBC administrative staff	HBC in Village B had administrative staff.	Even though Village B had administrative staff they were not effective. This group was disorganised. Village A and Village C HBC did not have administrative staff. This all contributed to disorganisation in the groups.	All the HBC groups did have administrative staff to see to the administrative needs of the HBC group.	

Indicators	Rural areas		Peri – urban areas	
	Strong points	Weak points	Strong points	Weak points
HBC working times	All had time-tables and working hours. Time-tables indicated where and when they worked to fit all the patients in to their days. Village C HBC group worked full day and was more effective	Village A and Village B HBC groups did not work full day which meant there were potentially more patients that could be assisted in a full work day but they were not seen because they only worked half day.	The Village E HBC groups worked a full day to see as many patients as they could.	Village D caregivers only worked half day and could not see all the patients in a day.
HBC funding		None of the groups received formal funding for the groups. This meant there was no money for the caregivers for transport or money for air time to phone for work related aspects. Everything that the caregivers needed financially they had to pay from their own pockets.	All the HBC groups received funding every month. They received funding for all their work related needs except for transport.	
HBC group members stipend	According to the NGO the caregivers got R200 a month.	According to the caregivers they did not receive any stipend at all in a month. Most of them only received child support grants every month from the government to support their children. This meant that if they had to pay for transport or air time they had to take money from these grants. This is also causing caregivers to leave HBC and other not joining because they do not get paid.	All the caregivers were paid a stipend of R1 000 a month. The caregivers did, however, complain that this amount was not enough in a month to cover their monthly expenses.	
Payment for HBC services by patients	HBC services were free to the patients.		HBC services were free to the patients.	
HBC training	The Village A and Village B HBC caregivers were trained in basic HBC care, DOTS and other health related care.	Village C HBC caregivers did not received training although they fell under the same NGO as the other two groups.	All the HBC groups caregivers were trained in basic HBC care, DOTS, nursing and other health related care.	
Formal employment of HBC group members	Only the coordinators were formally employed.	All the caregivers were volunteers which made them more dispensable. No formal contract meant no hassle when legal issues arise such as asking a caregiver to leave the group if they did not do their work.	Only the coordinator of one of Village E and the retired nurse of Village D HBC were formally employed. Although the caregivers were volunteers, they were getting paid every month.	Most of the caregivers were volunteers which made them more dispensable. No formal contract meant no hassle when legal issues arise such as asking a caregiver to leave the group if they did not do their work.
HBC caregivers age	Most of the caregivers were 30 years and older. This made them more mature to work with sick people. This could at times be an emotional job and the caregivers needed to be emotionally mature for this.		Most of the caregivers were 33 years and older. This made them more mature to work with sick people. This could at times be an emotional job and the caregivers needed to be emotionally mature for this.	

Indicators	Rural areas		Peri – urban areas	
	Strong points	Weak points	Strong points	Weak points
Number of caregivers in HBC group		The number of caregivers differed between 8 and 25. The number of communities that they served was between eight and nine. This meant sometimes there were only one or two caregivers per area. This lack of caregivers also led to less patients being served because they had to cover such large areas with only a few caregivers.		The number of caregivers differed between 16 and 25. The number of communities that they served was between one and nine. This meant sometimes there were about two caregivers per area. This lack of caregivers also led to less patients being served because they had to cover such large areas with only a few caregivers.
HBC supervisors	All the groups had supervisors. The supervisors made sure the group members were doing their work correctly. Those that did not do their work were asked to leave the group. The supervisors were also educated people. They could assist the caregivers if they had trouble with the patients.		All the groups had supervisors. The supervisors made sure members were doing their work correctly. Those that did not do their work were disciplined by taking away their leave or stipend and if that did not serve as deterrent they were asked to leave the group. The supervisors were also educated people. They could assist the caregivers if they had trouble with the patients.	
Support group for people living with HIV AND AIDS	Only Village C had a support group. People living with HIV and AIDS got together to talk to one another about the disease and how it affects their lives and they support one another.	The other areas did not have any support groups that the clinic, HBC and the participants knew about. Therefore no support system for the participants beside HBC and their families existed.	The churches mostly supported the people living HIV and AIDS.	No HIV and AIDS support groups
HBC referral	Most of the time the clinics referred the patients to HBC which was good because then the clinic knew who the patients were that received HBC because there were no records being kept of the patients at the clinic that received HBC.		Most of the time the clinics referred the patients to HBC which was good because then the clinic knew who the patients were that received HBC. The caregivers also walk door to door to offer people their assistance.	
HBC activities provided to patients	Apart from the lack of nursing care the HBC groups did provide other activities that the patients were too weak to do. This meant that the patients had more time to get better.		Apart from the lack of nursing care the HBC groups did provide other activities that the patients were too weak to do. This meant that the patients had more time to get better.	Not all of the caregivers from Village D provided domestic activities and these activities had to be done by the weak patients.
HBC and water		The households collected less water than what HBC needed for their HBC activities.		The households collected less water than what HBC needed for their HBC activities.

CHAPTER 9
References

Anonymous (2002). **Water for All from Where?** Archimedes Vol 44 (1): 16-17.

Anonymous (2006). **Enabling Home-Based Care in South Africa** (online). URL: **http://www.jnj.com/community/aids/community/home.htm.**

Ashton PJ and Rasamar V (2002). **Water and AIDS: Some Strategic Considerations for Southern Africa.** Hydropolitics in the Developing World: A Southern African Perspective. Pretoria: African Water Issues Research Unit (AWIRU), p 217-235.

Bester JW and Austin LM (2000). **Design, Constrution, Operation and Maintenance of VIP in South Africa.** CSIR. Pretoria. WRC Report No 709/1/00. Water Research Commission, Pretoria, South Africa.

Campbell, C. & Foulis, C. 2004. **Creating Contexts for Effective Home-based Care of People Living with HIV/AIDS.** Denosa Curationus, Vol 27 (3), p5-14

Crewe M (2000). **South Africa: Touched by the vengeance of AIDS.** South African Journal of International Affairs 7: 2.

Curtis V, Cairncross S and Yonli R (2000). **Domestic hygiene and diarrhoea-pinpointing the problem.** Tropical Medicine and International Health 5: 22-32.

Department of Health (2000A). **HIV/AIDS and Sexually Transmitted Diseases in the Workplace.** Pretoria, South Africa.

Department of Health (2000B). **HIV/AIDS/STD Strategic Plan for South Africa 2000-2005.** Pretoria, South Africa.

Department of Health (2000C). **Cholera in KwaZulu Natal**. Internet URL: http://www.doh.gov.za.

Department of Health (2003). **Appraisal of home/community-based care projects in South Africa 2002-2003.** Pretoria, South Africa.

Department of Health (2004). **Strategic Priorities for the National health System 2004-2009.** Pretoria, South Africa.

Department of Water Affairs and Forestry (2005). **Annual Report. Programme 3: Water Services.** Pretoria, South Africa.

Dunker L (2001) **The KAP tool for Hygiene. A manual on: knowledge, attitudes and practices in the rural areas of South Africa.** Water Research Commission Report TT144/00. Water Research Commission, Pretoria, South Africa.

Dunker LC 2002. **Hygiene Awareness for Rural Water supply and Sanitation Projects.** Division of water, Environment and Forestry Technology (CSIR). Pretoria. WRC Report No 819/1/00 Water Research Commission, Pretoria, South Africa.

ECA (1999). **Integrated water resources management: Issues and options in selected African countries.** Publication FSSDD/ENV/044/98/rev, United Nations Economic Commission for Africa, Addis Ababa.

Gilman RH and Skillicorn P (1985). **Boiling of drinkingwater: can a fuel-scarce community afford it?** Bull World Health Organ 63:157-63.

Hayes C, Elliot E, Krales E and Downer G (2003). **Food and water safety for persons infected with human immunodeficiency virus.** Clinical Infectious Diseases 36: S106-S109.

Health Summit (2001). **HIV/AIDS and TB: The Dual Epidemic and Its Challenges.** Discussion Paper. Johannesburg, South Africa.

Hutchings A and Buijs G (2004). **Problems of Water, AIDS and Home-based Care: Case Study from Rural Northern KwaZulu Natal.** Africanus, Vol 34 (2), p77-78.

Izindaba (2001). **AIDS Economics = Home Economics.** South African Medical Journal 91(7): 712-713.

Kamminga E and Schuringa MW (2005). **HIV/AIDS and water, sanitation and hygiene.** International Water and Sanitation Centre Website.

Karim QA (2000). **Trends in HIV AND AIDS infection. Beyond current statistics.** South African Journal of International affairs 7: 2

Kelly K et al. (2002). **HIV/AIDS, Economics and Governance in South Africa: Key Issues in Understanding Response: A Review 2002.** Johannesburg: USAID

Kgslushi R, Smits S and Eales K (2002). **People living with HIV/AIDS in a context of rural poverty: the importance of water and sanitation services and hygiene education. A case study from Bolobedu (Limpopo Province, South Africa).** Mvula Trust, Pretoria, South Africa.

Kiongo JM (2005). **The Millennium Development Goal on poverty and the links with water supply, sanitation, hygiene and HIV/AIDS.** IRC International Water and Sanitation Centre.

Leclerc H, Schwartzbrod L and Dei-Cas E (2002). **Microbial agents associated with waterborne diseases.** Critical Reviews in Microbiology 28: 371-409.

Lindsey E (2002). **Community Home-based Care in Resource-limited Setting: A Framework of Action.** World Health Organization, Geneve.

Moe CL, Sobsey MD, Samsa GP and Mesolo V (1991). **Bacterial indicators of risk of diarrhoeal disease from drinking water in the Phillipines.** Bulletin of the World Health Organization 69:305-317.

Morse SS (1995). **Factors in the emergence of infectious diseases.** Emerg Infec Dis 1:7-15

Patel M and Isaacson M (1989). S**urvival of *Vibrio cholera* in African domestic water storage containers.** South African Medical Journal 76: 365-367.

Payment P, Siemiatycki J, Richardson L, Renaud G, Franco E and Prevost M (1997). **A prospective epidemiological study of gastrointestinal health aspects due to the consumption of drinking water.** International Journal of Environmental Health Research 7: 5-31.

Payment P, Richardson L, Siemiatycki J, Dewar R, Edwardes M and Franco E (1991). **A randomized trial to evaluate the risk of gastrointestinal disease due to consumption of drinking water meeting current microbiological standards.** American Journal of Public Health 81: 703-708.

Potgieter N, Obi CI, Bessong PO, Igumbor EO, Samie A and Nengobela R (2005). **Bacteriological contamination of vhuswa, a local weaning food, and stored drinking water in impoverished households in the Venda region of South Africa.** J Health, Pop Nutr 23(2): 150-155.

Potter A and Molose V (2005). **Access to Clean Water Crucial in Fight Against HIV/AIDS.** The Water Wheel 4(6):18-20.

Republic of South Africa (1993). **South African Water Quality Guidelines**. Vol 1: Domestic use. Department of Water Affairs and Forestry (DWAF). Pretoria: The Government Printer.

Republic of South Africa (1994). **White Paper on Water Supply and Sanitation Policy.** Department of Water Affairs and Forestry Directorate Communication Services. Pretoria.

Republic of South Africa (1996A). **Constitution of the Republic of South Africa, Act 108 of 1996.** Government Gazette. Vol. 378 (108). Cape Town.

Republic of South Africa (1996B). **National Sanitation Policy.** White Paper. Department of Water Affairs and Forestry (DWAF). Pretoria: Directorate Communication Services.

Republic of South Africa (1997A). **National Water Policy for South Africa.** White Paper. Department of Water Affairs and Forestry (DWAF). Pretoria: Directorate Communication Services.

Republic of South Africa (1997B). **Water Services Act.** Government Gazette. Vol 390. Cape town

Republic of South Africa (1998). **The National Water Act, Act No 36 of 1998** (online). URL: http://dwaf.pwv.gov.za/Documents/Policies/html.

Republic of South Africa (2001A). **Free Basic Water.** Strategy document. Department of Water Affairs and Forestry (DWAF). Pretoria: Directorate Communication Services.

Republic of South Africa (2001B). **Basic Household Sanitation.** White Paper. Department of Water Affairs and Forestry (DWAF). Pretoria: Directorate Communication Services.

Republic of South Africa (2004). **National Health Act no 61 of 2003.** Government Gazette. Vol 469. Cape town.

Republic of South Africa (2005). **National HIV and Syphilis antenatal sero-prevalence survey in South Africa 2005.** URL: www.health.gov.za.

Sobsey MD (2002). **Managing water in the home: Accelerated health gains from improved water supply.** World Health Organization Sustainable Development and Healthy Environments. World Health Organization, Geneva. WHO/SDE/WSH/02.07.

Stats SA (2001). **Statistics on South Africa**. URL: www.statssa.gov.za

Taylor LH, Lathham SM, Woolhouse ME (2001). **Risk factors for human disease emergence.** Philos Trans R Soc Lond B Biol Sci 356: 983-939.

Theron J and Cloete TE (2002). **Emerging waterborne infections: contributing factors, agents and detection tools.** Critical Reviews in Microbiology 28: 1-26.

Tumwine JK, Thomson J, Katuikatua M, Mujwahizi M, Johnstone N and Porras I (2003). **Sanitation and hygiene in urban and rural households in East Africa.** Environmental Health Research 13: 107-115.

UNAIDS (2000A). Report on the Global HIV AND AIDS epidemic. Geneva: Joint United Nations Programme on HIV AND AIDS.

UNAIDS (2000B). **AIDS epidemic update: December 2000.** Geneva: Joint United Nations Programme on HIV AND AIDS.

UNAIDS (2006). **Joint United Nations Programme on HIV/AIDS: South Africa.** Available from: http://www.unaids.org/en/geographical+area/by+country/south+africa.asp.

USAID (2004). **Safe water system improves health of people living with HIV**.

Uys L and Cameron S (2003). **Home-based HIV/AIDS Care.** Oxford: University Press, South Africa.

Ward S et al. (2001). **Incorporation of Water, Sanitation, Health and Hygiene Issues into Soul City, a Multi-media Edutainment Vehicle.** Soul City. WRC Report No 981/1/00. Water Research Commission, Pretoria, South Africa.

Whiteside AW and Sunter C (2000). **AIDS: The challenge for South Africa.** Cape Town: Human & Rosseau/Tafelberg.

WHO (2003A). **The right to water**. WHO, France.

WHO (2003B). **Domestic water quantity, service, level and health.** WHO, Geneva.

World Bank (1999). **Intensifying action against HIV AND AIDS in Africa. Responding to a development crises.** Washington DC: World Bank

World Health Organization (2003). **Key Policy Issues in Long Term Care** (Online)**.** Available from: http://www.who.int/ncd/long_term_care/index.htm (Accessed 20 December 2005)

WHO (2004). **Guidelines for drinking water quality, 3rd Ed, Volume 1. Recommendations**. World Health Organisation, Geneva.

http://www.local.gov.za/html (2005). August 4

WRC (2005). **Human rights project workbook 2**. WRC report TT 296/07. Water Research Commission, Pretoria, South Africa.

Wright JA, Gundry SW and Conroy R (2004). **Household drinking water in developing countries: A systematic review.** Tropical Medicine and International Health 9**:** 106-117.

APPENDIX A

HOUSEHOLD, WATER SUPPLY AND SANITATION LINE DRAWINGS AND PHOTOGRAPHS

RURAL VILLAGE A HOUSEHOLDS

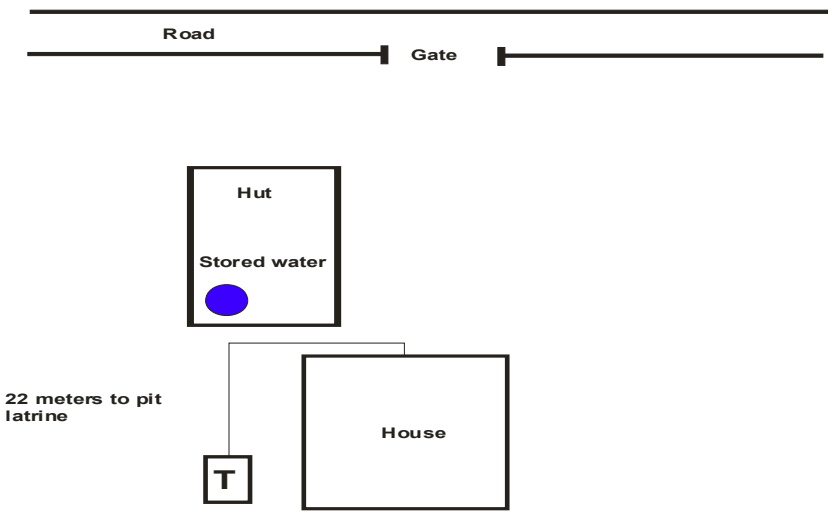
Household 1 – Rural Village A

Water container

Toilet structure

Toilet inside

Line drawing



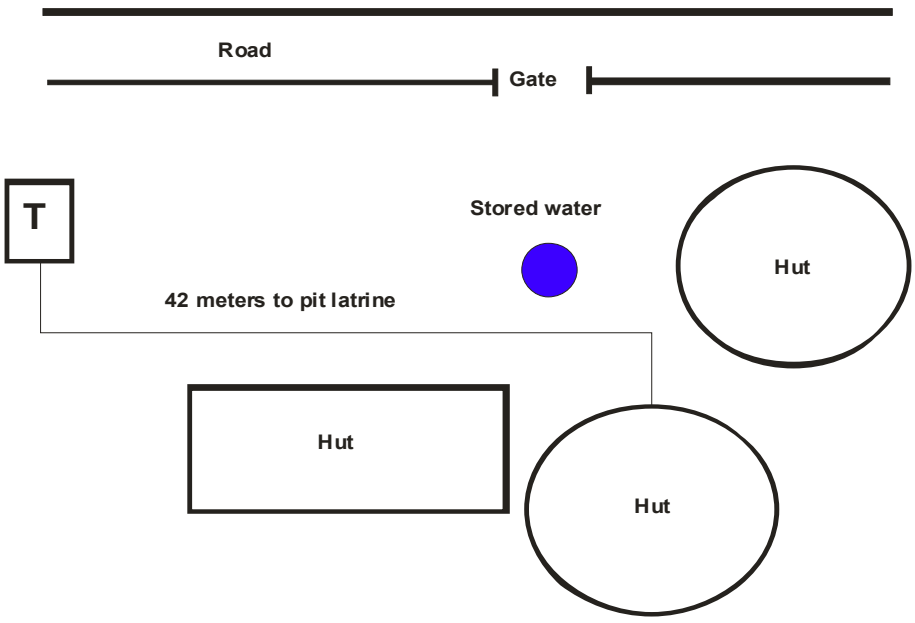
Household 2 – Rural village A

Water containers

Toilet structure

Toilet inside

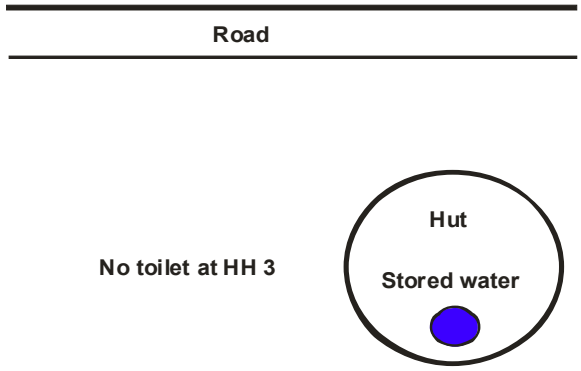
Line drawing



Household 3 – Rural village A

No picture of water containers

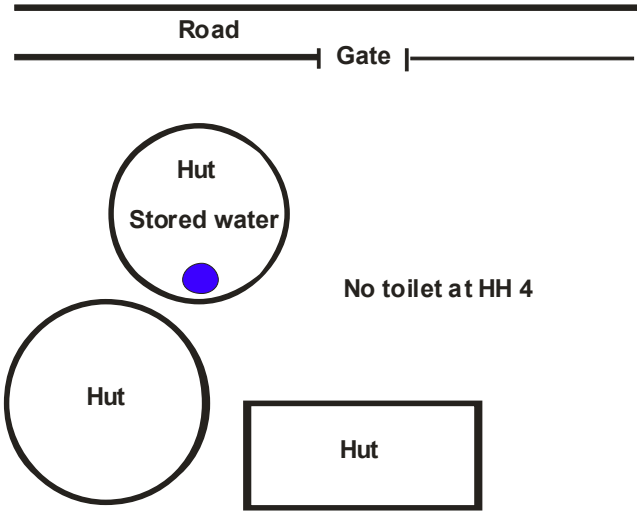
Line drawing



Household 4 – Rural village A

Water containers

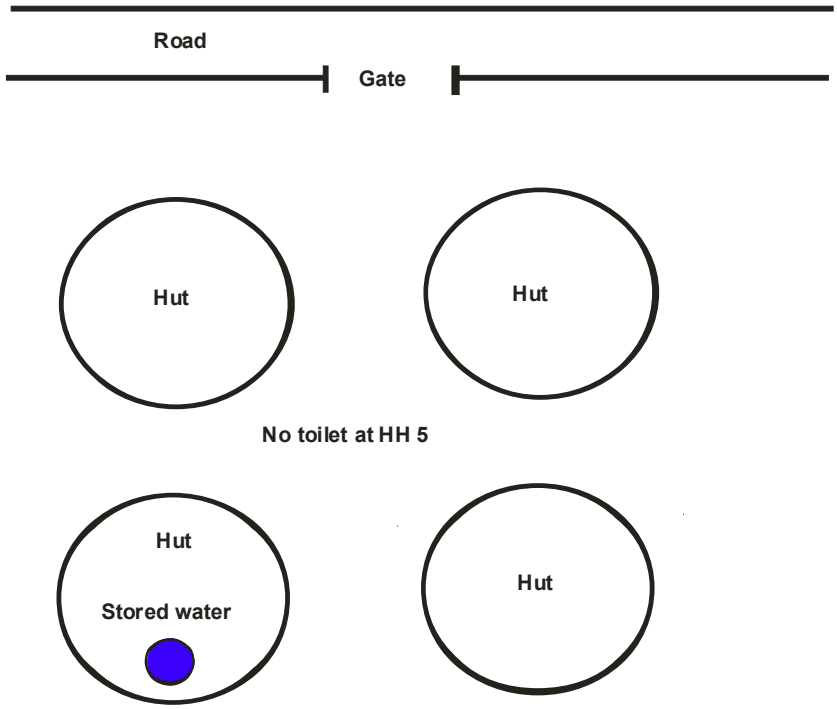
Line drawing



Household 5 – Rural village A

Water containers

Line drawing



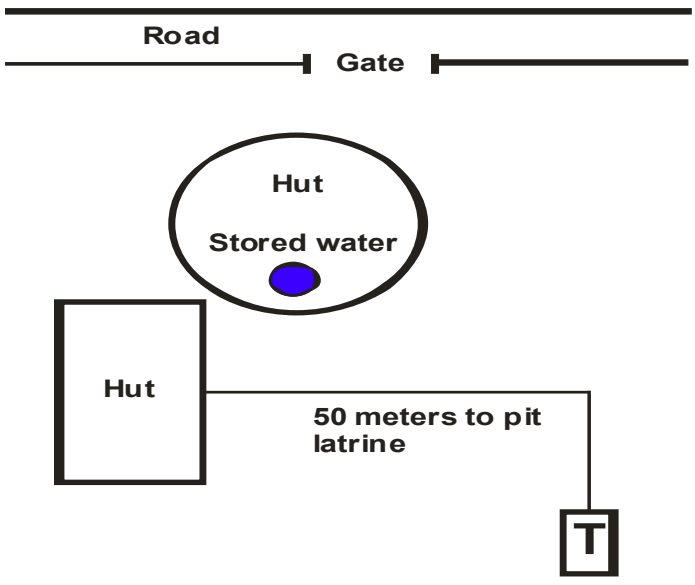
Household 6 – Rural village A

Water containers

Toilet structure

Toilet inside

Line drawing



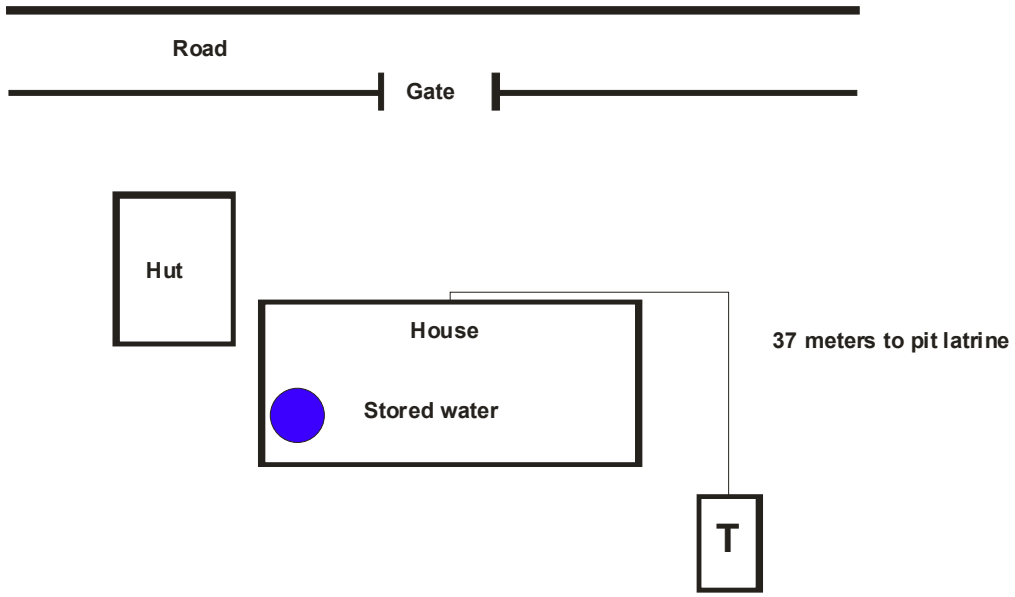
Household 7 – Rural village A

Water containers

Toilet structure

Toilet inside

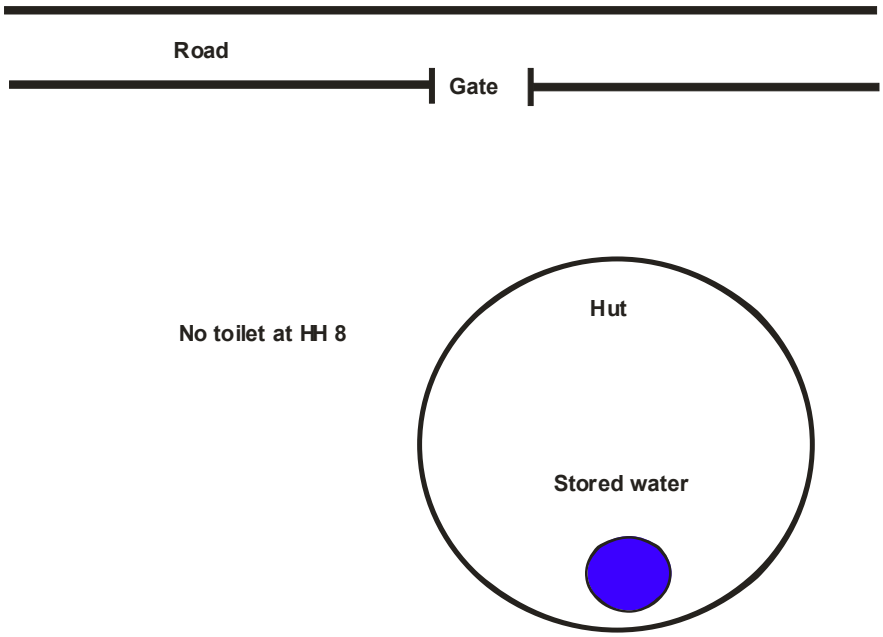
Line drawing



Household 8 – Rural village A

Water container

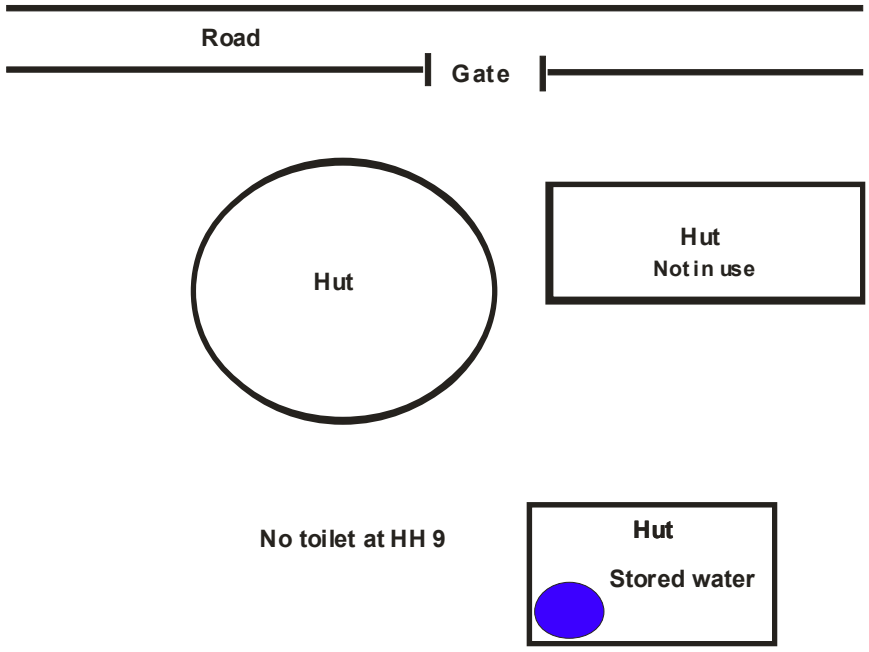
Line drawing



Household 9 – Rural village A

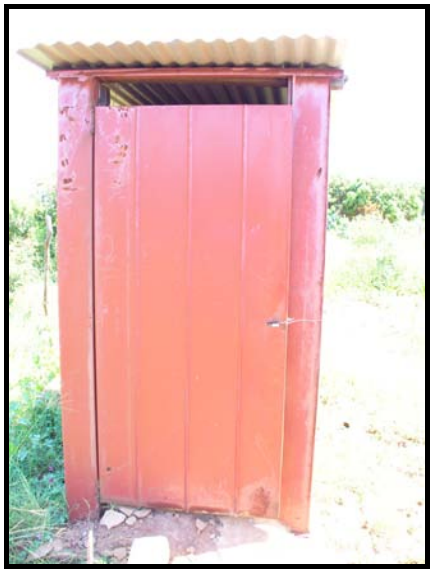
Water container

Line drawing



Household 10 – Rural village A

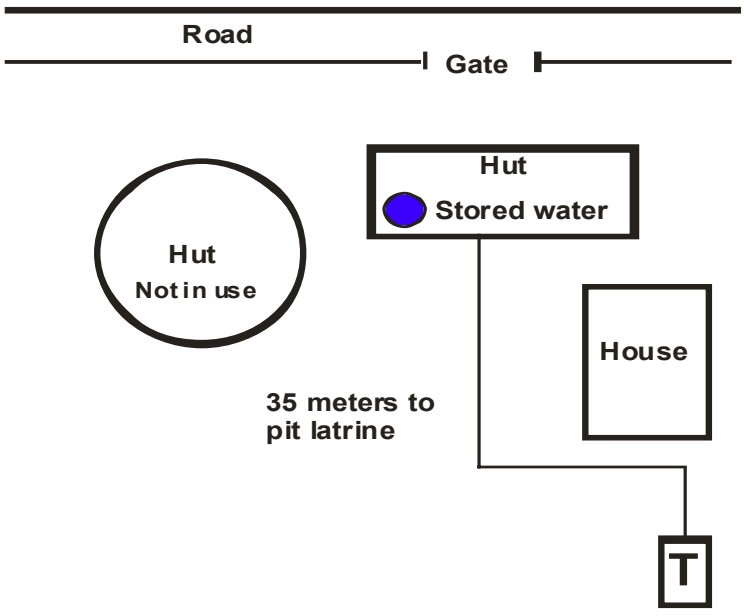
Water container



Toilet structure

Toilet inside

Line drawing

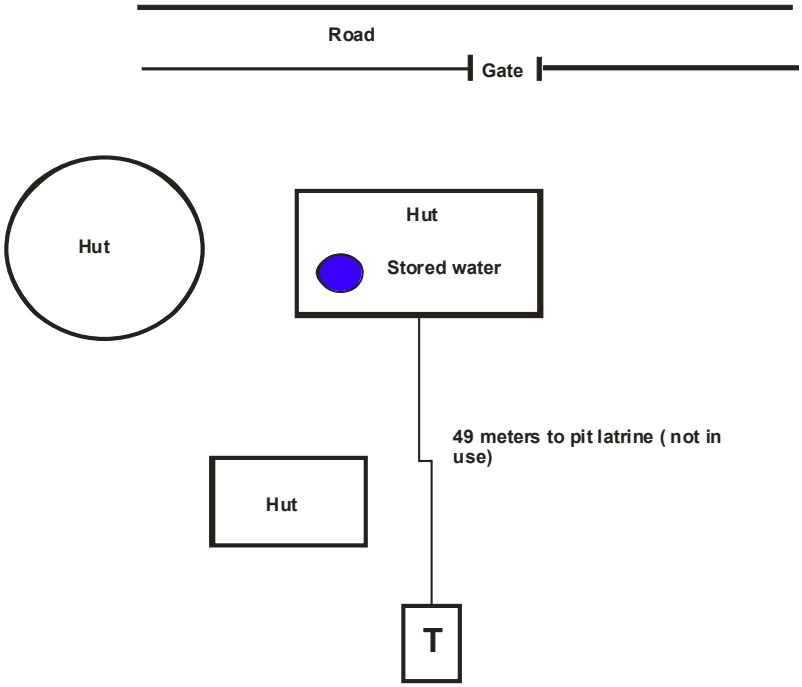


RURAL VILLAGE B HOUSEHOLDS

Household 1 – Rural village B

Water containers

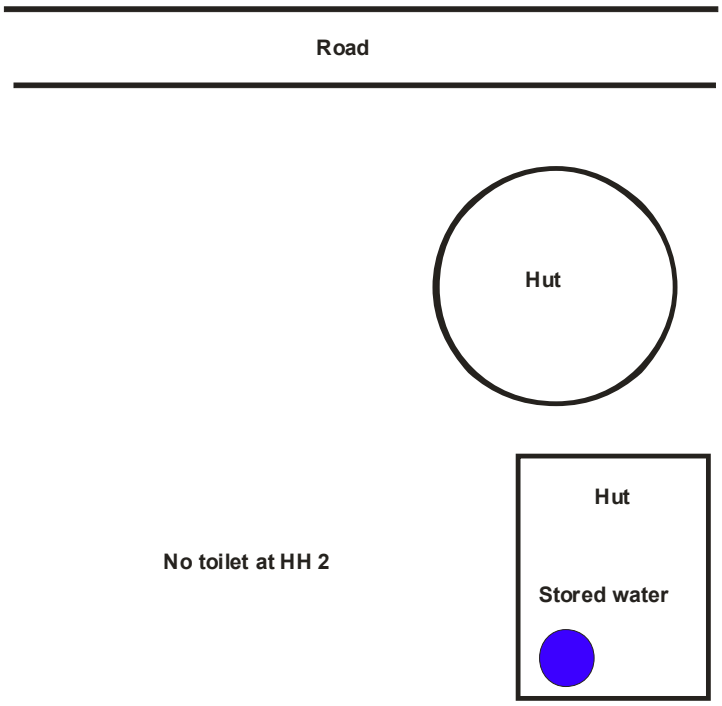
Line drawing



Household 2 – Rural village B

Water containers

Line drawing



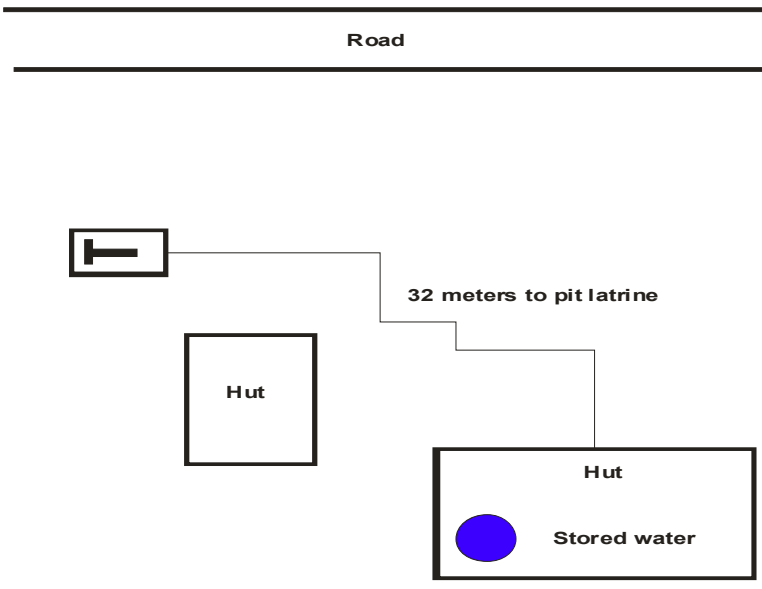
Household 3 – Rural Village B

Water containers

Toilet structure

Toilet inside

Line drawing



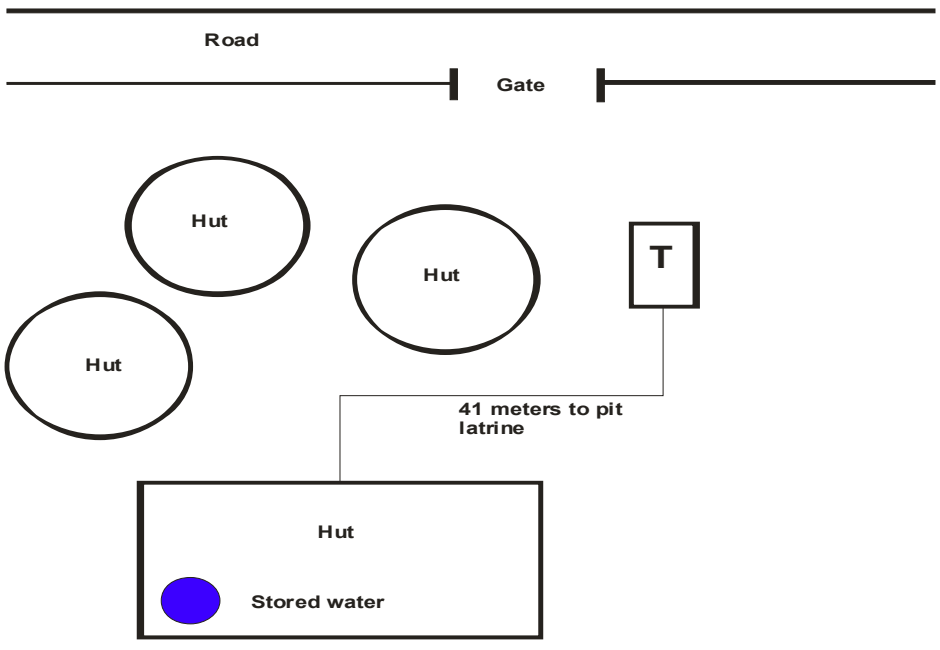
Household 4 – Rural village B

Water containers

Toilet structure

Toilet inside

Line drawing



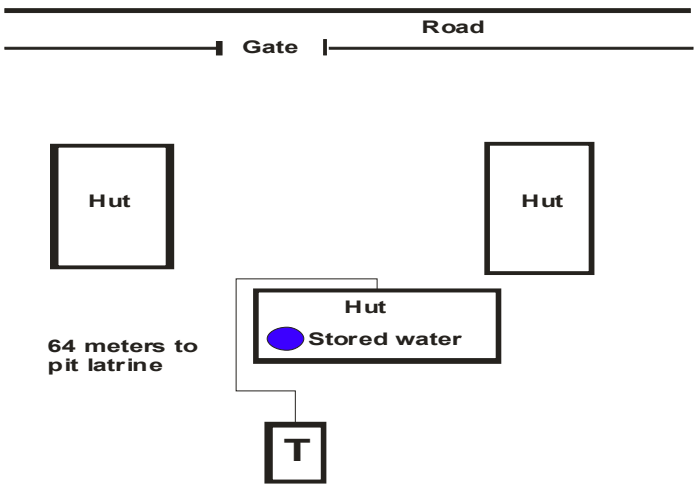
Household 5 – Rural village B

Water container

Toilet structure

Toilet inside

Line drawing



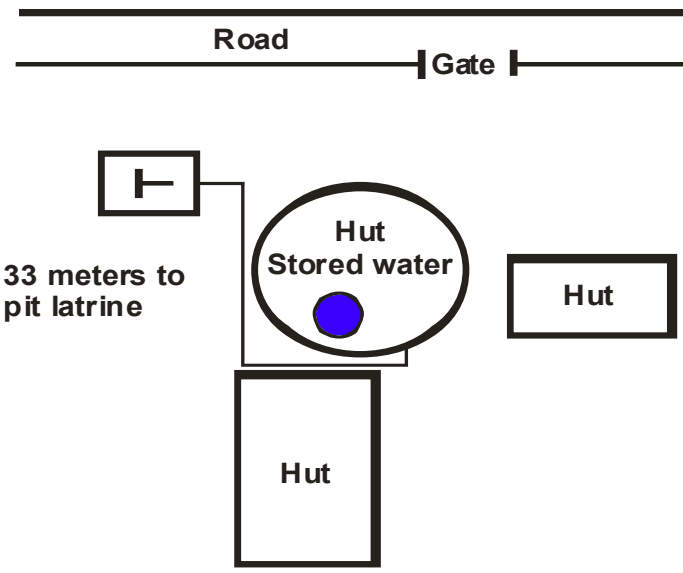
Household 6 – Rural village B

Water containers

Toilet structure

Toilet inside

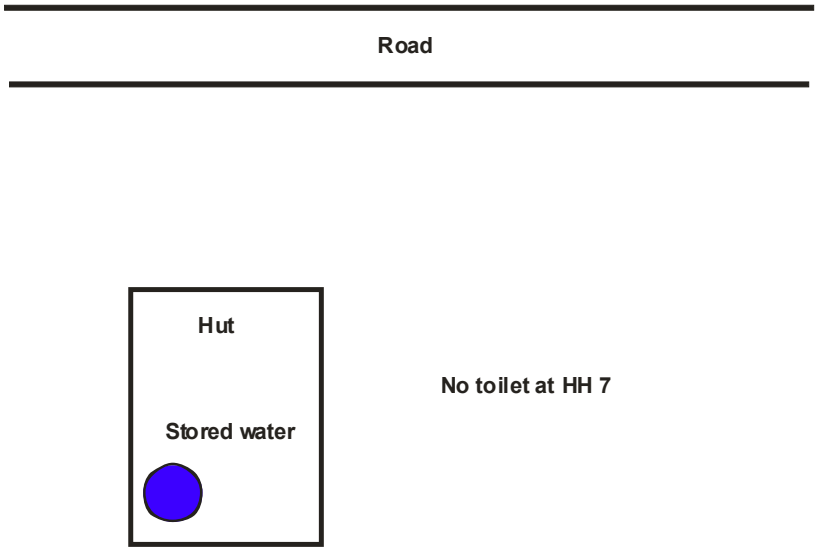
Line drawing



Household 7 – Rural village B

Water containers

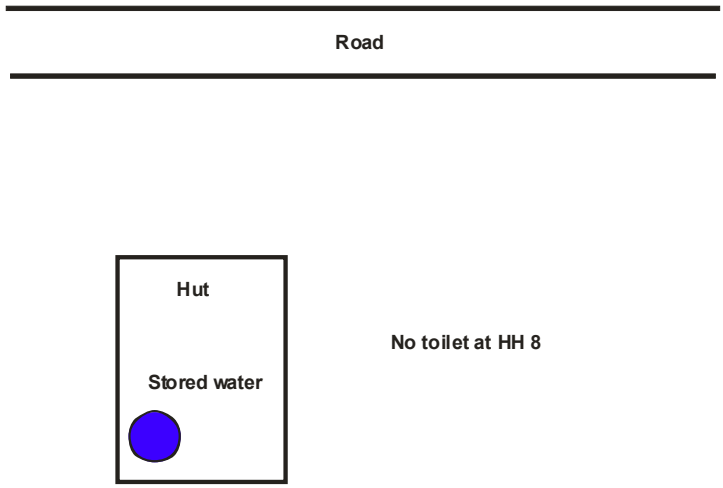
Line drawing



Household 8 – Rural village B

Water containers

Line drawing



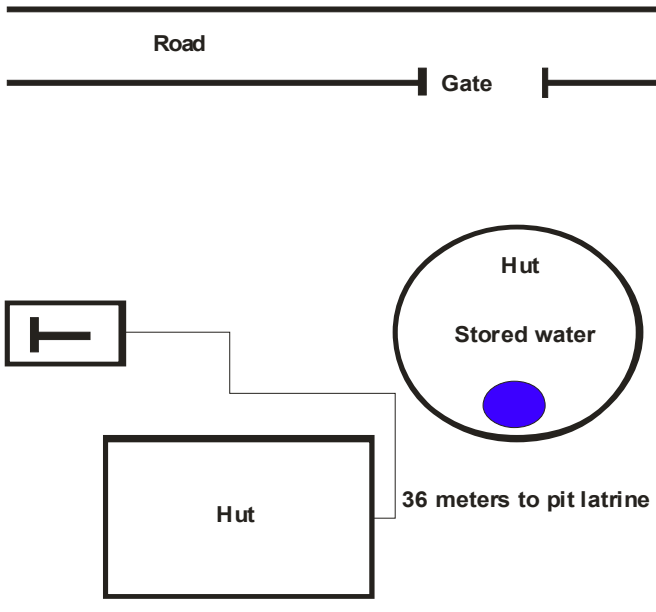
Household 9 – Rural village B

Water containers

Toilet structure

Toilet inside

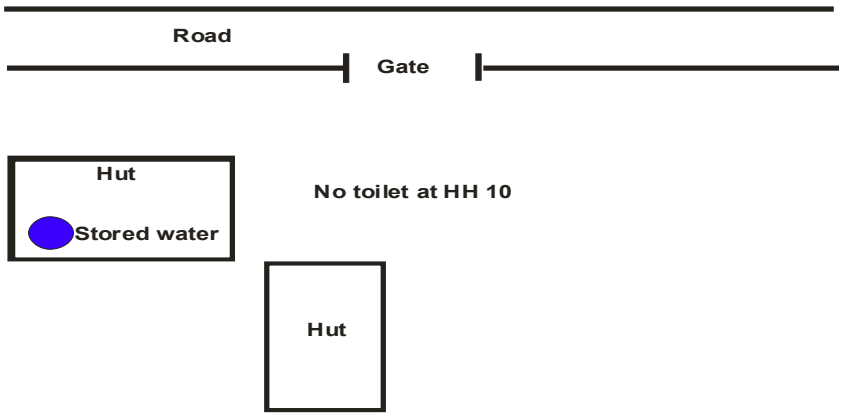
Line drawing



Household 10 – Rural village B

No pictures of water containers

Line drawing



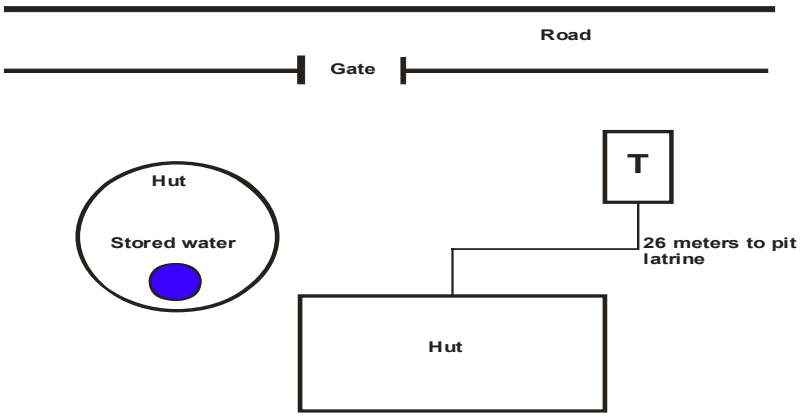
Household 11 – Rural village B

No picture of water containers

Toilet structure

Toilet inside

Line drawing



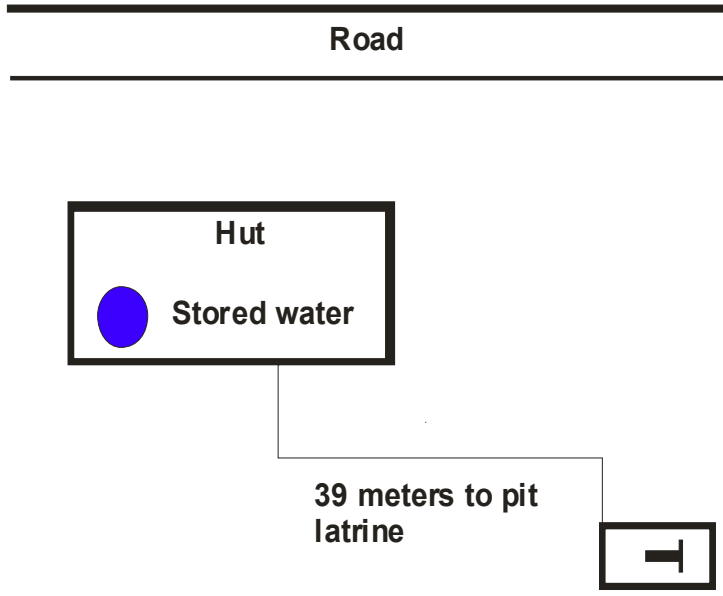
Household 12 – Rural village B

Water containers

No picture of toilet structure

No picture of toilet

Line drawing



RURAL VILLAGE C HOUSEHOLDS

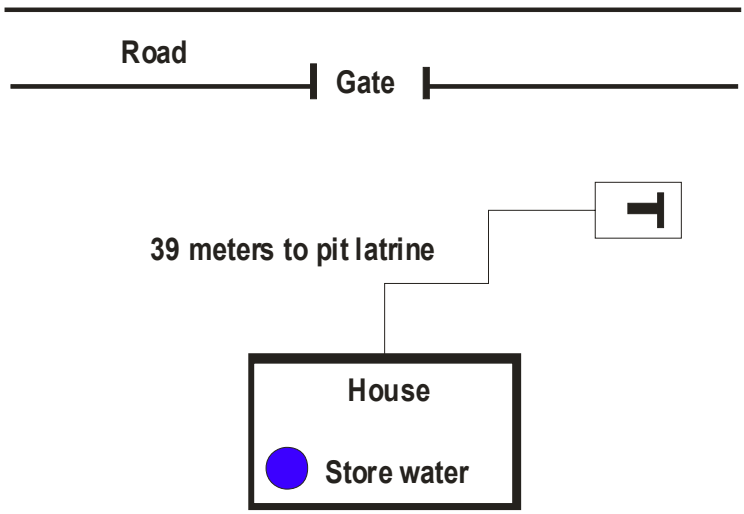
Household 1 – Rural village C

Water containers

Toilet structure

Toilet inside

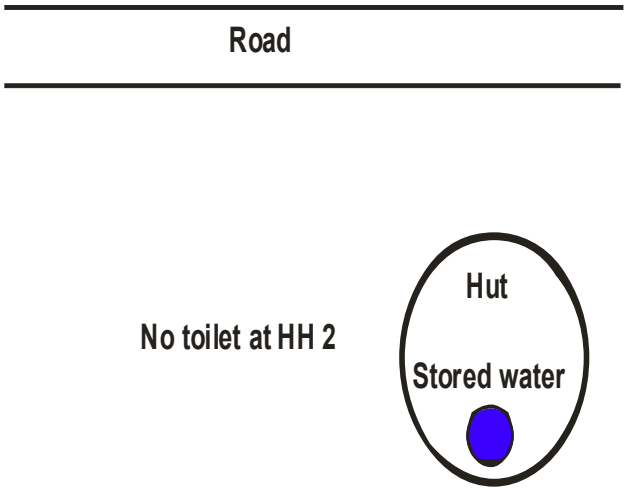
Line drawing



Household 2 – Rural village C

Water containers

Line drawing



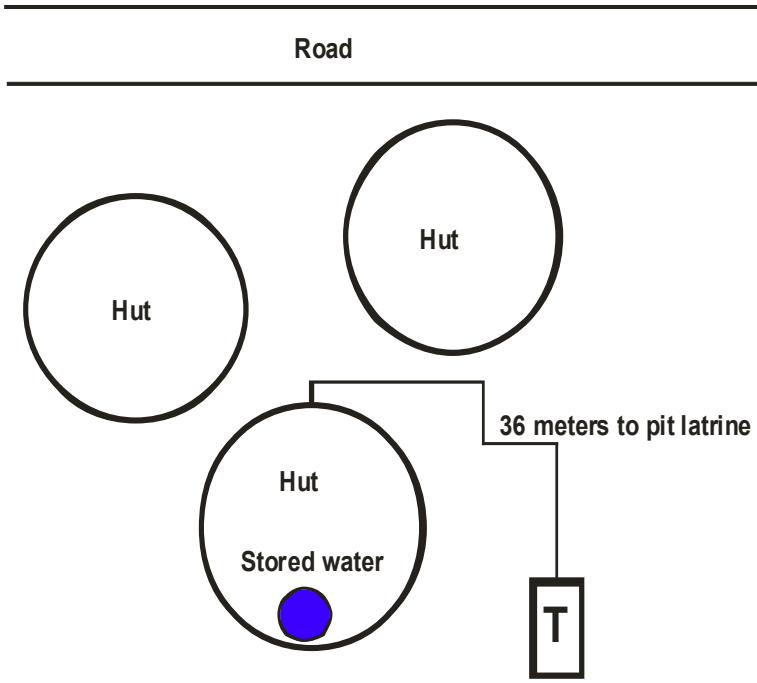
Household 3 – Rural village C

No picture for stored water

Toilet structure

Toilet inside

Line drawing



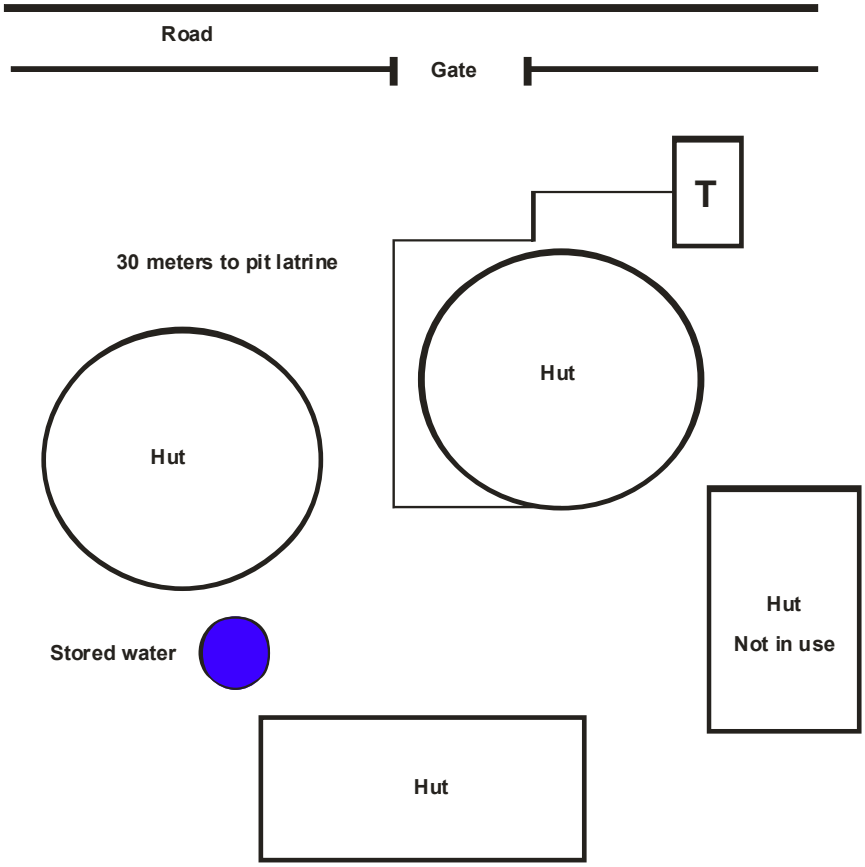
Household 4 – Rural village C

No picture of water containers

Toilet structure

Toilet inside

Line drawing



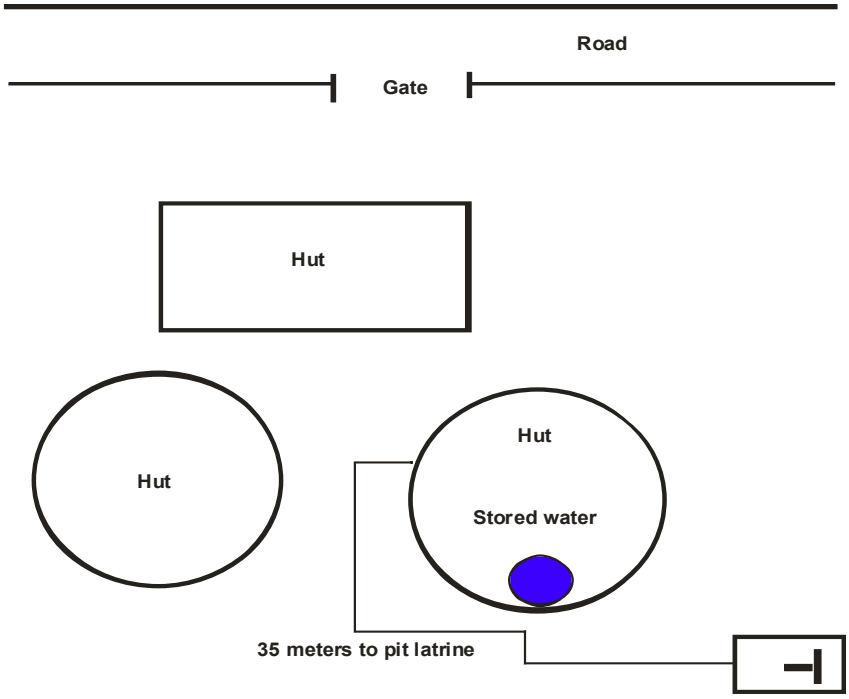
Household 5 – Rural village C

Water containers

Toilet structure

Toilet inside

Line drawing



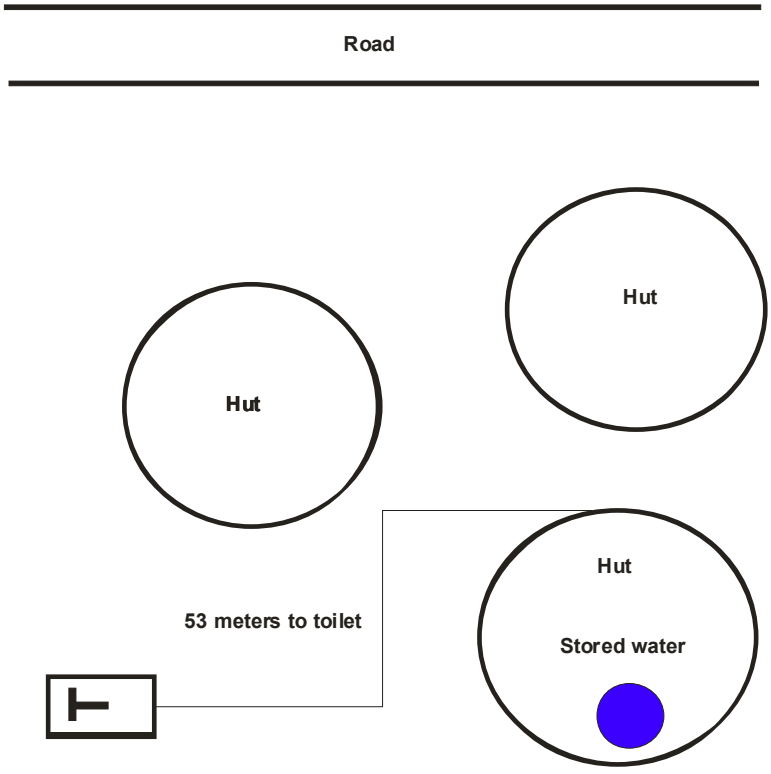
Household 6 – Rural village C

No picture of water containers

Toilet structure

Toilet inside

Line drawing



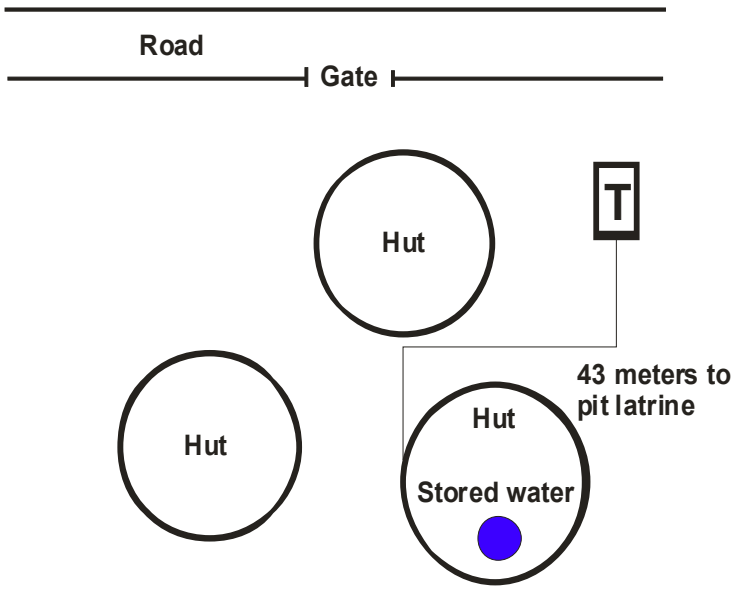
Household 7 – Rural village C

Water containers

Toilet structure

Toilet inside

Line drawing



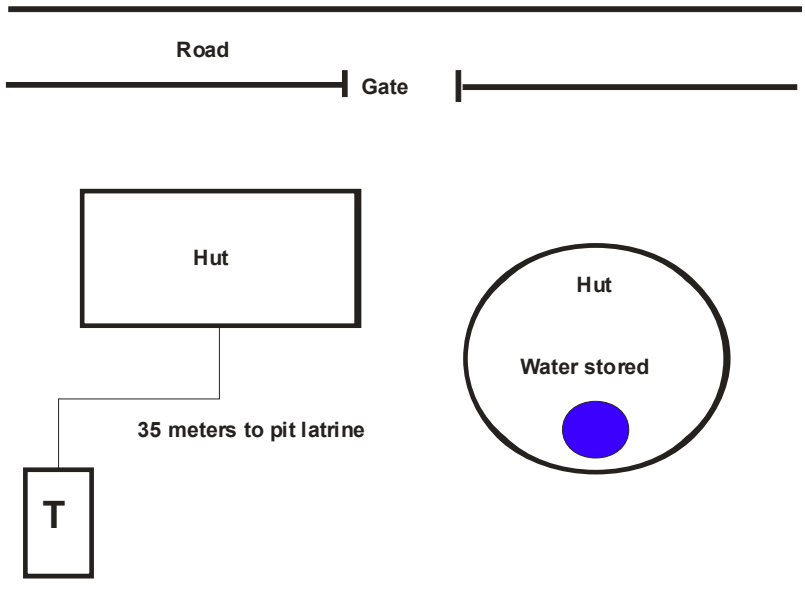
Household 8 – Rural village C

Water containers

Toilet structure

Toilet

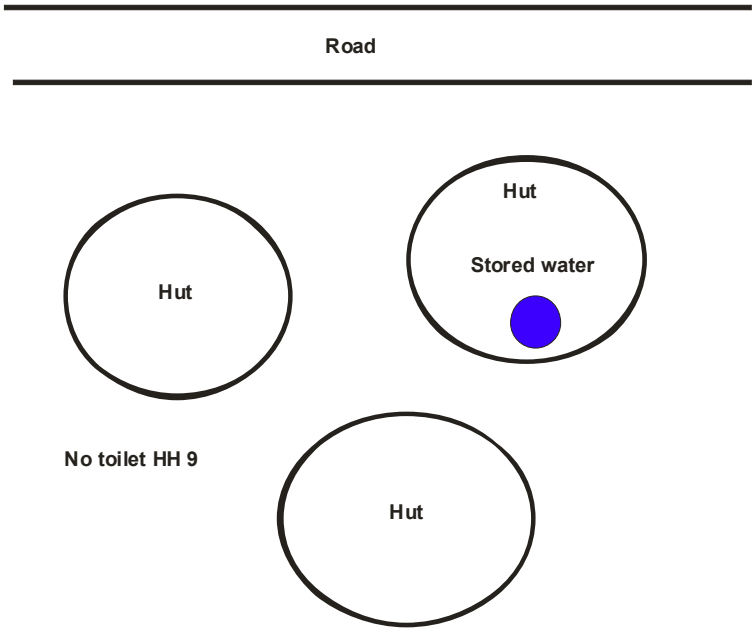
Line drawing



Household 9 – Rural village C

No picture of water containers

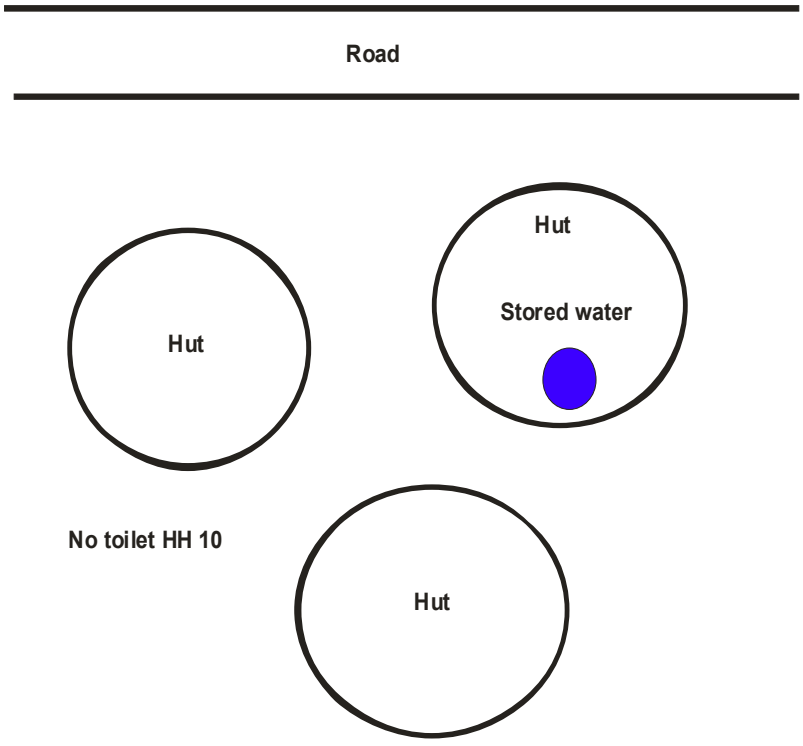
Line drawing



Household 10 – Rural village C

No picture of water container

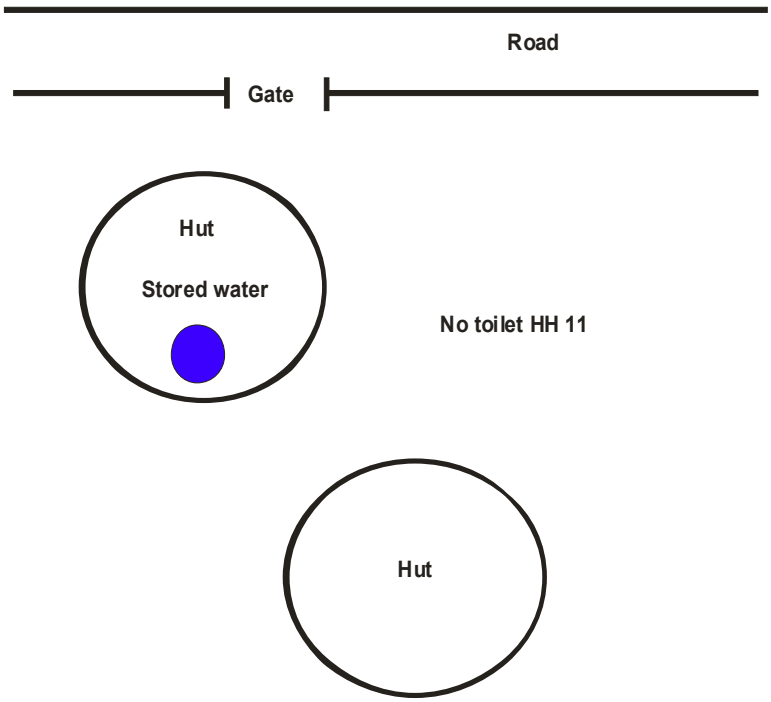
Line drawing



Household 11 – Rural village C

No picture of water containers

Line drawing



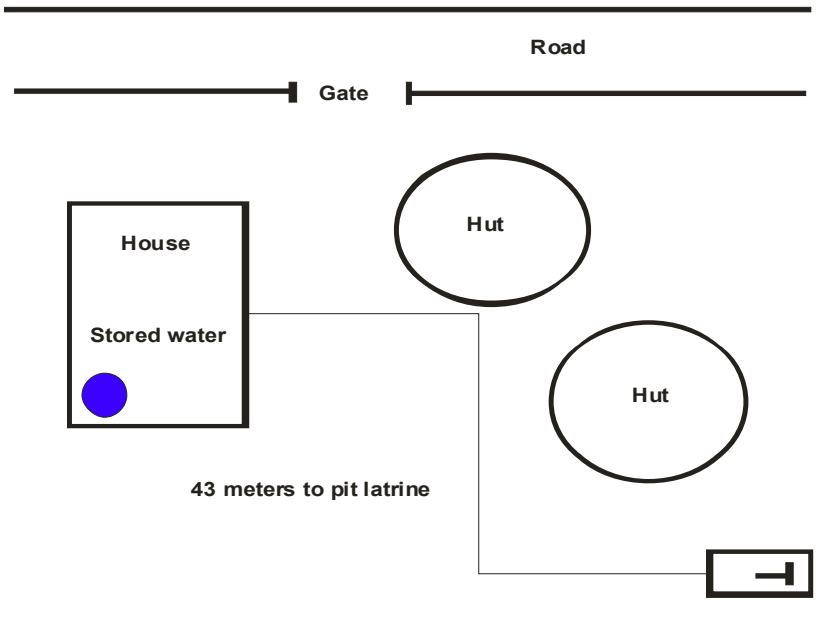
Household 12 – Rural village C

Water containers

Toilet structure

Toilet inside

Line drawing



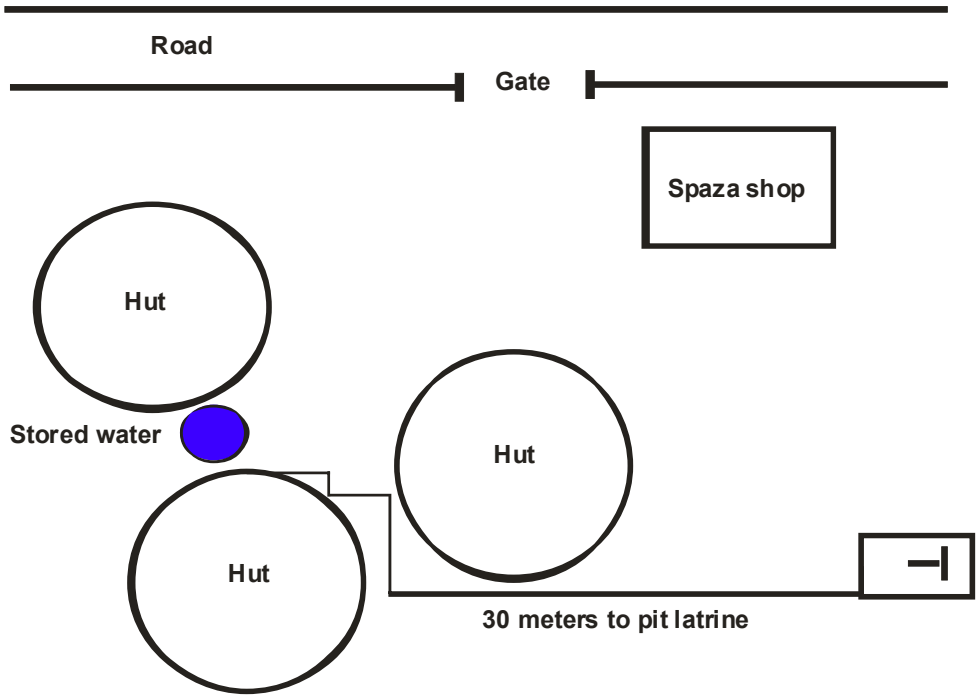
Household 13 – Rural village C

Water containers

Toilet structure

Toilet inside

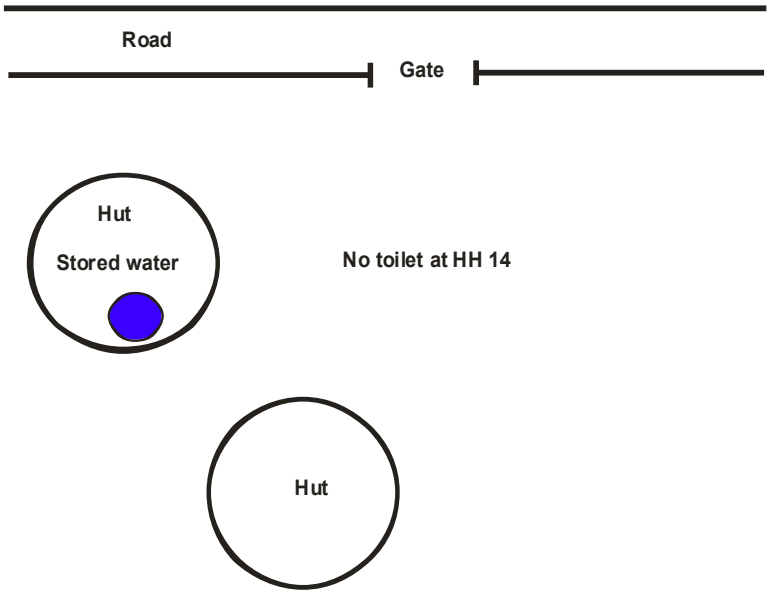
Line drawing



Household 14 – Rural village C

Water containers

Line drawing



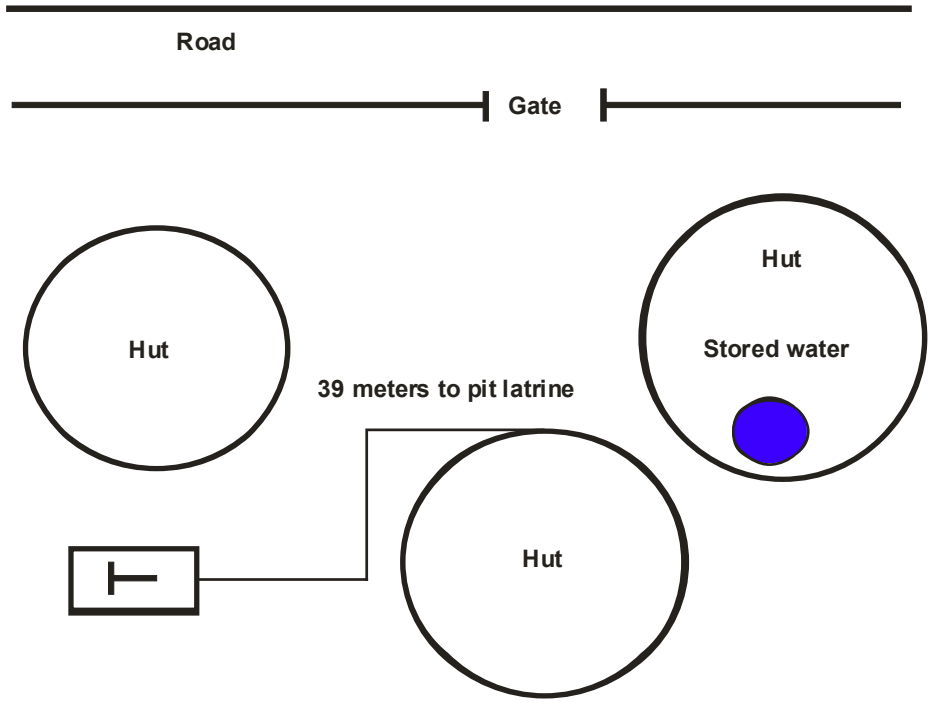
Household 15 – Rural village C

No picture of water containers

Toilet structure

Toilet inside

Line drawing



PERI-URBAN VILLAGE D HOUSEHOLDS

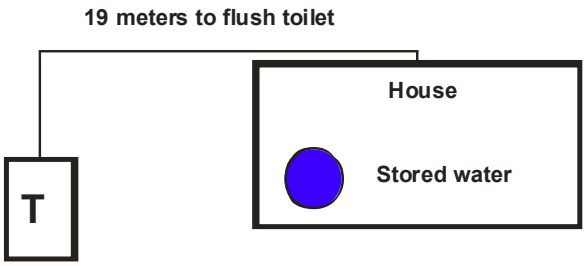
Household 1 – Peri-urban Village D

No picture of water containers

Toilet structure

Toilet inside

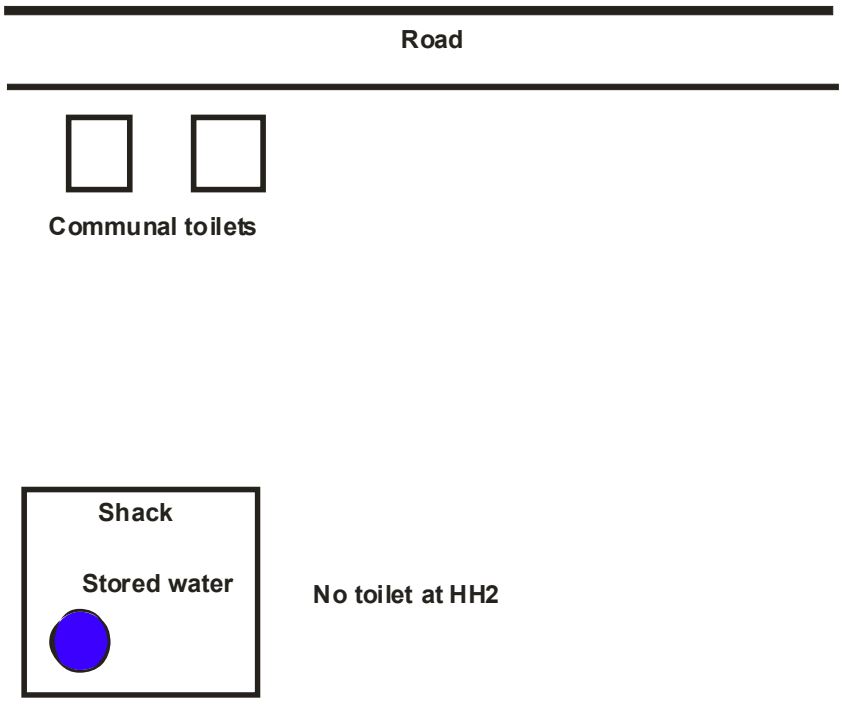
Line drawing



Household 2 – Peri-urban Village D

Water containers

Line drawing



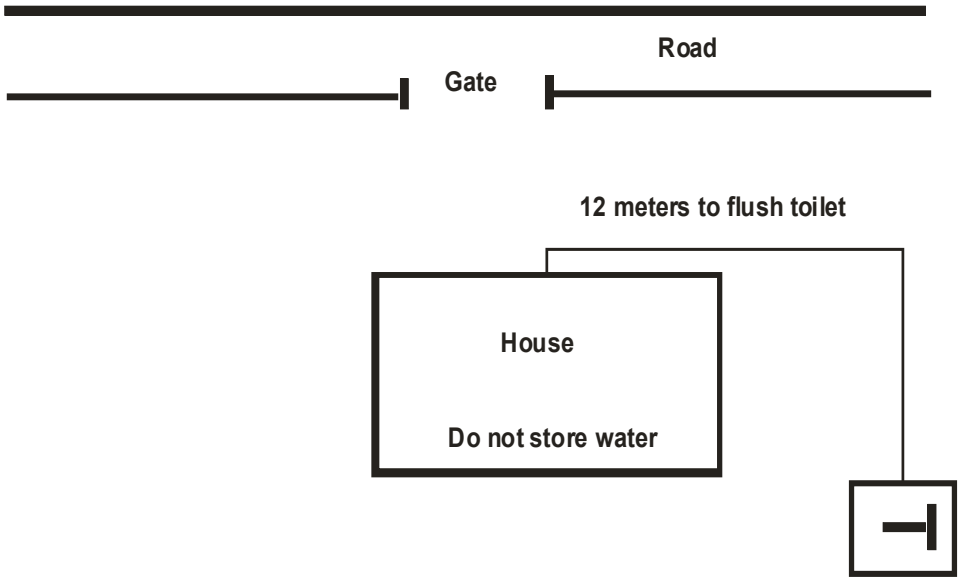
Household 3 – Peri-urban Village D

No picture of water containers

Toilet structure

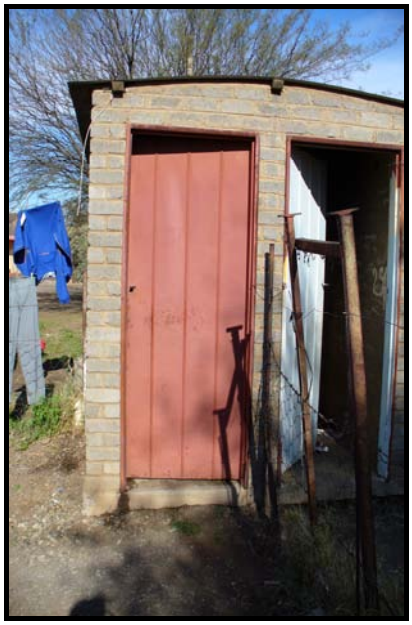
Toilet inside

Line drawing



Household 4 – Peri-urban Village D

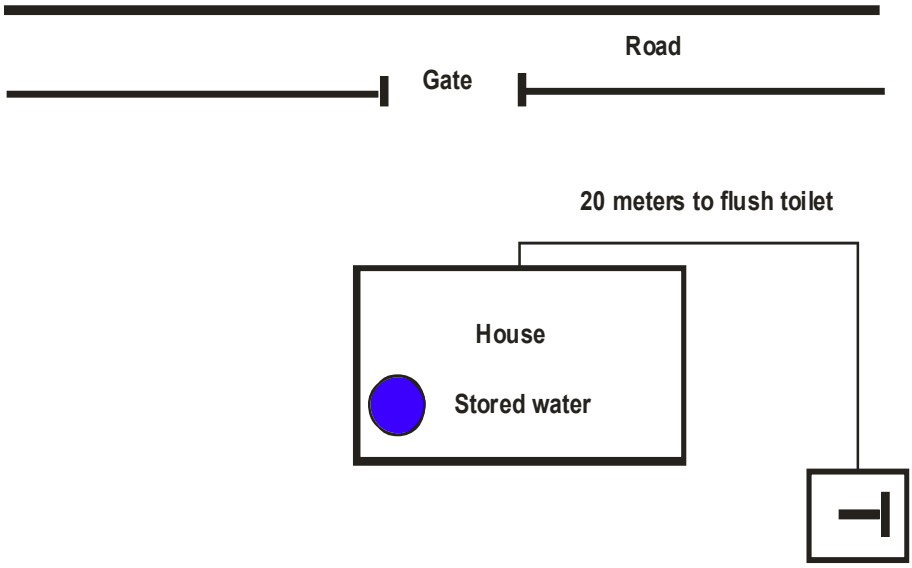
No picture of water containers



Toilet structure

Toilet inside

Line drawing



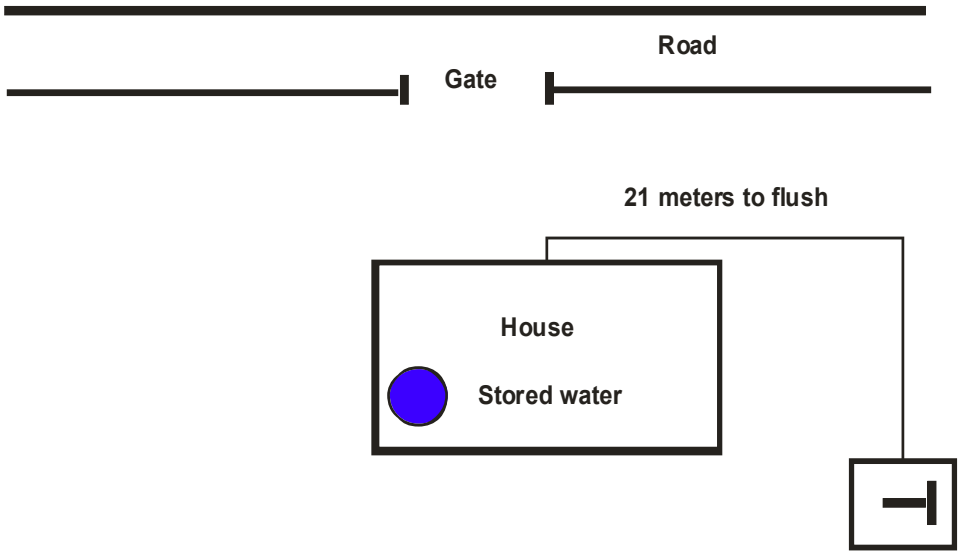
Household 5 – Peri-urban Village D

Water containers

Toilet structure

Toilet inside

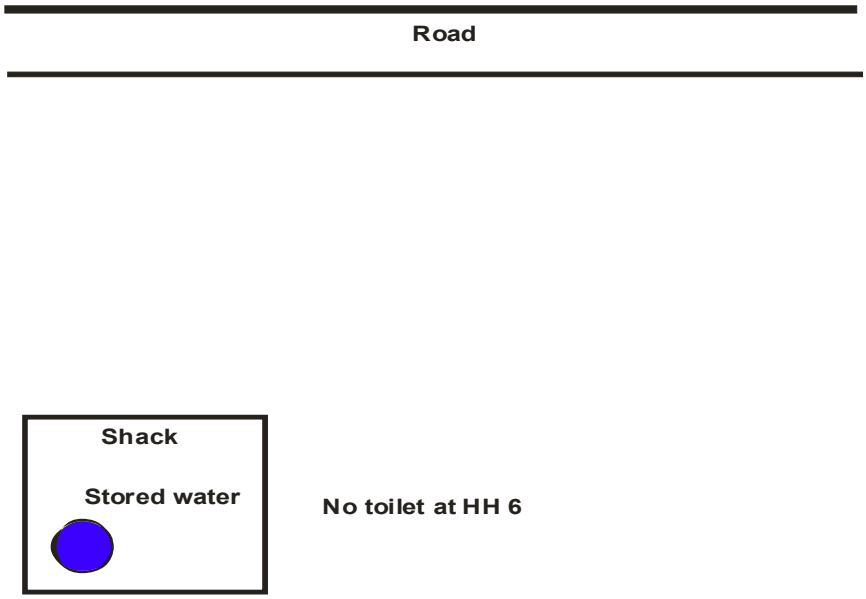
Line drawing



Household 6 – Peri-urban Village D

No picture of water containers

Line drawing



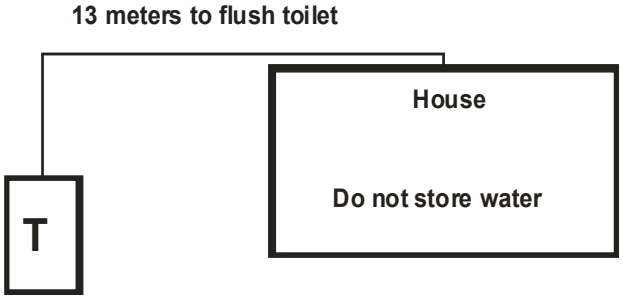
Household 7 – Peri-urban Village D

No picture of water containers

Toilet structure

Toilet inside

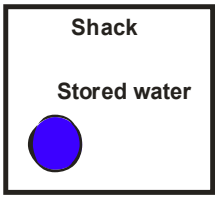
Line drawing



Household 8 – Peri-urban Village D

No picture of water containers

Line drawing

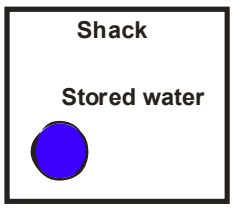


No toilet at HH 8

Household 9 – Peri-urban Village D

No picture of water containers

Line drawing



No toilet at HH 9

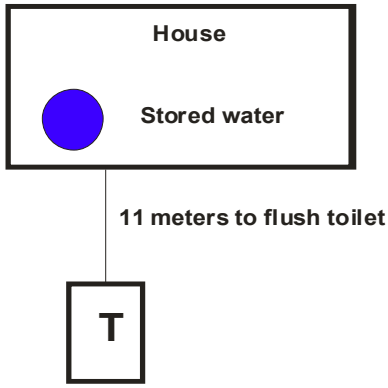
Household 10 – Peri-urban Village D

No picture of water containers

Toilet structure

Toilet inside

Line drawing



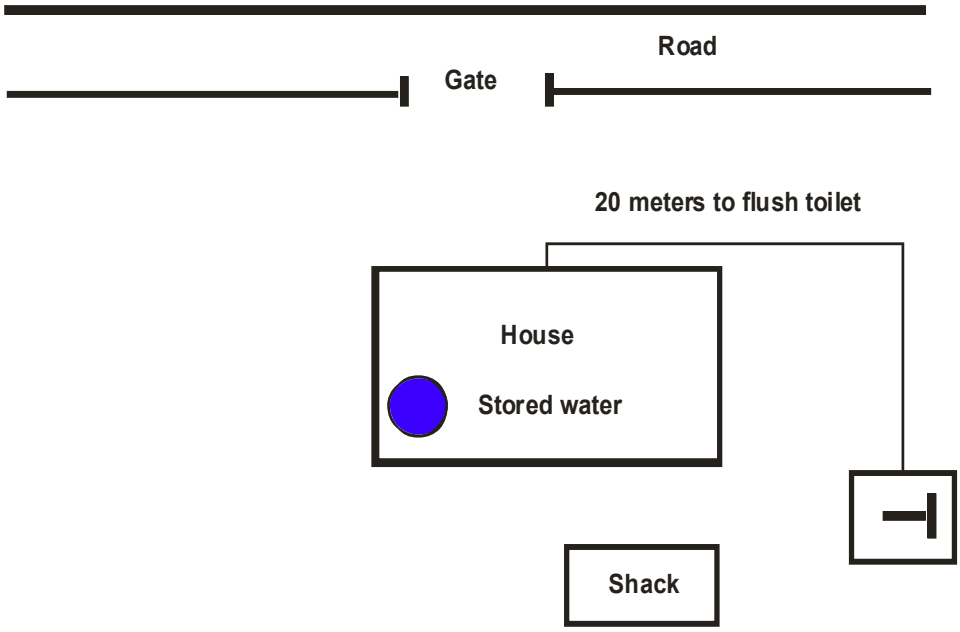
Household 11 – Peri-urban Village D

No picture of water containers

Toilet structure

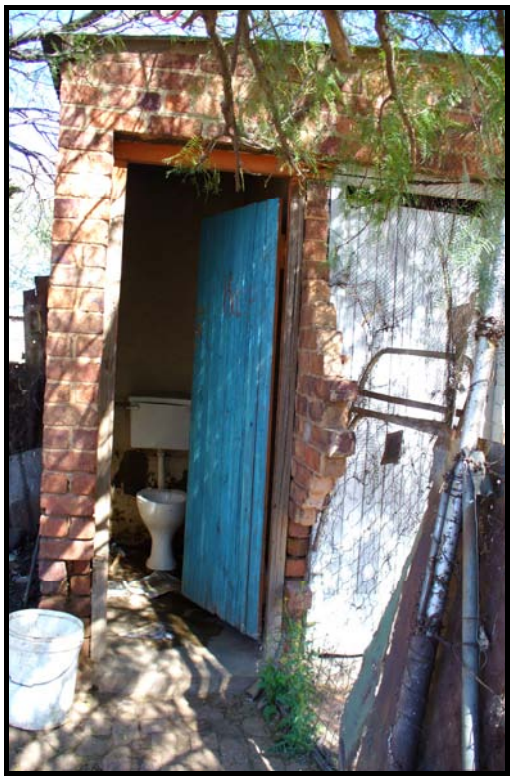
Toilet inside

Line drawing



Household 12 – Peri-urban Village D

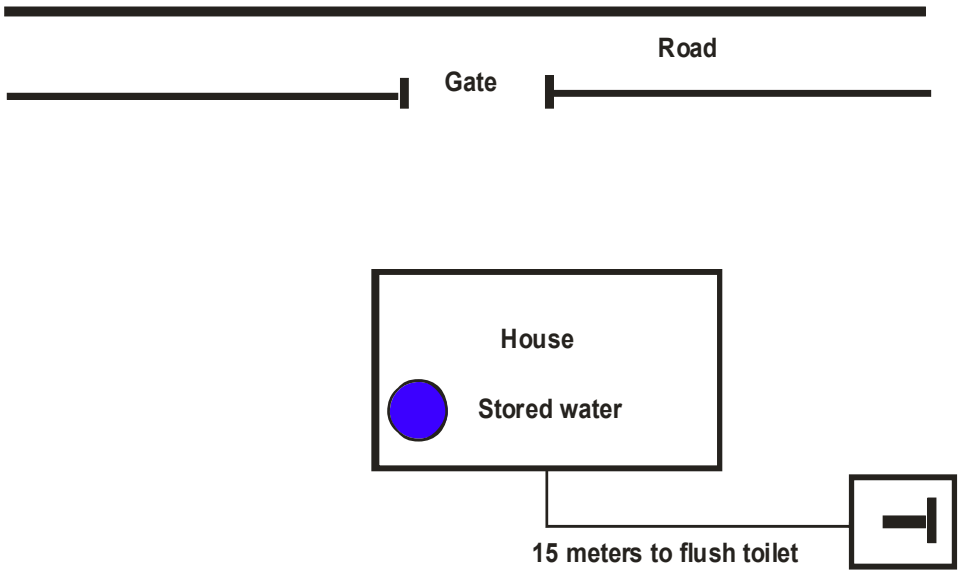
No picture of water containers



Toilet structure

Toilet inside

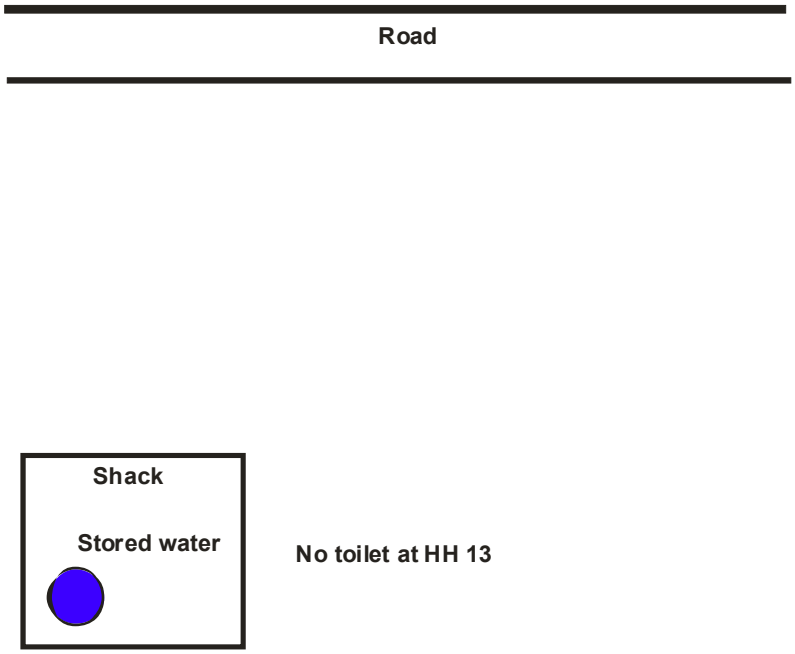
Line drawing



Household 13 – Peri-urbanVillage D

No picture of water containers

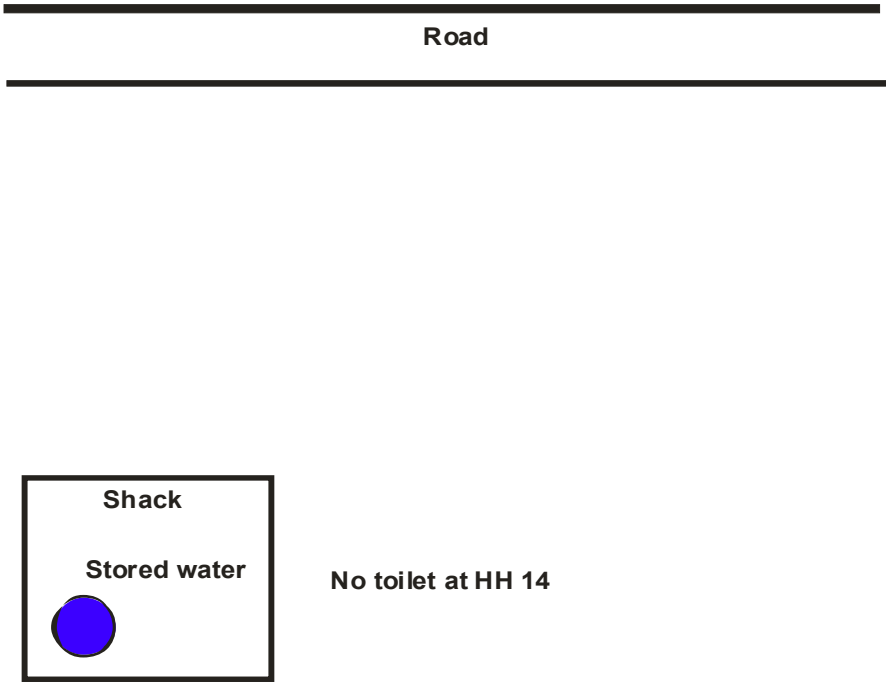
Line drawing



Household 14 – Peri-urban Village D

Water container

Line drawing



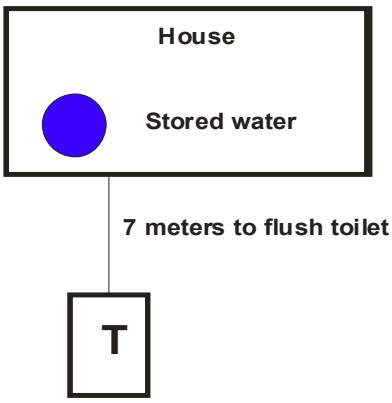
Household 15 – Peri-urban Village D

No picture of water containers

Toilet structure

Toilet inside

Line drawing



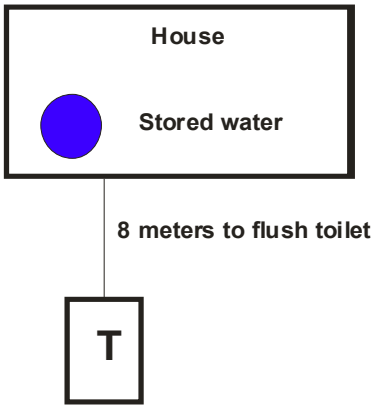
Household 16 – Peri-urban Village D

No picture of water containers

Toilet structure

Toilet inside

Line drawing



PERI-URBAN VILLAGE E HOUSEHOLDS

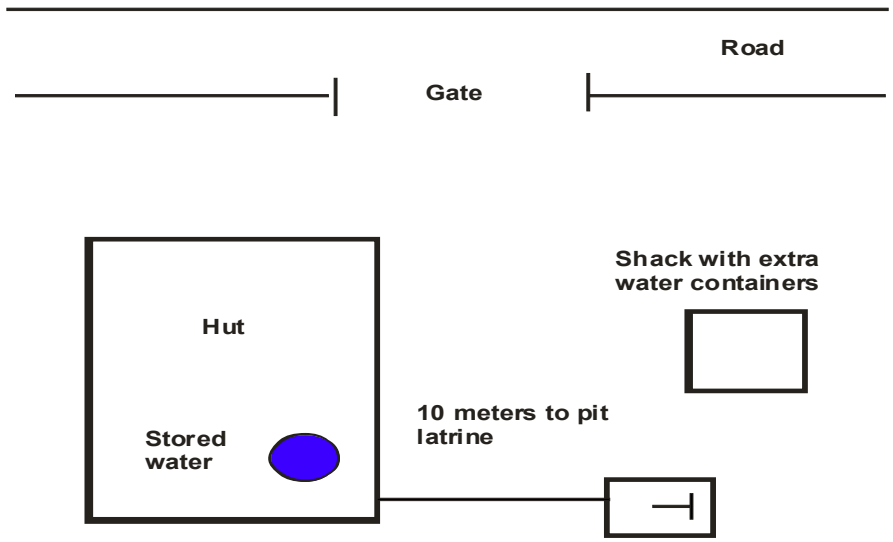
Household 1 – Peri-urban Village E

Water containers

Toilet structure

Toilet inside

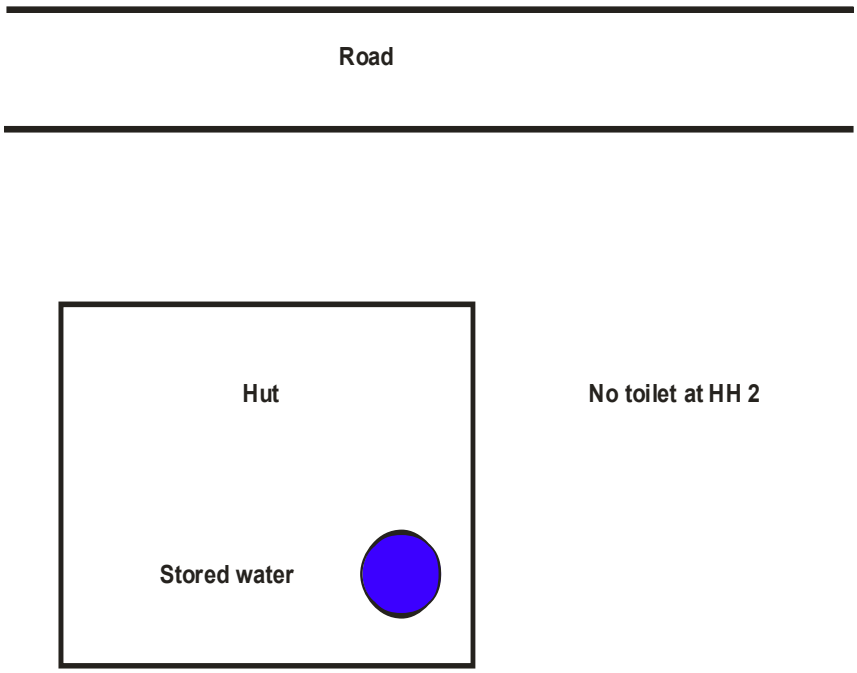
Line drawing



Household 2 – Peri-urban Village E

Water containers

Line drawing



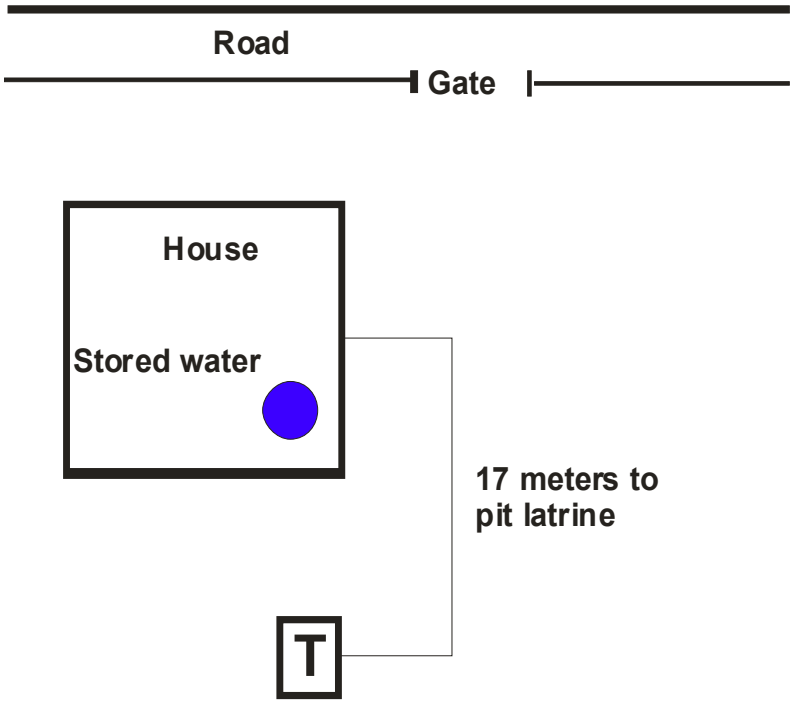
Household 3 – Peri-urban Village E

No picture of water containers

Toilet structure

Toilet inside

Line drawing



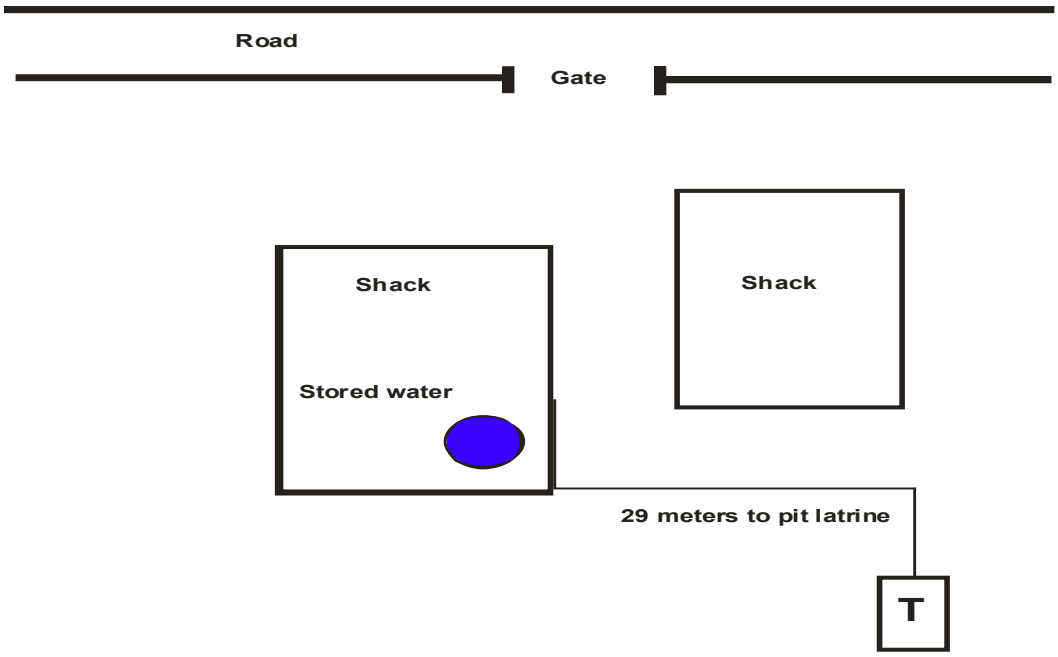
Household 4 – Peri-urban Village E

Water containers

Toilet structure

Toilet inside

Line drawing



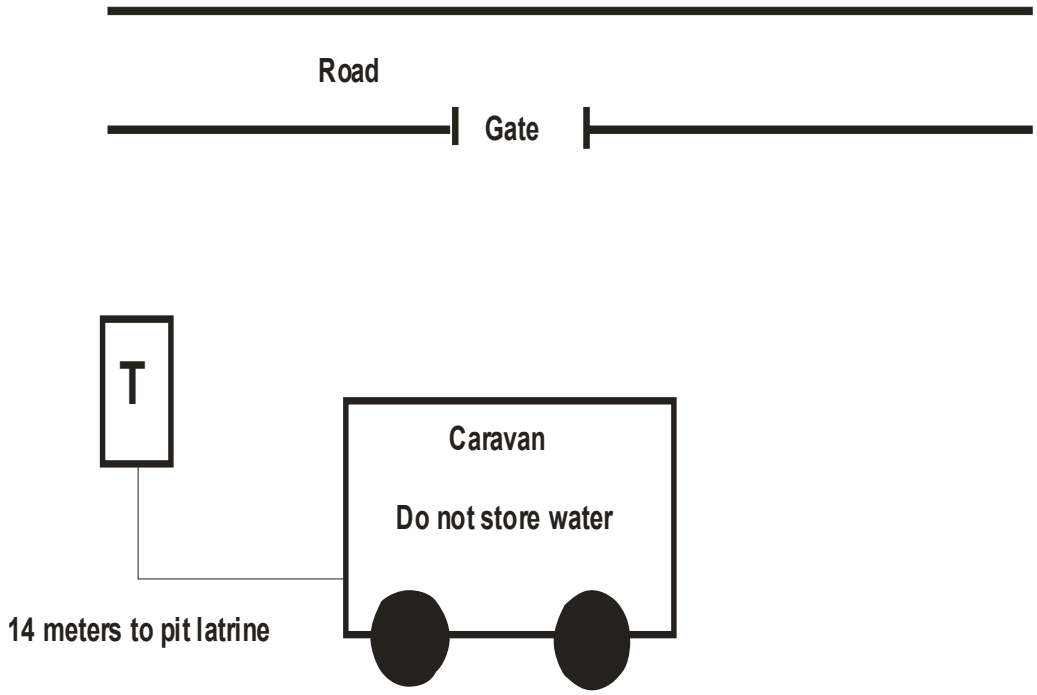
Household 5 – Peri-urban Village E

Household does not store water

Toilet structure

Toilet inside

Line drawing



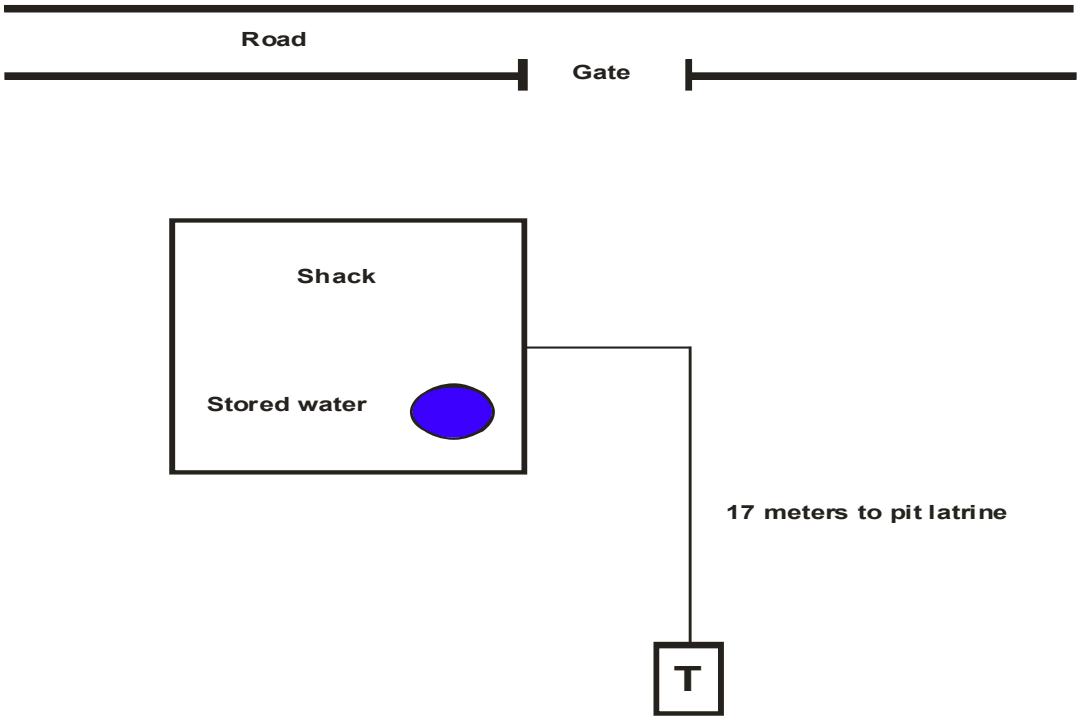
Household 6 – Peri-urban Village E

Water containers

Toilet structure

Toilet inside

Line drawing



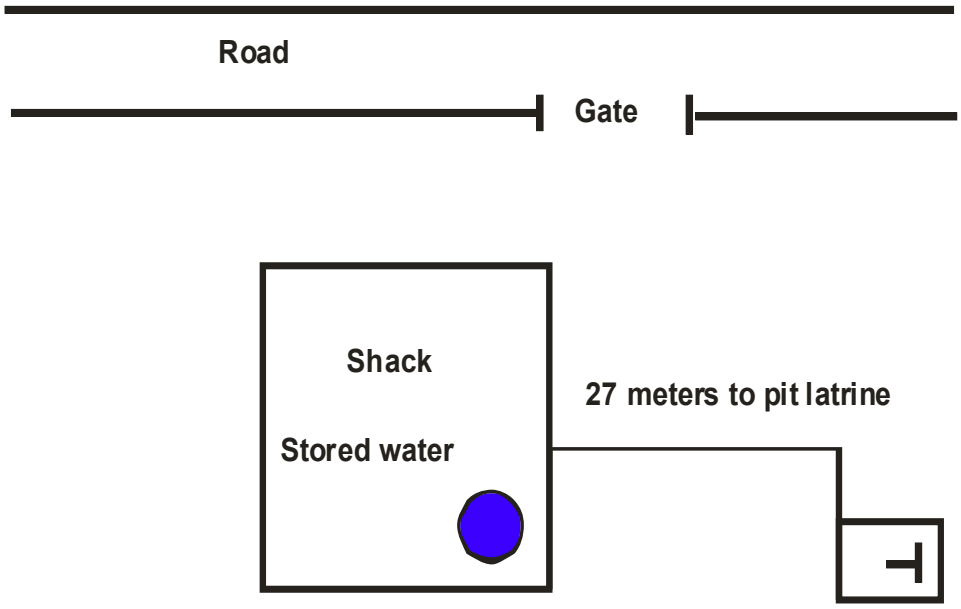
Household 7 – Peri-urban Village E

No picture of water containers

Toilet structure

Toilet inside

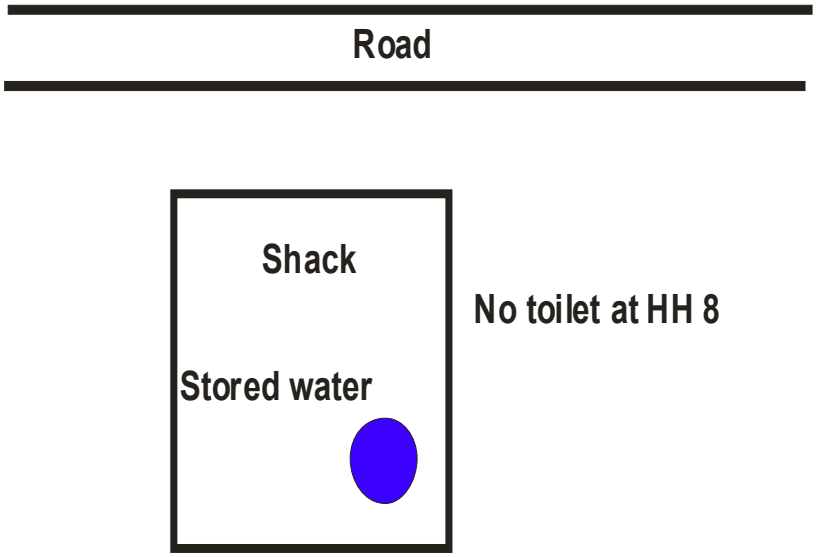
Line drawing



Household 8 – Peri-urban Village E

No picture of water containers

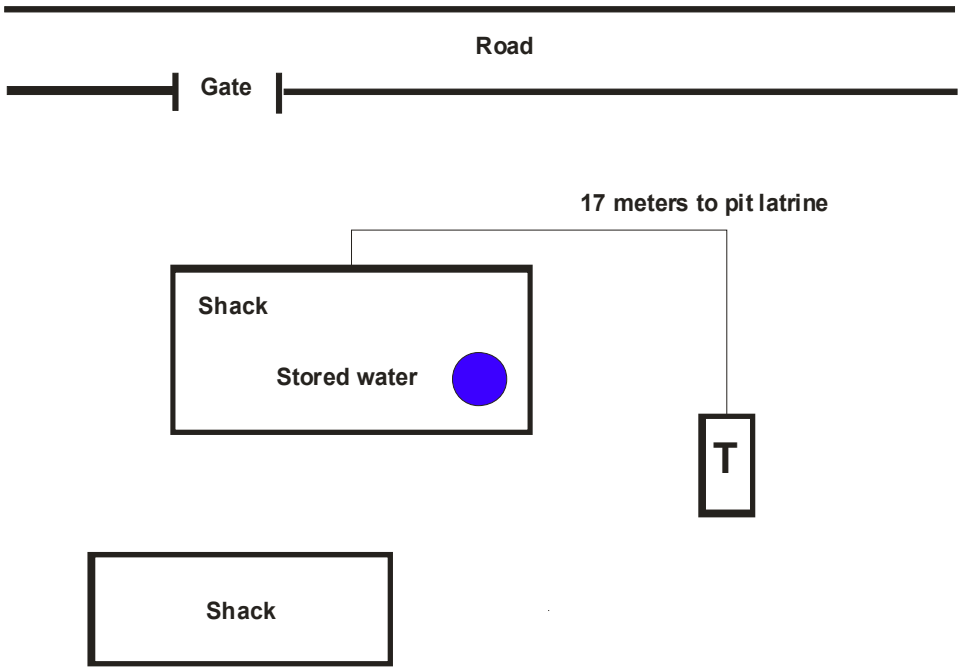
Line drawing



Household 9 – Peri-urban Village E

No pictures available for Household 9.

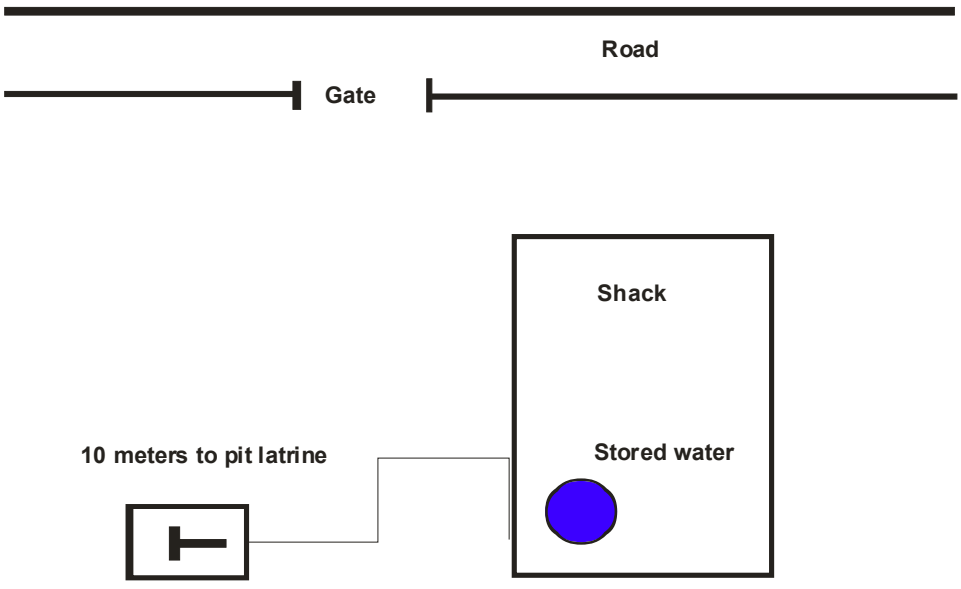
Line drawing



Household 10 – Peri-urban Village E

No pictures available for Household 10.

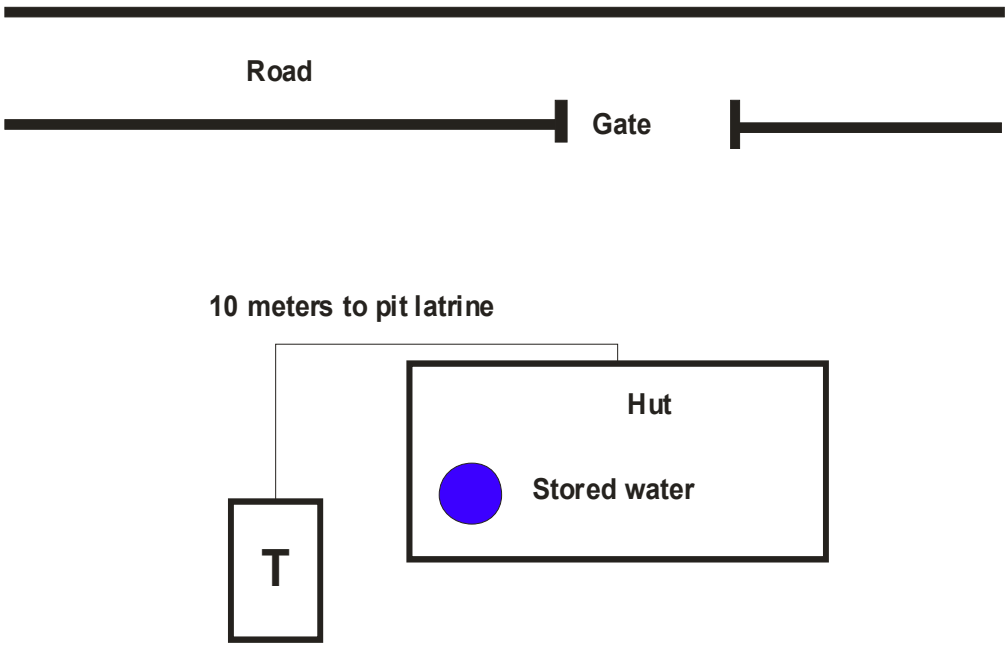
Line drawing



Household 11 – Peri-urban Village E

No pictures available for Household 11.

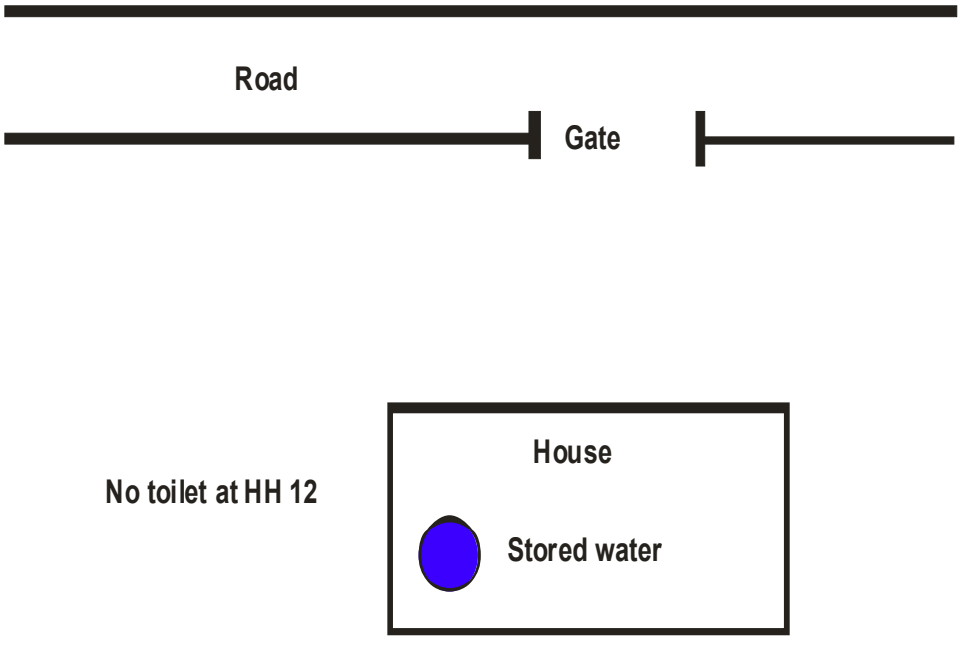
Line drawing



Household 12 – Peri-urban Village E

No pictures available for Household 12.

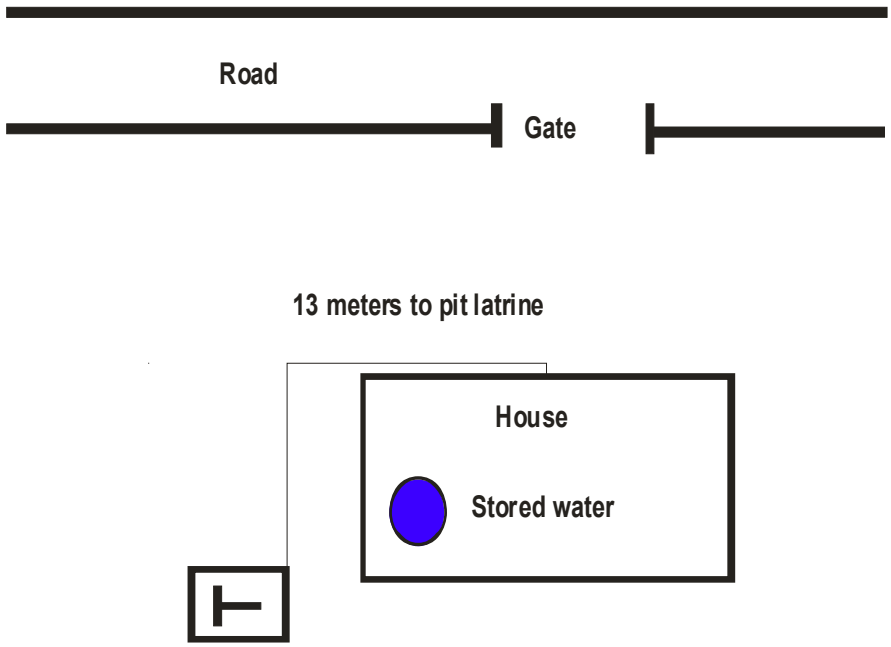
Line drawing



Household 13 – Peri-urban Village E

No pictures available for Household 13.

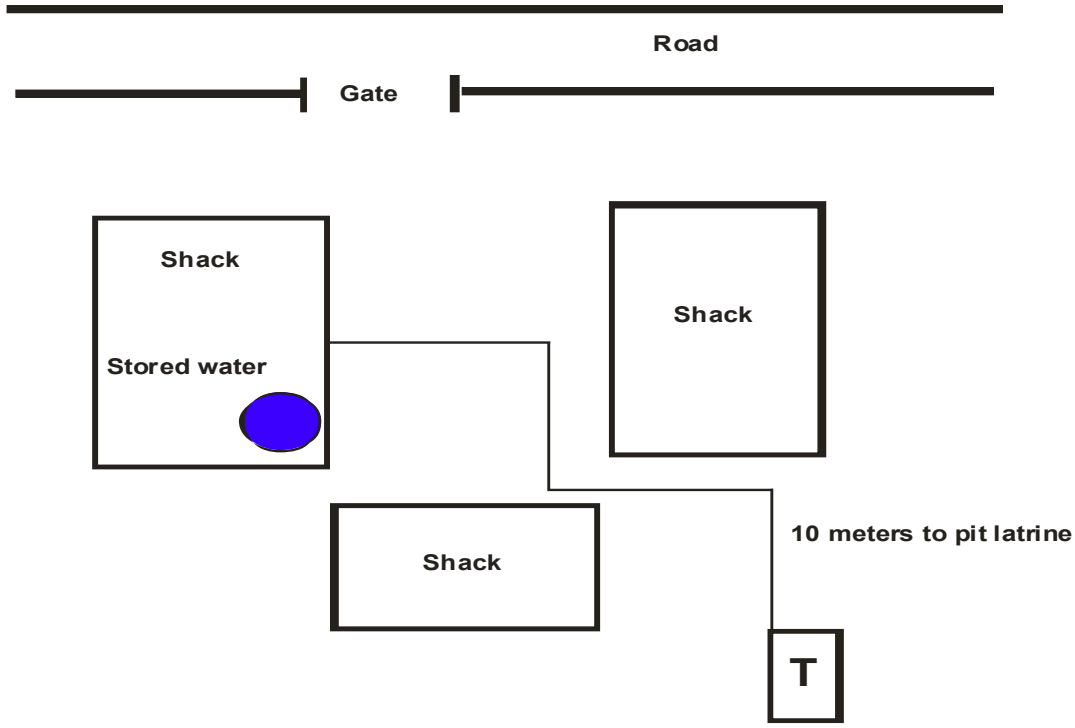
Line drawing



Household 14 – Peri-urban Village E

No pictures available for Household 14.

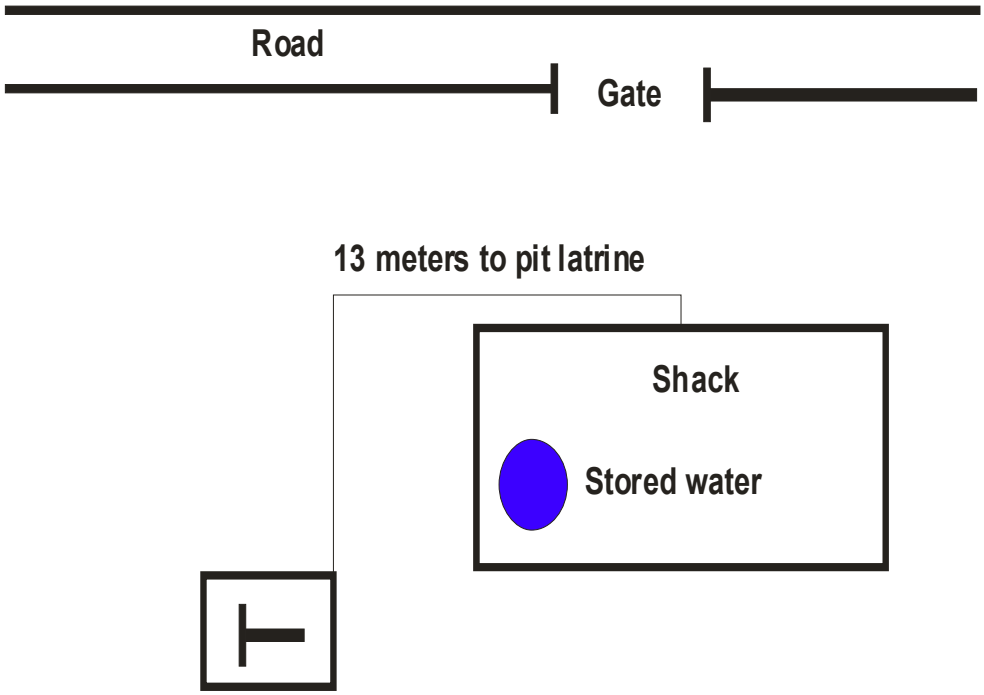
Line drawing



Household 15 – Peri-urban Village E

No pictures available for Household 15.

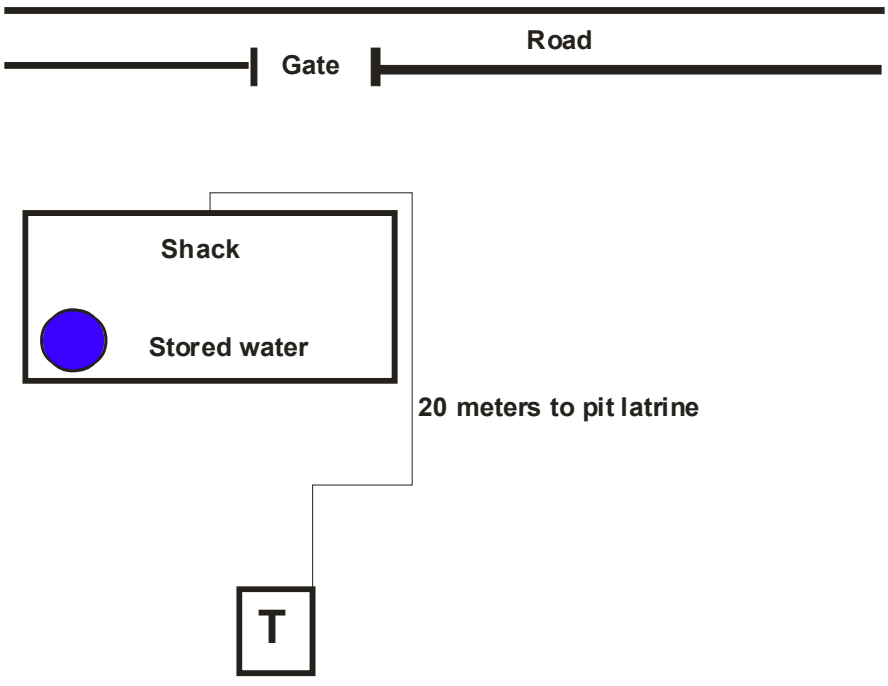
Line drawing



Household 16 – Peri-urban Village E

No pictures available for Household 16.

Line drawing



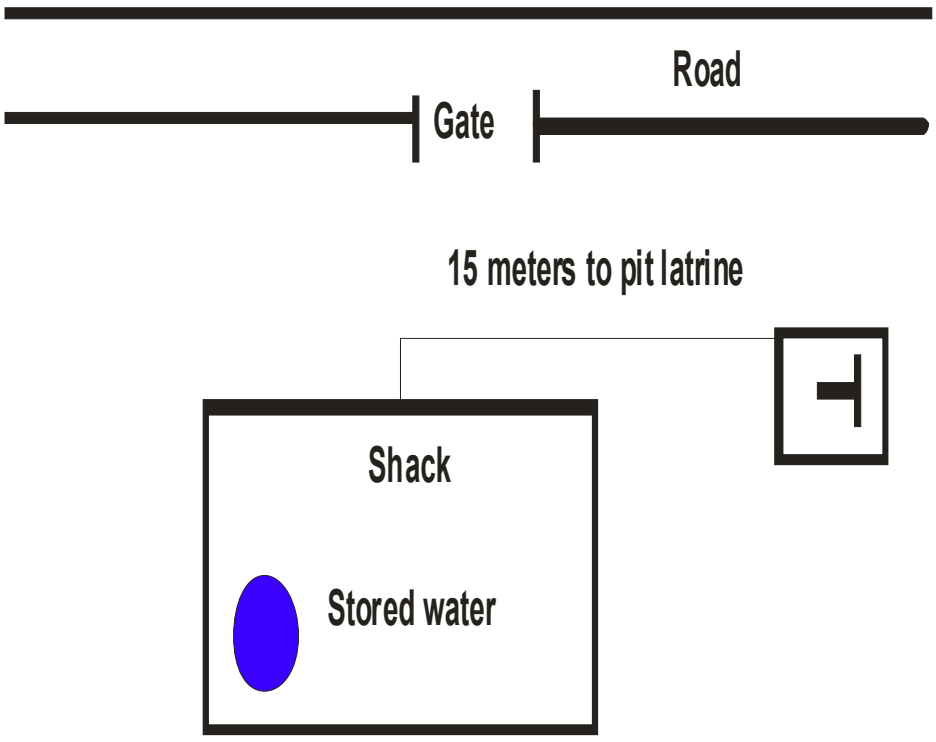
Household 17 – Peri-urban Village E

No picture of water containers

Toilet structure

Toilet inside

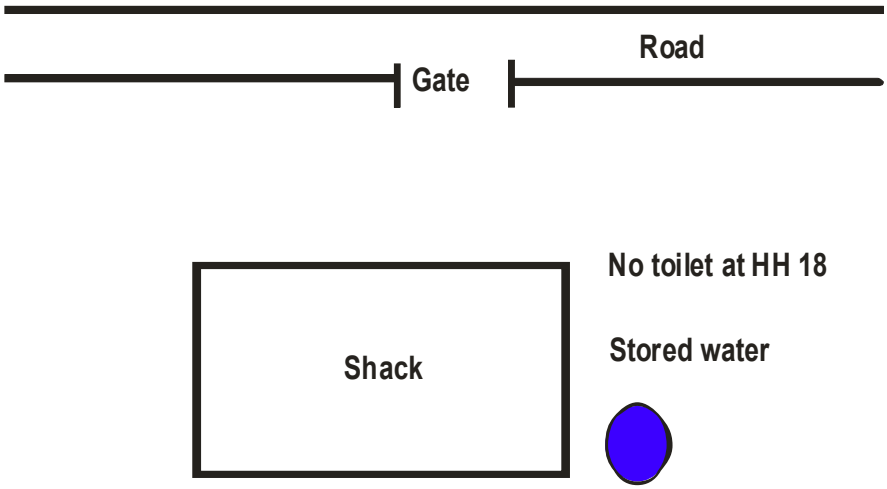
Line drawing



Household 18 – Peri-urban Village E

No pictures of water containers

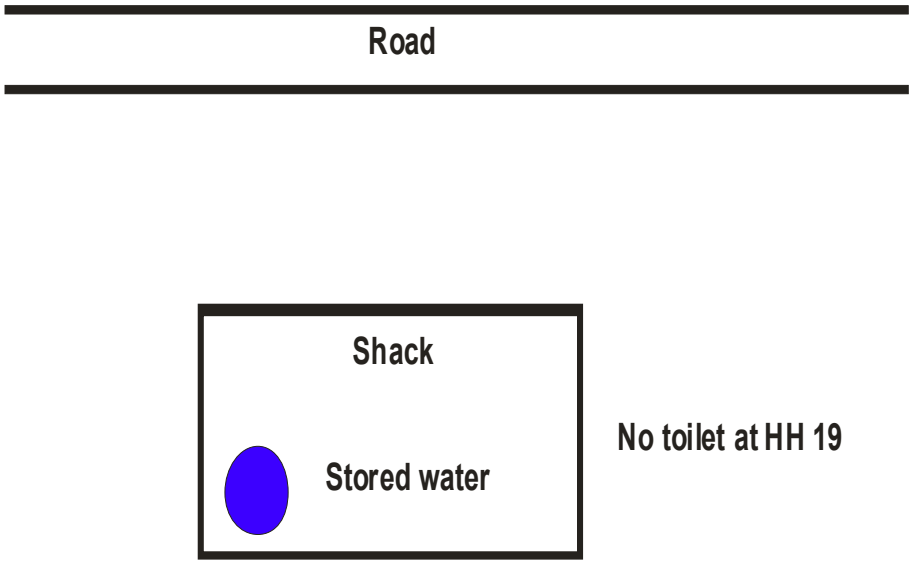
Line drawing



Household 19 – Peri-urban Village E

Water containers

Line drawing



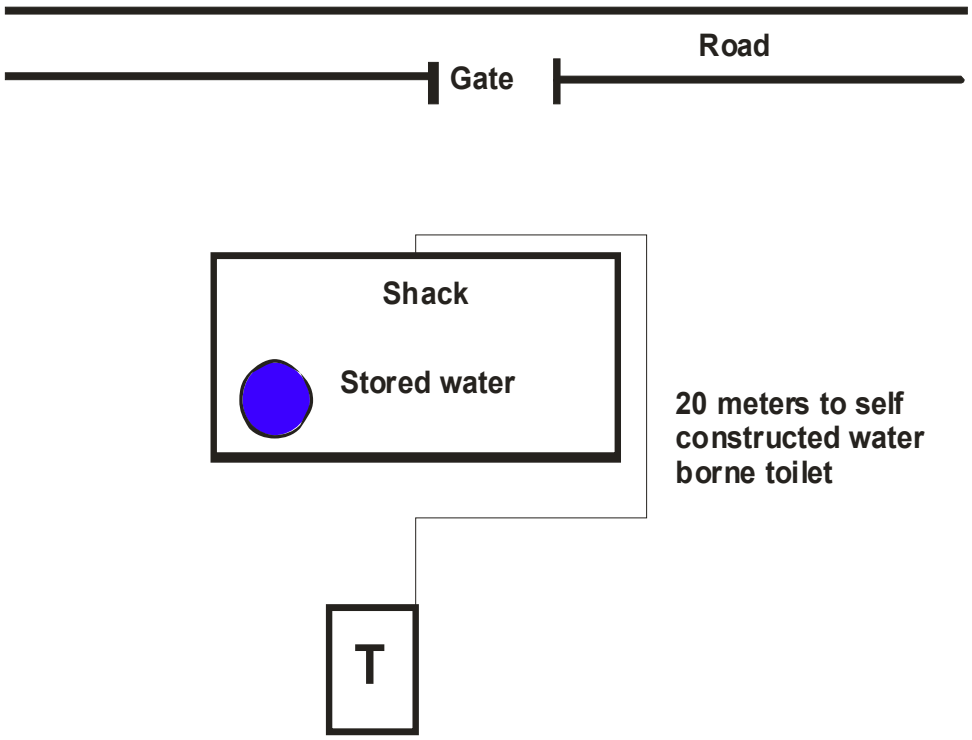
Household 20 – Peri-urban Village E

No picture of water containers

Toilet structure

Toilet inside

Line drawing



Household 21 – Peri-urban Village E

Water container

Toilet structure

Toilet inside

Line drawing