

**Waterborne Sanitation, Cost Recovery and Quality  
of Life: A Case Study of Ekuvukeni.**

By

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## **ABSTRACT**

A bucket sanitation system is being replaced by waterborne sanitation at an apartheid created town called Ekuvukeni near Ladysmith in KwaZulu Natal. This study examines the reasons for upgrading sanitation at Ekuvukeni from a bucket system to a waterborne system, the problems and issues surrounding this project and the likely consequences for Ekuvukeni and the surrounding environment. The study found that complex political and structural issues and problems have developed around sanitation at Ekuvukeni. These together with other software issues related to sanitation in the South African context have not been adequately considered. The result is that there are many uncertainties which increase the risk of waterborne sanitation system failure and this in turn, would have disastrous consequences for the people of Ekuvukeni and the surrounding environment.

## PREFACE

Most of the research for this study was conducted as part of the Ekuvukeni socio-economic and sanitation survey for the water and sanitation project under the supervision of Prof T Marcus of the Department of Sociology, University of Natal, Pietermaritzburg.

These studies present original work by the author and have not otherwise been submitted in any form to another University. Where use has been made of the work of others it is duly acknowledged in the text.

## **ACKNOWLEDGEMENTS**

Many thanks to Prof Tessa Marcus for providing me with the opportunity to undertake this study and for acting as my supervisor.

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## LIST OF ABBREVIATIONS AND ACRONYMS

<b>ELDC</b>	Ekuvukeni Local Development Committee
<b>IDF</b>	Integrated Development Framework
<b>IPS</b>	Integrated Planning Services
<b>KZNPA</b>	KwaZulu-Natal Provincial Authority
<b>RDP</b>	Reconstruction and Development Programme
<b>SADT</b>	South African Development Trust
<b>VIP</b>	Ventilated Improved Pit (Latrine)
<b>VIDP</b>	Ventilated Improved Double Pit (Latrine)
<b>WRC</b>	Water Research Commission



## INTRODUCTION

International and South African experience has shown that sanitation projects in the developing world have not usually been financial and social success-stories. The poor record of sanitation projects in developing countries, including South Africa, is the product of a complex interaction of factors. However, a major problem has been the lack of involvement of the target population at any stage of these projects and consequently inadequate information has been obtained on “soft-ware issues”<sup>1</sup> such as consumer demand and willingness and ability to pay. Instead, planning is undertaken on the basis of “hardware” issues. For example, piped sewerage is usually selected as the technology of choice, and the focus of planning is largely on ‘supply side’ issues such as estimating the costs of constructing and operating the proposed system. Little consideration is given to the appropriateness of sanitation systems within the economic, structural, political, social or cultural environment.

The 1994 Water Supply and Sanitation Policy White Paper estimated that 21 million South Africans did not have access to adequate sanitation facilities. It also estimated that 2 million people still relied on bucket sanitation, which is not considered to be an acceptable system from a health perspective or in terms of community acceptance. Consequently, a key element of the government’s reconstruction and development programme (RDP) is to provide an adequate and safe sanitation facility to all households in South Africa. However, the government wants these services to be provided and paid for in a way that will not require ongoing government resources to keep them running. If poor communities are not able to afford basic sanitation the government says that it may subsidise construction costs of minimum services that meet basic health and functional requirements including the protection of the quality of both surface and ground water. In all cases communities will be expected to fund recurrent operation, maintenance and replacement costs.

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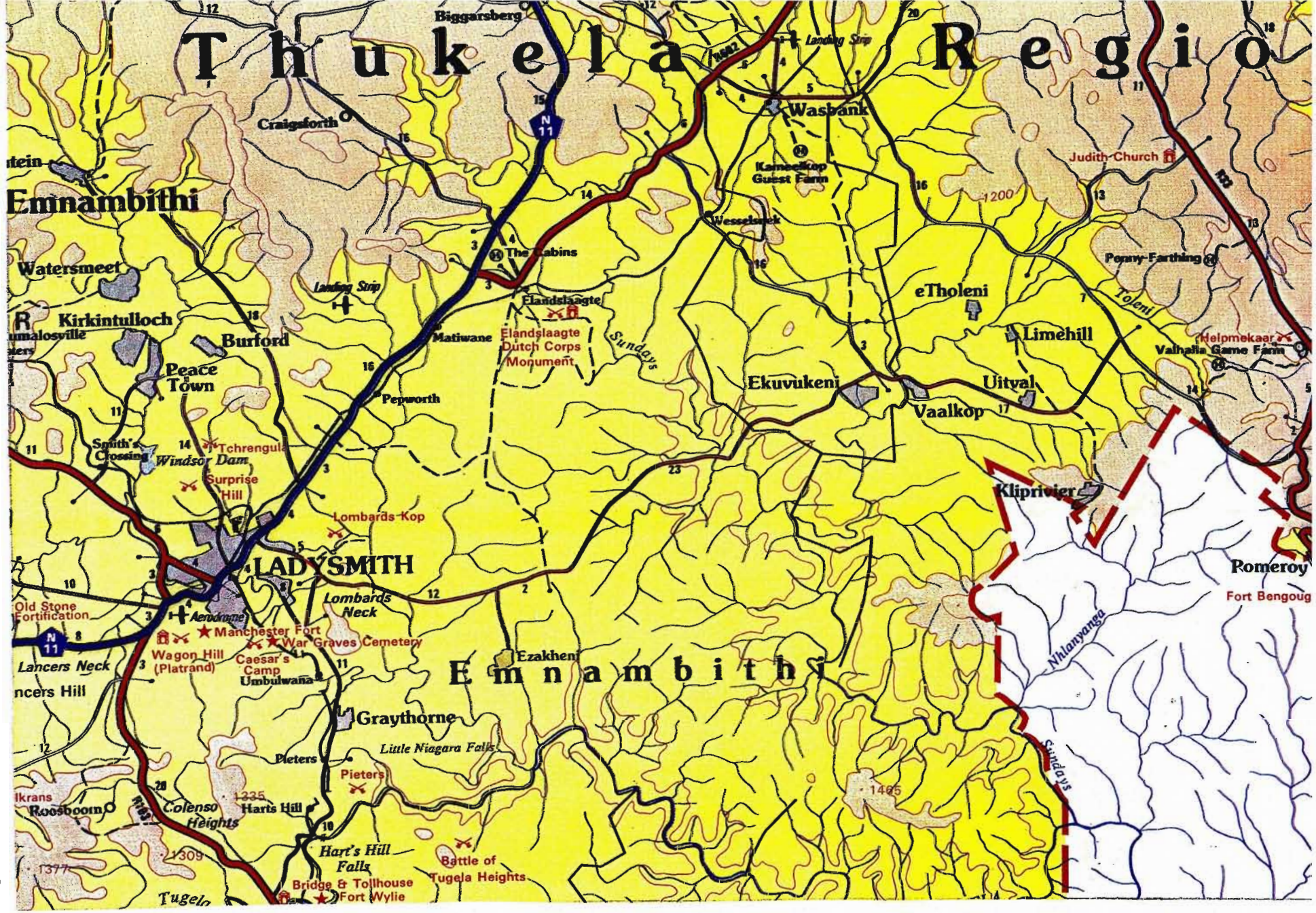
<sup>1</sup> During the International Drinking Water Supply and Sanitation Decade (1981-1990) many of the technological issues around water and sanitation provision were satisfactorily resolved. But, on their own, they have been unable to bring about the desired improvements mostly because of other issues such as demand, affordability, social, cultural, political and structural. These have been termed the ‘soft-ware’ of water and sanitation provision. (See Rogerson 1996)

In an apartheid created town called Ekuvukeni the community has been engaged with the government since 1987 over a sanitation improvement project which would provide sanitation that is acceptable and affordable to its residents. The new government has agreed to fund the costs of replacing the bucket sanitation system there with waterborne sanitation under the RDP. Clearly, this development does not accord with current government policy in that waterborne sanitation is far more sophisticated and expensive than a sanitation system needs to be to meet basic health and functional requirements. In fact the government argues its White Paper, that due to its cost, in most cases waterborne sanitation is not a realistic, viable and achievable minimum service in the short term. Furthermore, evaluations of waterborne sanitation systems throughout South African have found that these systems often fail in economically disadvantaged areas because there is not the money available to spend on system maintenance.

This study assesses whether or not waterborne sanitation is an appropriate system for Ekuvukeni within the current social, economic, political and structural context. Of particular concern is the ability of households to afford a sanitation service fee to pay for the operation, maintenance and replacement of the bulk infrastructure in addition to their responsibilities for infrastructure on their own properties. The study then seeks to understand the motivations for providing waterborne sanitation to Ekuvukeni when there have been concerns for some time that this system may not be appropriate. Furthermore it assesses the risks and consequences of providing waterborne sanitation for the people of Ekuvukeni and the surrounding environment. While looking at the motivations for providing waterborne sanitation and assessing the effects that this is likely to have, the study examines the role that concepts such as "quality of life", which feature prominently in people's perceptions of sanitation and development, play in a development of this type.

Chapters 1 and 2 describe Ekuvukeni and the methodology used in undertaking this research in order to provide a context for the study. Chapter 3 researches the affordability of waterborne sanitation for the people of Ekuvukeni against the background of international and South African experience and the government's policy of cost recovery. Chapters 4 and 5 analyse the reasons and justifications for replacing the bucket system with waterborne sanitation at Ekuvukeni as well as the issues and problems related to sanitation and the sanitation improvement project. The last section (Chapters 6 and 7) assesses the risks and possible consequences of providing waterborne sanitation for the people of Ekuvukeni and the surrounding environment.

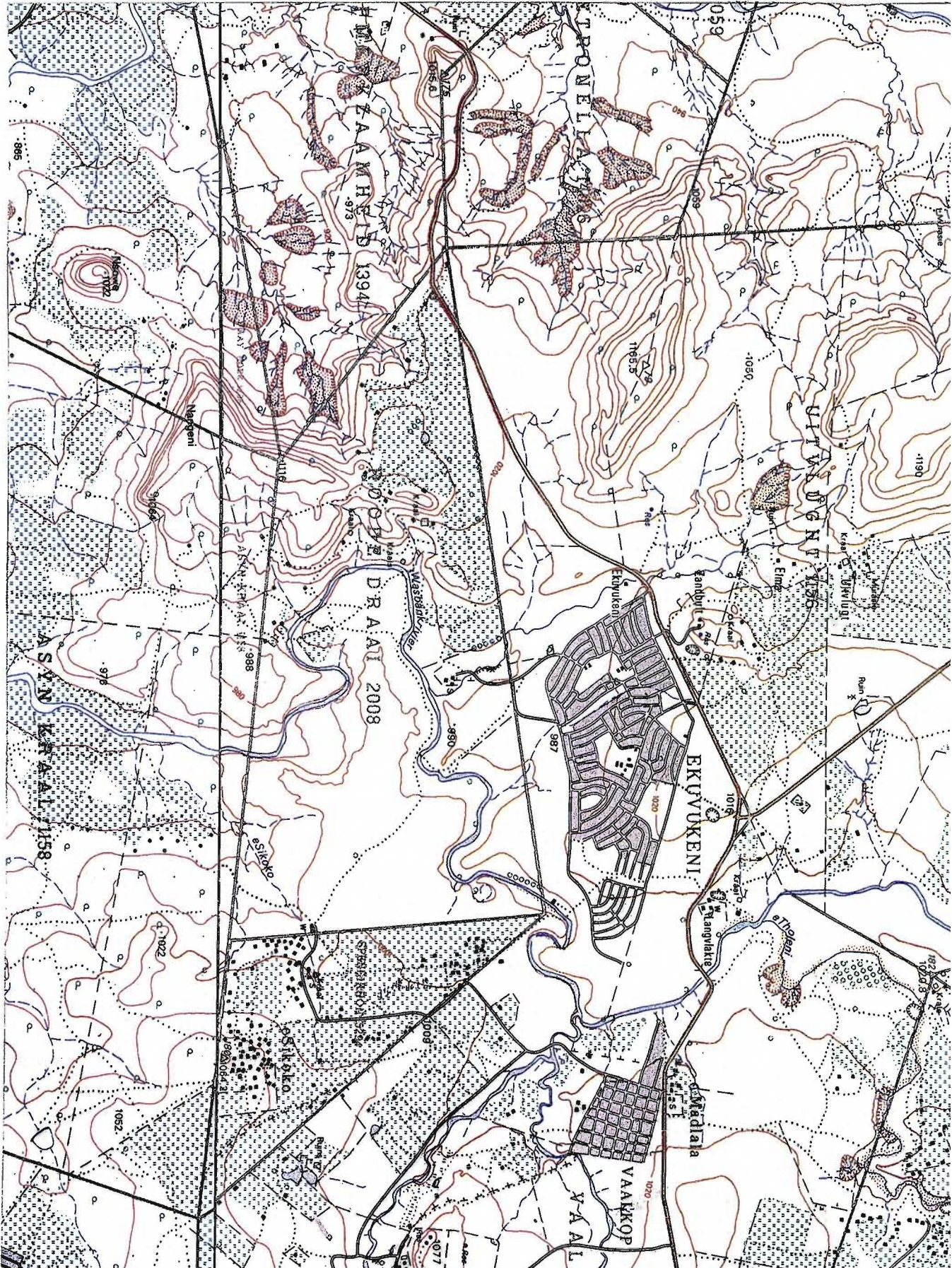




Map 1: Location of Ekvukeni



**Map 2:** Map of the topography around Ekvukeneni





## CHAPTER 1: BACKGROUND, HISTORY AND DESCRIPTION

### 1.1 BACKGROUND

Ekuvukeni is a proclaimed<sup>2</sup> town of approximately 25,000 people, or approximately 2,300 households. It is situated about 40 kilometres east of Ladysmith in KwaZulu-Natal, in the Emnambithi district of the Thukela region (see map 1). The “Ekuvukeni envelope” is essentially the area perceived by the local people as belonging to Ekuvukeni and is defined by the Wasbank River to the south and east, the main road to Helpmekeer in the north and a stream to the west (see map 2) (Ekuvukeni Integrated Development Framework (IDF), Document 1:1996:2).

Ekuvukeni is located in a Tribal Area, but on land which is owned by the government and has been excised from tribal control. While the surrounding Amakhosi have no jurisdiction over Ekuvukeni they do have influence over many of the people that live there. In terms of land ownership, Ekuvukeni falls under the Ingonyama Trust. (Integrated Planning Services (IPS):1997:2)

### 1.2 HISTORY

The Surplus People’s Project (Volume 4:1983:55) shows that the land where today several of the major relocation settlements in Natal are situated, including Ekuvukeni, Limehill and Uitval, was acquired by the South African Development Trust (SADT) in the early 1960s. The priorities of the then government’s removal program were the removal of “black spots”<sup>3</sup> and the enforcement of the group areas proclamations in the major urban centres of Durban, Pietermaritzburg, Newcastle, Vryheid, Ladysmith and others.

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<sup>2</sup> Provision for the administration of small towns in Natal was made in terms of the Development and Services Board Ordinance (20. 1941) and the Townships Board Ordinance (67 of 1983). In areas formerly controlled by KwaZulu or the SADT, small towns or villages were administered in terms of Proclamation R293 and by Provincial Government in terms of Proclamation R188. (IPS:1997:1)

<sup>3</sup> The Surplus People’s Project, Volume 4: 1983: 93 defines “black spots” as both African freehold land and land owned by a church or mission station but leased to individual Africans - land which, in both instances, falls within what the Government defined as the white area.

In 1972 Ekuvukeni was set up as an official “relocation closer settlement”<sup>4</sup>. Relocation closer settlements were classic dumping-grounds, known officially as closer settlements because the people that were moved into them have only been, with few exceptions, allocated residential sites of about 25 metres square. (The Surplus People’s Project, Volume 4:1983:61).

When people were relocated to these places they were usually provided with temporary accommodation (tents or fletcraft huts) and expected to build their own permanent dwellings. The then government also said that it would provide schools, clinics, clean water and even shops for ‘free’. Fuel was to be gathered from the surrounding hills and transport consisted of commuter buses to Ladysmith (The Surplus People’s Project, Volume 4:1983:61).

The Surplus People’s Project (Volume 4:1983:63) shows that people that were moved to Ekuvukeni were mainly from the town of Ladysmith, black spots around Wasbank including Criemen, Ruigtefontein and tenants from Steincoalspruit. However, Marcus, Mandivenyi & Plaistowe (1997:5) found that the overwhelming majority (79%) of the population reported that they moved to Ekuvukeni from white-owned commercial farms with most of the remainder (16%) coming from rural villages in the former reserves or mission owned land. Only 4% moved from a town. In the past, the land on which Ekuvukeni is located, was owned by the SADT and was administered by the former KwaZulu Government. In 1993-94 the SADT was disbanded and the town was included in the Ingonyama Trust as an ex-KwaZulu town. The trust, as owner of the land, has delegated administrative powers over the land to the Province. Historically the town has had a Township Manager and a core administrative staff whose responsibility it is to administer certain aspects of the town. This system was taken over by the province and continues to operate at the present time. (IPS:1997:3)

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<sup>4</sup>

Relocation closer settlements conform broadly to:

- Towns with ‘rudimentary services’ to provide accommodation mainly for the families of migrant workers; or,
- ‘More densely populated residential areas’, with a rudimentary lay-out, where people must provide their own housing, to accommodate those moved off farms and black spots. (The Surplus People’s Project, Volume 4:1983:59)

## **1.3 DESCRIPTION**

### **1.3.1 NATURAL ENVIRONMENT**

#### **1.3.1.1 Geology and Soils**

The geology of the area is dominated by sedimentary rocks of the Karroo Sequence and younger intrusive rocks comprising both dykes and sills of post-Karroo age dolerite. Medium to coarse grained sandstone, grey micaceous shale and coal, characteristic of the Vryheid Formation of the Ecca Group cover the largest area. Sediments from the dark grey shale characteristic of the Volksrust Formation of the Ecca Group cover relatively large areas at intermediate elevations in the south and centre and to a lesser extent in the east. Unconsolidated yellow-brown sandy clay sediments and basal boulder beds of the Masotcheni Formation mainly cover the lower lying areas. Alluvium deposits of sand, silt and clay adjoin the main drainage courses providing fertile soils for extensive agriculture especially along the Sundays River. There are two major occurrences of dark blue-grey shale, characteristic of the Estcourt Formation with fine to coarse grained sandstone sediments. (Ekuvukeni IDF: Document 1:1996: Annexure 1)

#### **1.3.1.2 Landforms**

The landform is gently undulating mostly on slopes of 5% or less but, with a few steeper rocky ridges of dolerite. (Ekuvukeni IDF: Document 1:1996:30)

#### **1.3.1.3 Hydrogeology**

The most productive ground water resources are the alluvial deposits adjoining the Sundays River and to a lesser extent the Tugela River. Under favourable conditions these aquifers are capable of supporting high yielding bore holes capable of supporting agriculture. Two major and one minor fault zone in the area represent the next most favourable sources of ground water. Boreholes tapping these aquifers could support limited agriculture or substantial communal domestic water supplies. There are also less favourable ground water sources possibly related to the basal boulder beds of the Masotcheni Formation sediments, the contact zones between the Vryheid Formation sandstones and intrusive dolerite dykes and sills and possibly also localised basins of weathered bedrock. At best these could support limited communal domestic water supplies. (EkuvukeniIDF:Document 2:Annex:1)



#### 1.3.1.4 Climate

There are no long term climatic records for Ekuvukeni. The nearest long term records are for Wasbank some 18 kilometres to the north and Elandslaagte, some 20 kilometres to the north west. Both are at comparable, though slightly higher altitudes. Ekuvukeni is at an altitude of 1,000-1,020 metres. Its mean annual rainfall is probably in the range 700-750 millimetres. The nearest long term temperature records are those for Ladysmith, at a comparable altitude, which has mean minimum temperatures of about three degrees centigrade in June and July and mean maximum temperatures of about twenty nine degrees centigrade in November, December, January and February. Frosts are fairly frequent (about fourteen days per year) between June and August. Hail occurs, on average, three times a year between November and March. (Ekuvukeni IDF: Document 1:1996:30-32)

#### 1.3.1.5 Vegetation

The area in and around Ekuvukeni falls mainly within the Bioclimatic Region 8a. The veld type is Southern Tall Grassland which is described as open savanna dominated by *Themeda triandra* and *Hyparrhenia hirta*. Trees are mainly *Acacia sieberana* in the deep valleys. The veld merges into Valley Bushveld in the valleys and Highland Sourveld in the higher altitudes. (Ekuvukeni IDF: Document 1:1996:Annexure 1)

The land slopes away to lower lying areas in the south west. These lower lying areas fall within the Bioclimatic Region 10a. The veld type is Valley Bushveld. In its undamaged state the veld exists as savanna, the tree component is mixed and the grass layer is dominated by *Themeda triandra* and *Panicum maximum*. However, misuse of the vegetation has led to an increase of the bush component and deterioration of the grass component. Soil erosion is prevalent since the bush does not provide an erosion resistant cover and frequent droughts in these areas has led to heavy grazing of the grass cover. (Ekuvukeni IDF: Document 1:1996:Annexure 1)

### **1.3.1.6 Surface Water**

Ekuvukeni's potable water supply is pumped from the Olifants Dam and treatment works located on the Sunday's River some distance to the east of Ekuvukeni.

As shown in map 2, the Wasbank River runs to the east and south of Ekuvukeni. There is also a stream line which runs to the west of Ekuvukeni, joining the Wasbank River in the south west. The Wasbank River as well as its tributaries, minor water courses and drainage lines form a system that would need to be protected when considering any development of Ekuvukeni. The undeveloped area to the south of the town contains a number of streamlines which drain into the Wasbank River. This area is important because it soaks up the storm water from the town. (Ekuvukeni IDF: Document 1:1996:28)

## **1.3.2 BUILT ENVIRONMENT AND INFRASTRUCTURE**

### **1.3.2.1 Housing**

There are 2,749 surveyed sites in Ekuvukeni of which about 2,348 are being developed as residential. (Ekuvukeni IDF: Document 1:1996:36) The houses are mostly built of brick with cement floors and zinc roofs. A minority live in more traditional structures using wattle and daub, dung for flooring and thatch for roofing. (Marcus et al:1997:8)

### **1.3.2.2 Education facilities**

There are not nearly enough education facilities to cater for the population of Ekuvukeni. Currently there are six schools - two lower primary, three primary and one secondary but, in reality this amounts to only four schools - two combined primary, one higher primary and one secondary. Using the rough planning guides of one primary school per 650 residents and one secondary school per 1,500 sites, there is presently a need for four primary and two secondary schools in Ekuvukeni. (Ekuvukeni IDF: Document 1:1996:64)

There are no tertiary education facilities, trade or industrial schools in Ekuvukeni or the surrounding area. (Ekuvukeni IDF: Document 1:1996:66)

### **1.3.2.3 Health Facilities**

Currently, one clinic serves the whole of Ekuvukeni - about 25,000 people. Town planning standards in South Africa suggest that one clinic should serve 1,500-2,000 people. Patients are treated as out-patients and there are no sleep over facilities. (Ekuvukeni IDF: Document 1:1996:61) During the study, the clinic sister complained of a shortage of medicines and other necessities like bandages. Other key informants complained that there were no facilities to deal with emergencies between about 4 pm and 8 am or over weekends.

### **1.3.2.4 Recreation Facilities**

Recreation facilities are almost non-existent in Ekuvukeni. The only facilities that are evident are informal soccer fields scattered within and on the outskirts of the town and a few soccer and netball fields in school grounds. Plans for a recreation and community centre are now well advanced. (Ekuvukeni IDF: Document 1:1996:66)

### **1.3.2.5 Roads**

The main connector roads are constructed to a reasonable standard and have been tarred and provided with side drains however, the secondary roads are generally in a poor condition. Some roads are eroded and damaged to the extent that they are impassable by cars. (Ekuvukeni IDF: Document 1:1996:45)

### **1.3.2.6 Services**

#### *a) Water*

The water supply network was originally laid in 1970 but did not serve all areas of the town. The water supply was upgraded in 1989/90 when standpipes were installed so that one standpipe would serve a maximum of fifteen houses or no house would be further than two hundred metres from a standpipe. (Ekuvukeni IDF, Document 1:1996:40) Most respondents reported that they get their drinking water from a tap in their yard or from a public stand pipe in the street. A small number reported piped water in their dwelling. (Marcus et al:1997:8)

### *b) Sanitation*

When Ekuvukeni was being set up as a relocation settlement the bucket system was considered to be an acceptable form of sewage disposal. However, while many townships have since had their sewage systems upgraded, Ekuvukeni has never progressed to a more acceptable system.

Every stand is provided with a small corrugated iron hut and rudimentary seating arrangement. A twenty five litre plastic bucket is placed on the floor in the hut to serve as a toilet. Sewage is collected by the KwaZulu-Natal Provincial Authority's (KZNPA), Directorate of Engineering Services and taken to a treatment works located south of Ekuvukeni. Officially buckets are supposed to be collected twice per week using two tankers. A collection team consists of the tanker driver and fourteen labourers. Full buckets are removed from the cubicle and emptied into the tanker. Clean, empty buckets are then placed in the cubicle. Bucket lids are supposed to be provided to prevent spillage. The tankers take the sewage to the treatment works where the contents are discharged into a trough and washed down through a screen into the first waste stabilisation pond. The empty buckets and the tanker are then washed and disinfected.

### *c) Refuse removal*

Refuse is scheduled to be collected twice a week by a local contractor who is responsible for the collection of bins and refuse liners on a door to door basis as well as keeping the streets and open spaces clean and tidy. About one fifth of the households surveyed reported that they were not satisfied with the management and control of the refuse system. Residents report that refuse is seldom collected as often as twice a week and streets and open spaces are not kept clean and tidy. (Marcus et al: 1997:8)

### *d) Fuel and Power*

Wood appears to be the primary power source for heating and cooking with paraffin the secondary power source. Other sources of power are electricity and coal. Most households use either candles or electricity for lighting. (Ekuvukeni IDF, Document 1:1996:45)

The KZNPA is responsible for the provision and maintenance of the electricity supply system. The system used is a prepaid metre system and it is estimated that there are about two hundred domestic connections. Upgrading of the electricity supply has been highlighted as a priority.

*e) Transport*

KwaZulu transport services runs a bus service that operates along the main road that connects Ekuvukeni with Ladysmith and Dundee and along the main routes to certain settlements. The Kliprivier Taxi Association is responsible for a number of mini-bus taxi operators that service the route to Ekuvukeni as well as Ekuvukeni itself. (Ekuvukeni IDF: Document 1:1996:58) Key informants reported that a return bus trip to Ladysmith costs about R11 and that this is considered very expensive and a major disincentive for people to travel to Ladysmith to work.

*f) Government Services*

The following other government services are located in Ekuvukeni:

- Township Manager's Office;
- Magistrates Court;
- KZNPA (Engineering Services) Depot;
- Police Station;

(Ekuvukeni IDF: Document 1:1996:59)

### **1.3.3 AESTHETICS AND SENSE OF PLACE**

The quality of the built environment is poor. The streets are scattered with litter and open waste water channels flow alongside certain roads. Burst or leaking water pipes as well as poor drainage around certain standpipes create puddles of water in certain areas. There is little in the way of street vegetation or street furniture. The environment appears bleak and sterile and there is little to distinguish one part of Ekuvukeni from another.

Although most the people have a sense of belonging, for many, Ekuvukeni does not offer a sense of place. People dislike the area mainly because of the factional violence that occurs around the town as well as the crime and violence within Ekuvukeni. On the other hand people say that they like Ekuvukeni because it is peaceful in the sense that there is not a lot of hustle and bustle, noise or traffic. They also identify with the culture and the people of the town.

### **1.3.4 SOCIO-ECONOMIC**

Ekuvukeni is an urban settlement in a rural location with a stable population of low or very low income households with very limited sources of livelihood. Structurally, the average household has five or more members of whom, because of age and unemployment, at least four depend on a single income source. A substantial minority of households know periods of food shortage during the month, with a minority of about 10% existing in absolute poverty. Less than a fifth of households have sufficient monthly income to keep them out of relative poverty. (Marcus et al 1997:19).

#### **1.3.4.1 Household Size and Composition**

The demographic characteristics of households in Ekuvukeni reveal a picture of an urban settlement with a variegated household structure which is kin based and tends towards a nucleated core. (Marcus et al:1997:7).

The size of the average household is five although over a third have between six and eight people. On average, household structures comprise at least one mature adult, one young adult and two children or adolescents, sixteen years or younger. (Marcus et al:1997:7)

None of the households surveyed said that they have absent sons or daughters who live for four or more nights a week away from the household. Neither did any say that non-family members live with the household on a regular basis. (Marcus et al:1997:7) By implication, this is not a migrant based economy and household income is not supplemented by rent.

#### **1.3.4.2 Education and Literacy**

Education levels are typical of poor rurally located communities. Approximately three quarters of respondents had no formal schooling or incomplete primary education, giving a functional illiteracy rate of about 72%. Only about 3% reported having completed matric and 2% had completed teacher training. (Marcus et al:1997:7)

#### **1.3.4.3 Employment and Income**

In terms of income sources and employment opportunities Ekuvukeni is typical of many rurally located apartheid settlements. Divorced from agriculture and created without an economic base, livelihood opportunities are scarce and income earning activities are limited in both number and range, with little potential for stimulating more diversified local development. (Marcus et al :1997:9)

The study found the main sources of household income to be wages, with about 20% of the population within the households survey in waged work. The other significant source of household income is social pensions with about half the households surveyed reporting that a member of their household was receiving an old age pension and a further 4% receiving disability, child allowance or unemployment benefits. The social pensions are particularly important for the contribution they make to the poorest households in Ekuvukeni. More than a third of the people have no wage earner and about 12% have neither a wage earner nor a pensioner to contribute to household income. (Marcus, et al: 1997:10)

Calculating monetary income from all sources, respondents reported an average monthly household income of approximately R700. 70% had incomes of R900 or less but, the usual monthly income for half the households was less than R500. The bottom 10% of households had access to between R100 and R200 a month. (Marcus et al:1997:10)

Figure 1: Monthly Household Income

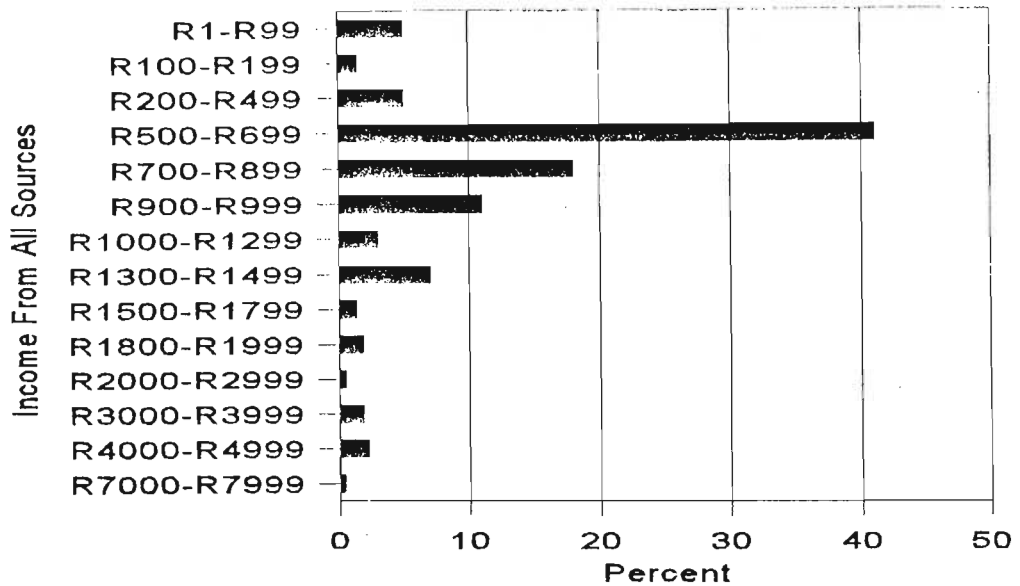


Figure 1 shows that income levels ranged quite considerably. Of employed respondents, the lowest 10% earned R88 per month or less while the top ten percent earned R2,500 or more. The middle 50% earned between R490 and R1,827, with a mean monthly income of R1,123 and a median of R882. (Marcus et al:1997:10)

To put these income levels in context, almost three quarters of households in Ekuvukeni fall below the rural Household Subsistence Level (HSL)<sup>5</sup> of a small town like Pedi in the Eastern Cape where the HSL was calculated at R925 for a family of five. (Potgieter:1996 cited in Marcus et al :1997:11) The proportion of households below the HSL increases to 83% when comparisons are made with low income urban households in Durban, where the HSL for a family of five was calculated to be R1,021. (Marcus et al :1997:11)

<sup>5</sup>

The HSL is an absolute poverty line devised at the Institute of Planning Research, University of Port Elizabeth.



While about half the households surveyed said that they always had enough money for food and essentials, nearly a quarter said that they were short of money, especially at particular times of the month. Over a third reported that they spent most or all of their money on food. Only a small number (12%) said that they can save regularly, a further 30% said they could save sometimes and over half (57%) said they could never save. (Marcus et al:1997:11)

#### **1.3.4.4 Economic Activity**

As with many small towns of this nature, the government provides a significant number of jobs and is an important sector of the local economy.

Manufacturing activity is limited however, in comparison to other settlements in the area, Ekuvukeni contains the greatest amount of manufacturing activity. There are two building block makers and a number of cottage industries such as sewing and carpentry.

There are also a number of formal and informal traders including restaurants, shops, general dealers, bakeries, butcheries and bottle stores as well as informal taxi ranks and traders selling paraffin, vegetables and traditional beer etc.

## CHAPTER 2: RESEARCH METHODOLOGY

A combination of quantitative and qualitative methods were used for the research. The qualitative research methodology combined key informant interviews and focus group sessions. The method used for gathering quantitative data was a close-ended structured questionnaire which was designed using information gathered from the qualitative research. (Marcus et al:1997:3)

### 2.1 QUALITATIVE RESEARCH

Neither key informant interviews nor focus groups were representative. Rather, their results were indicative of a cross section of views and opinions in the community. They also provided contextual and textured information to help analyse the quantitative data (Marcus et al :1997:3).

- Key informant interviews. Eleven members of the Ekuvukeni community were selected as key informants. The key informants that were interviewed were leaders of the community and influential figures or people that were able to provide insights into particular aspects of community life at Ekuvukeni. The key informants therefore included the Ekuvukeni Township Manager, members of the Ekuvukeni Local Development Committee (ELDC), the Sister in charge of the Ekuvukeni Clinic, the South African Police Force at Ekuvukeni, the KZNPA, Directorate of Engineering services, headmasters and youth leaders. These interviews were semi-structured and based on a questionnaire (see Appendix C).
- Focus group sessions. There were six focus group sessions with eight to ten people in each session. Participants in the focus groups were selected from the community on the basis of age, sex and employment status. The following focus groups were kept as homogenous as possible in order to encourage as much open participation as possible (Marcus et al :1997:3):
  - employed men;
  - unemployed men;
  - employed women;
  - unemployed women;

- young women; and,
- young men.

As with the key informant interviews, the focus groups were semi-structured and based on a questionnaire. (see Appendix B)

## **2.2 QUANTITATIVE RESEARCH**

Quantitative research was carried out in the form of a close-ended structured questionnaire in order to establish socio-economic conditions and the representativeness of opinions in the community on sanitation services and their affordability.

- The questionnaire (see Appendix A) was administered to 230 households, selected by systematic sampling and equal to approximately 10% of all households in Ekuvukeni. Because the allocated residential sites are unevenly distributed across Ekuvukeni, with some areas having a greater number of allocated residential sites than others, it was necessary to divide the township into three sections according to concentration of residential sites. The systematic sampling ratio was then calculated in each of these sections. The questionnaire was administered in face to face interviews with a permanent mature adult respondent from each household who was familiar with the circumstances of the residents and therefore able to respond on behalf of the household.

## **2.3 TIMING OF THE RESEARCH.**

Key informant interviews were carried out from 15-30 October 1996. Focus group sessions were carried out from 12-15 November 1996 and the questionnaire was administered from 25-29 November 1996.

### CHAPTER 3: COST RECOVERY

The study found the issues surrounding cost recovery to be crucial to the sustainability of any future waterborne sanitation system at Ekuvukeni. The socio-economic circumstances and institutional capacity of Ekuvukeni is the context in which it is necessary to examine the critical 'soft-ware' issues about willingness to pay, affordability and cost recovery as well as maintenance and management. (Marcus et al:1997:20)

Government policy is committed to recovering the costs of operating, maintaining and replacing water and sanitation systems from consumers. The Water Supply and Sanitation White Paper (1994:19) advises that the South African Government's policy is for services to be self-financing at a local and regional level. The question of cost recovery is therefore crucial to the successful long-term provision of waterborne sanitation to towns like Ekuvukeni. The only exception to the government's policy is that, where poor communities are not able to afford basic services, the government may subsidise the cost of construction of basic minimum services but not the operation, maintenance or replacement costs. This will require a substantial revision of present policy since government grants or subsidies have been given in the water sector for many years.

Rogerson advises (1996:373) that the question of cost-recovery is a highly sensitive and controversial matter particularly against the background of a recent lengthy culture of township rent and service boycotts as a political strategy and of the launching of the Masakhane campaign to reverse this culture of non-payment. He goes on to say that at the heart of local debates concerning cost-recovery is an understanding of the ability and willingness of consumers to pay or contribute towards improved water/sanitation services.

International and South African experience has shown that insufficient information about willingness to pay and affordability, in the conceptual and planning stages of sanitation projects, has resulted in a number of costly failures.

### 3.1 INTERNATIONAL EXPERIENCE WITH COST RECOVERY

The International Drinking Water Supply and Sanitation Decade was characterised by sustained efforts on the part of communities, governments and several international development agencies to expand water supply and sanitation facilities particularly to the poorest populations in the developing world. However, Cairncross (1992:1) suggests that some of the more optimistic Decade targets have not been achieved and much is to be done before safe drinking water and sanitation are available to all. He goes on to suggest that, perhaps the principal lesson of the Decade is that, continuing progress and success hinge upon consumer demand and that the first step in that response is to understand consumer willingness to pay.

Whittington et al (1993:733) argue that in 'traditional sanitation planning', piped sewerage is usually selected as the technology of choice, and the focus of planning is largely on 'supply side' issues such as estimating the costs of constructing and operating the proposed system. These authors continue to say that little attention is paid to consumer demand for sanitation. They say that it is typically assumed that either everyone will want to connect to the sewerage system at whatever price is charged or, public health benefits are so important to the community and the service fee will be so heavily subsidised that no one will have reason not to connect. The result is that the present planning systems for sanitation in many areas of the developing world has produced the "construction of numerous systems that people cannot afford to connect to and are thus not being used". This argument is important in relation to Ekuvukeni because waterborne sanitation for the town was conceived and designed during the mid to late 1980s when the government provided grants or subsidies for water and sanitation although, the imperatives which determined government decisions were unpredictable and lacked direction. However, one of the policy principles of the present government is that "the user pays" so communities will be expected to pay for their own operation, maintenance or replacement costs.

International experience has shown that water and sanitation projects in the developing world have not usually been financial and social success-stories. One World Bank research study concluded that across the developing world “the practice of sanitation planning has become a kind of routine cookbook exercise that is out of touch with the realities that massive subsidies are unavailable and that the needs of the poor are not being met” (Whittington et al:1992:2). Briscoe et al (1990:116) agree that commonly, “the improved systems” often do not function and estimated that one in four systems is not working at any one time, and that the number of systems being abandoned is approximately equal to the number of systems being commissioned. Whittington et al (1989a:1) suggest that water-supply and sanitation projects commonly fail to reach their anticipated goals for a variety of reasons. These schemes often fail to achieve the goals set for the number of households to be connected to the system and the proportion of costs recovered. The gap between expectations and accomplishments is often great. One of the key factors behind these shortfalls is the “lack of adequate data on household demand”.

Whittington et al (1990a:293) suggest that the poor record of water and sanitation projects in developing countries is the product of a complex interaction of factors. However, a major impediment to improved performance is inadequate information on the responses of customers to new service options. They also suggest (1992:3) that new planning procedures are required “that consider the demands of the beneficiaries”.

Rogerson therefore suggests (1996:375) that, from the lessons and experience gained from water and sanitation projects implemented in the developing world over the past two decades, it is clear that a strong case exists for understanding and estimating user willingness to pay. Project planning based on guesses about consumer preferences has often led to costly failures.

### 3.2 SOUTH AFRICAN EXPERIENCE WITH COST RECOVERY

In 1993 the Water Research Commission (WRC) undertook an evaluation of the various types of sanitation systems that are commonly in use in South Africa. The key findings from this evaluation in relation to waterborne sanitation and cost recovery support general international experience. The WRC found that (WRC Summary Report:1993:29) “(I)t is frequently the case that insufficient resources are committed to the operation and maintenance of the sewer reticulation system, resulting in the deterioration of the capital asset and increased maintenance requirements and costs” and “(T)he resource constraints can be related to the poor economic position of the residents”.

A case study of the Mdantsane sewer reticulation system was carried out as part of the WRC evaluation. Mdantsane is a town in the Ciskei which, as with Ekuvukeni, is typical of a town, artificially created by apartheid away from any economic centres. The purpose of the study was to illustrate the problems that can typically be experienced in a context of significant resource constraints. The Mdantsane case study found the basic design of the waterborne sanitation system to be sound however, numerous problems were experienced in effectively operating and maintaining the system. The Mdantsane case study found (WRC Summary Report:1993:30) that:

“Resource constraints formed a common thread linking the causes of the failures and the poor economic position of the residents meant that many of the residents did not use toilet paper resulting in high loads of newspapers, rags, stones and other materials being introduced into the system”. “(T)he poverty of the residents, as well as possible political factors, meant that the Ciskei government was not able to recoup the operation and maintenance costs from the community, with cost recovery levels at 50%”.

could present  
a problem  
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system

↓  
Dewald's system  
do it need to  
collect this  
money

“A real constraint on the money available to spend on system maintenance existed and it is possible that maintenance expenditure was only a third of what it should be. This meant that maintenance was historically reactive, leading to a deterioration of the capital asset and increased maintenance requirements and costs. The WRC evaluation concludes that full waterborne sanitation systems should only be installed where residents are able to afford the full maintenance and operation costs of the system”.

The government recognises the risks in providing waterborne sanitation to towns like Ekuvukeni. The White Paper (1994:16) states that “the immediate priority is to provide sanitation services to all which meet basic health and functional requirements including the protection of the quality of both surface and underground water”. It recognises that “higher levels of service will only be achievable if incomes in poor communities rise substantially” and that “conventional waterborne sanitation is in most cases not a realistic, viable and achievable minimum service”. The government also finds the increase in inadequately designed or operated waterborne sewerage systems disturbing, where the impact of failure on the health of the community and the pollution of the environment is extremely serious.

### **3.3 WILLINGNESS AND ABILITY TO PAY**

Rogerson (1996:374) suggests that international experience underscores the fact that there are obvious dangers in designing water and sanitation systems without reasonable information on what services people want and for what they are willing to pay. He suggests that one step in planning these projects is to determine the percentage of household income that residents are able and willing to spend to get connected to the system and on subsequent commodity charges. He also observes that, a reasonable estimate of this percentage is necessary in order to avoid either over or under building the physical works or setting the tariffs too high or too low. However, there are very few empirical studies that have explored the level of household income or expenditures that households will dedicate to improved services and the ongoing volumetric charges. Instead, planning is undertaken on the basis of general sets of assumptions made about the population to be served and per capita consumption rates. Tariffs to be charged are calculated so that they cover the necessary operating, maintenance and percentage of capital costs. Seldom is any consideration given to whether tariffs reflect the general community’s willingness to spend.



In sanitation planning, the general rule of thumb is that, if the monthly charges are less than 3% of household income, it is often assumed that the household has the ability to pay for the improved service. However, this simplistic assumption increasingly is being called into question and evidence is accumulating to show that the traditional kind of master planning exercise is not a productive way to analyse urban sanitation problems or to plan for improvements. An important research challenge is “to identify, under a range of socio-economic and environmental conditions, the level of services that people want and for which they are willing to pay”. ( Rogerson:1996:374)

The 1997 Ekuvukeni socio-economic and sanitation survey was partly to address the cost recovery issues raised by the new government in the light of a drawn out engagement with the previous government over a sanitation system which is acceptable and affordable to Ekuvukeni residents. It aimed to provide an understanding of whether the community is in a position to afford waterborne sanitation and to take responsibility for its operation, given its present socio-economic and institutional circumstances.

The study found that almost all (93%) of respondents are willing to pay a service fee. Most are aware that this fee will pay for the operation, maintenance and replacement of the bulk infrastructure. They also know that the service fee will not pay for operation, maintenance and replacement costs on their own properties (in-door operation, maintenance and replacement) and that they will also have to pay for this themselves. (Marcus et al:1997:19)

Although the vast majority of households indicated their willingness to pay, the study found that there has been a history of rent and service boycotts in Ekuvukeni. It was reported, by key informants and focus groups that people refuse to pay for services which they consider to be inadequate. “We will not pay for nothing - for services that are not rendered”. (Key informant). Discussions with focus groups revealed knowledge of the Masakhane Campaign to be patchy. There is an awareness of and support for Masakhane among some sectors of the community. “Masakhane seeks to promote the payment of service charges and needs our full support because it is driving the continuity and improvement of services” (Youth, focus group). However, among other sectors there is

improvement of services” (Youth, focus group). However, among other sectors there is not much awareness for example, only one person in one of the women’s focus groups knew anything about Masakhane. The study found that the way an improved sanitation system is managed and controlled will influence the extent to which people are willing to pay for and assist in maintaining the system. “If the services are good the people will try to pay the tariffs but, they will not be happy to pay for services that are not rendered”. (Key informant)

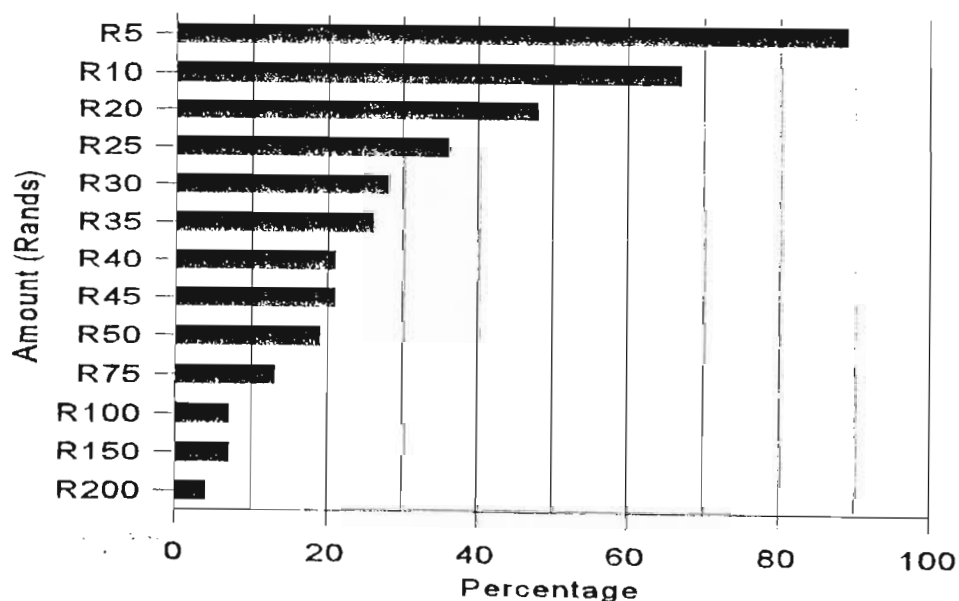
Using contingent evaluation, the study sought to assess willingness to pay for waterborne sanitation at Ekuvukeni. As shown in table 1 on the next page, respondents were asked how much they could afford to pay for sanitation each month, taking into account all other expenses. This question took the form of a bidding system covering thirteen amounts ranging from R5 to R200, in order to provide depth and range to the respondent’s estimates. Contingent evaluation studies are household surveys in which a member of a household is asked a series of structured questions designed to determine the maximum amount of money the household is willing to pay for a good or service. An essential aspect of the method is the use of bidding games. (Rogerson:1996:377)

Figure 2 on the next page shows the responses to this question. These results showed that households are acutely aware of the limits of their income and what they felt they could set aside for sanitation. The majority (89%) said they could afford R5 per month. 67% said they could afford R10 per month. At a monthly rate of R20, just over half of the respondents said that they would not be able to afford the service charge, and at R25, two thirds said that they could not pay. The study’s results suggest a need to distinguish between people’s willingness to pay and their ability to pay and that in the case of Ekuvukeni affordability rather than willingness is the limiting factor.

**Table 1:** Question 414 from the 1997 Ekuvukeni Socio-Economic and Sanitation Survey which aimed to assess willingness to pay using contingent evaluation.

Keeping in mind all the costs you have, as well as the present amount you pay for water, lets work out a rate that you think you could afford to keep the sewerage system going. I am going to give you a number of choices and you should answer yes or no to each amount. Each month could you afford to pay:	Yes	No
R200	1	2
R5	1	2
R150	1	2
R10	1	2
R100	1	2
R20	1	2
R75	1	2
R25	1	2
R50	1	2
R30	1	2
R45	1	2
R35	1	2
R40	1	2

**Figure 2:** Respondent's Perceptions of an Affordable Monthly Sanitation Fee



The study juxtaposed perceived affordability against monthly household income and found that, 45% of respondents who said they were willing to pay R10 a month for sanitation service fees came from the poorest majority of households whose monthly income is R500 or less a month. At R20, the projected participation rate of the poorest majority drops to 40% and at R25 it drops to 30%.

Rogerson (1996:377) advises that until the late 1980s researchers generally counselled against the use of contingent valuation studies. Their main reasons were, firstly, the possibility of hypothetical bias as a result of an individual's inability to understand or correctly perceive the characteristics of the service being described by the interviewer. Secondly, strategic bias as a result of an individual trying to influence an investment or policy decision by not answering the interviewer's question truthfully. Finally, compliance bias as a result of respondents giving answers to try and please the interviewer. Since the late 1980s contingent valuation has experienced a revival mainly because significant conceptual and empirical advances have overcome the potential pitfalls. It is now generally acknowledged that the major sources of bias can be addressed.

It is difficult to determine the amount of bias in the responses to this study's question on willingness to pay. Firstly, the vast majority of respondents seemed to understand the characteristics of the service being described in that they understood the concept of a service fee for waterborne sanitation. Secondly, the question was structured so as to minimise strategic or compliance biased answers by encouraging respondents to provide a definitive answer to each of the thirteen amounts thereby leading them to indicate a maximum amount without this being expressed as the purpose of the question.

A previous, more limited study of the Ekuvukeni population conducted as part of the Ekuvukeni IDF produced similar responses on willingness to pay. This study found that about 45% of respondents were willing to pay a sanitation service fee of between R6 and R10, 30% between R11 and R20 and 10% between R21 and R50. More importantly a 1996 business plan for the Improvement and Management of Sanitation Services for Ekuvukeni had already estimated that a sanitation service fee of about R8.40 per person (as

distinct from household) per month would be needed. (Ekuvukeni IDF:1996:Document 1:42). It is not known to what extent the households surveyed already had the figure of R8.40 in mind when answering both the 1997 study and the previous study and therefore to what extent there was strategic and/or compliance bias.

However, a sanitation fee of about R8 per person (as distinct from per household) would translate to about R45 per household (using the average household size of five people) which would mean that, according to Figure 3, 80% or more of people at Ekuvukeni would not be able to afford waterborne sanitation. A sanitation fee of R8 per adult (as distinct from per person) would translate to about R16 to R25 per household (using the average number of two to three adults per household) which would mean that, according to Figure 3, 60% to 70% of people would not be able to afford waterborne sanitation. The WRC evaluation (summary report:1993:46) found that operation and maintenance costs for waterborne sanitation ranged from about R10 to R45 or an average of about R25 per household per month at 1991 prices. In the case of Ekuvukeni, Marcus et al (1997:14) found that, respondents' perceptions of the affordability of waterborne sanitation require that a monthly sanitation service fee be kept at R10 or below in order for the majority of households to be able to afford the system.

However, the responses of key informants and focus group sessions cast some doubt as to the ability of Ekuvukeni households to afford a sanitation fee of even R10 a month. Comments included "I am a school teacher and we have cases where people are failing to pay even school fees of R12 per year". (Male participant, focus group) "Some people are not paying for their services because they cannot afford to pay, they cannot even afford to feed themselves" (Male participant, focus group).

WRC Working Paper:B1 (1990:9) reports that in relation to the Mdantsane waterborne system, over a six month period between June and December 1991, an average of ten blockages were reported per day. 69% of these blockages were in the street reticulation and the other 31% were domestic blockages on people's properties. It must be concluded from this that, there must have been regular blockages affecting entire sections of the town.

Therefore, in situations similar to Mdantsane or Ekuvukeni there are likely to be regular and costly break downs of the system. As a result, operation and maintenance is not routine as it would be in an economically well located area. It is difficult to envisage the people of Ekuvukeni being able to cover the cost of regular breakdowns in the system over and above routine operation and maintenance.

This study's results support international experience that it is no use making simplistic assumptions about willingness and ability to pay. Clearly, accurate information is needed because whether the service fee is affordable for the majority of the poor depends on the level at which it is set. The higher the service fee, the greater the proportion of households who will not be able to pay for the service. If the objective is to ensure that as many people as possible are able to pay, then it is necessary to set the fee at a rate which is affordable to the poorest and largest section of the community. This has implications for cost recovery versus subsidisation of water and sanitation. If the government's policy is to move away from subsidisation to cost recovery then it needs to be aware that the majority of households in Ekuvukeni and similar towns will not be able to afford waterborne sanitation and therefore this system is not appropriate.

The study found that in Ekuvukeni there is a sense that there are extremely poor households. There are people who are not paying for the services they currently receive. About half the respondents believe that there are people in the community that would not be able to pay the highest amount that they are willing to pay. There was some uncertainty as to the reasons why people may not be able to afford a service fee. Mostly, it was felt that the reasons lay in extreme poverty, grandparents who looked after grandchildren with absent parents, illness and the absence of any money source. (Marcus et al:1997:15)

Ekuvukeni seems to be a classic case of conventional sanitation planning 'bad practice' where in the late 1980s waterborne sanitation and flush toilets were selected as the technology of choice. It was assumed that everyone would want to connect to a waterborne sanitation system at whatever price is charged and that the system would be subsidised to the extent that no one would have reason not to connect.

The study found that although clearly, waterborne sanitation was the preferred choice of the Ekuvukeni residents, nearly half (45%) of respondents felt that there might be some disadvantages in the system given their own economic and household circumstances. They felt it would be difficult for their households to afford to buy the hardware for the system - toilets, taps, baths, basins and pipes. They felt they could not afford to pay for a plumber when needed, nor could they afford toilet paper and cleaning material. They also felt that they could not afford the connection between the house and the sewer. However, focus group sessions indicated that people were open to using their housing subsidies<sup>6</sup> for connections and hardware if these were forthcoming but, people had no plan on how to meet recurrent operation, maintenance and replacement costs. In addition a significant number (about 20%) were uncertain about most of the establishment and maintenance cost issues, suggesting that they had not been exposed to these implications and therefore had not anticipated or given them any thought. (Marcus et al:1997:13-14)

The study found that the strong commitment of Ekuvukeni households to waterborne sanitation translated into a general willingness to pay for its operational and maintenance costs. However, willingness to pay for the service depends, significantly, upon whether it is affordable or not. (Marcus et al:1997:19)

It is important to learn from international and South African experience that time needs to be spent, in the conceptual and planning phases of water and sanitation projects, on the critical soft-ware issues in order to avoid the costly failures that have so far been so common. The WRC:Working Paper A4 (1993:6) suggests that with an estimated 21

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<sup>6</sup> Housing subsidies can be applied for from the government to help people buy, build or improve their own homes. To qualify for a subsidy the applicant(s) must:

- have a total household income of R3,500 or less per month;
- be a first time buyer;
- not have already been given a government housing subsidy;
- be single with dependents, married or have a long term partner
- be a citizen of South Africa or a permanent resident;
- be twenty one years or older or married in terms of civil law or customary law.

Levels of subsidy are linked to total monthly household income as follows:

- R0 to R800 per month qualify for a subsidy of R15,000
- R801 to R1,500 per month qualify for a subsidy of R12,000
- R1,501 to R2,500 per month qualify for a subsidy of R9,500
- R2,501 to R3,500 per month qualify for a subsidy of R5,000

million South Africans lacking adequate sanitation the desire for conventional waterborne sanitation will remain an unreal dream for many. It goes on to say that in this context it should be noted that conventional waterborne sanitation was designed for both maximum user convenience and health. Health benefits take precedence over convenience in a poor developing country, and can be fully achieved by sanitation technologies that are much less costly than conventional waterborne sanitation.



## CHAPTER 4: SANITATION AND QUALITY OF LIFE AT EKUVUKENI

The study found the issues surrounding sanitation at Ekuvukeni to be extremely complex. At a superficial level, dislike of the bucket sanitation system is manifested in physical revulsion and general rejection of this system while at the same time waterborne sanitation promises to be everything that the bucket system is not. It is at this level that sanitation is perceived to impact on “quality of life”. However, at a more fundamental level, the issues surrounding sanitation are highly political. Furthermore, the problems resulting in the physical revulsion of this system are mainly caused by structural problems within the organisations responsible for management, operation and maintenance. It is therefore more useful to analyse the issues and problems around the replacement of bucket sanitation with waterborne sanitation by focusing directly on the political and structural issues rather than the broader and more difficult to define concept - “quality of life”. However, it is necessary to investigate the concept “quality of life”, as it features prominently in people’s perceptions of sanitation and development.

### 4.1 THE BUCKET SANITATION SYSTEM

There is no doubt that the bucket sanitation system is perceived by the people of Ekuvukeni as having a negative impact on their ‘quality of life’. Marcus et al asked the key informants and focus groups to describe the good and bad things about living in Ekuvukeni. The usual response was along the lines that “(T)here is more bad than good but, the sanitation is the worst”. (Male participant, focus group). They generally had long lists of things that they did not like about living in Ekuvukeni. These lists ranged from lack of employment and income generating opportunities to security problems and a lack of and generally poor quality infrastructure and facilities. However, dislike of the bucket sanitation system was very strong and almost universal. While Ekuvukeni is not alone among its neighbouring sites in having to depend on the bucket system<sup>7</sup>, residents have watched as sanitation services in other surrounding settlements have been improved.

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<sup>7</sup> The bucket system is also used at nearby Limelhill. VIPs have been installed in the towns of Nazareth, Somhoek and Waayhoek. Ezakheni, a proclaimed township, has a waterborne sanitation system (Integrated Planning Services:1996:10).

The study found about 96% of households in Ekuvukeni to be dependent on bucket sanitation at the time of the household survey. They also found dislike of the bucket system to be as widespread as its use. The overwhelming majority of households surveyed (93%) were very dissatisfied with the bucket system. They considered the bucket system to be unhygienic (85%), unsafe (84%) and off-putting (78%). Ekuvukeni residents find it smelly, unsightly and socially unacceptable. They believe that it discourages non-residents from visiting, contributes to disease and generally negatively affects their well being. They also regard the bucket system as impractical and not easy to use. (Marcus et al:1997:13) For example they say that “(E)ven if you try and maintain your own bucket, you find that your neighbour is not doing the same thing and this is right close by. Flies visit the bucket and then visit you while you are eating. In short, this system is unhealthy and smells”. (Male participant, focus group)

Key informants and focus groups sessions explained that the bucket system is inconvenient and a source of pollution. Full buckets are supposed to be removed for emptying and cleaning twice a week by the KZNPA. However, “(S)ometimes buckets are not removed for two to three weeks. It is worst for big families and over weekends and holidays when staff do not work”. (Key informants) “Sometimes we find that people opt to go to their gardens, the veld or the river to empty their buckets. It is a source of pollution”. (Female youth participant, focus group). “Many try to avoid using the system by eating and drinking less” (Key informant). “Dogs knock the buckets over, messing the toilet area and eating the contents”. (Male participant, focus group). Employment on the bucket system is undesirable and a serious health hazard. Sanitation workers are reported, by the clinic sister, to be very sickly and susceptible to disease, which is not surprising since they were observed handling full buckets with no lids and without even elementary protective clothing, like gloves. The fact that nearly half the households surveyed (47% ) thought that the system was cheap did not reduce the intensity of their dislike for it.

The Water Supply and Sanitation White Paper (1994:16) recognises that bucket sanitation is inadequate from both a health perspective and in terms of community acceptability. It states that these systems “should be phased out over a period of five years throughout the country”.

#### **4.2 THE PROMISE OF WATERBORNE SANITATION**

Flush toilets and waterborne sanitation seem to be symbolic of a better future, promising everything that the bucket sanitation is not - something that “does not smell, is healthy, hygienic, clean, safe, easy to use and we are not going to have so many flies and besides, faeces are not nice to look at” (Key informant). The study found that the vast majority of the Ekuvukeni households surveyed (95%) preferred flush toilets over other sanitation systems such as VIP.

In terms of development, the Ekuvukeni IDF (Document2:1996:2:34) states that waterborne sanitation has been identified as the priority issue for Ekuvukeni. While the Business Plan for the improvement and management of sanitation services for Ekuvukeni (1996:9) says that the poor quality of the existing sanitation facilities in the town has been a factor in the lack of community involvement and active co-operation with local authorities in the past. It goes on to say that participation in the sanitation upgrading and rehabilitation project will lead to stronger community links and better co-operation between the community, government and other role players. Furthermore, the waterborne sanitation project is seen as an essential and key element of the development framework of the town. The comments made by key informants and focus groups also indicated that the bucket sanitation system is perceived as discouraging people from visiting and investing in Ekuvukeni while waterborne sanitation is perceived as a catalyst which will help kick start development.

The ELDC, composed of community members to represent community interests in all matters related to the development of Ekuvukeni, formulated the following vision for Ekuvukeni: “A place vibrant with activity, a place that people feel proud to belong to, where everybody has a home with water, electricity, flushing toilets and tarred roads, where

people are able to earn a decent living and have access to sports, social and recreation activities. A place where youngsters could study, engage in sport and recreation without concern for politics or fear for their safety and where pensioners could collect their pensions and walk the streets without fear of being mugged. A place that's pleasing to look at and where natural resources are protected and properly used and where we understand and are in control of our collective destiny". (Ekuvukeni IDF: Document 2:3)

Proposals to install waterborne sanitation at Ekuvukeni are not new and it is clear that the people of Ekuvukeni have been anticipating waterborne sanitation for some time. In 1986 a company of consulting engineers was appointed by the then Department of Development Aid to undertake a preliminary investigation of the sewerage, water reticulation and streets of Ekuvukeni.

Two forms of Pit Latrine, the Ventilated Improved Pit (VIP) and the Ventilated Improved Double Pit (VIDP) were examined and not recommended because they were not able to accommodate liquid waste and it was considered that some areas of the town, where the water table was close to surface, would be unsuitable for their installation. It was also believed that they were not likely to be viewed by the residents as a significant improvement. Pour Flush Toilets, Aqua Privy and Septic Tank Systems were considered but, not recommended as the installation of soakaways in high density areas was not recommended and it would not have been possible to install these systems in areas with a high water table. However, it was noted that any of these three systems could be upgraded to full waterborne sanitation. Waterborne sewage was considered and recommended as the most effective and most acceptable form of sewage disposal available. Waterborne sewage was also recommended on cost grounds as the portion of costs borne by the household was considered to be lower than any of the other systems. The initial cost of construction of the reticulation was considered to be similar to the costs of the installation of VIDP or Pour Flush Toilets. It was also recommended that the provision of a full household connection and toilet should not be considered as part of the reticulation installation and that the local authority provide these. (Watermeyer, Legge, Piesold & Uhlmann: 1987:6.16)

It is doubtful that the above arguments for the installation of waterborne sanitation at Ekuvukeni, were correct at the time that the recommendation was made and there is far less justification for the installation of waterborne sanitation at the present time. The findings of the 1993 WRC evaluation do not agree with the above findings that the portion of costs borne by the household for waterborne sanitation are lower than for any of the other systems. The WRC evaluation (summary report: 1993:46) found the average amount that a household would need to pay per annum for operation and maintenance of different sanitation systems to be about:

- R300 for waterborne sanitation;
- R270 for the bucket system;
- R100 for low volume flush, on-site anaerobic digester toilet (LOFLOS); and,
- R60 for VIP.

The clearly incorrect assessment of the affordability to households of waterborne sanitation as against other systems indicates a strong commercial motive in the initial recommendation. The WRC evaluation suggests that there is a lot more money to be made out of constructing waterborne systems than other sanitation systems. It found (summary report: 1993:46) the average capital costs per site, at 1991 prices, for the different systems to be:

- R3,700 for waterborne sanitation;
- R1,500 for VIP;
- R1,200 for LOFLOS; and,
- R600 for the bucket system.

The above figures also suggest that the initial recommendation was incorrect in its finding that the initial construction costs of the reticulation would be similar to the costs of installing VIDPs or Pour Flush Toilets.

Given the resource constraints and the competition for development funds in South Africa there is now even less justification on cost grounds for providing waterborne sanitation to Ekuvukeni.

In 1987 a loan was secured from the Development Bank of Southern Africa for a project to upgrade water reticulation, sewerage, streets and stormwater drainage in Ekuvukeni. However the sewerage component was revised from waterborne sanitation to VIPs. (Ekuvukeni Township Services Project Completion Report:1990:5). It was felt that the form of sewage disposal system selected should be closely related to the ability of the residents to pay for it and that the affordability and justification of a waterborne sewage system was not warranted. It was also believed that the replacement of the bucket sanitation system should be sufficiently flexible to provide for upgrading in the future and also to cater for residents who could afford to pay for sophisticated facilities immediately. It was therefore suggested that a lined and watertight VIDP would be the most suitable, the most versatile and the most easily upgraded. It was then recommended that VIDPs be installed free of charge, with the option of a block built shed or a septic tank on payment of an amount to cover the additional costs. (Kwazulu - Ekuvukeni, Town Services, Sewerage, Water Reticulation and Streets Supplementary Report:1987:10)

After the start of construction of the VIDPs, a community meeting in April 1989 strongly opposed this development and apparently made it clear that only waterborne sanitation would be acceptable. Many of the people at this meeting wanted the bucket system retained until such time as money was available to install waterborne sanitation. (Report on Public Meeting Held at Ekuvukeni on 23 April 1989) As a result of this opposition construction of the VIDPs was stopped. Furthermore, the majority of people at the April 1989 meeting said that the capital costs of a waterborne system would need to be borne by the government. It was then decided that upgrading of the bucket sanitation system should be put on hold until questions of local government systems, subsidisation levels, affordability and expectations had been addressed.

The installation of waterborne sanitation at Ekuvukeni has now been identified as a Presidential Lead Project. RDP funds have been granted to subsidise the cost of constructing a waterborne sanitation system at Ekuvukeni. The remainder of the funds to construct the infrastructure will come from the Department of Local Government and Housing as follows:

<b>RDP Project</b>	<b>RDP Funds</b>	<b>Counter funds Local Government &amp; Housing</b>	<b>Total</b>
726 a) Sewage Works	R2.6 million	R3 million	R5.6 million
726 b) Sewers	R4.7 million	R3 million	R7.7 million
<b>Total</b>	<b>R7.3 million</b>	<b>R6 million</b>	<b>R13.3 million</b>

A further about R28 million or R15,000 per household has been granted to Ekuvukeni by the Department of Local Government and Housing in the form of housing subsidies. This means that the maximum subsidy has been granted to those households that qualify for a subsidy. Part of the subsidy (R3,000) can be used by each household to upgrade the sanitation facilities on their premises - purchasing and installing pipes and toilets etc. as well as funding the connection to the sewer mains. (Pers. comm. Vusi Mphembu, Dept of Local Government and Housing, Pietermaritzburg).

#### **4.3 DESCRIPTION OF THE WATERBORNE SANITATION SYSTEM PLANNED FOR EKUVUKENI**

The Business Plan for the Improvement and Management of Sanitation Services for Ekuvukeni (1996:5) reports that Ekuvukeni receives a bulk water supply through the Emnambithi Regional Water Scheme which is operated by the Thukela Joint Services Board. A pumping scheme is in operation to supply potable water to Ekuvukeni from the Olifantskop Dam and Treatment works on the Sundays River. A water reticulation network has been provided throughout the town with standpipes placed at intervals in the streets. Plans are currently in place to increase the quantity of potable water to the town for domestic purposes. However, the only means available for the removal of liquid waste from the houses is via the open stormwater drainage system or the nightsoil buckets which are already overloaded. Therefore, mainly for health reasons, a sewer system is considered necessary to improve the removal of liquid and human wastes from residential properties.

It has been decided to install a reticulated sewerage system in Ekuvukeni. The system will consist of sewer mains with a minimum diameter of 160 mm and a 110 mm connection to each residential site. One pump station will be needed to provide the service to the most easterly sections of the town. The existing treatment works, which is in urgent need of rehabilitation, is based on the use of two settling ponds, one of which has mechanical aeration facilities. Chlorination facilities are installed and sludge drying beds are available. An electricity supply is available to drive the pumps. A new works has been designed to cater for the higher flows and lower concentrations that will result from changing from nightsoil to waterborne sewage. The existing ponds will be used as sludge lagoons. (Business Plan:1996:5)

#### **4.4 QUALITY OF LIFE**

Returning to the issues around quality of life, so often used in the development context. The initial development objective for the 1987 Ekuvukeni Township Services Project stated as its purpose “(T)o stimulate economic activities in the area and enhance the ‘quality of life’ in the Ekuvukeni Township by upgrading the existing township services and providing job opportunities through labour based construction”. (Ekuvukeni Township Services Project Completion Report:1990: Annexure A).

The study found that perceptions about ‘quality of life’ in relation to sanitation at Ekuvukeni seem to revolve around the degrading and physically repulsive aspects of the bucket sanitation system and the idealistic belief that waterborne sanitation will radically improve quality of life. It found these to be the main justifications for replacing the bucket system with waterborne sanitation. However, these are only the superficial issues or the manifestation of the more fundamental political and structural issues which are discussed later on.

Ferguson (1990:252) argues that, development interventions which aim to address one or two development problems, instead of the fundamental causes of these problems, are likely to fail in their stated aims although they may have other concrete results. He says that (1990:20) “planned interventions may produce unintended outcomes that end up, all the



same, incorporated into anonymous constellations of control” and “(T)he most important political effects of a planned intervention may occur unconsciously, behind the backs or against the will of the planners”. It can therefore be argued that, if the perceived “quality of life’ issues surrounding sanitation at Ekvukeni are only symptoms of more fundamental political and structural issues then there would be considerable risk in implementing a waterborne sanitation project aimed at addressing perceived ‘quality of life’ issues.

In any event, “quality of life” is a nebulous concept which Moller&Schlemmer (1983:229) suggest is much more difficult to define than it is to measure. For example, they suggest that, in one sense, quality of life is self explanatory, as are its synonyms - life satisfaction, happiness, need satisfaction or social well-being. However, one immediately recognises the possibility for contradictory elements. For example, ordinary people will talk of contented and happy people of poor and barely adequate means in contrast to the possibility of a rich but stressed and worried executive. Quality of life is certainly not a phenomenon based on consistent linear progressions up all of its many dimensions. There is also little agreement on absolutes or zero points. Moller (1992:102) also suggests that quality of life researchers do not know exactly how people arrive at an overall evaluation of their personal state of affairs. The most common understanding is that life satisfaction is the sum of people’s satisfactions with various aspects of their lives such as family, income, job, school, housing and local and national government.

Mukherjee (1989:23) suggests that the parameters of quality of life are unspecified and that research is conducted on various aspects of quality of life while recognising that quality of life includes an infinite field of concerns. “Therefore, quality of life is treated as an all-inclusive notion of life and living”. Mukherjee also says that quality of life has been made more visible by focusing enquiries on people’s living conditions but, that this has still not reduced its limits. This is noticeable from labels used to define people’s living conditions such as the standard, the level and the style of living. “These labels tend to follow a sequence and register new inputs for the appreciation of the quality of life from an exclusively quantitative and assumed objective base to increasingly complex blend of quantity and quality”.

Shumaker et al (1990) defined quality of life as 'individuals' overall satisfaction with life and their general sense of personal well-being. They propose that six dimensions determine a person's quality of life, the first four including cognitive, physical and emotional functioning. Personal productivity or the degree to which a person is able to contribute to society (e.g. through a meaningful paid or unpaid activity) is proposed as a fifth dimension. The final dimension is intimacy, including sexual functioning, but also the giving and receiving of a broad range of behaviours that underlie the presence of a strong relationship with significant others.

Moller and Schlemmer (1989:279) bemoaned the fact that the term "quality of life" has become such "a used and abused phrase" in South Africa. They believe that a wide spectrum of opinion agree that the uplifting of depressed standards of living and an improvement in the quality of life for South Africans is a matter of extreme urgency. However they said, that beyond a general statement of intent there seemed to be very little consensus on the practical implementation of a social policy programme which would achieve this goal. It was against this background that Moller&Schlemmer and various other South African academics, following the lead of academics abroad, sought to develop a practical measure of quality of life. The aim was to develop a measure which would capture the essence of quality of life applicable to South Africans living in a wide range of different circumstances.

The research instrument developed by Moller&Schlemmer, for use nation-wide, included the following types of subjective and objective social indicators:

*Subjective social indicators*

- Overall subjective satisfaction and happiness;
- Concern-specific satisfaction items; and,
- Mood and affect indicators.

*Objective social indicators*

- Assessments of gratification of basic needs and objective assessments of income, material possessions, savings capability, access to key goods and services, living conditions etc. (Moller&Schlemmer:1989:281)

More than two hundred social indicators were thoroughly tested before making a selection of thirty five covering general and specific quality of life satisfactions.

The South African instrument was based on the assumption that quality of life is additive or that overall or global well being can be disaggregated into its component parts or life domains. Then by implication, quality of life can be approximated as the sum of its component satisfactions. However, when the results of the nation wide test were analysed, a factor emerged which was dominantly composed of non-specific satisfaction items. This result suggests that overall well being is a perception which to a substantial degree stands apart from specific grievances or satisfactions in everyday life. Symbolic images of life and personal morale play a substantial part in delivering overall life satisfaction and quality of life is clearly much more than the sum total of specific satisfactions. The South African results questioned common assumptions that overall life satisfaction is the linear additive product of specific life domains. Furthermore, they suggested (1987:287) that perceived quality of life is a complex concept and it would be futile to attempt to reduce perceived well being to a single dimension.

Trend studies of quality of life conducted in 1983 and 1988 using Moller&Schlemmer's instrument (1992:101) showed that the perceived quality of life for black South Africans lagged far behind that of other sectors of South African society. Not only were the majority of black South Africans dissatisfied with their lives as a whole, they were also discontented with almost all aspects of their lives. Moller (1992:104) goes on to suggest that there is no hope for sustaining democracy without adequate levels of life satisfaction: democratic institutions would be likely to flounder with low levels of satisfaction and trust. Furthermore, she suggests that South Africa's democratic aspirations alone make a very convincing case for improving the equity of quality of life among its citizens.

The 1995 Key Indicators of Poverty in South Africa prepared by the Office of the President, supported Moller's findings and reported that nearly 95% of South Africa's poor are African. This poverty study confirmed the link between living standards and perceived quality of life. While almost three quarters of the poorest 20% of South African households were dissatisfied with living conditions, almost 70% of the richest 20% of households were satisfied. Key Indicators of Poverty (1995:17) lists lack of access to modern sanitation as an indicator of poverty and says that nearly 90% of the ultra poor in South Africa do not have access to modern sanitation.

It may therefore be useful or even essential to consider and monitor social indicators such as 'quality of life' on a macro or national scale in order to show the government where it needs to allocate scarce resources. For example, the African National Congress's (ANC) RDP Policy Framework Document (1994:15) has as one of its visions "to improve the quality of life of all South Africans, and in particular the most poor and marginalised sections of our communities". However, the term 'quality of life' is too nebulous and all encompassing to be useful in defining the problems and issues surrounding development at Ekuvukeni.

Clearly, as stated in Chapter 3, the process in upgrading sanitation at Ekuvukeni has been a classic case of conventional sanitation planning "bad practice". Not only have issues around affordability been inadequately addressed but, work with the community in unpacking the issues around development, which are discussed in Chapter 5, at Ekuvukeni in general and sanitation in particular have been inadequate and have therefore not been adequately incorporated into development. It seems that to cover all possibilities the term "quality of life" has been used. By defining Ekuvukeni's development problems, broadly, in terms of perceived 'quality of life' instead of specifically in terms of political and structural issues, solutions have been sought to improve perceived 'quality of life'. In Ekuvukeni's case the bucket system is perceived as the main factor impacting negatively on 'quality of life'. Therefore, solutions are sought to problems surrounding the bucket sanitation system instead of the more fundamental issues which would enable the people of Ekuvukeni to, as the Ekuvukeni ELDC puts it, "take control over their collective destiny".

The argument that sanitation problems are symptomatic of more fundamental problems at Ekuvukeni draws in Ferguson's argument about development interventions which aim to address one or two development problems, instead of the fundamental causes of these problems, being likely to fail. He goes on to say that (1990:20) "planned interventions may produce unintended outcomes that end up, all the same, incorporated into anonymous constellations of control".

## CHAPTER 5: POLITICAL AND STRUCTURAL ISSUES AROUND SANITATION AT EKUVUKENI

Ferguson argues (1990:256) that problems such as poverty, ill-health, and hunger are political and that (1990:279) since it is powerlessness that ultimately underlies these, the larger goal in tackling these sorts of problems ought to be empowerment. He believes that the task is not to eliminate one or two arbitrarily selected forms such as poverty, hunger or unacceptable sanitation systems but, to work to eliminate the conditions of possibility for all such forms of humiliation and degradation. This amounts to a political choice in favour of focusing broadly on empowerment, not narrowly on poverty. These sentiments have been expressed by the Ekuvukeni ELDC in their vision for Ekuvukeni when they said, “(W)e want to understand and be in control of our collective destiny”.

Ferguson (1990:87) also argues that the development conceptual apparatus<sup>8</sup> usually translates all ills and ailments into simple technical problems that constitute a suitable object for the apolitical, technical, ‘development’ intervention which ‘development’ agencies are in the business of making. He goes on to argue (1990:256) that “by uncompromisingly reducing poverty to a technical problem, and by promising technical solutions to the sufferings of powerlessness and oppressed people, the hegemonic problematic of “development” is the principal means through which the question of poverty is de-politicized in the world today”.

In the case of Ekuvukeni, the study found the main causes of physical revulsion with the bucket sanitation system to be structural rather than technical. It can also be argued that the complete rejection of the bucket sanitation system is political and largely relates to lack of empowerment stemming from the fact that the people of Ekuvukeni never had any say in the sanitation system that they were given and have had very little involvement in its

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<sup>8</sup> See Part 2 of Ferguson (1990:23) entitled “The ‘development’ apparatus”. This part of the book describes the discourse of the development industry in relation to a specific development project in Lesotho.

Ferguson (1990:3&6) lists 27 bilateral donors and 72 international agencies and non and quasi government organisations which were providing assistance to Lesotho between 1975-84.

management. There are also complex political issues surrounding the people of Ekuvukeni's desire for waterborne sanitation mainly arising from the debate concerning rural local government.

## 5.1 STRUCTURAL ISSUES

The study found that nearly all (96%) of the households surveyed thought that bucket sanitation system was run poorly or very badly. The main complaint was the infrequent and random removal of the buckets. (Marcus et al:1997:16) Collections are scheduled to occur twice a week but, according to residents, this is rarely the case. They say that, instead of being removed twice a week, buckets have sometimes not been removed for one or even two weeks and that the situation is worse over long weekends and holidays when the sanitation teams do not work. Furthermore delayed collection is a real problem for larger households who may fill a bucket overnight. People complained that having visitors or returning family members over the Christmas period creates problems because of the extra pressure this puts on the sanitation system. "Sometimes the people that are responsible for removing the buckets come, and sometimes they don't come for two weeks. They don't do their work properly. We often have to take the buckets and empty them in the field." (Female youth, focus group)

The study found that people also complain that the work is poorly supervised and the "bucket workers" are poorly motivated. They were reported to be drunk, rude and unpleasant. Wages are low, conditions are bad and labour relations are very poor. (Marcus et al:1997:16) During the period of the field work for the study no lids for the buckets were seen nor did any of the sanitation workers have protective clothing apart from overalls. The bucket workers were reported to suffer from bad health - this was confirmed by the sister at the clinic.

In addition to the above problems, the government official responsible for the day to day running of the bucket system reported that he often ran out of disinfectant and that he found obtaining materials such as replacement buckets, bucket lids or protective clothing a bureaucratic problem. He reported that one of his sanitation trucks had been out of order

for some time and so only one truck was in operation instead of two and that truck was operating with a team of six or seven labourers instead of fourteen as a number of workers were absent each day because of illness. Key informants reported that frustrations with delays in bucket collection have built up to the extent that crowds have trashed the offices of the township manager and KZNPA, Engineering Services offices, breaking windows and dumping the contents of buckets in the offices. Most of the people felt that the community had never had a say in the running of the bucket sanitation system and that the system had not been designed to be open to community needs. Apart from management problems, some of the infrastructure, particularly the water supply for the sewage treatment works and the existing sewage works are in urgent need of maintenance and rehabilitation.

All of the above indicates the root cause of most of the physical problems with the bucket system to be structural rather than technical. Although bucket sanitation is not acceptable, mainly for health reasons<sup>9</sup>, it can be argued that the cause of the complaints about bad smell, faeces not being nice to look and having to dig holes to empty the buckets in their gardens relate to fundamental structural problems within the organisations that are responsible for the bucket system.

WRC (Working Paper A4:49) suggests that it is possible to run an efficient and hygienic bucket sanitation. However, it goes on to say that supervision must be of high quality and the operation must adhere strictly to the standards set for the removal of buckets, transfer of faecal material, cleaning and disinfecting.

The WRC Working Paper A4 (1993:8) also advises that for sustainable successful operation of any sanitation system an adequate technological infrastructure must be available to keep the system running on a permanent basis. If this aspect is neglected and systems are provided which the community cannot afford or does not have the capacity to control then the cost of running the system will be a constant drain on the community's resources and the system will end up working spasmodically. Inability or lack of appreciation of the

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<sup>9</sup> It is very difficult to prevent flies from getting at the faeces and then entering people homes. It is also difficult to prevent children or pets from coming into direct contact with the faeces.



functions of the various units by the people can rapidly reduce the efficiency of the whole system to unacceptable levels. Indeed, the provision of a sanitation system beyond the technological competence of the community is largely a waste of money and effort.

## 5.2 POLITICAL ISSUES

In the early 1970s people were literally dumped in what is now Ekuvukeni. They were effectively disempowered in that they had no choice about their forced removal. They have also had little say in the infrastructure and services provided or in the general physical environment in and around the town. Furthermore, and most importantly, they have had little or no choice or say in the government and administration of the town. It seems that the bucket sanitation system and waterborne sanitation have become the symbols of discontent and a promise of a better future for Ekuvukeni.

It has been known since 1987 that waterborne sanitation is neither affordable nor justifiable at Ekuvukeni and this study confirmed this to be a correct assessment. This study found that there is even some doubt among the people of Ekuvukeni as to the suitability of this system. They found that a substantial number (45%) of the households surveyed believed that there might be disadvantages in the system given their own economic and household circumstances. There is also a minority who recognise that having more than one sanitation system in place may provide a solution to problems of affordability. (Marcus et al: 1997:13) Yet, attempts to install alternative sanitation systems have been strongly opposed and plans to install waterborne sanitation are now well advanced.

The results of this study indicate the impetus behind the push for waterborne sanitation to be based on political and idealistic motives rather than practical knowledge of the implications of having waterborne sanitation in terms of how the system works, affordability, management or maintenance. The study found that three quarters of the respondents surveyed had used a flush toilet while at somebody else's house, in town or at work but only 1% had ever had waterborne sanitation in their own home. A further 17% had either only seen but never used, or had never seen or used a flush toilet. Therefore, Ekuvukeni households are making judgements on what they would be able to afford as a

monthly sanitation fee and their capacity to manage and maintain such a system without much practical experience. (Marcus et al:1997:18) The study found this to be reinforced by the strong demand (79%), for information on and advice about how to manage and maintain the system in their own homes. (Marcus et al:1997:14)

However, the study found the Ekuvukeni residents' strong preference for waterborne sanitation to be intricately woven into the politics of the town. At one level it found that this preference is intimately linked to efforts to obtain elected primary local government in Ekuvukeni. At another level there is a desire to claim credit for having contributed to the development of Ekuvukeni by being instrumental in the implementation of a waterborne sanitation system. The perceived importance of waterborne sanitation to the people of Ekuvukeni is revealed in the IDF Document (1996:Vol 2:34) which identified waterborne sanitation as the top priority for the development of Ekuvukeni. Furthermore, at a national level, there is pressure to use funds granted under the RDP, within specified time limits.

It seems that initially, the strong desire for waterborne sanitation was motivated by the feeling that, until Ekuvukeni had waterborne sanitation it could not command true township status, like for example, its larger and more developed neighbour Ezakheni. "We believe that everyone is going to have waterborne sanitation like Ezakheni" (Male participant, focus group). "In the past the people have not been paying for services because they want the town to be given the due status it deserves. Sewage is one of the ways our area can be recognised as a township" (Key informant). There is also the perception that no one will take any notice of Ekuvukeni while they have the bucket system as it discourages people from visiting the town. "I have a friend who says that she will not visit me because of this bucket system" (Key informant). However, the study found that the strong preference for waterborne sanitation had been formalised in the sense that it is now intimately linked to efforts to persuade the government to approve a system of elected primary local government for Ekuvukeni.

As noted previously, Ekuvukeni is a proclaimed R293 town with a small administrative staff. In the past the land was owned by the SADT. In the R293 towns administration and service provision varied widely, but in all cases was undertaken on a "remote control" basis by provincial government. This resulted in a vacuum in effective government and a lack of local capacity for development or administration at a local level. In 1993-4 the SADT was disbanded and the town was included in the Ingonyama Trust as an ex-KwaZulu town. The Ingonyama Trust as owner of the land has delegated administrative powers as far as land is concerned to the new KwaZulu Natal Provincial Government. (IPS:1997:1)

However, under the new Constitution, primary local government is to be the agent responsible for the implementation of policy and the delivery of services at the local level. As yet it is not clear what form of local government will be applied to Ekuvukeni and at the moment there seems to be some confusion about the future of R293 towns. As noted in Chapter 1, provision for the administration of small towns in Natal was made in terms of the Development and Services Board Ordinance. Existing and proposed changes to the Development and Services Board Ordinance make provision for these towns to be included as either Development or Local Authority Areas subject to evaluation by the Department of Local Government and Housing and/or the Development and Services Board. However, there are indications that R293 towns will all eventually become local authorities in their own right but, many of these towns including Ekuvukeni, do not have the capacity to assume full Local Authority status at the moment. (IPS:1997:3)

An institution, which will absorb the Development and Services Board, is in the process of being established as part of the Department of Local Government and Housing, in order to administer towns until they have the capacity to assume full Local Authority status. While this institution is being established it is likely therefore, that Development Area status is the only option for R293 towns such as Ekuvukeni. During this interim period, the Development and Services Board or other authorities working through local development committees, will continue to assist Development Areas with their administrative functions. (IPS:1997:4)

IPS (1997:3) suggests that the move towards provision of services at Ekuvukeni and the complexities associated with the roles and responsibilities between province and the local township office shows that there is a need for elected primary local government in Ekuvukeni. Translation to Development Area or Local Authority status is dependent on an application being made to and successfully evaluated by the Department of Local Government and Housing. There is therefore the incentive to present Ekuvukeni in the best possible light to maximise the chances of such an application being successful. As noted in Chapter 4, the sanitation improvement project is believed to be key to the development of Ekuvukeni and therefore also instrumental in the process of applying to become a Development Area and eventually a Local Authority. Until an application has been successfully evaluated Ekuvukeni will continue to be administered by the province in consultation with the local township office. Once an application has been successfully evaluated and Ekuvukeni is established as a Development Area with the support of the Development and Services Board the following responsibilities would devolve to the local level:

- responsibility for the development and growth of the town following appropriate legislation for township establishment and administration;
- administration of the existing township and town lands;
- full participation in planning, constructing, operating and administering the proposed water and sewerage scheme;
- cost recovery for provision of services; and,
- transfer of current deed of grant title to freehold status for property holders.

Furthermore, the Minister may establish a Development Committee for any Development Area and shall make regulations for election to and rules of procedure for Development Committees. As noted in Chapter 4, Ekuvukeni currently has a Local Development Committee (ELDC) made up of 25 members, one from each ward. The ELDC is made up of most of the influential members of the Ekuvukeni community and also includes the three Councillors for Regional Council 4. Besides the ELDC there are other influential figures in the community such as the Township Manager, the Clinic Sister and Youth Group Leaders.

The study found there to be considerable intrigue, tension and power plays surrounding the current ELDC. For example, there is an opposition group that does not support the current ELDC. This group does not consider the ELDC to have been democratically elected. They consider the Councillors appointments to have been political and the election of some members of the ELDC to have been influenced by the Councillors and to be the same people that represented the community when the previous government was in power. They therefore, question the credibility of these people who they consider to have a very poor record in terms of transparency, accountability and developing Ekuvukeni. They feel that new people are needed on the ELDC and that they would not be able to support any structures set up to manage a waterborne sanitation system that they did not consider to be credible and truly representative of the community. The appointment of a Development Committee by the Minister, if Ekuvukeni became a development area, could intensify these tensions.

During discussions with key informants the study uncovered considerable tensions between local government authorities and some sectors of the community. Members of the ELDC reported that they were not being kept informed by the Township Manager, a provincial government employee, of the progress of Ekuvukeni's application for local government or progress towards implementation of waterborne sanitation and were suspicious that this was a move to take power away from the ELDC. They consider the Township Manager to be an outsider who does not really know what is going on in Ekuvukeni and does not communicate or consult sufficiently with the people. It can be argued that these tensions have been caused historically by the disempowerment and poor treatment of the people of Ekuvukeni by the government. As noted earlier the people of Ekuvukeni are very keen to have an elected primary local government. It is interesting to note that the bucket system has been the focus of the community's frustrations with the authorities in the past as mobs have trashed and emptied buckets full of faeces in the offices of the township manager and KZNPA.

On the other hand the ELDC and Township Manager are under pressure, from the community and particularly their critics, to justify their positions by showing concrete results in terms of the development of Ekuvukeni. Again, the sanitation improvement project is central. At the same time and over riding internal politics there is a time pressure because granting of RDP funds required that the money allocated to the Ekuvukeni sanitation improvement project be spent within specified time limits.

Returning to Ferguson, he contends that development problems are usually de-politicized through their translation into technical problems requiring technical solutions. His arguments are based around a large, foreign donor funded and implemented, integrated development project in the Lesotho Highlands. The aim of this project was “(T)o improve the ‘quality of life’ of the mountain people of the region” primarily by boosting agricultural production. (Ferguson:1990:219) He argues (1990:66) that fundamental development problems such as “structural unemployment, influx control, low wages, political subjugation by South Africa, parasitic bureaucratic elites and so on” were ignored. He goes on to say that the development apparatus usually translates political or structural issues which it is not set up or mandated to address into suitable technical problems which it is in the business of solving. In this case the impediments to development were translated into lack of roads and markets, lack of training and education, lack of agricultural inputs etc.

Reflecting on these arguments, in the context of Ekuvukeni, it seems that initially, the problems and issues around sanitation were considered to be technical requiring technical solutions. To wit: the bucket system is considered to be a technology which smells, is inconvenient and unhygienic etc.; waterborne sanitation was recommended to replace the bucket system, mainly on technological grounds as being most suited to the physical environment and the most effective and acceptable form of sewage disposal available; waterborne sanitation was also incorrectly recommended on cost grounds.



However, the political dynamics between Ferguson's argument and the situation at Ekuvukeni appear to be quite different. In Ferguson's example, the state is weak and a foreign agent comes in to assist the state address development problems, such as poverty, which are hindering development. In effect the foreign agent replaces the state by providing expertise and resources until the state is able to undertake these functions on its own. In this process the foreign agent takes control and conceives the development problems to suit its own policy and financial imperatives and translates political and structural problems which it is not mandated to deal with into the sorts of technical problems that it is in the business of solving. At Ekuvukeni, by contrast, the state has been all powerful to the extent that the people have been disempowered. During this time waterborne sanitation has become enmeshed in political and empowerment issues as well as the social fabric of Ekuvukeni to the extent that it is the people of Ekuvukeni that are determining the technology rather than the state or development planners. For reasons that need to be further researched, the state has not engaged Ekuvukeni over these issues but, has instead agreed to provide waterborne sanitation on the understanding that the system then becomes the responsibility of the people of Ekuvukeni. Part of the reason may lie in the state's financial, political and time imperatives to spend RDP funds without incurring long term financial commitments.

However, as noted in Chapter 4 in the section on quality of life, development interventions which aim to address one or two development problems, instead of the fundamental causes of these problems, are likely to fail in their stated aims. In this process they may end producing political side effects unconsciously, behind the backs or against the will of the planners which may be neither controllable nor desirable. At Ekuvukeni there are strong indications that the different power blocks are using the sanitation improvement project as a means to exert their influence. For example, they are saying that they would not be prepared to support a management structure which contained certain people and would therefore not be prepared to pay a service fee. This is extremely important because it has already been found that cost recovery is crucial to the sustainability of any future waterborne sanitation system. As will be shown in Chapter 6, the failure of waterborne sanitation systems has serious implications for the natural environment and health.

## CHAPTER 6: THE POTENTIAL ENVIRONMENTAL IMPACTS OF WATERBORNE SANITATION FAILURE

On the one hand, the perception is that waterborne sanitation has the potential to substantially improve the perceived 'quality of life' of the people of Ekuvukeni. On the other hand, the failure of a waterborne sanitation system would have serious negative consequences, particularly on the natural environment and the health of the people at Ekuvukeni. The seriousness of waterborne sanitation failure can be illustrated for example, in comparison to the failure of a drinking water supply. People can be supplied with drinking water from other sources such as water bowsers however, if people's toilets cease to function then there is often no other option but to use the natural environment. The WRC summary report (1993:44) says that sufficient evidence exists of waterborne sanitation system failures in South Africa to indicate that this is a serious problem. However, little research exists to give a quantitative estimate of the extent of the problem and offer solutions to it.

It has been argued that there are considerable and serious risks in providing waterborne sanitation to Ekuvukeni. Not only is it unlikely that a significant number of people will be able to afford such a system but, the fundamental issues and problems surrounding sanitation are political and structural, not technical. A circumstance reinforced by a preference for waterborne sanitation which is largely idealistic and not based on much practical experience of the technical solutions, will present a high risk of the project failing. The WRC summary report (1993:44) found that in comparison to other types of sanitation, full waterborne systems undoubtedly pose the most serious threat to the environment in the case of system failure. In all cases the failures give rise to significant point source pollution with high nutrient and microbial loadings posing a serious health hazard.

The WRC Working Paper A4 (1993:7) goes on to suggest that the fact that the sanitation system must be efficient in the health protection it provides does not imply that it needs to be sophisticated. Modern waterborne systems are both efficient and sophisticated but in a large measure their efficiency stems from their development within a specific systemic



environment. When transposed to a different systemic environment the system might function inadequately or collapse completely. Utilisation of the sanitation system is very strongly influenced by the habits acquired by the users in their previous environment. This applies particularly to people that have moved from rural areas. With them, it is indeed rare to find spontaneous objection to sanitary provisions as they have no criteria by which to judge sanitation. They have little knowledge of the causes of disease and in rural environments, the often dispersed situation results in sanitation being “naturally” adequate so that the problem is not forced upon their attention.

The 1993 WRC evaluation included a nation wide survey of problems related to waterborne sanitation systems. The results of this survey showed there to be major problems in relation to the operation and maintenance of these systems. The following key points which emerged are very relevant to Ekuvukeni given the resource constraints there.

- It is frequently the case that insufficient resources are committed to the operation and maintenance of sewer reticulation, resulting in a deterioration of the capital asset and increased maintenance requirements and costs.
- In many instances there is a shortage of skilled personnel which has a cumulative effect on maintenance planning with the same results as above.
- Systems are often not treated with adequate care by the users as the result of poverty or inadequate education as to the proper use of the system. The major factor here is the introduction of a substantial quantity of extraneous materials into the system resulting in more frequent, and sometimes excessive, numbers of blockages.
- There is pressure on design consultants and contractors to reduce system costs due to severe financial constraints. This sometimes results in less robust and/or poorly constructed systems. These factors aggravate the problems arising from system abuse.
- The major effect of inadequately operated and maintained reticulation systems is a high frequency of sewer blockages and spills causing raw sewage to flow into rivers, impoundment's and the sea. The potential negative health and environmental impacts arising from this are of great concern.

The WRC evaluation suggests that in the context of increasing resource constraints in the urban areas of South Africa, the above scenario is likely to repeat itself unless concerted steps are taken to combat the trends described. In general, failure of the waterborne sanitation system that is planned for Ekuvukeni could occur in three ways:

*a) Reticulation Failure*

The WRC Working Paper B5 (1993:16) found that reticulation failures occur mainly as a result of inadequate design, system ageing and manual intervention. Also, systems are not always maintained properly due to lack of operating and maintenance funds and there is often a shortage of capital to replace old reticulation systems. For example, the WRC case study of Mdantsane (referred to in Chapter 3) found the most significant problems with the Mdantsane waterborne sanitation system to be the numerous sewer blockages which occurred and the mechanical failures at the pumping stations and the older Mdantsane wastewater treatment works. During the period June to December 1991 a total of 1,907 blockages were reported, 69% of which were blockages in street reticulation and 31% of which were domestic blockages on residential properties. The materials causing blockages were mainly stones, rags, sand, tins and plastic bags. Bottles, car and bicycle parts and metal amongst other things also caused blockages. WRC Working Paper B1 (1993:9) goes on to suggest that in the context of ever increasing resource constraints, these problems are unlikely to decrease.

The WRC Working Paper B5 (1993:16) reports that reticulation failures can result in large amounts of raw sewage flowing down streets, cancelling out all the benefits of a waterborne system by giving rise to serious health risks and surface water contamination. WRC Working Paper B1 (1993:16) reports that a particularly serious case occurred in Mdantsane where total sewer blockage occurred in the main outfall sewer resulting in the direct overflow of sewage to the Tahsangani stream from 7,385 houses and a prison. The period of the blockage is not known but may have been in place for a year or more. These findings have serious implications for the implementation of waterborne sanitation system at Ekuvukeni.

### *b) Treatment works failure*

The WRC Working Paper B5 (1993:16) reports that treatment works fail as a result of one of the following:

- operational flows exceeding design capacity;
- inadequate maintenance;
- improper operation;
- improper design.

Treatment works failure can result in raw sewage running directly into water courses resulting in the pollution of the watercourses which receive the treated sewage and eventually the water catchments into which these watercourses flow. (WRC:Working Paper B5:1993:16) In the case of Ekuvukeni, treatment works failure would impact on the Wasbank River as well as its tributaries, minor water courses and drainage lines which form a system that would need to be protected.

### *c) Pump station failure*

Failure of the Pump station which is planned for the Ekuvukeni waterborne sanitation system would cut off the supply of water to the system and the system would break down.

WRC:Working Paper B5 (1993:3) advises that, in relation to the physical environment waterborne sanitation has the potential to impact on water, soil and air. It has the potential to impact on water in a quantitative way through increased water use and in a qualitative way on water and the soil through the passage of organisms and chemicals from the human body into the environment. It also has the potential to impact on the air in the form of odours and aerosols. Each of these is dealt with separately below.

## **6.1 WATER RELATED IMPACTS**

The water environment needs to be considered from the following two points of view:

- as an eco-system in its own right; and,
- as a resource which is used by man and which can be viewed in both quantitative and qualitative terms.

In the first case discharges of chemicals from sanitation systems may directly affect the natural functioning of the system. In the second, the effect is indirect as it is only once the water is used, or has a potential use, that any impact which sanitation may have is realised. This indirect effect may be transmitted onwards to soil in the case of irrigation water or to humans in the case of water for drinking.

In the case of Mdantsane, one of the major consequences of the high frequency of sewer blockages was the pollution of the Bridle Drift Dam, East London's major source of potable water.

### **6.1.1 IMPACT ON WATER BODIES AS ECOSYSTEMS**

The introduction of excess quantities of chemicals can disturb the natural functioning of the ecosystem contained within a water body. There are several ways in which this may happen and the processes by which it happens are complex.

#### *a) Organics*

A large component of human excreta is organic and if not properly treated it is likely that it will reach the water environment. Organics are then used as an energy source by bacteria which grow in the water. Excessive bacteria growth leads to a reduction in the dissolved oxygen content of the water to the point where other forms of aquatic life cannot survive. The natural life in the system therefore dies. In addition there is an associated human health impact through the transmission of organic micro-pollutants by water.

#### *b) Nutrients*

High nutrient levels, particularly nitrates and phosphates, also disturb the balance of water ecosystems. This occurs due to the ability of algae and larger plants to grow excessively, using the nutrients to build their cell mass. This excessive growth or eutrophication leads to a reduction in the biodiversity of the system as some species are not able to compete under eutrophied conditions and the state of the system declines. High levels of nitrates in drinking water also affect health principally because they cause methaemoglobinaemia in infants and there has been concern over the cancer risk associated with elevated quantities of nitrates. (WRC:Working Paper B5:1993:6)

The effect of chemicals related to human excreta is normally associated with off-site sanitation systems, including waterborne sanitation. Treatment works which are not functioning properly or which are discharging too much effluent into sensitive water systems have an easily measurable effect on these systems.

### *c) Micro-organisms*

The maturation ponds or chemical disinfection which are part of the waterborne sanitation system should eliminate micro-organisms. However, if the treatment works are improperly operated or operated at well above design capacity or if the reticulation system fails, pathogenic pollution can occur. The effect of pathogenic micro-organisms which enter the water environment is also indirect: where infected water is used by humans the risk exists for the spread of disease.

## **6.1.2 IMPACT ON WATER RESOURCES IN QUANTITATIVE TERMS**

Although the quantity and supply of water to Ekuvukeni does not seem to be a limiting factor in the provision of water borne sanitation, it is worth noting that the use of water borne sanitation substantially increases the amount of water used. WRC:Working Paper B5 (1993:4) estimates that the increase in water use due to the provision of full waterborne sanitation would average about 100 litres per capita per day. It can therefore be seen that effective operation of a waterborne sanitation system is dependent on a reliable water supply and that disruption of the water supply would totally disrupt the sanitation system.

## **6.1.3 GROUNDWATER QUALITY**

WRC:Working Paper B5 (1993:14) advises that groundwater contamination is much less of an issue for off-site sanitation than for on-site sanitation systems<sup>10</sup>. However, malfunctioning sewage works will cause problems and problems can exist where groundwater is extracted in the immediate vicinity of incorrectly designed and/or sited oxidation ponds and sludge lagoons. The Ekuvukeni IDF: Document 2 (Annexure 1:52) warns that the characteristically favourable properties of the alluvial sediments and possibly

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<sup>10</sup> Off-site sanitation means that the sewage is disposed of away from the sanitation facility for example, bucket sanitation or waterborne sanitation. Whereas on-site sanitation means that the sewage is disposed of at/or close to the sanitation facility for example, VIPs.

the fault zones as aquifers, below Ekuvukeni, renders these resources sensitive to potential pollution from point source pollution. It goes on to say that, although these resources underlie only a small percentage of the total area, the potentially rapid rate of groundwater movement associated with the comparatively high permeabilities of these aquifers can transmit pollutants considerable distances from their source.

## **6.2 IMPACTS ON THE SOIL**

WRC:Working Paper B5 (1993:8) reports that the treatment and subsequent disposal of sludge from wastewater treatment works presents one of the major operating problems. Sludge disposal can also represent the most significant environmental impact associated with these treatment plants.

## **6.3 IMPACTS ON AIR**

The impact of sanitation on air quality relates to odours and aerosols. Waterborne sanitation is generally odour free for the users. However, if the system breaks down for example, due to reticulation failure or blockages on site then the sewerage will remain on the property or flow down the streets resulting in odour problems.

Aerosols are generated particularly by surface aerators at activated sludge areas, as is the case at Ekuvukeni. WRC:Working Paper B5 (1993:8) reports that aerosols generated in this way contain high bacterial counts and can travel hundreds of metres.

## **6.4 SUMMARY**

The study found that there will be a direct link between the physical environment and the proposed upgrading of the bucket system to waterborne sanitation at Ekuvukeni. It found that the consequences of likely waterborne sanitation failure will be serious for the natural environment and health. However, the important aspects of the research are not to explain the interactions between the technology and physical environment but, to explain the reasons for a technology that is likely to fail and therefore harm the natural environment being implemented in the first place.

## CHAPTER 7: CONCLUSIONS

One only has to visit Ekuvukeni when the tanker that removes the buckets full of sewerage is doing its rounds to get an idea of how repulsive the bucket sanitation system is. The stench that follows the tanker is disgusting and pervasive. Furthermore, one only has to imagine a small corrugated iron sanitation cubicle, in the heat of summer, with an open bucket full to overflowing with faeces and full of flies to understand why this system is so unhealthy and universally hated. No matter how “quality of life” is defined or measured, the bucket system does impact negatively on the lives of the people of Ekuvukeni and must be replaced.

However, the provision of waterborne sanitation will not necessarily improve quality of life in the long term because there is considerable risk that such a system will not be sustainable within the current social, economic, political and structural context. If the system fails, the consequences will be disastrous for the health of the population and will result in severe contamination of ground and surface water systems. People may end up in the humiliating position of not being able to use their toilets and, without any alternative, they will be forced to use the natural environment for their ablutions. Furthermore, the recurrent costs of waterborne sanitation could prove to be an intolerable burden on the already strained financial resources of the town.

The study found Ekuvukeni to be a very poor, neglected, disempowered and frustrated community which, until the change of government in 1993, had seen other towns round about being developed and improved while there had been little prospect for anything happening in Ekuvukeni. The main cause of this disempowerment and frustration has been the authoritarian attitude, criminal neglect and general mismanagement by those responsible for the administration, government and general service provision in this town. It is, therefore, little wonder that the people of Ekuvukeni are desperate for more control over their affairs and to improve the status of and conditions in their town. It is also little wonder that anything that might be used will be used as leverage to achieve these ends.

For a little over a decade, the development that has meant most to the people of Ekuvukeni has been the sanitation improvement project and in particular the promise of waterborne sanitation. Not only has this involved getting rid of the bucket system but, more importantly it has provided the people of Ekuvukeni with an opportunity to oppose the authorities and have a say in the development of their town. However, something that really stood out during the study is the fact that these people have little idea about the practicalities of managing, administering, maintaining or paying for waterborne sanitation and that these practicalities have been sidelined by political considerations. During the study, respondents expressed concerns about not being able to afford waterborne sanitation but, did not have much idea about costs or what this would involve. There was an interesting debate during the focus group session with employed men which really brought this out. On the one hand, concern was expressed that many households' did not have the resources or experience to run a waterborne sanitation system. On the other hand, the prevailing view, was that the priority was to get a waterborne system installed and then worry about issues such as maintenance and payment.

Turning to Rogerson's analysis of international research concerning the question of willingness to pay and other software issues. When we tested Rogerson's findings against the situation at Ekuvukeni we found there to be many similarities. Using Rogerson's findings, it has at least been possible to provide accurate information about Ekuvukeni households' willingness and ability to pay which can now be used in determining sanitation service fee and subsidisation levels. The study found that the strong commitment to waterborne sanitation generally transferred into a willingness to pay a sanitation service fee to cover recurrent costs. However, many households will not be able to afford the amount needed for operation, maintenance and replacement of infrastructure in addition to their private responsibilities. The challenge for the government lies in balancing the sanitation service fee at a level which will encourage maximum participation in the system with a subsidy so as to ensure its long term sustainability. However, there will be households that will not be able to afford a sanitation service fee at all and a way needs to be found to include them in the system or to provide them with other sanitation options.



The politicisation of the sanitation improvement project, over a period time at Ekuvukeni, has become a major obstacle to the provision of a system that would be appropriate for Ekuvukeni. It would now be extremely difficult to go back and reduce sanitation to the sorts of practicalities that urgently need to be worked through with the community in order to ensure that Ekuvukeni ends up with a sanitation system and a long term plan that will work and be sustainable.

The need to de-politicise development at Ekuvukeni is in sharp contrast to Ferguson's argument that development is, by nature, generally anti-political and that development goals and tactics need to be somewhat more political. There is no doubt that political considerations need be included in the development process. However, this study clearly demonstrates the difficulties of undertaking development in a highly politicised environment and the dangers of allowing political issues to dominate. Furthermore, is it realistic, as Ferguson suggests, to expect to resolve political problems and inequities of the nature and scale of those that existed under the previous government, in the context of a single development such as sanitation at Ekuvukeni?

In Ekuvukeni's case, the politicisation of the sanitation improvement project has happened mainly because of the long delay in implementation and the lack of meaningful community engagement during this time. The need to exchange information and openly discuss and workshop software issues and other problems over a long period of time coupled with the absence of formal systems to allow this has caused these issues and problems to be internalised and assume a political rather than a practical focus. Even though the study found that respondents have concerns about waterborne sanitation, especially their ability to afford a sanitation service fee and other costs, the imperatives for progress were so strong that there was little inclination for further debate or consideration of other options. In any event, the situation has been allowed to develop into a state that makes it extremely difficult to resolve most of the issues within an acceptable time frame and in a manner that would be acceptable to most of the parties involved.

Cases such as the provision of waterborne sanitation to Ekuvukeni obviously pose a difficult dilemma for government. On the one hand, waterborne sanitation is not a minimum service and it is likely to be a burden on the government's resources as it is not a realistic, viable or achievable option unless it is subsidised. On the other hand the government has inherited an extremely difficult situation and is under pressure politically to meet development expectations and commitments. As the government has decided to proceed with this project it needs to be aware that, in order to avoid the potentially disastrous consequences of waterborne sanitation failure, it will have to adapt its policies on cost recovery and local authority responsibility to suite the socio-economic and institutional realities of Ekuvukeni.

Turning to structural issues and problems, the study found government structures involved in the delivery of services to Ekuvukeni to be weak and the community to have had little involvement in or knowledge about management needs or responsibilities. This is of concern because policy aims to minimise the impact of service provision on government resources by devolving responsibility for the implementation and management of sanitation services to local authorities. Where local authorities do not exist, second tier agencies and the government will assist whilst ensuring that local capacity is established as soon as possible so that higher authorities can withdraw.

The study found that although respondents did not want to take overall responsibility for managing the waterborne sanitation system they do want community representation in any management structure to provide the community's input, inform them of progress, issues and problems and to ensure transparency. This together with the fact that there is not likely to be a local authority at Ekuvukeni for some time, means that the management of a waterborne sanitation system at Ekuvukeni would have to involve a partnership between the community and the government. However, respondents views on who and how the system should be managed revealed considerable potential for conflict within the community and between the community and the government as service providers. There was little support for continued involvement by the Department of Engineering Services or Regional Councilors whereas, most respondents felt that the Township Manager and the ELDC

should be involved. Therefore, if this project is to be sustainable, considerable work needs to go into developing appropriate management structures that are effective and meet the needs of the community.

In examining the role that “quality of life” has played in sanitation improvement at Ekuvukeni, the study found the use of this term in justifying the replacement of the bucket system with waterborne sanitation to have been superficial. It does not explain the development problems and needs of Ekuvukeni and around sanitation in particular whereas, these need to be clearly understood and defined in order to ensure that development is appropriate.

This study reveals a good example of old fashioned development planning, typical of its era, which focused on hardware issues, generated much uncertainty and which could put the people of Ekuvukeni and the environment at risk. Poverty is a major problem at Ekuvukeni and a main reason for waterborne sanitation not being appropriate at this time. Sanitation needs to be addressed in the development process but, it should never have become the focus of development both because it is unlikely to relieve poverty and because in its waterborne form it is likely to exacerbate the disadvantaged position of the majority of the poor especially in the long run. A sanitation service appropriate to the needs and circumstances of communities is not and should never be an indicator of development. To inject sanitation into the development process is short sighted and inappropriate.

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#### **PERSONAL COMMUNICATIONS**

1. Vusi Mphembu, Dept of Local Government and Housing, Pietermaritzburg



# APPENDICES

**APPENDIX A**

**SOCIO-ECONOMIC AND SANITATION SURVEY**

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**Instructions to interviewers are all in bold and should not be read to the person being interviewed.**

Name of Field Worker:	-----
Field Worker Number:	-----
Date of Interview:	-----
Supervisor Name:	-----
Checked by:	-----

Hello, my name is ..... I work for CASE, an independent research company. We are conducting a survey about the sewerage system in Ekuvukeni and I would like to ask you some questions.

As you may know, there are plans to bring water borne sewerage to Ekuvukeni and to do away with the bucket system. There are important questions that need to be answered by you to ensure that you will be able to use the new system and that it will meet your needs and expectations. The interview will take about 45 minutes.

The answers you give us are confidential and they will be put together with all the answers given by others in this community so that the feelings of people who are directly affected by the sewerage project will be known and taken into account in the planning. It will be impossible to pick you out from what you say, so please tell us freely what you think.

Would you be willing to participate?

**If no close the interview. If yes begin to fill in the form**

Name of Respondent	_____
House Address	_____ _____
Telephone Number	_____
Position in Household	_____

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## Section 1. Background

No.	QUESTIONS	CODING	GO TO
101	First, I would like to ask you some questions about your household: How long have you lived in Ekuvukeni?	>1 YEAR.....1 1-5 YEARS.....2 6-15 YEARS.....3 <16 YEARS.....4 ALWAYS.....5	
102	How long have you been living in this house?	YEARS ..... ALWAYS.....95 VISITOR.....96	⇒104 ⇒104
103	Before you moved here where did you live?	FARM.....1 RURAL VILLAGE.....2 TOWN/CITY.....3	
104	How old were you at your last birthday?	YEAR..... DON'T KNOW.....98	
105	Have you attended school?	YES.....1 NO.....2	⇒109
106	Are you studying (school/course/university) at present?	SCHOOL.....1 COURSE.....2 UNIVERSITY.....3	
107	What is the highest level you completed?	sub a/class 1 1 sub b/class 2 2 standard 1 3 standard 2 4 standard 5 5 standard 4 6 standard 5/form1 7 standard 6/form2 8 standard 7/form3 9 standard 8/form4 10 standard 9/form5 11 standard 10/form6 12 teacher education college 13 technikon 14 university 15 other (Specify)..... 96	
108	Was the main reason you stopped school because you ?	got pregnant 1 got married 2 to care for younger children. 3 family needed help on farm or business 4 could not pay school fees 5 needed to earn money 6 graduated / had enough schooling 7 did not pass entrance exams 8 did not like school 9 school not accessible/ too far 10 other .....(specify) 11	
109	Can you read and understand a letter or newspaper easily with difficulty, or not at all?	1 2 3	⇒111
110	Do you usually read a magazine or news paper each week?	YES 1 NO 2	

NO	QUESTION	CODING	GO TO
111	Do you have somebody who reads a magazine, newspaper or letter to you  often, sometimes or never?	1 2 3	
112	Do you usually listen to a radio very day?	YES.....1 NO.....2	
113	Do you usually watch TV at least once a week?	YES.....1 NO.....2	
114	Of the following people, who gives you news about things in the community?  township manager ELDC councillors partner children friends (specify) don't know	1 2 3 4 5 6 7 8	
115	Now I want to ask about the place where you are staying.  Which of the following is the main source of drinking water for your household?  Piped Water (tap in dwelling) Piped Water (tap in site or yard) Public Tap Water Carrier or Tanker Borehole or Well Dam or River Other (specify).....	1 2 3 4 5 6 96	
116	Do you pay for all the water you use?	YES 1 NO 2 DONT KNOW 3	
117	When do you pay for the water you use?	after each week..... 1 after each month.....2 after 3 months.....3 after 6 months.....4 after 1 year.....5	
118	How much do you pay each month for water?	R0-R5 1 R6-10 2 R11-R15 3 R16-R20 4 R21- R30 5	
119	Who fetched the water yesterday?	RESPONDENT.....1 OTHER FEMALE.....2 MALE.....3 FEMALE CHILD.....4 MALE CHILD.....5	
120	How long does it take fetch water?	MINUTES _____	
121	Does your household have  electricity? a radio? a television? a telephone? a refrigerator?	YES NO 1 2 1 2 1 2 1 2 1 2	

NO	QUESTION	CODING	GO TO
122	Would you describe your house as brick, mud or wattle and daub?	1 2 3	
123	Is the floor made of cement, wood, earth or dung?	1 2 3 4	
124	Is the roof thatch, zinc, wood or tiled?	1 2 3 4	
125	Does any member of your household own a bicycle? a motorcycle? a car? a kombi? other? (specify) _____	YES NO D/KNOW 1 2 3 1 2 3 1 2 3 1 2 3 96	

## Section 2: Demographic Information

No	QUESTION	CODING	GO TO...
201	Now I would like to ask you about your family and the people who live in this house.  How many people live in your house with you?	NUMBER _____	
202	Can you name your family members and tell me whether they are male or female and their age at their last birthday 1..... 2..... 3..... 4..... 5..... 6..... 7..... 8..... 9..... 10..... 11..... 12.....	SEX                      AGE M F                      YEARS 1 2                      _____ 1 2                      _____ 1 2                      _____ 1 2                      _____ 1 2                      _____ 1 2                      _____ 1 2                      _____ 1 2                      _____ 1 2                      _____ 1 2                      _____ 1 2                      _____ 1 2                      _____ 1 2                      _____	
	<b>skip the next set of questions if the answer to 201 and 202 is identical (including the respondent)</b>		⇒301
203	How many of your family members sleep at least four nights in a week at home?	number _____	
204	How many sons live with you?  How many daughters live with you?	sons home _____  daughters home _____	
205	How many sons do not live with you?  How many daughters do not live with you?	sons not home ____  daughters not home ____	
206	Do family members who do not live with you visit  often, sometimes, rarely or never?	1 2 3 4	
207	Of the people who live in your house (s/he sleeps four nights or more in a week) but are not family members, how many are male and how many are female?	male _____  female _____	
208	What do you get from people who live with you but are not family members families  they pay rent? they work for me? they look after the children? other? (specify) _____	1 2 3 96	⇒301 ⇒301 ⇒301
209	If they pay you rent, how much money do they usually pay you each month?	RENT/Month R.....	

## Section 3: Income

No	QUESTION	CODING	GO TO...
301	Are you presently in paid work?	YES 1 NO 2	⇒306
302	How would you describe the your work status? self-employed 1 employed by somebody 2 work full-time 3 work part-time 4 casual/seasonal work 5 unemployed 6 retired/pensioner 7 student 8 disabled 9 housewife 10		⇒306
303	During the past 12 months can you tell me how many months you worked and how many days in a week you usually worked?	MONTHS ____ DAYS/WEEK	
304	How much do you usually earn for the work you do? Is this by day, by hour, by the week, by the month, or by the job?	PER AMOUNT HOUR 1 ..... DAY 2 ..... WEEK 3 ..... MONTH 4 ..... YEAR 5 ..... JOB 6 .....	
304	What work do you do? Professional 1 Executive 2 Managerial 3 Administrative 4 Clerical/Secretary 5 Sales 6 Service 7 Skilled Trade 8 Semi- or Unskilled 9 Farm Work 10 Other (specify)..... 96		
306	Is your husband/wife employed for money?	YES 1 NO 2 DONT KNOW 3	⇒309

NO	QUESTIONS	CODING	GO TO...
307	What work does s/he do?	Professional 1 Executive 2 Managerial 3 Administrative 4 Clerical/Secretary 5  Sales 6 Service 7 Skilled Trade 8 Semi- or Unskilled 9 Farm Work 10 Other (specify)..... 96	
308	How would you describe his or her work status?	self-employed 1 employed by somebody 2  work full-time 3 work part-time 4 casual/seasonal work 5  unemployed 6 retired/pensioner 7 student 8 disabled 9 housewife 10	
309	How many of your children work for money?	NUMBER ___	If 0 → 311
310	For each child earning, can you say whether they work full-time, part-time or casually?	FULL PART CASUAL Child 1 1 2 3 Child 2 1 2 3 Child 3 1 2 3 Child 4 1 2 3 Child 5 1 2 3 Child 6 1 2 3	
311	To get a sense of how your family keeps going I would like to know what happens to money that is earned in your home?  Would you say that some/most/all of your money is spent	some most all - on yourself? 1 2 3 - on your family? 1 2 3	
312	Would you say that some/most/all of your husband/wife's money is spent	some most all -on him/herself? 1 2 3 -on the household? 1 2 3	



NO	QUESTION	CODING	GO TO																								
313	Of the daughters living at home who earn money, would you say that some/most/all their money is spent  -on themselves? -on the household?	<table> <tr> <td>some</td> <td>most</td> <td>all</td> </tr> <tr> <td>1</td> <td>2</td> <td>3</td> </tr> <tr> <td>1</td> <td>2</td> <td>3</td> </tr> </table>	some	most	all	1	2	3	1	2	3																
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314	Of your sons living at home who earn money, would you say that some/most/all their money is spent  -on themselves? -on the household?	<table> <tr> <td>some</td> <td>most</td> <td>all</td> </tr> <tr> <td>1</td> <td>2</td> <td>3</td> </tr> <tr> <td>1</td> <td>2</td> <td>3</td> </tr> </table>	some	most	all	1	2	3	1	2	3																
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315	In your family, do people who earn money - put it into a common pool? - give some to the person in charge of the money and keep some for themselves? - keep it all for themselves?	<table> <tr> <td>1</td> </tr> <tr> <td>2</td> </tr> <tr> <td>3</td> </tr> </table>	1	2	3																						
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316	Who in your house (you, partner, you and partner, someone else), mainly decides what to spend the money on?  - food - clothes - big things like furniture - services (water/electricity/medical)	<table> <tr> <td>respondent (1)</td> </tr> <tr> <td>husband/partner (2)</td> </tr> <tr> <td>someone else (3)</td> </tr> <tr> <td>jointly husband/wife (4)</td> </tr> <tr> <td>jointly with s/one else (5)</td> </tr> <tr> <td>1 2 3 4 5</td> </tr> <tr> <td>1 2 3 4 5</td> </tr> <tr> <td>1 2 3 4 5</td> </tr> <tr> <td>1 2 3 4 5</td> </tr> </table>	respondent (1)	husband/partner (2)	someone else (3)	jointly husband/wife (4)	jointly with s/one else (5)	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5																
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1 2 3 4 5																											
317	Who in your family (you, partner, you and partner, someone else), usually pays for  - water? - electricity? - doctor? - transport? - telephone?	<table> <tr> <td>respondent (1)</td> </tr> <tr> <td>husband/partner (2)</td> </tr> <tr> <td>someone else(3)</td> </tr> <tr> <td>jointly husband and wife(4)</td> </tr> <tr> <td>jointly with s/one else (5)</td> </tr> <tr> <td>1 2 3 4 5</td> </tr> <tr> <td>1 2 3 4 5</td> </tr> <tr> <td>1 2 3 4 5</td> </tr> <tr> <td>1 2 3 4 5</td> </tr> <tr> <td>1 2 3 4 5</td> </tr> </table>	respondent (1)	husband/partner (2)	someone else(3)	jointly husband and wife(4)	jointly with s/one else (5)	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5															
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318	Would you say that some/most/all of your money is spent  - on food? - on water and fuel? - on transport? - on clothes? - on furniture? - on the tv and sound system? - other _____ (specify)	<table> <tr> <td>some</td> <td>most</td> <td>all</td> </tr> <tr> <td>1</td> <td>2</td> <td>3</td> </tr> <tr> <td>1</td> <td>2</td> <td>3</td> </tr> <tr> <td>1</td> <td>2</td> <td>3</td> </tr> <tr> <td>1</td> <td>2</td> <td>3</td> </tr> <tr> <td>1</td> <td>2</td> <td>3</td> </tr> <tr> <td>1</td> <td>2</td> <td>3</td> </tr> <tr> <td>96</td> <td></td> <td></td> </tr> </table>	some	most	all	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	96			
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319	Apart from money earned from working, do you or any member of your household get - a pension? - a disability grant? - a child allowance? - remittances from somebody who is working elsewhere? rent? - other -----(specify)	<table> <tr> <td>1</td> </tr> <tr> <td>2</td> </tr> <tr> <td>3</td> </tr> <tr> <td>4</td> </tr> <tr> <td>5</td> </tr> <tr> <td>96</td> </tr> </table>	1	2	3	4	5	96																			
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NO	QUESTION	CODING	GO TO
320	<p>Apart from money, do you or your household never/sometimes/regularly get gifts of</p> <p style="text-align: right;">- food?</p> <p style="text-align: right;">- clothes?</p> <p style="text-align: right;">- furniture?</p> <p style="text-align: right;">- help with keeping the building (painting, patching, fixing the roof)?</p> <p style="text-align: right;">- help with keeping water coming into the house?</p>	<p>never (1)</p> <p>sometimes (2)</p> <p>regularly (3)</p> <p style="text-align: right;">1      2      3</p> <p style="text-align: right;">1      2      3</p> <p style="text-align: right;">1      2      3</p> <p style="text-align: right;">1      2      3</p> <p style="text-align: right;">1      2      3</p>	
321	<p>In a month, how much money does your household usually earn from all sources - your and other people's income, rent, pensions, hawking etc? Would you like to look at this card or would you like me to read it to you?</p> <p style="text-align: right;">Nothing</p> <p style="text-align: right;">R1 -R99</p> <p style="text-align: right;">R100- R199</p> <p style="text-align: right;">R200- R499</p> <p style="text-align: right;">R500- R699</p> <p style="text-align: right;">R700- R899</p> <p style="text-align: right;">R900- R999</p> <p style="text-align: right;">R1000- R1299</p> <p style="text-align: right;">R1300- R1499</p> <p style="text-align: right;">R1500- R1799</p> <p style="text-align: right;">R1800- R1999</p> <p style="text-align: right;">R2000- R2999</p> <p style="text-align: right;">R3000- R3999</p> <p style="text-align: right;">R4000- R4999</p> <p style="text-align: right;">R5000- R5999</p> <p style="text-align: right;">R6000- R6999</p> <p style="text-align: right;">R7000- R7999</p> <p style="text-align: right;">R8000- R8999</p> <p style="text-align: right;">More</p> <p style="text-align: right;">Don't Know</p> <p style="text-align: right;">Refused</p>	<p>1</p> <p>2</p> <p>3</p> <p>4</p> <p>5</p> <p>6</p> <p>7</p> <p>8</p> <p>9</p> <p>10</p> <p>11</p> <p>12</p> <p>13</p> <p>14</p> <p>15</p> <p>16</p> <p>17</p> <p>18</p> <p>More</p> <p>Don't Know</p> <p>Refused</p>	
322	<p>Which of the statements below would best describe the circumstances of your household</p> <p style="text-align: right;">- We always have money for food and essentials</p> <p style="text-align: right;">- We sometimes do not have enough money for food and essentials</p> <p style="text-align: right;">- We never have enough money for food and essentials.</p>	<p>1</p> <p>2</p> <p>3</p>	⇒324
323	<p>If your household has no money for food, does this happen because of</p> <p style="text-align: right;">- the time of the year?</p> <p style="text-align: right;">- the time of the month?</p> <p style="text-align: right;">- nobody was working?</p> <p style="text-align: right;">- family crisis (argument/ drinking)?</p> <p style="text-align: right;">- the person earning money left or died?</p> <p style="text-align: right;">-other -----(specify)</p>	<p>1</p> <p>2</p> <p>3</p> <p>4</p> <p>5</p> <p>96</p>	
324	<p>In your household are you able to make some saving</p> <p style="text-align: right;">- regularly</p> <p style="text-align: right;">- sometimes</p> <p style="text-align: right;">- never?</p>	<p>1</p> <p>2</p> <p>3</p>	

## Section 4: Sanitation and Payment

NO	QUESTION	CODING	GO TO
401	Now I would like to talk to you about the sanitation system that you use here.  Do you use the bucket system?	YES 1 NO 2	
402	Do you feel that the bucket system of sanitation is: unhygienic unsafe off-putting  cheap easy to use easy to manage	YES NO D/KNOW 1 2 3 1 2 3 1 2 3  1 2 3 1 2 3 1 2 3	
403	Would you say that you are  very satisfied, satisfied, unsatisfied, or very dissatisfied  with the bucket system?	1 2 3 4	
404	What is your preferred system of sanitation?  flush toilet VIP other .....(specify)	1 2 96	⇒416
405	What do you feel the advantages of flush toilets and a water borne sewerage system to be?  clean safe socially acceptable easy to use	YES NO D/KNOW 1 2 3 1 2 3 1 2 3 1 2 3	
406	Thinking of your own economic and household circumstances, do you think that there might be any disadvantages to flush toilets and water borne sewerage?	YES 1 NO 2 Don't Know 3	
407	Do you think that any of the following problems face your household: can't afford the connection between the house and the pipe can't afford to buy toilet/taps/bath or basin can't afford to pay for a plumber when something goes wrong can't keep it clean can't afford to buy toilet paper	YES NO D/KNOW 1 2 3 1 2 3 1 2 3 1 2 3 1 2 3	
	<b>Please read the following information to the respondent.</b> I thought it might be helpful just to let you know what the government will pay for and what it won't pay for with the new waterborne system. The government will pay for the system to be built, including the pipes that run outside the houses to take the sewerage away, the pumps and other infrastructure, including the place where the sewerage will be treated.	The government won't pay for anything like toilets, baths, basins, and taps; connections between the toilets and the outside pipes; keeping the system working inside your house; working and keeping the big outside system going.	
408	Do you know that you will have to pay a service fee to keep the system outside your house running properly?	YES 1 NO 2 Don't Know 3	

NO	QUESTION	CODING	GO TO
409	Do you know that this service fee will not be used to keep the toilet and water system in your own house running properly?	YES 1 NO 2 Don't Know 3	
410	Which of the following statements best describes your own past experience of a flush toilet and water borne system -I have never seen or used it -I have seen it but never used it -I have used it in somebody else's house/in town/at work when I have visited -I have had it in my own home	1 2 3 4	
411	Do you think you will need information and advice about how to manage the system in your own home?	YES 1 NO 2 Don't Know 3	
412	Remembering all the costs that you have now, and that you will have to pay a service fee plus additional money for keeping the system going in your own home, would you say that water borne sewerage was -the most important - a very important -not a very important -or an unimportant need for you and your family?	1 2 3 4	
413	Are you prepared to pay a regular service fee to maintain the big sanitation system?	YES 1 NO 2	
414	Keeping in mind all the costs you have, as well as the present amount you pay for water, lets work out a rate that you think you could afford to pay each month to keep the sewerage system going. I am going to give you some choices and you should answer "yes" or "no". Each month could you afford to pay	YES NO R200 1 2 R5 1 2 R150 1 2 R10 1 2 R100 1 2 R20 1 2 R75 1 2 R25 1 2 R50 1 2 R30 1 2 R45 1 2 R35 1 2 R40 1 2	
414	Do you think there are families and people in the community who would not be able to afford the highest amount that you have indicated you are willing to pay?	YES 1 NO 2 Don't Know 3	
415	Would you describe those people who might not be able to afford a service fee as -the very poor -old people with grandchildren & absent parents -sick people -women with young children and nobody earning -other .....(specify)	YES NO D/KNOW 1 2 3 1 2 3 1 2 3 1 2 3 96	

NO	QUESTIONS	CODING	GO TO
416	Which of the following statements best fit your feelings about the homes where you know people can't afford to pay for a water borne sanitation system:  -they should not have waterborne sewerage -they should be helped to install VIPs -the fee for sanitation should be set to cover the costs of providing the system to the poorest households	YES NO D/KNOW 1 2 3 1 2 3 1 2 3	  ⇒418 ⇒419
417	If everybody can't afford waterborne sewerage, should there be more than one system of sanitation?	YES 1 NO 2 Don't Know 3	
418	Should the cost of complementary sanitation systems come from  -the money set aside for waterborne system? -the housing grant? -the individuals who want to use it? -other .....(specify)	YES NO D/KNOW 1 2 3 1 2 3 1 2 3 96	
419	If the service fee covers the costs of providing the system for all households, including those who can't afford to pay, will the poorest households be able to afford to maintain the system properly in their homes?	YES 1 NO 2 Don't Know 3	
420	Do you think that a community oriented training service for plumbers could be created which would also service the needs of the poorest households?	YES 1 NO 2 Don't Know 3	
421	Other than being able to afford to pay for the service, would you say that the things I am going to talk to you about now will influence your willingness to pay.  (Ask for each whether it would influence them very much, a lot, a bit, not at all ) -which body manages the sanitation system -how the sanitation system is managed -community participation in managing the system	very much (1) a lot (2) a bit (3) not at all (4) don't know (5)  1 2 3 4 5 1 2 3 4 5 1 2 3 4 5	

### Section 5: Management and Control

NO	QUESTION	CODING	GO TO
501	I now want to talk to you about management and control of the waterborne sanitation system. You already have experience of services. Could you please tell me whether you think  -the bucket system, -refuse collection and -water services are run very well, well, poorly, or very badly?	Very Well(1), Well(2) Poorly(3), Very Badly(4) Don't Know (5)  1 2 3 4 5 1 2 3 4 5 1 2 3 4 5	
502	Would you say the main problems with the bucket system are  -that it is run inefficiently -the community has never had any say over how it is run -the community is not represented in its management structures -it has not been designed to be open to community needs -it is a difficult system to manage well	YES NO D/KNOW  1 2 3 1 2 3 1 2 3 1 2 3 1 2 3	
503	Would you say the main problems with the refuse collection system are  -that it is run inefficiently -the community has never had any say over how it is run -the community is not represented in its management structures -it has not been designed to be open to community needs -it is a difficult system to manage well	YES NO D/KNOW  1 2 3 1 2 3 1 2 3 1 2 3 1 2 3	
504	Would you say that the main problems with water provisioning are  -that it is run inefficiently -the community has never had any say over how it is run -the community is not represented in its management structures -it has not been designed to be open to community needs -it is a difficult system to manage well	YES NO D/KNOW  1 2 3 1 2 3 1 2 3 1 2 3 1 2 3	
505	Of existing committees which would you say would be able to manage the new sanitation system best?  -only ELDC -only the Township Manager -only the Councillors -only Public Works -ELDC and Councillors -ELDC and Township Manager -Township Manager & Councillors -None of the above -Outside Professionals -All of them with community representation	1 2 3 4 5 6 7 8 9 10	

NO	QUESTION	CODING			GO TO
506	Do you think the sanitation management committee should be appointed or elected?	APPOINTED		1	
		ELECTED		2	
507	Do you think the tasks of the sanitation committee should be:	YES	NO	D/KNOW	
	-to manage finances?	1	2	3	
	-to manage the people or company who run and maintain the service?	1	2	3	
	-to consult and communicate with the people as users of the sanitation service?	1	2	3	
	-to consult and communicate with government?	1	2	3	
	-to make sure problems are attended to quickly, efficiently and at least cost?	1	2	3	
	-initiate and seek support for skills training in the community which will make the system more efficient and affordable?	1	2	3	
508	Do you think the sanitation committee should	YES	NO	D/KNOW	
	-hold regular information sharing meetings in the community?	1	2	3	
	-be open and accessible to community needs?	1	2	3	
	-go for management training?	1	2	3	
	other (specify).....	96			





### Focus group interview guide

*Introduce yourself, explain what a focus group is (Be sure to cover that everyone should participate. People should be honest. There are no right or wrong answers, people should feel free to disagree. Participants must be made aware that their responses are to be held in confidence. Point out that the use of tape recorder is so that the facilitator does not waste time taking notes. Only one person should speak at a time).*

*We are trying to find out about what it is like to live here in Ekuvukeni. In particular, we need to find out about the services such as sewerage. First, we would like to ask you about some general questions about Ekuvukeni and the conditions here.*

#### **1. General**

- ◇ Let's talk a little bit about living here in Ekuvukeni. How long have you lived here?
- ◇ Perhaps you could describe the good things and the bad things. What do you enjoy/dislike about living here?
- ◇ What services do you have? Water/sewerage/refuse removal/electricity/telephone/streetlights etc. (Probe)
- ◇ Has the sewerage system always been the same bucket system?

#### **2. Masakhane Campaign**

- ◇ Are you familiar with the Masakhane campaign?
- ◇ Could you tell us what it is about?
- ◇ Did anyone in your area inform you about this campaign? (Probe: civics, local government representatives etc.)
- ◇ What are your feelings about this campaign? Do you support it or not? Why?
- ◇ Do you think your community as whole supports it or not? Why?
- ◇ Do you think it has been effective in your area? Why?
- ◇ Do you think the campaign applies to all services or only certain services? (Probe: sanitation, water, refuse removal, electricity etc.) Why?

#### **3. Cost recovery issues/ Payment of services**

- ◇ Should every house in Ekuvukeni get waterborne sanitation?
- ◇ Where will each house put their toilet? Inside or outside? Build a special structure or use the tin structure they already have?
- ◇ Lets talk about what the government will and will not pay for.
  - The government will pay for the system to be built including the pipes that run outside the houses to take the sewerage and dirty water away from the houses; and infrastructure such as pumps and the place where the sewerage will be treated.
  - The government will not pay for:
    - \* anything like toilets, baths, basins, taps or pipes.

# Ekuvukeni Water and Sanitation Project

- \* the connections between the houses and the pipes that run outside the houses to carry the sewerage;
  - \* the ongoing operation and maintenance of the system. (Also called service charge).
- ◇ For you to have waterborne sanitation at your house do you know there will be a fee to connect the sewer to your house and to your water?
  - ◇ If the government was to give a subsidy for housing, would people be prepared to use part of this money for the connection fee?
  - ◇ What is going to happen if people can't pay the connection fee or don't want to use their money to pay a connection fee?
  - ◇ The sorts of things that will be needed for the system to work are people/vehicles/spare parts/fuel and electricity/tools/chemicals to treat the sewage. This is called operation and maintenance and the government will not pay for these things.
  - ◇ Do you know that you will have to pay a tariff each month for operation and maintenance?
  - ◇ Would people be prepared to pay R25-50 each month for operation and maintenance.
  - ◇ If not why not?
  - ◇ Can people afford to pay R25-50 each month for operation and maintenance?
  - ◇ What is going to happen if people can't pay for operation and maintenance? Should someone else pay for them or should the monthly tariff for those that can afford to pay be increased to help those that cannot afford to pay?
  - ◇ What should happen if people refuse to pay?
  - ◇ Are the people of Ekuvukeni paying for services at the moment? water/refuse removal/the buckets?
  - ◇ If not why not? Will it be different for waterborne sewage? Why will it be different?
  - ◇ What do you think can be done to encourage people to pay for their service?

## 4. Management issues

- ◇ Tell us about the main problems regarding the bucket system? (Probe; go around the group)
- ◇ When you had problems in the past who attended to them? Was it the, government, the township manager, people from the community, other?
- ◇ Were the problems sorted out?
- ◇ Is the system for dealing with problems acceptable? (If not, how can this be improved upon?)
- ◇ Someone is going to have to manage the system. (manage the people that will unblock any blockages, fix leaks, repair broken pipes, supervise all this work, collect the monthly tariff and decide how this money should be used, organise transport, buy materials such as chemicals, fuel and tools).
- ◇ Who is going to manage the system? (Diagram of possible role players - Public Works/The Township Manager/Council/ELDC/The community)
- ◇ Maybe there should be a management committee made up of different people from the different role players.
  - Who should be on this committee?
  - How should it be elected?

## **Ekuvukeni Water and Sanitation Project**

- What role will each of the above play in managing the system?
- Where would be the role of the community?
- As a user of the system, what would you expect from this committee?

### **5. Maintenance issues**

- ◇ How much do the people know about the waterborne system?
- ◇ Do you understand how the waterborne system is going to work?
- ◇ Only tissue can be put in the toilet. Can people afford to buy tissue paper?
- ◇ If there are people that have never used this system how can they be taught to use it?
- ◇ Where does the water and sewage from the toilet, sink, bath, shower, basin go?
- ◇ Why does the system need to be maintained? (Blockages, leakages, breakages of both the main pipe and the system in the house)
- ◇ Who is going to maintain the system? There are two areas to be considered:
  - The main system until the house connection. If there is to be a management committee then the management committee will organise this maintenance. The government could be part of this management committee but, the government will not pay for this maintenance;
  - The system from the house connection to the house and inside the house. The people in the house will have to organise this maintenance.
- ◇ What will happen if the connection between your house and the sewer gets blocked?
- ◇ Do you think you will need a plumber?
- ◇ Who would organise for the plumber to come to your house?
- ◇ Where will the plumber come from?
- ◇ Who will pay for the plumber?
- ◇ What will happen if your neighbour cannot afford a plumber and is always causing a blockage in the main sewer pipe in your street so that the rest of the houses in the street cannot use the system? How should this problem be resolved? Who should be responsible?

**APPENDIX C**

**INTERVIEW WITH EKUVUKENI KEY INFORMANTS**

*MANAGEMENT ISSUES*

- Who manages the current bucket sanitation system?
  - ⇒ What role do the people play?
  - ⇒ What relationship do the people have with the current management structure?  
Are there any conflicts?
- What are the problems with the management of the current sanitation system?
- Who will manage the new waterborne system?
  - ⇒ Do you think the problems of management you have with the bucket system will be carried over to the new waterborne system?
  - ⇒ What needs to be done to improve management?
- What role should the people play in the management of the new system?
  - ⇒ Are there strong community based structures which could help manage this system?
  - ⇒ If not - how could/should these structures be established?
- How would the management structure for the new system relate to the new local authority?
  - ⇒ what role will the project steering committee play in managing the new system?

*CONNECTION FEE AND TARIFF ISSUES*

- Will every house in Ekuvukeni get waterborne sanitation?
  - ⇒ If not will there have to be two sanitation systems - will the bucket system have to be retained in some areas?
- Are there likely to be problems with paying a fee to be connected to receive waterborne sewage and a tariff for ongoing maintenance and service? If so what are the problems likely to be?
  - ⇒ Does every household have the ability to pay the connection fee and a tariff?
  - ⇒ What will happen if some households cannot pay?
- Should there be a plan and if so who should draw up and implement the plan?
- Do the people pay tariffs now? If so what do they pay for?
  - ⇒ Do they pay a lump sum or is broken up according the services they receive?
  - ⇒ Should the tariff for sewage be included as a lump sum with other services or should it be kept separate?
- What priority do the people accord a new waterborne sanitation system?
  - ⇒ Would they be prepared to reduce expenditure on other things in order to be able to pay for sanitation?
- Are the people in Ekuvukeni well off or poor or somewhere in between?

*MAINTENANCE ISSUES*

- What does maintenance mean/involve?
  - ⇒ Who maintains the current system?
  - ⇒ How effective is this maintenance? What are the current issues and problems?

- Who should maintain the new system?
  - ⇒ How should the people be involved in maintenance?
  - ⇒ Would the steering committee be involved?
- Waterborne systems need a lot of water all the time to work.
  - ⇒ Is there ever a shortage of water at Ekuvukeni?
  - ⇒ What about droughts?
- What will happen if for some reason the new system breaks down?
  - ⇒ Not enough money for proper maintenance.
  - ⇒ Pipes get blocked or break.
  - ⇒ The pump or treatment plant breaks down.
  - ⇒ Not enough water.
    - \* What will the people do with their sewage?
    - \* What will the consequences be:
      - ◇ health
      - ◇ environment
      - ◇ social consequences
- If some people are worried about the system breaking down or being able to afford the connection fee or tariff - should they be given the option of another system such as VIP which does not require much maintenance, does not need a connection fee and is less expensive to operated and maintain.
  - ⇒ Would this suggestion meet with a lot of resistance?
- Are there any people in the community with skills to maintain the system e.g. plumbers or will people have to be trained?

#### *OTHER*

- Why don't people like the present system?
  - ⇒ Health
  - ⇒ Environment
  - ⇒ Cultural
- Why do people want waterborne sanitation?
  - ⇒ what will it provide that other sanitation systems such as VIP cannot provide?
  - ⇒ what do people expect from a waterborne sanitation system?
    - \* Convenience
    - \* Status
    - \* Hygiene
    - \* Health
    - \* Jobs
- What will happen if the population of Ekuvukeni increases or decreases?
- Do the people understand the principals behind a waterborne sanitation system?
  - ⇒ How it is constructed
  - ⇒ How it works
  - ⇒ How it is managed
  - ⇒ How it is maintained
  - ⇒ How much it will cost them to keep it going.