

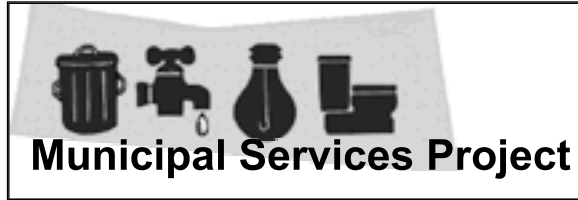


STILL PAYING THE PRICE

Revisiting the cholera
epidemic of 2000-2001
in South Africa

Municipal Services Project

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STILL PAYING THE PRICE:

Revisiting the Cholera

Epidemic of 2000 – 2001

in South Africa

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Series Editors

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About the Project

The Municipal Services Project (MSP) is a multi-partner research, policy and educational initiative examining the restructuring of municipal services in South(ern) Africa. The Project's central research interests are the impacts of decentralisation, privatisation, cost recovery and community participation on the delivery of basic services to the rural and urban poor, and how these reforms impact on public, industrial and mental health.

The research has a participatory and capacity building focus in that it involves graduate students, labour groups, NGOs and community organizations in data gathering and analysis. The research also introduces critical methodologies such as 'public goods' assessments into more conventional cost-benefit analyses.

Research results are disseminated in the form of an occasional papers series, a project newsletter, academic articles/books, popular media, television documentaries and the internet.

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Cholera came and wreaked havoc in this community. Many of our brothers passed away. Our children also passed away. When you had a running stomach you just thought, "My turn has come to pass on as well."

Interview, Mkhize, 7 July 2003.

Water is very troublesome here because the supply is not regular. Sometimes we go for an entire month without water in the taps. We then go back to the rivers – where we were told water is unsafe – right back from where they said we got the cholera.

Interview, Madida, 7 July 2003.

SUMMARY

In 2000–2001 South Africa endured a cholera epidemic that spread throughout the eastern coastal region and to other provinces. Altogether it resulted in 265 deaths in five provinces and 117,147 people were infected; the majority were in the province of KwaZulu-Natal where it originated. The epidemic was, according to the World Health Organization, the biggest such outbreak in Africa for the reporting period.

The epidemic demanded an urgent review of the state of water provision to the traditional rural areas and informal settlements where it was concentrated. What had led to an outbreak becoming an epidemic? How was it that many of the victims were those who were situated within areas where water projects were in operation? The answers came from rural development researchers and later from government itself: the policies of cost recovery had disadvantaged those for whom even a small charge of about R20 a month was too much. At its epicentre it was reported that those who could not afford the new charges being implemented in August 2000 were returning to traditional and untreated water sources and were falling victim to the disease.

The cholera epidemic was handled as an emergency. First, the medical intervention with the help of the army medical corps was dramatic and after some time succeeded in breaking the force of the epidemic and reducing cholera to occasional and limited outbreaks. Second, there was the health promotion carried out by Community Health Workers to publicise the danger of taking water from unsafe sources, to treat water and to wash hands. Third, there was the national government's promise to provide free water in the amount of six kilolitres a month to every household. Finally, there was a renewed commitment to provide improved sanitation and to end the water backlog.

This report examines the extent to which the response to the epidemic has led to sustained provision of safe water and improved sanitation to the poor. In the period since the cholera epidemic, events have shown that this was not a unique occurrence. The outbreak of typhoid in Delmas during August–October 2005 in which there were five deaths from the disease and 596 cases accompanied by 3346 cases of diarrhoea demonstrated the continued vulnerability of poor people in urban and rural settings to water related disease. The evidence pointed to problems in the management of the detested bucket sanitation system, affecting the quality of water.

The report also suggests there is a clear relationship between cost recovery, indifferent management leading to interruptions in supply, and vandalism.

The research drew on two studies at two sites: one at Nqutshini, a small settlement near the town of Empangeni on the banks of the Mhlatuzi River; and the other at Nkobongo, a developing low-cost housing area with continued informal settlements near Ballito, 40km north of Durban. In both cases there was a series of open-ended interviews to capture the ideas and feelings of the local people followed by a small-scale survey. Over a considerable period of time fieldworkers engaged with communities to understand their responses to the epidemic and their views of both the official intervention and water quality. It was found that there was some concealment and denial of the disease as a result of the stigma it carries. This work led to a purposive sample drawn during late 2004 from those households that had symptoms of the disease and a control sample of those who did not.

The ethnographic research revealed that there were varying responses to the messages put out by the authorities on radio and television and carried by the Community Health Workers. Many in Nqutshini found it difficult to acknowledge that the river, from which they had always collected water, should be the carrier of disease. Some accepted that the water they were collecting from the river may be contaminated and need treatment, others did not. Some saw the warnings against using river water as a way of forcing people to pay the monthly charges. It appears that for a period water was treated with Jik (a particular brand name for bleach) by many, but that this dropped off rapidly when the bleach was no longer available for free.

In a number of cases where people fell ill the family members were uncertain how to respond. Often the cholera victim tried to conceal and deny the disease, and this led to significant delays in seeking treatment. In one instance a young girl died after hiding her symptoms for some time; in another an older man had to be heavily persuaded before going to the hospital. The stigma associated with cholera complicated the acceptance of the need to avoid using river water, to treat this water, and, if sick, to seek medical assistance. Scepticism about the official view was also associated with ideas reflecting a view of hostile external forces aiming to undermine the community – e.g. the belief by some that whites were spreading the disease by low-flying aeroplanes. In all cases, the report presents the vivid personal recollections of those who were afflicted, the dread it evoked, and the speed at which people's health declined.

The survey that followed the ethnographic research allowed a comparison between conditions obtaining during the epidemic in 2000–2001 and at the time of fieldwork. There were improvements evident insofar as the majority now access piped water closer to their residence or through yard connections and use Ventilated Improved Privies (VIPs). The

overwhelming majority now feel their water is safe to drink and don't treat the water.

However, there are ongoing complaints of frequent interruptions in the water supply through vandalism, burst pipes and for nonpayment. In the two communities at the time of the fieldwork Free Basic Water was not being provided as promised by the state, even here at the epicentre of the cholera outbreak. At Nqutshini piped water was not flowing at all, although the community did not know why.

Although the communities are both poor and thus generally vulnerable to cholera, the disease is found to be associated with households at the lowest levels of income. The additional factor associated with cholera was found to be increased water storage (reflected in the number of containers used to store water). This storage of water is partly related to dysfunctional water supplies; faced with an uncertain supply people tend to store water for some time which leads to an increased health risk.

The survey found the same association with extreme poverty in the incidence of diarrhoea among children in the household. The other factors associated with diarrhoea included problems in accessing sufficient water, the ability to pay for water and the household having prior experience of cholera. All these factors, and in particular the continued cycle of water related disease in households over time, point to poor health conditions and continued vulnerability to disease among those living in extreme poverty.

The study also makes a series of conclusions and recommendations:

- First, it is argued that Free Basic Water is being unevenly implemented and greater attention needs to be given to meeting the needs of the rural poor and those in poor peri-urban communities who would most benefit from its provision.
- Second, poor communities need a reliable water service, which requires better municipal management.
- Third, interruptions lead to long storage of water, which poses a health risk to those who consume this water. There should be greater awareness and publicity about this danger.
- Fourth, communities and households with a prior experience of water related diseases seem most vulnerable to recurrence. Health and municipal authorities should give priority to those communities with a history of water related disease to ensure that the cycle of disease is ended.

INTRODUCTION

The 2000–01 cholera outbreak in South Africa was surprising because of the extent to which it spread throughout KwaZulu-Natal and beyond to five provinces. According to the World Health Organization this was the biggest outbreak of cholera in Africa for that reporting period, accounting for 80 percent of all cases worldwide (WHO 2001). By April 2002 when the epidemic tapered off, cases had risen to 117,147 and had resulted in 265 deaths in the nine provinces, although the vast majority were in the province of KwaZulu-Natal where it originated.

In the period since the cholera epidemic, events have shown that this was not a unique occurrence. The outbreak of typhoid in Delmas, Mpumalanga, during August–September 2005 in which there were five deaths from the disease and 596 cases accompanied by 3346 cases of diarrhoeaⁱⁱ demonstrated the continued vulnerability of poor people in urban and rural settings to water related disease. The evidence pointed to problems in the management of the detested bucket sanitation system, affecting the quality of water.

The emergency medical responses to the cholera outbreak were expensive but largely effective in maintaining a fairly low level of mortality at 0.31 percent of those infected (Hemson and Dube 2004). Hospitals receiving cholera patients improved their response levels, and the Departments of Health and Water Affairs quickly launched a public information campaign to warn people particularly against using unsafe water sources. Community resources and Community Health Workers were also mobilised at the local level to conduct campaigns showing people how to treat water and to promote hygiene. Finally, although limited in reach, municipalities and the Defence Force sent water tankers with safe water into communities.

Why did cholera emerge in South Africa? Cholera is known as a disease of the poor, but due to the post-apartheid government's reported record of service delivery many people imagined the country to be secure from the disease. Its emergence highlights two points. The most obvious is that there are significant gaps remaining in service delivery. The immediate response to the epidemic was to focus on sanitation, particularly the construction of tens of thousands of toilets in rural areas. Ongoing work to improve the delivery of water was also intensified.

A second, more subtle point is that cholera follows from the country's persistent uneven development. Although services have been improved in many areas, underlying poverty remains in most of the historically disadvantaged parts of the country. Cholera has affected areas with services as well as those without services in part because these areas are uniformly poor. As a result, one of the most overlooked aspects of the epidemic is that "serviced" areas – i.e. areas with piped water – were also prey to cholera. In fact, the epicentre of the outbreak was not an unserved, deep rural community but a semi-rural community on the outskirts of a major industrial area that had access to piped water. From here cholera spread throughout the province of KwaZulu-Natal to the Eastern Cape and Mpumalanga and other provinces of South Africa.

A powerful interpretation of the spread of the epidemic from index cases (the first positively diagnosed) to thousands in many provinces is that the pressure on the poor to pay for water made them turn to untreated sources. For instance, Cottle and Deedat (2002, 3–4) argue that the Department of Water and Forestry's (DWA) unbending implementation of its cost-recovery policy forced poor households to resort to using unsafe sources of water which increased their chances of being infected with cholera.

That there was a link between payment for water and the emergence of cholera was recognised by policymakers shortly after the epidemic and was soon followed by national government's Free Basic Water policy in late 2000, offering six kilolitres of free water per month to all South African households (intended to provide a lifeline of at least 25 litres per person per day based on a household of eight people).

Although largely implemented in urban metropolitan areas and towns, the extension of Free Basic Water to those who needed it most has been limited by systems – or a lack of systems – in place to be able to implement such a policy in semi-urban and rural areas. Ironically, the policy of providing free water is being implemented last in the very areas that were the reason for its formulation. The extension of free basic water to urban townships has also been uneven but in the five years after its announcement, many township households now have access to 200 litres of free water per day through meters (though this is still inaccessible to those unable to afford the water or the card required to use a prepaid system).

This study examines the dynamics arising around the payment for water in the context of the cholera epidemic and afterwards. It asks: What were the local implications of national, provincial, and local government policies, decisions, and action before, during, and after the cholera epidemic? How did communities with access to piped water respond to a service that became costly and irregular?

Three main points emerge. First, even though the government health intervention to the epidemic was largely effective, local experiences of powerlessness resulted in a range of unexpected community responses. Second, following the epidemic, important improvements were made that

resulted in all those interviewed using piped water, water sources closer to households, and increased access to improved pit latrines (VIPs). However, at the time of fieldwork the policy of free basic water had not been extended to the areas covered in this study, which meant that access to water was still problematic. People continued to resort to using water from traditional sources, often without treating it. Finally, the combination of having to pay for water and poor water service with frequent interruptions resulted in complex community dynamics related to storing water, problems in payment and vandalism. These issues arise not only from the type of macro-level policies and programmes that are being put into place, but also from local government.

METHODOLOGY

This report is based on qualitative and quantitative data gathered through key informant interviews and a household survey in two cholera affected communities: Nqutshini (a semi rural area) and Nkobongo (a mixed township and informal settlement). Although a water project in the 1990s provided standpipes in Nqutshini, which is part of the Madlebe Tribal Authority on the outskirts of Empangeni, this community later became an early centre of the epidemic. Nkobongo is a township with both formal and informal settlements in the Dolphin Coast municipality north of Durban. In addition to different types of settlement, the areas have different administrative set-ups: Nqutshini, a semi-rural area, has a traditional tribal administrative structure whereas Nkobongo, a semi-urban area, has a “modern” municipal administrative structure. In spite of these apparent differences, both communities are characterized by deep levels of poverty. However, unlike many remote rural areas, both areas also have piped water infrastructure. They thus provide useful case studies of the spread of cholera in more developed areas and the dynamics that have emerged where safe drinking water is available – though at a cost.

The study began using qualitative data collection on the cholera experience through ethnographic community interviews. Semi-structured interviews were conducted in combination with visits, observations and informal discussions to gain insight into people’s attitudes to water, sanitation and disease and into the public health interventions related to cholera. For the first three days of fieldwork at each site researchers were present with fieldworkers to use participant observation while training and guiding fieldworkers. Given the stigma and concealment associated with cholera it was necessary to proceed with sensitivity and to build on the respect the fieldworkers already had in both communities. Through an extended presence in the communitiesⁱⁱⁱ and through discussion with key informants, fieldworkers were able to identify and gain access to households affected by cholera and to build up a representative sample.

A survey of each community was then undertaken on the basis of a purposive sampling of equal weighting between ‘affected’ and ‘unaffected’ households that would be large enough to be broadly representative of the communities. The population size for Nqutshini is established from a survey by the census enumerator of 1862 people in 425 households providing an average household size of 4.4^{iv}. That of Nkobongo is established from

the 2001 Census sub-place name to be 1294 people in 427 households with an average household size of 3.0^v. In each community, 20 cholera affected households and 20 unaffected households^{vi} were interviewed. Although designed to give an equal proportion of 'affected' and 'unaffected' households, the sample was also broadly representative since a total of 40 households per community comprises approximately 10 percent of the community.

The purposive sample started with the households containing known individuals with symptoms, and additional households were included as they became known. Following an interview with an affected family, the next household to the right was then selected if it was an 'unaffected' household. The sample was thus built on prior knowledge and added to by chain referral and enquiry^{vii}. The 'unaffected' 20 households served as a control to enable the researchers to capture potential variations among the symptomatic and asymptomatic households. Given the rapid expansion of the cholera epidemic and the fairly general state of poverty within each community, it was expected that the sample and the control would show similar social characteristics, making the most critically important differences between sample and control visible.

The survey used a questionnaire on household conditions, health, attitudes and details of treatment. The key questions on water storage and consumption were probed, demographic data on families gathered, and change measured in the time between the epidemic and the present. The questionnaire consists to a large extent of closed questions with some open-ended questions: a general household section to capture both quantitative and qualitative data regarding household demographics, water access, sanitation facilities, community health education, and family health. It concludes with an individual section to capture data relating to the health and the well-being of those who experienced symptoms. The interviewer directed the first set of questions to the mother or older person of the household. Depending on the response to the question on incidence of cholera in the household, further questions were either pursued with the cholera affected individual or, in the case of one of the control groups, the interview was then brought to an end.

Research and hopes for change

The study asked community members to revisit their experience of the epidemic and rethink the effect of interventions from public health to the research activity itself. Researchers have raised questions about the time elapsed between health incidents and surveys (Ross et al, 1986). Although this study was conducted five years after the epidemic, responses to questions are considered valid because of the events were matters of life and death for the people involved.

As has been experienced in other research projects relating to the poor, the first question from community members was what effect the research

would have in improving people's lives. The researchers and fieldworkers responded that it would assist in recording what people say and passing information back to communities and authorities for action. There was, however, no guarantee that research alone would lead to the change desired by the people.

Various responses to this position were articulated. In the view of one of the older members of the Nqutshini community the research would not bring the desired change he wanted to see:

In my view, the studies that are being conducted in the area are just useless. They do not bring any change in the conditions of our lives...as things stand right now they just come here and leave again never to come back ever again. And things just remain the same. That is why I am somewhat sceptical about the usefulness of research.

Interview, 7 July 2003.

Other older men from the community expressed a somewhat stoical and guarded optimism. They felt that there was a possibility that things could change and that the research would then be shown to have made a difference and helped the people.

The effects of this research cannot be clearly forecasted either, but is hoped that it can have an impact through identifying key issues and making appropriate recommendations.

Case Study Areas

This section describes the two communities in the study, Nqutshini and Nkobongo. In terms of water supply, although administered differently, both areas had access to piped water at the time of the cholera outbreak. Perhaps most importantly, people had to pay for water but argued they were unable to do so due to the pervasive poverty in both areas.

Nqutshini

Nqutshini, a semi-rural settlement on the outskirts of the northern industrial town of Empangeni, was the epicentre of the cholera epidemic. The area falls under the Umhlatuze local municipality, which is a part of the greater uThungulu District Municipality. In terms of population density the area appears more like an informal settlement in a township than a typical rural area. For example, there is a communal graveyard at Nqutshini, unlike most rural areas where individual households bury their dead.

Still, Nqutshini exhibits many aspects of a traditional community. Falling under the jurisdiction of the Madlebe Tribal Authority, the area has traditional authority structures such as an inkosi (chief), izinduna (headmen) and an administering tribal court. Twelve small sub-wards fall under Inkosi Senzo Zungu. The land is held under communal tenure and families that reside in Nqutshini were allocated land by the local induna, Mr Mkhize.

Most residents are poor or very poor with approximately 50% of residents living on less than R400 per month of per capita income. Unemployment is also very high. Local people who are gainfully employed work mainly in the nearby town of Empangeni and in the rapidly growing Richards Bay, which is approximately 30 kilometres away.

Water supply and sanitation

As is the case in many rural areas in South Africa prior to 1994, Nqutshini did not have an adequate public water infrastructure. Nqutshini first received safe water supply in the early 1980s from the then KwaZulu Department of Agriculture as part of the emergency relief measures undertaken in response to the 1982 drought and subsequent cholera outbreak. As is the case in many rural areas in South Africa prior to 1994, Nqutshini did not have an adequate public water infrastructure. Nqutshini first received safe water supply in the early 1980s from the then KwaZulu Department of Agriculture as part of the emergency relief measures undertaken in response to the 1982 drought and subsequent cholera outbreak.

Delivery took the form of boreholes with hand pumps that were provided in each of the sub-wards making up the Madlebe Tribal Authority. People report that there were fundamental problems with the boreholes, the first being location. For instance, with just one borehole to cover the whole area of Nqutshini, there were problems of scarcity as long queues developed. Furthermore, like most of the underground water sources in the area, many people in Nqutshini complained about the salty taste. With distance, time and quality problems with borehole water, many families continued to fetch water from mainly natural sources such as springs, streams and rivers, and to access rainwater flowing from roofs into tanks.

Later in the 1980s, nine communal standpipes were subsequently provided to serve the greater Madlebe area. They were largely viewed as a public health measure and the Ngwelezane/Empangeni municipality paid for water supplied through them. Water was free, but not readily accessible to all. The inadequacy of the few standpipes is highlighted by Cottle and Deedat (2002, 31), who argue that “prior to 1994, Madlebe...had no real water infrastructure to speak of. Access to clean water up until very recently was a daily struggle for communities in this vicinity”.

Partly because of a history of cholera in the area in the 1980s, the Madlebe Tribal Authority received priority funding from the Department of Water Affairs and Forestry (DWA) for a Reconstruction and Development Programme (RDP) water supply scheme. The plans^{viii} show that provision was made to supply water to 23,000 people, of which 5750 people (25 percent) would be beyond 200 metres from a tap. One of the many deficiencies later acknowledged of the project is that plans underestimated population size and demand. According to the 2001 Census there were 10,042 households and 49,000 people in the communities making up Madlebe, with 37 percent either beyond 200 metres from a standpipe or with no access to water infrastructure.^{ix}

Despite the advance of piped water throughout the community there were three major limitations. First the scheme did not cover all the communities in each area because reticulation did not reach all parts and did not meet the 200-metre RDP standard of distance from each tap to all of the households served by it. Moreover, those who could access standpipes found that the flow of water was irregular. Second, not all households were able to pay the registration charge or the R20 monthly flat-rate charge. As a result, in 2000, many households either continued to collect untreated water or were cut off from existing supply and turned to the rivers and streams. Since the system was not designed for cost recovery, nonpayment by some households typically meant that all neighbouring households were cut off since the water main to that standpipe was switched off. Some residents even argued that cutting off one standpipe meant that all standpipes ‘downstream’ were also cut off. Finally, the supply of piped water was not accompanied by the provision of sanitation. At the time of the cholera outbreak, only three households in the two areas had ventilated pit latrines (VIPs).

In crucial deliberations held between uThungulu Regional Council and the project steering committee in 2000, it was decided that prepayment be adopted as a way to ensure that the scheme did not operate at a loss. This change in policy was part and parcel of the policy framework of government that imposed cost recovery in the public provision of basic services (Cottle and Deedat 2002, 3–4). A registration charge of R50 and a monthly flat-rate charge of R20 per household was levied and funds were to be collected and taken to the water office at the Madlebe tribal court. According to the uThungulu Regional Council this scheme simply meant that the 17-year-old provision of free water to the community by the former KwaZulu government to deal with the 1983–84 drought was terminated. The CEO of the uThungulu Regional Council, Mr B.B. Biyela, later held that people were given sufficient warning before the rules were enforced at the beginning of August 2000 (Salgado 2000). The enforcement of cost recovery and disease was synchronised: cutoffs started and the first cases of cholera were diagnosed in August.

Nkobongo

The second site, Nkobongo, a peri-urban township 45 kilometres north of Durban, also suffered from cholera. Interior to the holiday resort area of the Dolphin Coast, the township is adjacent to vast sugarcane plantation fields and to the small Indian settlement of Shakaskraal. Like Shakashead and Etete, two neighbouring African settlement areas, Nkobongo developed initially as a small informal settlement whose inhabitants provided cheap labour mainly to local sugarcane farmers, white households and commerce. These poorly-serviced, poverty-stricken, black informal settlements were amalgamated politically with several economically viable, highly developed and well-serviced, white local authorities into the Borough of Dolphin Coast. Although the new municipality built RDP houses in the late 1990s, slum areas made up of wood and corrugated iron shacks, often covered with plastic sheeting, still cluster around the new housing development. The current population is almost evenly distributed between areas with RDP houses and shacks, and both were included in the sample.

Due to the low-paying nature of available work in the area, primarily as sugarcane labourers or domestic workers, the boom in the tourism industry and subsequent upturn in the local economy does very little in terms of improving the socioeconomic conditions of most families in this area. Together with the high rate of unemployment this has resulted in the majority of people in Nkobongo being very poor.

Water supply and sanitation

While people in formal housing receive municipal services^x, people living in the informal settlement are forced to try and access whatever they can. Municipal trucks collect refuse from the formal housing areas but tend to

leave behind the black refuse bags from the informal settlement. While there are communal water standpipes in the formal part of Nkobongo – and a few households even have metered water in their yards – these must also be used by the nearby informal settlement since there are no communal standpipes in the informal settlement itself.

In terms of sanitation, although there are VIPs as well as flush toilets in the formal part of Nkobongo, there are no adequate or improved latrines in the informal settlement, except for poorly structured, makeshift toilets. According to the 2001 Census, of the 427 households in Nkobongo in 2001, 384 (90 percent) were also more than 200 metres from a standpipe.^{xi}

As part of the Borough of Dolphin Coast, Nkobongo is served by the water and sanitation concession granted to Siza Water, which is a South African subsidiary of the French-based water utility, SAUR, in the form of a private-public partnership. Siza Water took over the management of the infrastructure with promises to improve services. The concession became operational in 2000, and was hailed by proponents of private sector involvement as one of the first of its kind that could lead by example to other such initiatives in the country. The concession included Ballito, Salt Rock, Umhlali, Shakashead, Nkobongo, and Etete. The first three areas are affluent, white, residential, suburban and commercial areas and the latter three are black, peri-urban township locations, with Shakaskraal a small settlement formal settlement between the coastal resorts and the more dense RDP housing.

The privatisation of water services in 2000 under Siza Water meant an end to free water services on the borders of Nkobongo. The concession did lead to the development of reticulation through the formal housing of Nkobongo, but with the burden of prepaid meters. The prepaid system in Nkobongo works as follows: households are expected to buy a prepaid water card for R70 and then pay R5, R10 and R20 for a token to get access to water up to these amounts of consumption (although the R5 option is reportedly no longer available).and then pay R5, R10 and R20 for a token to get access to water up to these amounts of consumption (although the R5 option is reportedly no longer available).

DEALING WITH THE CHOLERA EPIDEMIC

As noted in the introduction, the 2000–01 cholera epidemic in South Africa was the biggest cholera outbreak in Africa for this period and affected more than a hundred thousand. What did this mean at the local level? From the two cases first diagnosed in the Madlebe district on 22 August 2000, the epidemic ripped through the small community of Nqutshini with 16 reported cases on 25 August and 24 reported cases on 28 August. For the entire month of August there were 62 cases, dropping to 49 in September, and then rising again to 69 in October 2000. Only in November did the caseload drop off significantly. This section will discuss the transmission of cholera, review the government's reaction, and examine community responses in Nqutshini and Nkobongo.

Contracting cholera

Cholera is a disease of the gastrointestinal tract caused by the ingestion of the cholerae bacilli that are spread via contaminated food or water. The cholerae bacteria are carried to water by human faeces, but does not pass easily from human to human. Drinking water must be heavily contaminated for infection to take place. It therefore becomes established in areas where there is an absence of adequate water and sanitation facilities.

It is a painful disease that causes intense vomiting and profuse watery diarrhoea leading to dehydration which, unless immediately treated, may be fatal. It is hard to capture adequately the feeling of panic and despair setting in with the disease. A person who has been infected with cholera experiences prolonged periods of diarrhoea and suffers from excruciating stomach pains and cramps. From the interviews in the communities studied there are vivid recollections of the rapid deterioration of those infected:

Within minutes, the body loses strength. A bluish watery substance is excreted. A person also begins to vomit bluish liquid and the body continues to lose all the strength. As a person's eyes begin to sink deeper inside the sockets, that person is only a few steps away from certain death especially if there is no help that is available immediately.
Interview with Mrs Sibiya, 6 July 2003.

Naked fear is found in the words of one of its victims:

The hair still stands on its end and you feel the blood rush through all parts of the body each time when one thinks about that situation.

Interview, Mr Madida, 7 July 2003.

According to medical sources, the key to treating cholera is prompt and complete replacement of the fluid and salt lost through the profuse diarrhoea. Patients are rehydrated with an oral solution, a pre-packaged mixture of sugar and salts that is then combined with water and drunk in large amounts. With such treatment soon after symptoms appear there is a remarkably high survival rate, and fewer than 1 percent of patients die.^{xii}

Government reaction to cholera

The outbreak of cholera was an unwanted and unexpected challenge to health authorities both provincially and nationally. Within a short period a number of initiatives were undertaken by the hospitals receiving cholera patients with additional support from the Departments of Health and Water Affairs. The discussion here concentrates on this intervention at the centre of the epidemic, assesses its effects and draws some conclusions as to its efficacy.

The government's reaction had three components that worked alongside one another. The first component was to warn local people not to use traditional water sources. Several measures were taken by the Department of Health to alert the local community to the dangers of using water from such unsafe sources. The second component was to provide an alternative by sending tankers into the community with safe water as an emergency measure. The third component was to mobilise community resources to carry out health campaigns. Health officials recruited local women to work as Community Health Workers (CHW) in the entire Madlebe area.

Soon after the outbreak the Departments of Health and Water launched a public information campaign urging rural people to take measures to protect themselves from the disease. Messages were relayed on Ukhozi FM radio station (in Zulu) and television (in Zulu and English on SABC 1). Such media were used to announce community awareness programmes and road shows with popular presenters and musicians. Meetings of local communities were called by local izinduna for purposes of making people aware of the dangers of the cholera epidemic. Pamphlets in both Zulu and English were also distributed among affected areas.

Since there is a higher rate of illiteracy in rural areas, the public information campaign also relied on an extensive use of posters with clear and understandable health messages about cholera. For example, basic messages to promote personal hygiene included: use only clean, treated or boiled water; wash all raw food with clean, treated or boiled water; wash your hands before handling or eating food; and use proper toilet facilities only and wash hands after use.^{xiii}

According to Hemson and Dube (2004), these messages did not produce desired results at first because they were based on two assumptions that were highly improbable. First, they assumed that there were sufficient facilities to boil water^{xiv} or that bleach was available and people could afford it. Although a local brand of bleach was handed out to households in the affected areas, it was a limited supply and not all households were reached. Second, they assumed that 'proper toilet facilities', nearby handwashing facilities and sufficient soap and water were available in rural communities. Unfortunately, the messages did not include advocacy of the people's right to safe water and sanitation and how to achieve them through the mobilisation of communities for better levels of health.

After the first instances of reported deaths due to the outbreak of the epidemic, women working as health volunteers and others were taken up as volunteer CHWs – with no remuneration from the Department of Health or the hospital, it should be noted – to work in the cholera-fighting campaign that was led by Environmental Health officials from the Ngwelezane Hospital. After short-term training at the Ngwelezane Hospital the women were hastily deployed throughout the Madlebe tribal area during the height of the outbreak. They made school visits and went door-to-door in the affected areas. Strategies included disseminating information on treating water obtained from unsafe sources before drinking by boiling it, or, alternatively, by exposing transparent containers to sunlight or letting it stand unused overnight after treatment with Jik^{xv}. According to the CHW, people responded positively to the messages and many began to treat water before drinking it. The CHWs were also tasked with teaching people about the importance of washing their hands after using the toilet and how to administer first aid assistance for people already affected by the disease, particularly preparation of the sugar-salt solution and use of Oral Rehydration Therapy (ORT).

The municipalities provided emergency water tankers in both Nkobongo and (with the support of the military) at Nqutshini/Madlebe to supply clean water in affected areas. These were widely utilised as the disease spread. They increased the scope of coverage for clean water supply for those families with no access or living furthest from the already existing communal water standpipes. In Madlebe, the water tanks were used to get clean water into areas where standpipes were known to have been broken or were located further away from the people. Water tankers replenished water every second day and army personnel helped to dispense water to people waiting in queues. However, this fell short of people's expectations since tanks were not replenished daily and were located in places, in some instances, far from the more remote households. Though a great help to those in the nearby vicinity they failed to provide a comprehensive alternative to unsafe water sources.

Medical responses included rehydration tents that were set up as emergency clinics situated within communities. In the case of Nqutshini

a tent was placed on the playing field just outside the primary school and greatly reduced the time in which the victims of cholera could access treatment. Moreover the SA Medical Health Service (SAMHS) contributed with helicopters and medical teams, ambulances and medication as well as providing tents. On average, according to a military journal, they treated more than one thousand patients a day and not less than 98,000 cases, or some 90 percent of the cholera patients (Crowther 2001), which is a very high figure^{xvi}. If the data is valid this is an extraordinary contribution, which relieved rural and urban hospitals of a huge volume of work.

Community Responses

This section discusses how people exhibited a contradictory attitude to water purity. Although there appear to have been saturation messages about not using river water and treating all unsafe water sources this advice was not necessarily accepted. Many people reported continuing to use river or stream water without treatment during the epidemic, and subsequently. It does not assert a causal argument about this behaviour, but highlights a complex interplay of various factors. As discussed below, not only did the stigma related to cholera at times make people too ashamed to get help, but some people also denied that cholera might affect them because they were unable either to pay for water or to afford the time and cost of treating water. In some cases, people had confidence in prayer to purify water. In addition, once cholera had hit an area community members often sought to understand the cause of cholera by looking to external antagonistic actors.

Reverting to 'traditional' sources

Prior to and during the epidemic in 2000–01 the affected communities generally relied on traditional water sources for agricultural, domestic, and personal hygiene water needs. Although piped water was available from standpipes in Nqutshini and Nkobongo, according to our survey very few households drew from these sources in 2000 since it required payment or was irregular. The main sources of water supply for the two communities as was indicated by 70 of the 80 households interviewed were the streams and rivers.

Nqutshini is surrounded by two main rivers, the Mhlathuze and Mpangeni, which have historically served as the main sources of water for the area. Local residents were taken by surprise when the two rivers used over generations were identified as unsafe in August 2000 following the positive identification of cholera among desperately sick residents in Nqutshini and nearby communities in the district of Madlebe. The prevalent view about the rise of cholera at Nqutshini is simply that it came from the Mhlathuze River, even though it had been a traditional source for as long as people lived in the community.

The Khoza^{xvii} family felt that the only people who fell ill were those that

drank water from the Mhlathuze and that they were spared as they had been collecting water from an alternative spring at that time. Like the Khoza family, the Mathaba family is of the view that their son got sick because he drank water from the Mhlathuze River. The mother has this to say regarding her son contracting cholera:

I strongly think he might have picked it somewhere, but not from the same water we were drinking. You know the boys they move around a lot. They hardly stay at home. So it could happen that in their outings he might have drunk infected water from somewhere. Who knows? Maybe he drank water from Mhlathuze itself, because that is where most of the people who got sick were collecting water at the time. Or maybe he had been out swimming at Mhlathuze. I don't know.... But there is no one I know from this side of Nqutshini who fell sick as a result of cholera.

Interview, Ms Mathaba, 30 September 2003.

It was hard for the Nqutshini community to understand, confront and eventually come to terms with the devastation wreaked by the epidemic. In addition to the problems they faced in struggling to make a living from the land, searching for jobs, or accessing state support such as child grants, there was an unknown and overwhelming danger coming from a source they had always trusted. There was a deep ambivalence about 'traditional' sources: local people are fond of the Mhlathuze River even though equally many blame it as the source of the cholera epidemic. They point out time and again that even their fathers had used this river but had never previously contracted cholera; some people even dispute that the cholera epidemic was contracted through the Mhlathuze River.

Despite house-to-house campaigns and radio messages, many of the families involved seem not to have either heard or accepted the messages not to use river water. Surprisingly, 18 households surveyed felt that water from the river was safe to drink in 2000 and many suffered the consequences. In the Mthiyane family the eldest daughter reported that the mother was the only one in the family to be infected. She went to the hospital and received medication for about a month, during which her condition varied considerably and appeared to improve before she died. The children could not understand how she alone was infected because they were all drinking water from the river. The family continued to drink water from the same source even after the mother had fallen sick, because they said they did not know the sickness was caused by contaminated water from Mhlathuze River.

Another example is the Mnguni family. The head of the family of nine was the only one infected although all were drinking water from the Mhlathuze River. Mr Mnguni is portrayed by his wife as a very stubborn

person and he consistently refused to go to the clinic saying they must leave him alone to die. The family was eventually able to get him to the hospital through the help of his brother, who had been notified by the family about his desperate condition. He spent more than a week in hospital before he recovered. Mrs Mnguni points out that they continued to drink water from the river because they still did not know that the disease was carried by river water. But after they had received warnings to refrain, the family began – alongside their neighbours – to collect water that was being distributed by the water tankers.

The speed of medical intervention is crucial in cholera as the condition of those infected can deteriorate very rapidly. Mrs Mnguni felt that her husband would not have become as critical as he was if he had not refused in the initial stages to go to the clinic. He was particularly vulnerable since he also suffered from tuberculosis. His wife reports that not only is he still very weak but he also shows signs of being less mentally sound. She describes how he asks the same question several times over, “even if you have already given him the answer”, as well as how he utters sentences that do not make sense.

Coming to terms with Cholera

Although many community members came to recognise that illness was caused by drinking untreated water from rivers, other families continued to drink river water and had family members who contracted the disease. How can we explain this phenomenon? Did they not hear about cholera or did they not accept messages about it?

Denial as a response to uncertainty

One of the most difficult issues to confront in gaining an understanding of the epidemic is the fear and denial associated with the disease. People do not talk easily of such trauma and personal humiliation. The disease appears vile, disgusting, and an affront to a person’s dignity; succumbing to the disease seems to imply association with dirty and unhygienic habits. This is undoubtedly how disgrace and possible community reproach arises^{xviii}.

The stigma of cholera evidently led people to deny that the disease was in their midst and their revulsion against the disease in turn obscured prevention and treatment. For example, the Phungula’s late daughter, Dudu^{xix}, hid the illness even from her mother. A neighbour reported:

It was only at night that Dudu began to cry out loudly. When her mother asked her what was the problem she complained of stomachache. But the family members didn’t know at the time what to do or how to treat someone infected by cholera.

She died the next day after being taken to the clinic by family members. It was only then that the distraught family learned from others that she had been vomiting at the river after drinking water from the Mhlathuze the day before.

When interviewing the family of another victim, the conversation often stopped when discussion turned to the epidemic. The husband called out to his wife who was sitting with a friend: "Was there anyone who got infected by cholera in this house?" His wife answered to the effect: "Cholera infected very many people in this area". Although the husband had been mentioned by local people as severely infected by cholera and lucky to have survived he was not willing to disclose this fact and was adamant initially that he had never had cholera. Then midway through the interview he suddenly declared he had very nearly died of the disease.

There were also signs of denial from those unwilling, or unable, to treat their water before drinking it during the outbreak. A number of respondents, for instance, mentioned the high cost of bleach. Many of those not purifying water tended to express scepticism about the disease or question its likely transmission route.

The role of religion

Contradictory attitudes to water purity may be explained in part through religious belief. The community has many adherents to traditional beliefs and to the Shembe faith, which is prominent throughout rural KwaZulu-Natal. Scores of people can be seen walking barefoot, clutching their traditional mats used to kneel and sit during worship in open fields in different parts of the greater Madlebe area. Many consider water to have a spiritual as well as a practical significance and some believe that prayer can ensure that water is pure. As Mrs Gumede, a former spiritual healer, said:

Water lives and is the source of life on earth. All living things depend on it. That is why we look up to water for the powers to heal the sick.... Whether that water is pure or contaminated, prayer deals with that. What is most important is that prayer serves to cure all the evil that could be carried in water.

Interview, Mrs Gumede, 24 July 2003.

Others believed in the spiritual nature of water, but were grounded by church leaders' pragmatic warnings. Mfanafuthi, a devout follower of the Shembe faith, has a view similar to that of Mrs Gumede but was quick to point out that his church adopted the position of not being dogmatic about its teachings during the cholera outbreak. He explained that the Shembe church heeded warnings being given about the dangers of cholera in 2000–01. At a religious ceremony at the time of the epidemic messages of awareness about cholera and information on how to treat water from an unsafe source were also disseminated and worshippers were encouraged to take precautions.

An external agency using cholera as a weapon?

Some residents suggested that the cholera outbreak was caused intentionally by an external agency. Although not universally expressed, there is a widespread sense that whites can act malevolently towards black people through spreading disease and disorder. And not without reason. The publicity surrounding the Truth and Reconciliation Commission's investigation into the apartheid regime's plans to kill blacks through chemical and biological warfare (termed Project Coast, which included the contamination of water with cholera) undoubtedly still lingers in the public imagination^{xx}.

Such suggestions were made in a number of guises. Some people suggested that white people put cholera in the Mhlatuze River by an aeroplane or other means. MaMthethwa Sibiyi stated that she is still filled with fear when she sees an aeroplane pass over the area thinking maybe it is out to spread the disease.

Others feel that cholera was the result of witchcraft. Mrs Mkhize thinks that the uncontrollable diarrhoea that she and her husband suffered was the work of witchcraft, but still holds the view that somehow whites were involved in the disaster as well. Mr Madida, who was fortunate to survive, thinks the cholera outbreak was the result of a deliberate conspiracy by whites to reduce the number of blacks because of the fear of their numerical superiority. Finally, some people in Nqutshini blame whites who constructed the nearby township for poisoning their river with waste from the township:

It is the Whites who came and spoiled our water. They are the ones who are damaging our water. We were using water from the river; getting water from the spring...they came and built the township.... Now it's disturbing our lives.

Interview, 30 September 2003.

In this case, white malevolence was perceived to be crucial in deciding to construct the large township some kilometres away or in being careless in planning its waste disposal. In the case of the township discussed above, it was suggested that whites were using cholera as a weapon to strike against the advance towards democracy and undermine confidence in black leadership.

In the period after the epidemic, people are still in a state of doubt about its possible reasons. An educated leader pointed out that the community felt "some people" who supported cost recovery were trying to terrify people to turn away from rivers and streams as a way to popularise paying for the use of tap water. Here the disease was evidently felt less important than the unwelcome message of payment.

In searching for a reason for the devastation they faced, individuals explored alternative views to those provided officially by health authorities. In part this appears a reflection of their powerlessness in the face of such adversity and an attempt to find some overall explanation of their misery. In each of these cases, local people blame unknown, external forces for closing the option of using free water from natural sources without providing another free and viable option.

POST-EPIDEMIC CHANGES AND DYNAMICS

After the cholera epidemic, authorities worked to improve water and sanitation systems to prevent further outbreaks. This section discusses these improvements as well as areas where there was a lack of change. It then focuses on the provision of free basic water. After highlighting issues related to the service of water provision it explores community dynamics that have arisen in this environment.

Improvements and lack of change

The household survey indicated that considerable improvement in access to piped water and toilets had been achieved by 2004. In Nqutshini, the Madlebe water project was accessible in 2000, but it appears that the supply was so costly and irregular that people did not mention piped water as a source. Subsequently respondents report that, although frequently interrupted, they get their water from a piped source even though not all report they are paying for water^{xxi}. Of the 80 respondents, 59 households reported access to communal taps and 21 households (who could afford the expense of installation) had access to yard connections. In addition, the vast majority of households (77 out of 80) now report that their water source is safe to drink.

The distance to the water source determines the quantity that can be collected and consumed by a household; the further the water source the less water consumed for domestic and personal hygiene needs. Water sources are now much closer, with 55 households accessing water within 50m. Similarly 46 households also mentioned that the distance to the improved water sources water was reduced to only 15 minutes, compared to only five households with this kind of access in 2000.

With the provision of improved piped water, only five households are now collecting water more than three times a day compared to 26 in 2000. This appears to indicate that the shorter distances enable more water to be carried on each trip. Being able to access water closer to the household has the spin-off effect of higher levels of consumption for those who can pay. In contrast to 2000 when only 11 households used between 100–200 litres of water per day, 23 households used this amount in 2004.

There were other improvements. One of the positive responses to the epidemic was a renewed interest in sanitation, which had been lying more or less dormant until the epidemic. Safe disposal of excreta is one of the most effective measures for limiting the spread of cholera, but at the time of the epidemic only three households in Nqutshini used VIP latrines. Months after the epidemic, plans were made for the construction of VIPs and the DWAF approved R2.8m for AquaManzi to meet the needs of 9600 households as cholera intervention^{xxii}. A survey was conducted of the precise number of households in the community to ensure that all were included. Toilets were also built in Nkobongo. In 2004, at both sites, 77 households reported that they had VIPs and, unlike access to yard connections, availability of a toilet in 2004 did not depend on income. Although households were required to provide sand and other local inputs there has been equitable implementation of Arch Loos and other types of VIPs since the epidemic.

Table 1: What has changed since the cholera epidemic?

	Epidemic (2000)	Post-epidemic (2004)
	(number of households)	
Piped water source	2	80
Water on site or in yard	1	21
Water is safe to drink	18	77
Less than 50m distant from water source	8	55
Less than 15 minutes to water source	5	46
Water collection: more than 3 times a day	26	16
Toilet facility: VIP	3	77
N=80		

Yet, other things did not change. Despite many warnings from health authorities during the epidemic that water from the Mhlatuze or Mpangeni was unsafe and should either be boiled or treated with Jik, from interviews and discussions these warnings were found not to determine behaviour. In the months and years after the outbreak, few people treated the water they were drinking even if collected from the rivers. At the time of the epidemic in 2000–01 Jik was initially available without charge, although some say they were not included. Many people now state they simply drink the water from whatever source without treating it as they had been warned to do during the outbreak. Many also report they no longer have Jik in their households and could not afford the cost and time of buying more Jik or of increasing the burdensome and time-consuming task of gathering enough firewood to boil water for the required 30 minutes. Others put it bluntly: “Very thirsty people don’t have time to treat water”. In interviews it is clear that water was only treated for a period after the outbreak of cholera, and that many people stopped treating water as soon as the cholera scare died down.

The death of Dudu, the girl described above who concealed the disease,

illuminates many of the dilemmas of people living under the shadow of a deadly infection, the confusion surrounding its speedy impact, and the lack of crucial knowledge during the crisis of illness. The Phungula family reported that health officials were later dispatched in the area to educate the community on strategies to avoid cholera infection by disinfecting water with Jik. There is now a tap that is located about 300 meters away from the household and a VIP. However they now complain that, even after they pay the R20 flat rate, the tap is sometimes shut off because others have not paid. Despite the catastrophe the family still has no alternative but to draw drinking water from Mhlathuze and continue to suffer from stomachaches and diarrhoea. Moreover the father of the late Dudu concedes that even now they still do not know what needs to be done to someone who is infected by cholera. This raises a number of questions about the effectiveness of the health promotion intervention and the receptivity of local residents to the messages. Were those without radios and other forms of communication beyond effective reach or were there impediments to people's understanding?

Since charging for water led people to revert to using traditional water sources, the provision of free basic water was one of the most significant post-epidemic changes. However, as will be discussed in the following section, it was ironically one area where things did not change for the communities in this study.

Policy versus practice: Free Basic Water

The national Free Basic Water policy that arose from the cholera epidemic is part of a long-term intervention aimed at improving access by the poorest to all services. If cholera is a disease of poverty, how can poor people be protected from its ravages by effective and free provision? The question has been raised in public debate, with the then-Minister of Water Affairs and Forestry, Ronnie Kasrils, making the link between the socioeconomic conditions of people and the disease, as follows:

My visits to many rural areas highlighted the fact that many of our people are so desperately poor that they cannot afford what may seem to us a very small price for water, but which may represent a considerable percentage of a family's meagre income...Should they have to pay a mere R10 per month for water, they said, their families would have less to eat. They therefore chose to buy food instead and take their chances in searching for river or ground water. It is a fine principle to say that everybody must pay for services and to stress cost recovery, but we have to understand that the poorest of the poor cannot yet afford to do so... the Cholera outbreak in KwaZulu-Natal would not have happened if all South Africans had access to safe drinking water.

Kasrils 2000b.

Since poor people cannot afford even the lowest tariffs, universal access is compromised where cost recovery is stressed. Charging for water leads to exclusion and to sharply decreasing health benefits from service delivery.

Kasrils' recognition that charging for water was linked to the epidemic led him to make public statements for free basic water within weeks of the outbreak. On 18 September 2000 President Mbeki first announced the Free Basic Water policy at a Cosatu conference, and on 19 September Minister Kasrils issued a press statement that there would be a minimum of six kilolitres a month lifeline tariff.

Although this has been implemented in many urban municipalities, in the rural areas the lifeline tariff has generally not been implemented. In fact, in Nqutshini and Nkobongo, the provision of water services brought about new demands on the household income. The cost of water still continues to be a major factor in poor people's access to sufficient safe water. There is evidence from both the community interviews and the surveys that, four years after the outbreak of cholera and the introduction of free basic water, none of the households were receiving the free water allocation. Instead, households reported that, compared to the situation during the cholera epidemic, the one noticeable change is that they are now paying for water.

Despite Nkobongo being the site of a high level of cholera cases, the prepaid system has continued, and the promise to provide free basic water has not been implemented. When asked about the provision of free basic water in the area, one resident summed it up:

Free basic water? Oh, no. Not us. We never get free water here. We only hear people talking about it on the radio. We even came to think that free water is not meant for people who live in areas such as ours. We are very poor and desperate here, but we have to pay for water. If you don't have money to fill up a card, you have to rely on the good will of other people to offer you some water. But it is very difficult to always have to go to someone to ask for something when you know very well that they are paying for it. So, in most cases, we usually pay whatever an individual charges just to fill up a 25-litre container.

Interview, Nomusa, 14 June 2004.

In 2004 it was announced that, four years after the free basic policy was announced to benefit poor people, township residents would finally receive what others have had for some time. Although prepaid standpipes were modified to provide 200 litres a day to those with cards, a major obstacle to receiving FBW remains the cost of the card itself.

Service issues

One of the unexpected features of water delivery in the community (particularly in Nqutshini) is its unpredictability and poor management. In

Madlebe tribal area the crucial question of improvement in water services is glaring. There has been little or no real improvement despite visits from Ministers, departmental intervention and research interest. The Madlebe water scheme continues to be administered to some extent or another by the tribal authority and frequent interruptions in supply are reported. Despite the enormous attention focused on the area as the early centre of cholera it continues to be common for water to be unavailable from the taps at Nqutshini without reason or notification. Fieldworkers experienced this firsthand in late 2004, when a protracted interruption meant there was no safe water available and no one in the community knew the reason for the interruption^{xxiii}. In contrast, the operation of the water service by the SAUR concession in Nkobongo appears stable even though the costs of water are comparatively high.

Despite this appearance, however, households at both sites reported high levels of interruptions and cutoffs in the survey. Although these appear less visible in Nkobongo they certainly feature among the responses. When asked the reasons for interruptions to their water supply only one household responded there had been none. While a significant proportion were not sure of the reasons, most were able to provide a specific reason. Table 2 shows that the most common reason given for interruptions was vandalism (mentioned particularly in Nkobongo) followed by burst pipes, general maintenance and cutoffs.

Table 2: Reasons for water interruptions in the past year

	Frequency	Percent
Vandalism	17	21%
Burst pipes	14	18%
General maintenance/repairs	12	15%
Pump not working	7	9%
Nonpayment for services (cut off)	6	8%
Not enough water in the system	3	4%
Water only delivered at fixed times	3	4%
No interruptions	1	1%
Poor management	1	1%
Do not know	16	20%
Total	80	100%

Although general maintenance and repairs may appear as a positive level of management, people felt it was more of an indication of extensive problems needing intervention.

The quality of management of water services can be best assessed by the response rate to problems of water services. While 34 percent of respondents report repairs being undertaken within a day, Table 3 shows the remainder report that repairs are made within the same week or longer. It appears from these figures that repairs take some time to be implemented, and that breakdowns lasting days were happening several times a year.

Table 3: Time taken to repair water systems

	Frequency	Percent
Not applicable	1	1%
The same day	27	34%
During the same week	50	63%
During the same month	2	3%
Total	80	100%

The interruptions and other problems were mostly reported to the water committee and headman (in Nqutshini) or to the councillor and the service provider (Siza Water) itself (in Nkobongo). A significant proportion of the people said that they did not report problems.

Many of the residents are vocal in their dissatisfaction with the state of constant interruptions in the form of breakdowns in service of various kinds and in cutoffs. One interviewee described the result:

If piped water is aimed at the protection of the community, we could say the community is not protected. Sometimes you would find that this water from the river constitutes about 80 percent of water consumed here.... As I speak right now, we have been without water for an entire month. The whole month!

Interview, Mkhize, 7 July 2003.

In Nqutshini people pointed out that they are expected to pay the flat rate for the month even when water is not coming out of the taps. They also complain that they are not informed in advance when water is going to be unavailable. These points are well captured by the following statement:

Sometimes water is not available from the taps for weeks on end. And when they turn the taps off they do not give the community prior notice. It worries us a lot when they just switch the water off. On top of that one still has to pay the R20 charge even if water has not been available for a whole month.

Interview, Ms Sibiya, 6 July 2003.

Over and above inconvenience and cost, problems with water supply result in the consumption of safe water in many areas being below the basic level of 25 litres per person per day, with continuing vulnerability to disease and low levels of handwashing^{xxiv}.

Problems with water service show how water provision has become more complex than simply paying for water and being provided with it or not paying and being cut off. The following subsection describes these dynamics in more detail.

Community dynamics around water supply

Poor water service, particularly unexplained interruptions and issues related to payment have elicited a range of responses and coping mechanisms at the community level, namely buying (or stealing) water, storing water, and vandalism. Vandalism in particular has exacerbated problems and has affected community social dynamics.

Buying water from neighbours

Even if the sums involved in water charges do not appear large it is not easy for poor members of the community to cope. Many poor people who cannot pay the initial cost of the card or for recharging it end up buying water from their neighbours at the price of 20 cents for a 20-litre container. Take the case of Mr Ngubo in Nkobongo, who is old, shortsighted, unemployed and looks very sick. His family does not have a prepaid card simply because they cannot afford it. He finds people with a card charge him as much as 70 cents or even R1 for a 25-litre barrel. Mr Ngubo explains:

My wife is a domestic worker. She works for an Indian family just up the street here. She doesn't earn a lot, you know. We supplement that with what I can get when I have been lucky to get a seasonal job as I do some of the time. So we struggle here.

Interview, Mr Ngubo, 18 October 2004.

So the family depends on the container that his wife is able to carry back home from work each day. In other areas, respondents report that the theft of water from neighbours has become a common occurrence.

Storing water

In community interviews people mentioned that they store water against the probability of long interruptions in supply. The difference between 2000 and the present is that in 2000 most households reported use of natural sources because of cost and breakdowns while in the current period people state they access piped water as the main source of water.

The Zungu family is a case in point; the two pensioners live by themselves and have a yard connection. But this does not stop them from storing water in containers for a week or longer to guard against frequent unannounced interruptions and cutoffs. Sometimes the Zungus say they store water for up to two months to guard against unannounced interruptions. It is only when the stored water is finished that the family returns reluctantly to collecting water from the Mhlathuze river.

Vandalism

Vandalism is often mentioned by community members as contributing to what they describe as a costly, irregular and ineffective water system.

The reasons for interruptions through vandalism were closely associated with high levels of dissatisfaction and hostility among those who feel their water was interrupted for no good reason, whose water was cut off due to nonpayment, and who are unable to afford yard connections. In other words, uneven access within the community, frequent breakdowns and what appear to the people as arbitrary cutoffs by authorities make the water service vulnerable to vandalism. These various components are not separate features of a poorly operating system but tend to come together in destructive ways.

According to community members, there is a link between the cost of a yard connection and antisocial behaviour as, it appears, all want the superior service although most cannot afford it. This makes public taps highly vulnerable:

This practice of putting taps on the road is not right. To whom does it belong if it is out there? Who is responsible for it? I will be more willing to take responsibility for a tap that is placed inside my yard, like everything else that belongs to me. That is why people damage and sometimes destroy the communal taps.

Interview, Nqutshini, 22 July 2003.

Yet many households in Nqutshini cannot afford a yard connection, which typically costs about R350. Strong sentiments have been expressed in this regard.

This leaves out the unemployed; when you consider the costs involved in installing a yard connection this is something impossible.

Interview, Mkhize, July 7, 2003.

Those without a yard connection have to rely on a communal standpipe to access safe water. Community members mention that people steal taps and pipes from communal facilities so that they can upgrade to yard connections. Faced with vandalism in Nqutshini, the standard policy for families whose nearby standpipes are wrecked is, according to the individual responsible for collecting the R20 flat-rate tariff in the area, to collect money among themselves and buy a replacement tap rather than expect the water committee or anybody else to replace it.

POVERTY AND VULNERABILITY TO WATER RELATED DISEASE

Cholera was and remains a disease of poverty and the living conditions that are associated with poverty (Feachem 1983, 302).

The two communities studied have roughly the same level of access to water services through public provision, and household income levels in both areas range between poverty and extreme poverty. Under these circumstances, what are the precise relationships between poverty, municipal service and health? This section begins by discussing evidence of a link between income and disease and then considers a series of factors that increase vulnerability to water related disease.

Table 4: Per capita income and cholera incidence

Experience of cholera	Per capita household income		Total
	Less than R400	R400 and above	
Symptoms	22	13	35
No symptoms	9	20	29

From the data gathered in the two sites cholera is clearly associated with the lowest levels of income. The table indicates that even within the relatively narrow band of income ranges within the communities surveyed, lower household income is associated with the incidence of cholera in 71% of cases compared to 39% in the higher income bracket.

Although it is well established that the lack of water and sanitation facilities generally leads to poor hygiene and vulnerability to water related disease, studies of cholera have not exhausted the transmission route between an infected individual and another (Feachem 1983, 300!2). When everyone in a family accesses water from the same unsafe source, those affected by cholera are often puzzled when a particular family member becomes a victim and others do not. A scientific explanation of individual vulnerability is not necessarily readily available from the health professionals they encounter. While it is difficult to trace the

precise linkages between poverty, services, hygiene, and health from a limited survey of this kind, it is possible to isolate the factors most closely associated with two diseases: cholera in 2000 and diarrhoea in 2004.

The survey was designed to measure changes in health conditions at two time periods, at the time of the cholera epidemic and during the subsequent fieldwork when the incidence of diarrhoea rose. Poverty is associated with both types of disease. As in the case of cholera in 2000 there is a significant relationship between household income and the incidence of diarrhoea. Of 13 households reporting diarrhoea among children, 10 (or 77%) had a household income below R400. This study thus establishes that extreme poverty is a key indication of household vulnerability to both cholera and diarrhoea in these two communities.

A model of the risk of cholera in 2000 and of diarrhoea in 2004 was undertaken as part of this study (Nnadozie 2005). This involved the identification of factors associated with the incidence of water related diseases in addition to low levels of income in the two periods. It was found that increased water storage (reflected in the number of containers and higher consumption) led to a higher risk of households experiencing cholera.

Table 5: Storing water and the experience of cholera in 2000

Experienced cholera?	Number of containers of stored water		Total
	Fewer than six	Six or more	
Yes	28	12	40
No	37	3	40

In Table 5 the number of containers used per household is cross-tabulated with the household's experience of cholera. Those using more containers were more prone to the disease; among those households using six or more containers, 12 out of 15 (or 80%) of households experienced cholera. Among those using fewer than six containers, 28 out of 65 (or 43%) experienced the incidence of cholera.

It appears that in an attempt to deal with the problem of dysfunctional water supplies people resorted or returned to storing water for long periods and that this particularly exposed them to disease. In the literature on water related disease, water storage is associated with lower levels of service and uncertain supply (Checkley et al. 2004, 117) and there is increasing interest in the quality of water stored in containers in poor communities at point-of-use rather than at water source (Gundry 2004). Research is revealing that storing water, particularly for long periods, can be a health risk as containers may not be clean and bacteria multiply, particularly when containers are not sealed.

The survey was designed to be able to measure whether there had been improvements over time by asking whether water related diseases were still present and, in particular, if households had a child who had recently experienced diarrhoea. In the study of the risk factors associated with children suffering diarrhoea it was found that its incidence was associated with problems in accessing sufficient water, the ability to pay for water and a previous experience of cholera (Nnadozie 2005). The last point particularly is worth developing.

Table 6: Experience of diarrhoea and cholera

Experience of cholera?	Child suffering from diarrhoea?		Total
	Yes	No	
Yes	13	27	40
No	1	39	40

Table 6 outlines a cross-tabulation of household experience of the two water related diseases. Of the 14 households that had children suffering from diarrhoea during or shortly prior to fieldwork, 13 (or 93%) of these had previously experienced cholera. As discussed below, this high level of association highlights the vulnerability of certain sets of households.

CONCLUSION

Cholera is typically assumed to hit deep rural areas with no access to piped water. In South Africa, continuing uneven development means that poverty is extensive in most previously disadvantaged communities. So it is not surprising that these areas were vulnerable to water related disease. Yet one factor has been overlooked that goes against all common assumptions: the cholera epidemic in South Africa was intense in many “serviced” areas with access to piped water. This phenomenon illustrates a deeper malaise in the management of water services, namely the drive for cost recovery and the regularity of interruptions and breakdowns that drove people to turn to unsafe sources.

The government’s reaction to the cholera epidemic through medical intervention was successful in slowing and ultimately ending the epidemic, which then became limited to spasmodic outbreaks. The health messages put out at the time were, however, unevenly received partly because resources were not available and required a considerable effort by households to meet, such as boiling drinking water. The denial associated with cholera also presents a barrier to effective health promotion. Interviews with people in the two communities showed that official advice on health and hygiene issues was not well communicated nor always readily accepted. Despite one of the communities being at the centre of health intervention a number of households there were not sure how to respond when the disease affected them. These factors point to the need to develop a better understanding of the stigma attached to cholera as well as health promotion that is sensitive to feedback both from communities and from municipalities. In short, when health promotion is linked to solutions at hand, there is no need for denial and people will be able to accept the facts of disease and adopt health promoting practices.

In particular, the epidemic exposed the problems of cost recovery: not only people’s inability to pay but also faulty logic of applying cost recovery in poor areas. Cost recovery is meant to lead to better funding and an improved level of service, but the poorest could not afford even the lowest tariff. As a result, particularly in rural and semi-rural communities where there is not a definite revenue base it appears that a low level of income from cost recovery can not provide an efficient service. Breakdowns, particularly in Nqutshini, have been frequent and at the time of fieldwork were still reported to be frequent. In this community a triangular

relationship appears to have developed between cost recovery, frequent interruptions, and reports of vandalism.

The research leads on to the following set of specific conclusions and recommendations:

- The policy of Free Basic Water is unevenly implemented and greater vigour and prioritisation needs to be given to ensure that the rural poor and those in poor peri-urban communities who need it most benefit from its provision. This will ensure that people are not forced to revert to untreated and unsafe sources.
- These vulnerable communities also need an efficient water service with low levels of interruption. This will require better municipal services. Greater accountability and responsiveness to community needs can be achieved through public participation.
- Frequently interrupted water supply leads to extensive and lengthy storage of water, which poses a health risk to people who consume this water. There should be greater awareness about this danger among health authorities and health promotion to reduce disease resulting from a lack of knowledge of this problem. Although storage of water is an indicator of inferior quality and is significantly linked to water related disease, the practice is unlikely to fade away until there are more stable levels of operation. The long-term solution is an improvement of water services in terms of reliability and closer access to safe water facilities.
- Those communities and families that have previously experienced water related diseases appear to be particularly vulnerable to recurrence. In this study diarrhoea among children is closely linked to the previous experience of cholera. Health and municipal authorities should give priority to communities and families that have had a history of water related disease to ensure that every measure is taken to end the cycle of disease.

What this study makes clear is that the early provision of free safe water and improved sanitation would have been vastly less expensive than the cost of intense medical intervention and the complex local dynamics described by this study. The cholera epidemic has passed but the problems of access, improved management and water quality remain. Continuing reports that only half the 170 water service authorities are meeting water quality standards^{xv} is cause for concern and an argument for greater civil society monitoring and assessment.

Endnotes

ⁱ Data accessed from <http://sandmc.pwv.gov.za/ndmc/DevChol/Cholrep/Summary/Select.asp>.

ⁱⁱ Data accessed from latest available report on September 29, 2005: http://www.health24.com/news/Infectious_diseases/1-922,33338.asp. There have been statements that the death rate has been considerably higher than the official figures quoted here.

ⁱⁱⁱ The research has involved research visits and observation through research on other projects over a number of years in both communities. In Nqutshini visits were made in preparation of a report to the post-WSSD Kyoto Conference on progress towards the Millinium Development Goals. Assessment of the operation of privatised water services has involved ongoing research in Nkobongo where water services are provided through the Dolphin Coast contract with the multinational company SAUR.

^{iv} This information is based on a survey that was conducted by the local census enumerator who conducted a survey for AquaManzi to determine the number of households and people living in the area.

^v Information provided by Stats South Africa.

^{vi} In discussion with Dr Stephen Knight of the University of KwaZulu-Natal Medical School the point was made strongly that most families were likely to have been infected but many would have been asymptomatic, i.e. not having individuals suffering the extreme diarrhoea and cramps associated with cholera. This was constantly borne in mind in the research, which made a fundamental distinction between those households having individuals showing the dramatic symptoms of cholera and those that did not. All households were, in a direct sense, affected as there is a high likelihood of much higher levels of asymptomatic cholera than among those displaying symptoms and, in addition, there was a general sense of loss and social disruption in each community. To avoid lengthy descriptive phrases, the term 'affected' is used to refer to households in which one or more individuals showed symptoms of cholera.

^{vii} The denial and concealment initially caused some doubt whether there would be sufficient affected households for an adequate sample. Through interaction between local residents, the fieldworkers and researchers there was growing confidence in the research process.

^{viii} DWAF project electronic database; details for two projects (KN071 and KN379), Madlebe Water Project, with Mhlathuze Water as the implementing agent. Projects were estimated to cost R17.4m with a subsequent investment of R2m.

^{ix} Data provided at a sub-place level by Stats South Africa.

^x People in the new townships use previously 'Indian' primary and secondary schools in the nearby suburb; some send their children to schools in Umhlali, Salt Rock or Ballito, affluent white suburban areas situated a few kilometres further away from Nkobongo.

^{xi} Data at a sub-place level provided by Stats South Africa.

^{xii} The description of cholera is derived from a number of sources including Feachem et al (1983) and <http://www.freemedicineprogram.com/healthcare/Cholera>.

^{xiii} KwaZulu-Natal Department of Health, 2003. <http://www.kznhealth.gov.za/cholera.htm>

^{xiv} Rural people who use either wood or dung find it expensive and time-consuming to boil water to kill off bacteria. Fires are also highly dependent on the availability of fuel from wood; in the rural division of labour, wood collection is a job done by women, who are more likely to be affected by cholera epidemic.

^{xv} Information obtained through a Focus Group Discussion with CHWs, 6 February, 2003.

^{xvi} According to the Department of Water Affairs website from 15 August to the end of 2003 there had been 128,468 cases.

^{xvii} Where respondents gave permission to use their real names, proper names appear in this report, with the exception of one family below.

^{xviii} The situation in South Africa is hardly unique and a study of a Latin American community explores the relation of denial to external intervention; see Nations and Monte, 1996.

^{xix} In this case the first and family names have been altered.

^{xx} Analysis of this project mentions that, in some communities, reports of this genocidal plot had caused excited rumours and suspicion. There has been a “crisis in some areas where people who have contracted cholera or even HIV have explained their illness as having been the result of agents placed in their water supplies, when this is clearly not the case” (Gould 2002, 10).

^{xxi} It is possible to use the water from the communal taps in Nqutshini and not pay, but supplies would eventually be cut off for nonpayment.

^{xxii} Information from DWAF electronic database on projects in KwaZulu-Natal.

^{xxiii} During the fieldwork one of the researchers collapsed apparently from dehydration as piped water had stopped flowing.

^{xxiv} In a recent study of sanitation it was found that handwashing was generally limited by sufficient water rather than a lack of soap.

^{xxv} Tamar Kahn. 26 September 2005. Water-quality time bomb ticking for SA small towns. *Businessday*. <http://www.businessday.co.za/articles/national.aspx?ID=BD4A95700>

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