

WATER AND SANITATION CHALLENGES: THE CASE OF A RURAL SOUTH AFRICAN MUNICIPALITY

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ABSTRACT

Globally, the availability and accessibility of safe and clean water is essential for the life of humans, animals and vegetation on earth. In addition, water is related to proper sanitation. Consequently, water and sanitation challenges deserve closer analysis so that life on earth can be improved. The water and sanitation question in a South African municipality was considered in this enquiry. The study question was: what are the water and sanitation challenges faced by residents of a rural municipality in a selected municipality from the Eastern Cape Province of South Africa. To address the research question, three focus group discussions were conducted. The focus groups involved community leaders and administrators of the municipality who were selected using a snowball sampling technique. It was found that the use of unprotected water sources (rivers, stream and wells) and poor sanitation practices (mainly bush toilets) was prevalent among residents. A number of respondents reported water scarcity and inaccessibility challenges which resulted in queues at water sources. In some instances, violence among residents in water queues was reported. The gender perspective of the problem was revealed, with many women having to face most of the challenges. This was not surprising since women are mainly involved in the cleaning and water-based chores of households in African communities. As a result of these water challenges, residents were vulnerable to contracting waterborne diseases. In addition, some residents held superstitious beliefs and witchcraft fears associated with the use of unmanaged open water sources. These findings are useful for policy makers, the government and environmental institutions to provide support to people in the municipality.

Keywords: Community, Health, Hygiene, Quality of Life, Sanitation, Water Infrastructure.

INTRODUCTION

Related to livelihood are the four generally accepted pre-requisites of food, shelter, water and clothing. Water can be viewed as a key food constituent whose essentiality in determining the quality of life of a community holds biological, sociological, physical and mental wellbeing of a society. Urbanisation and industrialisation have resulted in significant changes of perspectives related to the water and sanitation scenario both globally, regionally and locally in South African communities. Despite these generally accepted arguments, Annamraju, Calaguas and Gutierrez (2001) noted that the availability and accessibility of water and the related issue of sanitation have been a great challenge in civilized societies over many years. In illustration, consideration can be given to the 1981 United Nations (UN) water decade in which it was

observed that about 1.9 billion people had limited access to proper water sources, while 2 billion of the world's human population lacked adequate sanitation. The problem persisted and was cited a decade later, with reports that in the year 2000 the number of people who lacked access to safe water was approximately 1.1 billion while that of people with inadequate sanitation was estimated at 2.5 billion. In providing an overview of the water and sanitation issue in a global context, Annamraju et al. (2001) revealed that the development of water and sanitization civilization had been viewed from a social, economic and ideological perspective. However, notable developments were observed in the Middle Ages when the Romans implemented a centralized framework for the provision of water to its citizens. Over the years, water provision systems globally have adopted a wide range of models, including canals, siphons, taps, pipes and so forth.

Like many African issues, the water and sanitation issues in Africa hold a political perspective related to colonisation, the overthrow of colonial governments and the emergence of new governments. As noted by Nwankwoala (2011) many African governments, adopted water and sanitation practices that were characteristic of former colonial governments, largely segregatory and doing little for rural and native communities. The new African government viewed the expansion of water and sanitation infrastructure in the rural communities as critical. However, the water and sanitation aims of most governments remain unachieved. The acceptance that the water and sanitation challenge is an international phenomenon meant the involvement of global institutions and international frameworks in associated issues. In consideration of the water and sanitation issues, the International Drinking Water Supply and Sanitation Decade (IDWSSD) in 1981 to 1990 set universal targets for the improvement of the rural water and sanitation situation. Further consideration of the situation emerged with the World Summit for Children of 1990. Between the years 1986 to 2010, the United Nations Children's Fund (UNICEF) provided further support for water and sanitation development. In spite of these reported interventions to the water and sanitation situation, it has been reported in the literature that the water and sanitation challenge remains a notable problem in many countries.

LITERATURE REVIEW

The South African Water and Sanitation Context

South Africa drafted the Water Supply and Sanitation policy in 1994, in which it is stated that the history of the South African water situation cannot be detached from the apartheid history of South Africa (South Africa, 1994). Key issues within water and sanitation in South Africa is related to the background of housing, migration, land, social progress and national development. Owing to the racial segregation that mirrored apartheid South Africa, the advancement of water resources has been identified as a strategic pillar for national development. The need for improvement of the water situation in South Africa is critical when observing that the development of water resources has been extended only to white commercial farming. Therefore, it is essential to consider the water and sanitation challenges in remote and marginalised communities like the those in the rural province of the Eastern Cape.

The Nature of Water Resources and Sanitation

Sources of water include wells, reservoirs, open springs, taps, canals and rivers. It should be noted that the ability to harness and manage water also implies an improvement in issues related to sanitation. A key point is that where natural water sources are in use, sanitation systems remain primitive, still characterised by the use of bush systems and basic pit latrines. Such situations are often a feature of undeveloped rural environments. In contrast, the ability to collect and manage water resources in the form of dams and reservoirs or other related water works has been observed to be associated with the improvement of sanitation systems. There is a notable link between water and sanitation. Kistermann (2008) found that failure to improve water availability has resulted in backward and unhygienic sanitation and ablution scenarios. Edwards, Fennell and Massmann (2007) reported that technological developments have impacted on the provision of water management systems and sanitation improvements. In some developing countries, water management systems employ gravity and pipes from higher elevations to sedimentation tanks before piping it to villages. Edwards et al. (2007) further observed the extensive use of boreholes, shallow wells and natural sources such as rivers and streams in the provision of water in poorly developed communities.

Diemand et al. (2010) concur with Telmo's (2002) study, which showed that the use of boreholes to pump underground water and then pumping it into reservoirs and tanks before distributing to community taps and household level tanks was widespread in African countries. Numerous studies have investigated the poor water and sanitation systems in South African rural areas. As reported by Kasrils (2004), from 1994, in South Africa an estimated 14 million people lacked access to safe drinking water. The majority of these people were from rural communities that relied on rivers, springs, wells and boreholes as sources of water. Makgoka (2005) confirmed these sentiments, reporting that in some villages' proximity to water was a factor, which contributed to unhygienic situations and sanitation limitations.

Water Challenges

Even though three quarters of the world's surface is covered by water, only a small percentage (about 0.3%) is available for use of plants, animals and humans (Lalzar, 2007). This problem is compounded by the fact that most water sources are far from the societies in need. Some researchers note that many water sources are in the wrong places, meaning that the water is inaccessible to humans. In addition, the water cycle complicates water availability, although man has attempted to manipulate it through various actions. Earlier societies are known to have practised praying, rain dances, rain-making ceremonies, human and animal sacrifices and various other rituals.

There is a dire need to develop water management processes in South Africa, given drought frequency and the prevalent arid conditions. This problem is significant when considering that most of South Africa is characterised by limited groundwater opportunities because most of the country lies on hard rock (South Africa. National Treasury, 2011).

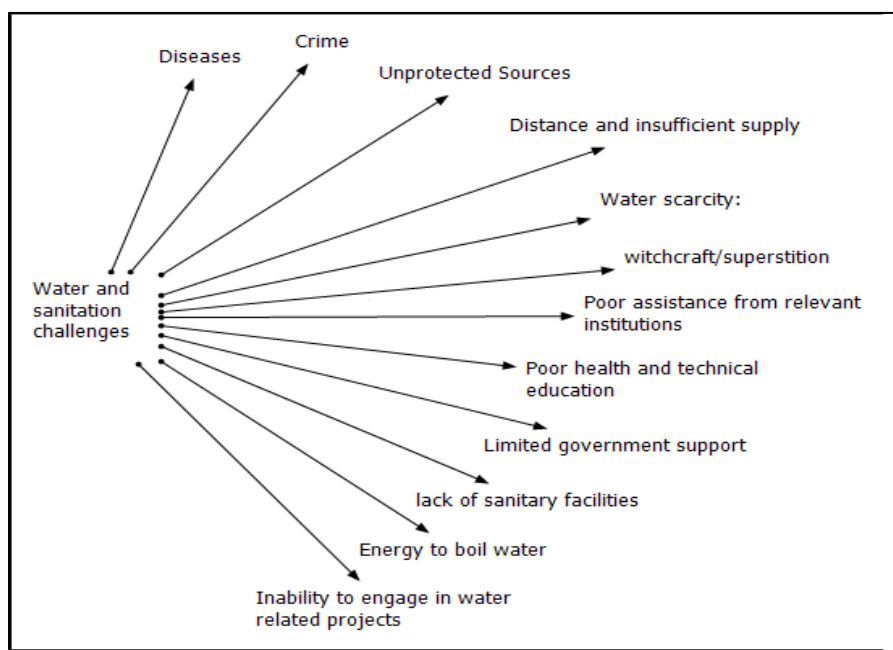
Technological issues and lack of up-to-date water management systems is has been a challenge in more developing economies. Infrastructure decay, maintenance and improvement have been serious challenges in ensuring high quality safe water and sanitation provision in South Africa. This problem was reported in the meeting of the Parliamentary Monitoring Group (PMG) (2009) on Water for Growth and Development Framework, in which it was noted that ageing infrastructure, compounded by poor operations and maintenance at a municipal level, makes a strong case for the improvement of the water and sanitation situation in the country. The pooling of financial resources in water and sanitation improvement has been observed in

negative terms, as noted in Annamraju et al. (2001), who commented that the provision of finance was affecting the goal of universal water and sanitation access.

Despite the fact that water and sanitation issues were high on people's priority list, many studies showed that there was minimal funding allocated to the water and sanitation sector compared to other sectors (WHO/UNICEF Joint Monitoring Programme, 2000). Mehta and Fugelsnes (2003) submitted a Water and Sanitation Programme Report involving 12 sub-Saharan countries. They established that expenditure in the gross domestic products (GDP) of the countries ranged within a scale of 0.5–1%, which is in broad contrast to the 2–8% for health and education. This clearly demonstrates funding inadequacies for the water and sanitation sector. Tomas and Wint (2002) suggested that the low investment in water and sanitation appears to be related to poverty, with poor people who lack political power being denied the right of adequate access to safe water and proper sanitation facilities. Another element contributing to the water challenge is population growth, especially in developing countries. Sigenu (2006) reported that population growth caused challenges in the provision of water and sanitation services for the whole population. Population growth often creates an imbalance in the supply and demand of water and sanitation facilities. Otieno and Ochieng (2004) opine that South Africa faces water stress partly due to population growth.

Summary of Water and Sanitation Challenges Faced in African Communities

Given the numerous water and sanitation challenges reviewed in the preceding sections, a summary is important for the consideration of policy makers. Figure 1 summarises the main water and sanitation challenges emanating from the literature. This study holds that the challenges presented above require further analysis. Consequently, the empirical sections that follow investigate the challenges shown in Figure 1 to confirm, refute or elaborate on them. The study seeks to provide more information on these challenges to ensure a deeper understanding with respect to a certain municipality identified in the Eastern Cape Province of South Africa.



Source: Authors' construct

FIGURE 1

GENERAL WATER AND SANITATION CHALLENGES IN MANY COMMUNITIES

The relevance of Figure 1 was to provide direction for the focus group discussions that were held as reported in the following methodology section. The guide sheet for discussion during the focus groups was based on the elements shown in Figure 1. The aim was to investigate the relevance of each of the elements in Figure 1 to the municipality under study. At the conclusion, the researcher was able to confirm, refute or elaborate on them, as well as to identify further emerging challenges.

RESEARCH AND METHODOLOGY

This study was descriptive and sought to describe the water and sanitation challenges at a rural municipality in South Africa. The study was based on a phenomenological view of reality, which suggests that reality can be obtained by dialogue with social actors involved in a specific situation. It was believed that the residents of the municipality can describe their water and sanitation situation and related challenges can be interpreted. Therefore, the study was anchored from the interpretivist paradigm, which is based on qualitative data collected through phenomenological focus group discussions modelled in the same manner as Iwu, Kapondoro, Twum-Darko and Tengeh's (2015) study of organisational sustainability and effectiveness. Phenomenological investigations are based on human experiences of a certain phenomenon and the meaning that is attached thereto. Saunders' (2012) view is that phenomenological studies inquire into people's perceptions, perspectives and understanding of a study element. In other words, the idea is to interpret an issue of interest based on the interpretation of the one experiencing it (du Plooy, 2012).

The structure of the South African government is that from the central government, there are provincial and local government departments, which include some metropolitan and non-metropolitan local government districts. Municipalities fall under local government and they attend to the specific needs of localised areas. The selection of the local government municipality in this study was based on convenience and purposive criteria. Municipality X, which was selected for the study, was chosen for its proximity and its willingness to provide the data needed for this study. The Eastern Cape Province comprises six districts and 31 municipalities and for convenience, the research chose to investigate the home municipality. To select participants for the focus groups, an official from the water and sanitation section of the municipality was engaged, who then recommended community and village leaders within the municipal area. This snowball sampling technique produced three sets of eight respondents for the focus groups. Each group comprised six community leaders and two officials from the water and sanitation sector of the municipality.

Three lunchtime focus group discussions were held. The key study question was, what are the main water and sanitation challenges faced in the municipality. A discussion sheet was developed following literature perspectives on the general water and sanitation challenges experienced in South Africa. The aim of the first focus group discussion was to expand, refute and explain the initial challenges, which were provided on a discussion sheet and were derived from the literature. The second focus group discussion, with a different group of community leaders, sought to confirm or correct the challenges that had arisen in the first focus group. The last focus group discussion aimed to ensure saturation by confirming the conclusions reached on the challenges faced by municipal residents on water and sanitation issues.

RESULTS

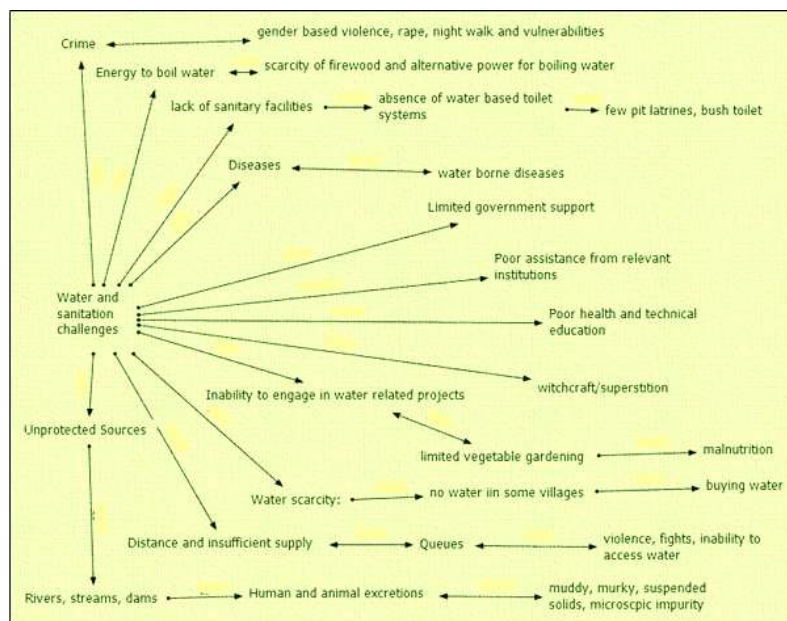
Table 1 shows a response analysis sheet showing the comments provided by members of the focus groups on the general water and sanitation challenges emanating from the literature.

Table 1 RESPONSE ANALYSIS SHEET	
Water and sanitation challenges	Comments
Unprotected water sources	The focus group moderator summarised the discussions, commenting that “In most villages in the municipality, water was being fetched from unprotected wells, dams, streams and rivers which were contaminated by microscopic and visible solid human and animal waste.”
Distance and insufficient water supply	The consensus was that most residents of the municipality travelled long distances to fetch water and very few have water available at their homesteads. No more group comments arose after one group member explained that insufficient and distant sources of water led to “queues that were often characterized by clashes and fights.”
Water scarcity	There was general agreement among group members that some villagers resort to buying water instead of travelling long distances and queuing to get water.
Inability to engage in water-based projects	One group member claimed, “many residents of the municipality could not grow vegetables in their home gardens due to water unavailability, resulting in extra costs to buy food and some families suffering from malnutrition.” This comment was widely accepted by all group members as being true.
Witchcraft and superstition	A significant number of the group revealed that community-based water sources were treated with suspicion related to “witchcraft and black magic”. Some felt that residents feared that poison and curses could be cast on the community-based water sources that they used.
Diseases	The moderator summed up the views of the group that, “residents faced the threats of waterborne diseases such as typhoid, cholera and runny stomachs.”
Lack of sanitary facilities	All group members commented that the water challenge affected sanitation and they lacked water-based sanitation systems. A few had pit latrine toilets, while others relied on the bush toilet practice.
Limited government and institutional support	The group members were unanimous that there was limited support from the government and its institutions to ensure improvement of the water and sanitation challenges faced by the residents of the municipality.

Table 1 demonstrates that residents of the municipality face significant water and sanitation problems, arising from the lack of water-works within the municipality. This results in reliance on unprotected water sources, which exposes residents to a wide array of further problems. As shown, the use of river, stream and open well water sources means that humans share water with animals, thereby exposing residents to waterborne diseases and health-related complications. A gender dimension also arose from the discussion, in that women are often faced with most water use household duties such as cleaning, washing and cooking. After water has been collected at remote water points, women then face a long walk home, often in the dark, exposing themselves to attacks, violence and rape. A strong relationship exists between water availability and sanitation, as water is a critical sanitation element. It was noted that many respondents relied on pit latrines and bush toilet practices.

DISCUSSION

These findings are consistent with the literature perspectives that were established in the earlier paragraphs. The findings of the focus groups provided further understanding and deeper appreciation of the water and sanitation experiences of residents of the municipality under study. Figure 2 illustrates the findings of the focus groups. The focus groups have broadened literature perspectives by expanding Figure 1 and providing more detail to the challenges that were presented earlier.



Source: Author's construct

FIGURE 2
WATER AND SANITATION CHALLENGES FACED BY RESIDENTS OF A SOUTH AFRICAN MUNICIPALITY

The economic value of the study

Schwab (2019), in the Global Competitiveness Report, argues that economic growth and development is a holistic phenomenon. It includes elements of environmental, social and infrastructural dimensions of an economy. Following this argument, it can be emphasised that the improvement of water and sanitation infrastructure could contribute significantly to the economic ranking of South Africa. In light of the work of Gomis, Parra, Hoffman and McNulty (2011), economic sustainability ought to be viewed in its wider sense, which includes all dimensions of human life. As such, the need to improve the water and sanitation situation in the municipality investigated can be viewed within development of the South African economy. Furthermore, it should be noted that water and sanitation are issues related to the improvement of quality of life and community development. These issues are all critical for national development.

CONCLUSION

This study identified a number of water and sanitation challenges faced by residents of an Eastern Cape municipality. Based on the findings, the study proposes recommendations for improving the situation. Firstly, the South African government should commit to the improvement of water and sanitation systems at municipality and village levels. Increased financial resources should be availed for the improvement of water sources to make them accessible and safe for humans. The government, through its municipalities, should seek to establish appropriate water-works for villages to ensure that villagers have piped water for use in homes and have quality water-based sanitation systems. Secondly, social dialogue and involvement should be strengthened to ensure a successful water and sanitation improvement programme. Stakeholders could include non-governmental organisations, faith-based and other community organisations for the improvement of the water and sanitation situation in the various villages in each municipality. Thirdly, efforts should be made to educate residents on the importance of clean water, proper sanitation and health hazards. The municipality water and sanitation department should ensure the provision of energy sources and teach residents how to remove impurities from the dirty water by always boiling all water before use. Furthermore, the construction of more Blair toilets would greatly assist in improving the situation.

LIMITATIONS AND FURTHER RESEARCH

This study has both methodological and geographical limitations, which future studies could avoid. It is important for future research to be conducted in other localities to establish the extent of the water and sanitation problems in South Africa. This study collected data using focus groups. Future studies could consider the use of different research designs to ensure comprehensive understanding of the water and sanitation challenges of residents in the municipalities of South Africa.

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