

An assessment of the provision of clean water and sanitation services for people with disabilities in peri-urban areas: A case of Harare in Zimbabwe.

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Abstract

Preventing and reducing vulnerability of people living with disabilities are key interventions that will determine the quality of life. The study focused on an analysis of provision of clean water to this special population in four peri-urban areas around the city of Harare, namely Whitecliff, Hopely, Caledonia and Epworth. The population included people with disabilities living in the four areas. The study was a descriptive survey where data from four local clinics was collected through clinics' records, key informant interviews and focus group discussion. The collected data provided information on cases of water-borne diseases and diseases emanating from unsafe waste disposal. The findings showed that people with disabilities had limited access to proper sanitation and practiced open defecation. Diseases from unsafe sanitation, unhygienic practices as well as dirty water were found to be more virulent. It recommended that investment in safe sanitation will generate a return which is of similar order to a country's spending on health service. Infrastructure such as water sources and communications which are often taken for granted should be upgraded so that they are user friendly. Information regarding access to safe drinking water and sanitation services should be availed in relevant forms of media.

Key Words: People with disabilities, safe drinking water, sanitation, water-borne diseases, waste disposal.

Introduction

The lack of adequate water supply and sanitation facilities in peri urban settlements causes a serious health hazard and exposes many to the risk of water-borne diseases particularly for people with disabilities. There are about 4 billion cases of diarrhoea each year, out of which 2.5 million cases end in death (WHO, 2002). Sadly, 80 to 90 % of people with disabilities who are affected by these poor sanitation conditions end in death (WHO 2002). At least one third of the population in developing countries and almost one fifth of the global population has no access to safe drinking water and drinking water related diseases continue to be one of the major health problems globally (WHO, 2002).

Provision to clean water and sanitation for people with disabilities is an essential step in reducing this preventable disease burden. In developing countries water sources are contaminated. Clean water in peri urban areas is often affected by unreliable operation and lack of maintenance. The UN set the goals of halving the proportion of people without sustainable access to safe drinking water and of reducing under-five mortality by two thirds by 2015 under the Millennium Development Goals (MDG), (WHO, 2002). Without prioritising the provision of clean water and sanitation facilities for people with disabilities the MDG goals will remain unattainable.

Background to study

An estimated 600 million people in urban areas of developing countries world live in life and health threatening environments, primarily in peri-urban settlements. Within this population 10% have disabilities. The peri urban environments they live in have pathogenic micro-organisms (especially those in human excreta), caused by lack of infrastructure and related to inadequate water supply. The removal and safe disposal of excreta and wastewater from washing, bathing, and other domestic uses in peri-urban settlements are critical health and environmental needs which currently are not being met (Hogrewe, Joyce and Perez; 1993).

Mpofu (2012) highlighted that after independence in 1980 Zimbabwe's cities experienced a proliferation in the number of squattercamps. This was because of the failure of the urban economy to offer adequate housing and jobs, leaving peri-urban space as the only sanctuary for the urban poor to live in and eke out a living informally. The study was carried out in Whitecliff, Caledonia, Epworth Township and Hopely farm, peri-urban settlements around Harare. About 350 000 people live in Epworth of which 80% are informal settlers (CSO, 2012). Epworth which has 90% of the residents unemployed (CSO, 2012) is situated on the south-eastern end of Harare.

According to UNICEF (2000) the sources of water in peri urban settlements in Zimbabwe are either open unprotected or protected self-dug shallow wells. Most

people in these areas cannot afford to treat their water and report regular health problems related to the stomach and diarrhoea. People with disabilities and children, especially seem to suffer more from the poor sanitation and the unsafe water sources. The rainy season stretches from December to March. Hopley farm is a government resettlement area located 25 km from the city centre of Harare. There are about 6 000 households each with an average of 5 people (CSO 2012). People living in informal settlements from all over the country are usually relocated to these settlements. More than 70% of the residents are poor (CSO, 2012).

Water supply is linked to sanitation and eventually to human health. Water shortages seem to be rife in Harare which is overpopulated due to people who have migrated from the rural areas fleeing economic woes and political violence. These people settle in slums or low-cost backyard accommodation in high density suburbs to seek employment opportunities. However, migratory movements cause rapid population growth, which according to the World Conservation Union (1996), place unprecedented demands on water resources and sanitation facilities.

Statement of the problem

The needs of people with disabilities in developing countries are consistently overlooked when it comes to providing sanitation and hygiene services. This reality has severe and widespread consequences for the health, dignity, education and employment of people with disabilities and their caregivers. Do people with disabilities access clean water and sanitation services?

Study area

The study was limited to four peri urban areas around Harare namely Epworth, Caledonia, Hopley, and Whitecliff.

Purpose of the study

The purpose of this study was to increase the understanding of the serious and growing problem of sanitation and provision of clean water for people with disabilities in peri urban areas in Zimbabwe. This study would help water and sanitation project designers to understand and confront the challenges in improving water and sanitation (WASH) in peri-urban areas

Review Of Related Literature

Defining peri urban settlements

Hogrewe, Joyce and Perez (1993) define peri-urban settlements are also commonly referred to as squatter settlements, marginal settlements, shantytowns, urban slums, or illegal settlements. Peri urban settlements largely develop outside of government control and do not follow strictly formal and traditional urban planning and development processes (WASH 1993).

Defining sanitation

According to Grant and Bimha (1984) sanitation is the act, fact or process of improving health condition and thereby water is an essential resource for life and good health to improve on sanitation. A lack of water to meet daily needs is a reality today for one in three people around the world (WHO, 2008). WHO (2008) highlighted that more than 3.4 million people die each year from water, sanitation, and hygiene-related causes and nearly all deaths, 99 percent, occur in the developing world.

Sanitation practices in peri urban settlements.

WASH (1993) reported some of the most common sanitation practices in peri-urban areas as open defecation within the settlement, on the perimeter of the settlement, or in drainage ditches. There is lack of any planned waste disposal system and is characteristic of most peri-urban areas.

People with disabilities within peri urban areas use latrines as the second most common sanitation practice. In these settlements and a wide range of latrines can be found in peri-urban areas, including bucket latrines, pit latrines, and ventilated improved pit (VIP) latrines. However these latrines are not accessible to persons with physical disability (UNICEF 2009). Latrines in peri-urban areas are often poorly designed and maintained and may not be used by all family members (McGuigan, 1996). Another characteristic of peri-urban settlements is that they experience irregular water supplies, pour-flush toilets with soak-away or septic tanks may exist, relying either on household or community septic tanks. However, the septic tanks often are poorly maintained or undersized.

The cost of disability

Many people with disabilities require equipment to enable them to live independently. Mobility aids such as wheelchairs and crutches, as well as specialised computer equipment, are needed to enable people with disabilities to access clean water and sanitation services. In Zimbabwe government subsidies which are selectively available and not adequate to meet the needs of many people with disabilities, who therefore must pay for this equipment themselves (Chimonyo etal 2012). People with disabilities in peri urban areas 'double disadvantage' exacerbates the situation. Some people with disabilities require an attendant to assist them in performing daily living tasks, such as toileting, water collection, dressing and eating and the services should be paid for (Disability Employment Action Centre (DEAC) 1991). This prevents people with disabilities who require paid attendant to access to water and sanitation and live at the mercy of good Samaritans in the community. The costs of disability also prevent some people with disabilities from seeking paid work, particularly if it is part-time, temporary or casual, because they need to employ someone to provide domestic assistance while they are in paid employment (DEAC 1991).

Water and Sanitation challenges

Grant and Bimha (1984) posit that water shortage has negative effects on the social life of human beings especially the vulnerable. People with disabilities are the most affected because of barriers to access clean water and sanitation services set up by the communities they live in. These barriers include physical, behavioural and attitudinal (Chimonyo et al 2012). The shortage of water facilities and portable clean water in most communities around Zimbabwe has caused untold suffering for most Zimbabwean women and children (Associated Press, 2008). According to Associated Press, (2008) it is not news that women wake up at 4am in most peri urban areas to fetch water from unprotected sources, This water is obviously for men, women and children who will be going to work and school. Long queues can be seen as early as 4am for the water and it takes almost 30 minutes for a 20 litre bucket to be full. The whole process which is then repeated around lunchtime and in the evening up to at times around midnight is cumbersome and equally exhausting because of the energy needed to pump the water from the borehole.

WHO and UNICEF (2000), in the Global Water Supply and Sanitation Assessment 2000 Report, defined reasonable access to an improved water supply as the availability of at least 20 litres per person per day from a source within one kilometer of the user's dwelling. Despite the pegged amount of water per day, in a research in Kenya WHO (2008) reported that at the water vendor, it does not matter what is the size of your family. Families are just given five jerry cans of 20 litres each and they are expected to use it until after 10 days when they can return for more.

"When I finish my water - which I always do before the end of the 10 days because my family is large - we buy from people who hawk water. They sell one 20 litre container for 50 shillings [US\$0.54], which is very expensive but there is little I can do. At times, you end up using money meant for food to buy water because even if you have food, you can't cook it without water".

Hug (2009) posits that the outbreak of cholera in Zimbabwe was inevitable following long periods of most urban and rural homesteads going without clean and safe drinking water and inadequate treatment of sewage. According to a study by Hove and Tirimboi (2011) Harare water Utility was failing to provide its consumers with continuous running tap water. Some of the residents were spending day hours without tap water. Results indicated that slightly above fifty percent (50.4%) of the Harare residents had a 24 hour service and thirty-seven percent (37%) had less than 24 hour service but with varying durations. Other areas such as Mabvuku and Tafara in Harare and peri urban settlements have gone for years without clean water (Hug, 2009).

Mangizvo and Kapungu (2010) in a research study reported that Kadoma had also experienced serious water rationing as a way to balance the sharing of this limited resource among all the suburbs in the town,

bringing a great inconvenience to residents. Kadoma suburbs have experienced serious sewage blockages. This was due to the reduced water flow in the system, which presented great potential for disease outbreak.

According to Jonga and Chirisa (2009) during one of the numerous water cuts in Harare, Zimbabwe National Water Authority (ZINWA) said it had run out of purifying chemicals and feared contaminated water would spread a cholera epidemic that has claimed hundreds of lives in 2008. In Mabvuku, a suburb where residents have dug shallow wells in open ground, people say they know unboiled water can make them ill, but that they have no choice.

Zimbabwe experienced a cholera outbreak in 2009 and the principal cause of the outbreak was the lack of access to safe water in urban areas and communities (WHO, 2008). The Zimbabwean cholera outbreak began in August 2008, swept across the country and spread to Botswana, Mozambique, South Africa and Zambia (WHO, 2008). A unique feature of Zimbabwe is that its two main cities are located on watershed divides, which means that the water draining out of the city flows into the drinking water sources, all of which are physically located downstream of these return flows (CSIR, 2008).

Thornton, (2008) indicated that the cholera outbreak was exacerbated by the collapse of the urban water supply, and garbage collection systems, along with the onset of the rainy season leading to faeces with cholera bacteria being washed into water sources, in particular public drains, as well as providing readily available but contaminated water.

In study by Thornton, (2008) Dzivarasekwa Extension and Porta Farm it was found out that none of the settlements have adequate sanitation, in stark contrast to formal urban areas in Harare where coverage rates for flush toilets is ninety-four percent (94%). Residents stated that communal latrines are too far away from their houses and have no lighting, making them impossible to use at night. Dzivarasekwa Extension and Hatcliffe Extension do not have latrines at their respective schools.

In the same study residents reported having adequate water supply, although informants also complained of long queues when water points are down and of low pressure at communal taps. Hatcliffe Extension had only four boreholes working out of a possible 14. Residents at Hatcliffe Extension, therefore, endure long queues at water points and spend one hour or more fetching water at the expense of other chores and income-generating activities (Murinda and Kraemer 2008).

According to Murinda and Kraemer (2008) bacteriological analysis of water samples shows that secondary contamination of stored water is high in peri urban settlements around Harare. The quality of water from protected wells was highly variable. Stored water obtained from taps in the settlements indicated possible secondary contamination as a maximum of 183 CFU/100ml were found in stored water while in samples taken directly from the tap,

7 CFU were found (Murinda and Kremer 2008). According to ZINWA the recommended limit for total coliforms in drinking water in Zimbabwe is zero CFU per 100ml and the results show that coliform values for all the samples were above the recommended limit thus the water was highly contaminated. The presence of coliforms was an indication that the water was contaminated biologically and that it has a risk of containing pathogens.

WHO (2006) highlighted the potential health effects of biological contamination of water as including assorted gastro enteric infections and diseases. Total coliforms come from the air, handling water with dirty hands, dead animals or insects which fall into the water sources. Symptoms such as nausea, vomiting, diarrhoea, and stomach cramps are typically associated with cholera.

Methodology

The study was quantitative in nature and its data collection was based on primary sources and secondary sources. The primary sources included questionnaires. Secondary sources were data from the local clinics and questionnaires distributed to the persons with disabilities in Epworth, Whitecliff, Hopely and Caledonia. Questionnaires were meant to elicit their perceptions on the problem of water and sanitation water. Interviews were employed in collecting data on the problem of water these peri urban areas. Through these interviews, the problems faced by individuals with disabilities were explored, and proposals and plans for correcting the situation were investigated. Interviews were directed at persons with disabilities. Observations were conducted to have a first-hand experience of the Water and Sanitation Hygiene (WASH) problems as they manifested in the peri urban areas. Observations determined the extent of WASH problems for people with disabilities and then were corroborated with information obtained through interviews and questionnaires. Secondary data sources, such as data from clinics, motivated this study.

Findings

Water sources

A total of 20 inhabitants were sampled of which 5 were in Hopely farm and 5 in Epworth 5 in Whitecliff and 5 in Caledonia. Of the respondents, 70 % had Physical Disabilities and 5% Sensory Impairments, 20% Intellectual Challenges and 5% Behaviour Disorders.

Water sources used by communities in Caledonia, Whitecliff, Epworth and Hopely Farm are presented in Table 1

Table 1: Different types of water sources used by people with disabilities in the 4 peri urban centres around Harare.

Water source	Whitecliff	Epworth	Hopely	Caledonia
Unprotected well	Yes	Yes	Yes	Yes
Public tap	No	Yes	Yes	No
Boreholes	No	No	No	No
Protected wells	No	Yes	No	No

Unprotected wells were the most common source of water in Epworth for people with disabilities, while in Hopely Farm and Caledonia obtained their water from public taps.

Table 2: Water treatment methods for household use by people with disabilities

Type of water treatment	Whitecliff	Epworth	Hopely	Caledonia
Boiling	No	Yes	Yes	Yes
Use of chemicals	No	Yes	Yes	No
No treatment	Yes	Yes	Yes	Yes
SODIS	No	Yes	No	No

Most of the persons with disabilities in the peri urban centres did not carry out any treatment of their water.

Table 3: Water borne diseases suffered by people with disabilities

Type of water treatment	Whitecliff	Epworth	Hopely	Caledonia
Boiling	No	Yes	Yes	Yes
Use of chemicals	No	Yes	Yes	No
No treatment	Yes	Yes	Yes	Yes
SODIS	No	Yes	No	No

Although most residents of these settlements did not treat their water, diarrhoea was reported in interviews to have affected about 20% of the households at some stage. Interviews with staff at local clinics suggested high incidences of diarrhoea for people with disabilities especially those with sensory,intellectual and physical disabilities and their family members particularly among the under 5 year children.

Table 4 Accessibility of water source and sanitation provisions

Type of water treatment	Whitecliff	Epworth	Hopley	Caledonia
Cholera	No	Yes	Yes	Yes
Typhoid	No	Yes	Yes	No
Dysentery	Yes	Yes	Yes	Yes
Diarrhoea	No	Yes	No	No

Accessibility to water and sanitation facilities was poor in all the peri urban areas and most people with disabilities sampled relied on persons without disabilities for access to ablution facilities.

Discussion

Water sources

Findings showed that generally, people with disabilities like the other residents in the four peri-urban areas drew their water from homemade unprotected wells and Epworth and Caledonia were also fortunate to have protected tap water. Nevertheless, the unprotected water sources and unavailability of sanitation facilities in these areas is supported by (Disability Employment Action Centre (DEAC; 1991) which states that some people with disabilities require an attendant to assist them in performing daily living tasks, such as toileting, water collection, dressing and eating. Furthermore, for people with physical disabilities in the wheelchairs to get water from the tap, there is also need for assistance because they cannot access water easily. This therefore means that such people would need money to seek for assistance or they survive at the mercy of good Samaritans in the community.

The cost of disability

The study found out that people with disabilities incurred extra costs compared to people without disabilities. The cost depended on the type of disability. Extra costs were incurred in paying for assistants in fetching water, using public toilets which were not adapted. From Literature studied it pointed out that people with disabilities were likely to experience increased health risks because of lack of access to sanitation and hygiene services. Generally people with disabilities are poorer and are less likely to be able to pay for clean water and good sanitation services. This is so because of the additional cost they incur when purchasing and servicing adaptive devices they use. People with disabilities often require additional water and sanitation services which increase cost to maintain a good health and hygiene. Lack of sanitation and hygiene besides affecting the health of people with disabilities causes impairments and worsens impairments.

Sanitation practices in peri urban settlements by people with disabilities.

The study found out that people with disabilities in the four peri urban areas used the common water and sanitation provisions built in the community. These provisions though, were not adapted to meet specific requirements for some types of disabilities. For people with physical impairments the dry on site toilets used in homes and public places were not adapted and as a result people with some physical disabilities resorted to open defecation or use of bucket system. Bore holes and water wells were inaccessible and persons with physical required assistance of other members of the community to access water. This concurs with literature reviewed. Sanitation facilities like latrines are not accessible to persons with physical disability (UNICEF 2009). Latrines in peri-urban areas are often poorly designed and maintained and may not be used by all family members (McGuigan, 1996). A study by Thornton, (2008) in Dzivarasekwa Extension and Porta Farm found out that none of the settlements had adequate sanitation. Residents stated that communal latrines were too far away from their houses and had no lighting, making them impossible to use at night. WASH (1993) reported some of the most common sanitation practices in peri-urban areas as open defecation within the settlement, on the perimeter of the settlement, or in drainage ditches. There is lack of any planned waste disposal system for persons with disabilities and is characteristic of most peri-urban areas. This was in agreement with the findings of this study.

Water borne diseases suffered by people with disabilities

Data from the local clinics indicated persons with disabilities were hard hit by water borne diseases in the four peri urban areas. Data from clinics indicated a high incidence of water borne diseases. These were prevalent in young children and people with disabilities. The problem of clean water supply for peri urban areas has had very serious consequences, especially in the years 2008 and 2009. Prior to the cholera epidemic peri urban areas were in the news regarding cases of deaths attributed to the lack of safe drinking water and during the worst cholera epidemic in Zimbabwe's history, peri urban areas were considered high-risk area for cholera and other water borne diseases because of the water and sanitation problems for people with disabilities coupled with the inaccessibility of these services for people with disabilities (WHO 2009). Peri urban areas recorded high deaths during these periods for person with disability compared to people without disabilities that were characterized by water shortages and poor sanitation (WHO 2009). The findings concur with findings by Grant and Bimha (1984) who highlighted that water shortage had negative effects on the social life of human beings especially the vulnerable. People with disabilities are the most affected because of

barriers to access clean water and sanitation services set up by the communities they live in.

Conclusions

People with disabilities in peri urban settlements were experiencing serious water and sanitation problems as compared to those without disabilities in peri urban areas. These were caused by several factors, namely barriers to communication for people with sensory impairments, low water availability, site conditions inappropriate for latrines, unwillingness to pay by users who have no legal land tenure or have very low incomes, eg lack of population densities too great for individual household latrines, institutional capabilities insufficient to support off-site systems, social factors that make the reuse of excreta implausible and a lack of political will. The shortage of water and sanitation for people with disabilities has resulted in the spread of diseases such as cholera, diarrhoea, and dysentery.

Recommendations

It does, however, require a firm commitment from government decision makers, disability rights organisations and people with disabilities to effect structural change. This commitment should be viewed via a rights perspective rather than from a welfare viewpoint. It also requires that the disadvantages that people with disabilities experience are recognised as the same as the disadvantages experienced by other people, but that having a disability makes that disadvantage worse since people with disabilities face additional structural disadvantages because of their disability. All stakeholders involved or interested in peri-urban upgrading projects must recognize the uniqueness of the sanitation challenges presented by people with disabilities in peri-urban settlements. People with disabilities should be provided with appropriate water and sanitation systems in peri urban areas. Professionals must also challenge the status quo, the reluctance of municipal and national governments to act and respond to the demands of peri-urban people with disabilities who lack clean water and sanitation infrastructure.

A comprehensive approach that recognizes the inter-relationships between various societal sectors is needed to increase the effectiveness of a peri-urban sanitation project for persons with disabilities. Projects should be participatory and involve people with the different types of disabilities and there should be cooperation between and among community, municipal, regional, or national organisations. The additional cost of providing inclusive sanitation is only 2 to 3% according to a Water, Engineering and Development Centre case study from Ethiopia. Sanitation projects need to go beyond technical solutions and address attitudinal and institutional barriers to accessible sanitation. An explicit recognition of the right to sanitation within national and international laws and conventions can help to prioritise inclusive sanitation and hygiene as a right for all.

Lastly, community complementary projects in water and sanitation should be mandatory to ensure the effectiveness of sanitation projects. The study also recommended that support infrastructure water sources communications and other resources which are often taken for granted so that they are user friendly for people living with disabilities. Information regarding access to safe drinking water and sanitation services should be available in relevant forms of media (braille, sign language).

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