

Failed intentions? Meeting the water needs of people living with HIV in South Africa

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Researchers, activists, practitioners and policy-makers have grappled with the challenge of providing people living with HIV (PLHIV) with an adequate amount of safe water. Comprising 13% of the overall population of South Africa in 2018, 7.52 million PLHIV need water for drinking and taking medication; preparing food; and personal hygiene and cleaning to minimise infections. This article examines the responses of the different stakeholders to this challenge and their impact on the water and health policy process. It finds that activists were able to emphasise the dimensions of the challenge; practitioners worked to implement provision more effectively within existing policy frameworks; and a range of stakeholders made a thoughtful and promising policy proposal for direct action, which the Department of Water and Sanitation ultimately failed to embrace. This article is based on an extensive review of academic research and publications by development agencies on HIV and water as well as engagement with policies and documents in the South African water sector related to water services delivery for PLHIV. While the widespread provision of antiretrovirals from 2004 has changed the context, the above findings are significant in understanding and reviewing the impact of various stakeholders on the water and health policy process. They raise questions regarding the effectiveness of NGO advocacy, the means of delivering improved services to specific populations, and the ability of a range of stakeholders to inform the policy approaches of government departments.

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INTRODUCTION

Access to water is a human right of all people and, prior to the widespread access to antiretrovirals (ARVs), was a critical need of people living with HIV (PLHIV). The compromised immune systems of PLHIV and their susceptibility to contracting opportunistic infections meant that clean water was essential for drinking and taking medication; preparing food; personal hygiene and cleaning to minimise infections; and for mothers to prepare baby formula. Fortunately, ARVs not only reduce the HIV viral load to almost undetectable levels, but also improve immune functioning and reduce opportunistic infections. As a result of most PLHIV having access to ARVs, the need to focus specifically on providing an additional quantity of clean water to PLHIV has become less pressing.

Yet the experience of a policy challenge of this magnitude provides important lessons for the water sector. The aim of this article is to examine the responses of different stakeholders – researchers and activists, practitioners and policy makers – to the challenge of providing an adequate amount of clean water for PLHIV in South Africa and their impact on the water and health policy process. Considering each of the three stakeholder groups in turn, it focuses on how their response developed and what we can learn from this process.

It argues that while activists used limited research to formulate a straightforward position that PLHIV need 100 L of water per day, practitioners in South Africa grapple with the complex realities of water systems that either do not exist or are not functioning, and focus on making systems functional. In this context, formulating a policy to deliver additional water to an estimated 7.52 million PLHIV in South Africa (Statistics South Africa, 2018) brought difficult issues to the fore. Questions arose about how to provide additional water to some people and not others in an area, how government might cover the cost of additional water, and how the challenge of providing an increased quantity of water to PLHIV can be taken up when basic water provision has not yet been achieved for all. While a range of stakeholders may have been well-intentioned in formulating a thoughtful and promising policy framework for adoption, those making policy within Government were constrained by finances and internal power dynamics and did not do so. This article shows that, in spite of various stakeholders' commitments to meet the water needs of PLHIV, typical considerations of provision continue to affect delivery to all users, with no specific approach to increase provision to PLHIV.

Academic research in the area of HIV and water has been limited. It focuses largely on the health, gender or psycho-social impacts of poor quality or inadequate quantity of water, often based on quantitative work in specific areas (De la Porte, 2011; Aketch, 2017; Workman and Ureksoy, 2016). In contrast, this article approaches HIV and water from the 'water side of the equation', considering the delivery of water in different types of geographical areas and examining how the need for an improved supply of water intersects with typical considerations of water practitioners and

policy makers: level of service and affordability. By considering these issues in terms of policy formulation, it avoids abstract discussion, which is a weakness of much existing literature.

This article is based on an extensive review of available academic literature on the relationship between water and HIV generally and in South Africa, found in 20 international databases (Table 1), as well as 'grey literature' produced by non-governmental organisations (NGOs) and donors. Utilising internet sources and personal networks, the authors obtained relevant South African policy and programme documents. The research is also informed by the first author's work in the South African water sector as a researcher and development practitioner over the past two decades.

The three sections of this article build on one another. The first section examines how the water needs of PLHIV have been defined by researchers and activists through a focus on quantity. The second section expands this discussion by considering the implementational realities that shape practitioners' engagement with improving access to water: service level and affordability. Finally the third section considers policy making and how the needs of PLHIV have been promoted (or not) in existing policies and plans in South Africa. It discusses how a specific strategy for implementation was sidelined. After examining how different stakeholders have engaged with the need to meet the water needs of PLHIV, the article concludes by highlighting areas for research that would strengthen the ability of the sector to meet such challenges in the future.

Researchers and activists: measuring the water needs of PLHIV

The main rationale behind the efforts to define the physical water needs of PLHIV is the devastating impact that inadequate and unsafe water has on PLHIV. Without adequate, safe water, hygiene is compromised; this can cause or exacerbate diarrhoea, further weakening PLHIV and compromising their immunity. This can also put carers and other household members at risk of illness. According to WaterAid (2004, p. 2):

People living with HIV/AIDS need as much protection from disease as possible. Because of their debilitated immune system they are highly susceptible to communicable diseases and infections, including those that are water and hygiene related. Minor diarrhoea, typhoid or typhus can all prove fatal for someone weakened by HIV/AIDS. The provision of a safe and adequate water supply can help prevent exposure to such illnesses.

Other waterborne diseases caused or worsened by poor quality water that pose a significant threat to PLHIV include cholera, hepatitis, dengue fever, malaria, and other parasitic diseases (Ramirez-Ortiz and Zolnikov, 2016).

The impact of diarrhoea, a manifestation of waterborne infections, is particularly devastating for PLHIV and their households. Relative to uninfected populations, diarrhoeal rates in PLHIV are 2 to 6 times higher, and acute and persistent diarrhoeal rates are twice as high (Lule et al., 2005 in Bery and Rosenbaum 2010). These impacts are particularly acute in Africa, where 90% of HIV-positive people suffer from chronic diarrhoea (Bery and Rosenbaum, 2010). In addition to reducing the quality of life of PLHIV, diarrhoeal illness can speed the progression from HIV to AIDS and can 'interfere with and compromise the absorption of these ARV drugs and can even contribute to developing HIV strains that are resistant to antiviral agents' (Bushen, 2004 in Bery and Rosenbaum, 2007). Another danger is that, without safe water to mix infant formula, babies are at greater risk of contracting diarrhoeal diseases that can result in

Table 1. Databases searched for HIV and water articles

Database
Academic Onefile
Brill Online Journals
Cambridge Journals
De Gruyter Journals Online
EBSCOhost
ISI Web of Science
JSTOR
OECD iLibrary
Oxford Journals Online
Project Muse
Proquest Dissertations and Theses
SAePublications
Sage Journals Online
ScienceDirect
Scopus
SpringerLink
Taylor & Francis Online
Wiley
World Bank E-Library
OpenDoor (Directory of Open Access Repositories)

death (Bery and Rosenbaum, 2007).

The use of water, sanitation and hygiene (WASH) practices – hand washing, sanitation, water treatment and safe storage – have each been proven to reduce diarrhoeal rates by 30–40% and prevent caregivers and other household members from contracting water-related diarrhoeal diseases (Curtis and Cairncross, 2003; Fewtrell et al., 2005; Clasen et al., 2007). Not only does a healthy household prove more 'more economically viable', but it is also more resilient against the challenges of HIV (Bery and Rosenbaum, 2010, p. 1).

When water quality is considered, 'clean' water is often used interchangeably with 'safe' drinking water, which is defined as being 'free from pathogens and elevated levels of toxic chemicals at all times'. Typically the delivery of safe water is measured through access to improved water sources, including household connections, public standpipes, boreholes, protected wells or springs, rainwater or tankered water; this article refers to the level of service above basic access. It is clear that people who lack access to water and draw water from contaminated sources are using unsafe water, and need to use home-based water treatment and safe water handling. However it is important to note that water from improved sources or even treated water may still not be safe to drink. Residents who have been supplied with water but are serviced by ill-managed or failing wastewater treatment plants are at risk (Richie and Roser, 2020).

Given the importance of PLHIV having clean water as well as an adequate amount, one of the top priorities has been to quantify the amount of water needed. The quantity aspect of water can be understood as the level of water access and volumes that people have or are meant to have (Howard and Bartram, 2003). The literature on water and HIV asserts frequently that PLHIV require more water than the basic access of 20–25 L per person per day specified by the World Health Organisation (WHO), on which South Africa's free basic water amount is based, to meet their additional hygiene needs (WHO, 2003).

In the 2010s, stakeholders including NGOs such as WaterAid, Southern Africa HIV and AIDS Information Dissemination Service (SAfAIDS) and the WHO formulated their advocacy strategies around the position that PLHIV require 100 L of water per day (SAfAIDS and WaterAid Southern Africa, 2014; WHO, 2010). This amount has been reported extensively in the news, notably by *The Guardian* and *Reuters* (Frost et al., 2014; Mis, 2014; Gosling, 2015), and has arguably become 'common

knowledge' on the subject of HIV and water that is widely cited by policy makers and practitioners (UNAIDS, 2004; Kamminga and Wegelin Schuringa, 2005; Potter and Molose, 2005; Ngwenya and Kgathi, 2006; Potter and Clacherty, 2007; WHO, 2010; SAfAIDS and WaterAid Southern Africa, 2014).

We found that their position is made on the basis of limited research and is not based on a generalisable sample; it draws from three sources that independently state that up to 100 L of water per day is needed by PLHIV for domestic use:

- Depending on the severity of symptoms, a case study in Botswana indicated that an additional 20–80 L of water could be required daily for PLHIV (Ngwenya and Kgathi, 2006). Taking the 80 L of additional water (high end estimate), plus the basic supply of 20 L, we reach 100 L.
- A rural woman interviewed as part of a case study conducted in southern Africa estimated that it requires 24 buckets of water a day to wash a PLHIV and their clothing, bedding and the house, especially during bouts of extreme diarrhoea (Kamminga and Wegelin Schuringa, 2005; UNAIDS, 2004). For a bucket capacity of just over 3 L, this would mean that, together with 20–25 L basic supply, we reach nearly 100 L.
- Home-based caregivers surveyed in South Africa estimated a need for 200 L of water daily, including water needed for income-generating activities and food production (Potter and Molose, 2005; Potter and Clacherty, 2007, p. 21). If 100 L of this water is allocated for income-generating activities and food production, this leaves 100 L for domestic use.

It is important to note that these studies are not based on a robust method that allows for generalisation. Two of these sources rely on case studies, one in southern Africa in general and the other in Botswana. The South African survey, on the other hand, captures a broader range of experiences; however its focus on income-generating activities limits what can be concluded regarding the water required for PLHIV.

In turn, the pre-eminent global health authority, the WHO (2010), draws on the same sources to compile a table that breaks down the water needs of PLHIV (Table 2). The broad headings in Table 2 include a range of caregivers' needs (Potgieter et al., 2008, p.vi):

...hand washing, bathing the patients, brushing their teeth, cleaning the dwelling and the yard, the toilet, to do the laundry, for drinking, cooking and preparing food. They also used it for medical purposes such as drinking medication, cleaning wounds and keeping the patients and their environment hygienic to improve the lives of the patients and to have a positive impact in a given community.

What is most striking from Table 2 and this description is that the last need, of cleaning, consumes most of the additional water that is required, and that this amount is highly variable.

Some analyses discount the 100 L amount, asserting that 'current estimates of water requirements are highly variable (from 50 to 200 L and more per person) but there are no tangible data to confirm this' (Makaudze et al., 2012, p. 66). Variability or 'heterogeneity of use' is illustrated by Mbereko et al. (2016)'s case studies in rural Zimbabwe, in which they capture people's experiences of water scarcity in accessing between 40 and 240 L per day. This provides a rich and important socio-political and cultural context that is typically overlooked. However in their attempt to move to quantifying people's 'perceived water needs' and then to use this to reach a pseudo-scientific measure of overall 'water shortage', they overlook important usage factors. These include their typical or 'base' usage rate (to which the additional quantity of water required is added) and their usage habits. In other words, comparable households that use water for

Table 2. Basic water needs of PLHIV (Source: WHO, 2010, p. 4)

Water need	Water required
Basic water for drinking, food preparation, laundering and personal hygiene	20 L per day (recommended minimum)
Water for taking antiretroviral medications	Additional 1.5 L per day
Water for replacement feeding of infants under 6 months	Minimum 1 L per day (without water needed for cleaning)
Water for replacement feeding of infants over 6 months	2 L per day (without water needed for cleaning)
Cleaning PLHIV and laundering clothes and bedding (daily during bouts of diarrhoea)	20–80 L per day ^a
Total	Approximately 100 L per day

^aDepending whether or not the patient is under antiretroviral treatment
Data sources: Ngwenya and Kgathi, 2006; Potter and Molose, 2005; WSP, 2007

the same purposes may differ significantly in their estimate of their needs. (And they may have an understandable incentive to report high levels of need.)

As shown above, researchers' attempts to quantify the amount of water needed by PLHIV are not reliable, due to differences in particular contexts and specific cases; however they are useful as a means for those advocating adequate, clean water for PLHIV to increase pressure for policy change and programme implementation. Groups advocating adequate access to water for PLHIV can use the clear demand of 100 L to appeal to policy makers. This is then supported with detail about how it improves the quality of life and health of PLHIV, eases the physical burden of accessing water, and frees up time that can be used socially and to build HIV awareness (Ramirez-Ortiz and Zolnikov, 2016).

So, despite the weak basis for this claim and its lack of contextualisation, the WHO is willing to rely on the present data in its publications, using it to make a clear statement that governments should take into account that PLHIV need up to 4 times the quantity of water accepted as the WHO standard for basic access. The WHO's statement has the potential to raise awareness and build political will to ensure the water needs of PLHIV are incorporated into policy and programmes. As a powerful, globally respected authority, its statements can be influential with national policy makers.

While such advocacy is important, any undertaking that is secured will depend on the ability of practitioners to deliver an increased amount of quality water within the present policy framework and functioning of the water sector. The following section reviews how the level of service differs by residential area and, alongside the affordability of water, determines the quantity of water that people can access in South Africa.

Practitioners: Facing the challenges of providing water services

The legacy of apartheid is visibly apparent in two factors that affect people's access to water: where people live as well as the struggle of new municipalities to develop their capacity to extend and provide services universally. First, people's access to water, in terms of its availability and reliability, depends on a household's location; while residential location under apartheid was racially based, it is now perpetuated in terms of class. Second, while there have been extensive efforts to build capacity in the water sector, particularly at the municipal level, there are still significant differences in delivery of water services between

municipalities. These differences are detailed in the municipal benchmarking reports compiled by the South African Local Government Association (SALGA, n.d). This section discusses the differences in provision across geographical areas and some of the determinants of water quantity that pose a challenge to municipalities.

While activists call for 100 L of water per person per day for PLHIV, water services differ widely depending on the type of area in which people live, which has implications for the formulation of appropriate and effective policies and programmes. Adichie's (2009) reference of a 'single story', in which a group of people is seen in only one dominant way, as if there are no other angles or narratives that are possible, can be applied to PLHIV. For example, Campbell (2003, p. 13) states that the reality of 'very many people' living with HIV/AIDS in southern Africa seems to be one of 'deepening poverty, isolation and an inability to satisfy basic needs such as food and shelter'. While this is true, this generalisation glosses over the differing challenges faced by PLHIV in small towns, rural areas, informal settlements and formal suburbs – and the types and level of services provided.

In many parts of South Africa's metropolitan areas, water infrastructure is well developed. According to Statistics South Africa's General Household Survey of 2018, 97.7% of the urban population in metros had access to tap water (Statistics South Africa, 2018). Central areas or formerly 'white' urban areas are well-resourced with household taps and reliable access to water. Many peri-urban areas and townships, on the other hand, have formal housing with taps in the house or in the yard, but can experience water interruptions for hours or days. Only 55% of households report no interruptions longer than 2 days (Palmer et al., 2017). As rural areas on the fringes of cities transition to peri-rural areas, some households may be given yard connections (or more rarely house connections), but often face more regular or longer interruptions. While 85% of water systems are reported as functional, this is with 65% average reliability (Parliamentary Monitoring Group, 2017). Regardless of the reliability of supply, most urban households have meters, so the ability of a household to access an increased quantity of water for PLHIV depends not only on the area they live in and the quality of service provided by the municipality, but also the municipality's tariff structure and the ability of a household to pay (Smith and Hanson, 2003).

The majority of communities in informal settlements source their water from communal taps, which are typically shared by a large number of households and may be located across the settlement. The guidelines for basic levels of water supply services in South African municipalities state that a maximum of 25 households should be served by a single standpipe at a flow rate of not less than 10 L/min, which is based on the 25 L/person per day scale (DWAF, 2004 in Harhoff and Rievel, 2009). It is common for communal taps in informal settlements to be damaged. In her study of water and sanitation access of PLHIV in an informal settlement in eThekweni Municipality, Mulopo (2015) found that a single functioning communal tap had to supply water to more than 100 households and people were forced to walk long distances to reach it. In locations where households had yard taps or running water in their homes, some were without water because they could not afford to pay water bills for amounts that exceeded the free basic supply. In such circumstances, household members fetch water from their immediate neighbours. It was reported that some neighbours at times refused to supply water or charged for it (Mulopo, 2015).

Coverage in rural areas seems to have improved gradually, from approximately 20% to about 60–70% between 1985 and 2010 (AMCOW, 2011); an estimated 35% of all people lack access to clean water (Frost et al., 2014; Palmer et al., 2017).

However infrastructure is typically basic; most rural areas are served by communal standpipes that may be located far from some households, often further than the standard of 200 m and difficult for households to access if the terrain is hilly or rough (Obi et al., 2006). In addition, this water may be of poor quality and communities face regular and sometimes lengthy interruptions in supply. In response to interruptions or a lack of infrastructure, municipalities often provide water tankers, which can be unreliable. Ultimately people may resort to the use of surface water from rivers or unprotected springs, which is affected by climatic changes. There is a high risk of contaminated water, particularly from shared use with animals or from faecal matter washing into the river upstream.

In South Africa, the bulk of AIDS care is provided within the community, with women caring for their partners and children or through home-based care workers. Women typically are responsible for accessing water (De la Porte, 2011), making the less visible costs of poor water access gendered; when water is not easily accessible, women spend a disproportionate amount of time fetching water, particularly in rural areas. Their time is also consumed by other 'reproductive roles' (Mulopo, 2015; May, 2000 in Tallis, 2002), such as child care, helping children with homework, preparing meals and nurturing (Fajarwati et al., 2016). This is compounded when women living with HIV must also take care of their partner and/or sick child, while being ill themselves. However it is important to note that this gendered burden is often embedded in household relations; so even if the burden for accessing water or caring for household members is lightened, women's labour and time is typically reallocated to another task such as agriculture, additional work related to the household, or errands (Galvin, 2011).

Given the direct relationship between service level and the location of households, which typically is class-related, the focus of the discussion needs to shift to improving service level as a means of increasing the quantity of water that is accessible, as illustrated by Howard and Bartram (2003, p. 22) in Table 3.

In terms of service level, studies show that being forced to travel great distances to collect water leads households to reduce their intake and use sources that are less safe (Howard and Bartram, 2003). PLHIV require a minimum service of a tap in yards or 'intermediate access' (Potter and Clacherty, 2007); access to water from a house connection reduces the incidence of diarrhoea attributable to water supply by 63% as opposed to using a public source (Cairncross and Valdmanis, 2004). Practitioners focus on addressing backlogs and interruptions, while improving the level of service according to plans set by each municipality.

So while the level of service available to PLHIV differs depending on their geographic area and social class, ensuring that water services are delivered and improving the level of service is the responsibility of municipalities. This responsibility was transferred to municipalities – many of which had recently been established – in 2000. They face the challenge of providing infrastructure, operating and maintaining water systems, collecting revenue, and communicating with residents, amongst other things. Most municipalities struggle to provide a basic service level to all users, while beginning to provide peri-urban areas with intermediate access.

However, once areas obtain intermediate access, it is the cost and affordability of water that determine the quantity of water that people can actually access. In terms of affordability, South Africa's policy since 2000 has been to provide 6 kL of free basic water (FBW) per month to each household, which is equivalent to 25 L per person per day for a household of 8 people (in some municipalities, this has now been increased to 9 kL). In addition

Table 3. Service level descriptors of water in relation to hygiene (Source: Howard and Bartram, 2003, p. 22)

Service level description	Distance/time	Likely quantities collected	Level of health concern
No access	More than 1 000 m or 30 min total collection time	Very low (often less than 5 L/person per day)	Very high. Hygiene not assured and consumption needs may be at risk. Quality difficult to assure: emphasis on effective use and water handling hygiene.
Basic access	Between 100 and 1000m (5 to 30 minutes total collection time)	Low. Average is unlikely to exceed 20 L/person per day; laundry and/or bathing may occur at water source with additional volumes of water	Medium. Not all requirements may be met. Quality difficult to assure.
Intermediate access	On-plot (e.g single tap in house or yard)	Medium, likely to be around 50 L/person per day, higher volumes unlikely as energy/time requirements still significant	Low. Most basic hygiene and consumption needs met. Bathing and laundry possible on-site, which may increase frequency of laundering. Issues of effective use still important. Quality more readily assured.
Optimal access	Water is piped into the home through multiple taps.	Varies significantly but likely above 100 L/person per day and may be up to 300 L/person per day.	Very low. All uses can be met, quality readily assured.

to criticism that FBW does not provide adequate water for large households, it does not come close to the increased quantity needed for PLHIV (Hunter, 2005; Muller, 2008). PLHIV must pay for the quantity of water that they use above the FBW amount.

Over and above the FBW amount, municipalities set tariffs and bill users for water. Tariffs are set to recover the full or partial cost of water, including infrastructure, operations and maintenance. Policy debate, intensive activism and local contestation have been sustained against cost recovery pursued by municipalities and the measures they take to collect revenue or end 'illegal connections'. Full cost recovery is one manifestation of a neo-liberal economic approach, which undermines poor people's universal human right to water and the right to access to water specified in the South African Constitution. (McDonald and Ruiters, 2005; Bond and Dugard, 2008; Bakker, 2010; Sahle et al., 2019)

Few local practitioners question that cost keeps many PLHIV from accessing the quantity of water needed. For instance, Potter and Clacherty (2007, p. 4) argue that:

Households affected by HIV/AIDS need more than the basic level of services. However, most people with HIV are in the income-earning age group. Loss of income due to sickness or death from AIDS related diseases decreases a household's ability to pay for higher levels of service. Policies for the provision of free basic water and sanitation services must respond to these challenges.

Households with PLHIV need more water at the same time as they have a reduced capacity to pay for it.

The impact of neo-liberalism is evident in the work of authors such as Makaudze et al. (2012, p. 52) who maintain a position of 'user must pay', even though it seems to contradict the data they gathered as part of their study conducted with support of the Water Research Commission. Having surveyed 485 PLHIV in rural, peri-urban and informal areas across three provinces, they acknowledge the 'much greater requirement' for water for people living with advanced HIV and AIDS and recommend special consideration of ways that 'extra free water can be supplied to meet special needs of PLWHA' (Makaudze et al., 2012, p. 61, emphasis added). However their main assertion contradicts these findings, and appears to be more of an ideological statement. They assert that PLHIV should become the 'primary decision maker, investor, maintainer, organiser and overseer', and that paying for water instils a sense of ownership and responsibility.

They recommend that 'notwithstanding whether the government will subsidise water provision or not, the 'user pays principle' must be guiding principle conveyed to all users' (Makaudze et al., 2012, p. 61). It is clear that this follows from their general argument, which is common amongst policy makers supporting cost recovery, that 'the worst possible approach is to see poor people as having no resources and being entirely incapable of making contributions toward meeting their own costs for water and sanitation services that are so central to their livelihood and survival' (Makaudze et al., 2012, p. 50).

It is important to distinguish between affordability and willingness to pay. It is likely that households of PLHIV are 'willing' to pay for water because the human need to care for a sick loved one trumps all other needs, such as education or perhaps even adequate food. Their willingness to cover water costs does not indicate their ability to do so, though the situation varies from one household to another. PLHIV are still faced with many other financial commitments necessary to care for their health, such as maintaining a healthy diet, home treatment of the water, and increased living expenses (constantly changing bedding). At an advanced stage, PLHIV also face the risk of losing their income because they are laid off or have to take time off their responsibilities at work (Kammaing and Wegelin Schuringa, 2005; Seremet et al., 2010). Moreover, if the need for water can be up to 4 times as much as that provided as free basic water, the cost for households that are already financially pressured will be high.

Having considered the challenges faced by practitioners, it is now useful to turn to the South African policy context. The following section reviews how the need of PLHIV for additional water in various areas has (or has not) been incorporated into existing policy.

Policy-makers: ensuring that policies and plans address the water services needs of PLHIV

While a range of policies and plans have engaged with HIV and water to a limited degree, none have been adopted, developed or implemented. It is important to look at the two approaches taken by South African policymakers. The first approach is for state institutions to express intentions and make an effort to mainstream improved delivery of water for PLHIV into their existing work. The second approach is tasking a multi-stakeholder group with reviewing the issue and making recommendations for a strategy that can be implemented. How these unfolded in

the context of providing adequate water to PLHIV is discussed below.

In terms of the first approach, the link between HIV and water is not emphasised in the National Strategic Plan on HIV, STIs and TB (2012–2016) (NSP), the most visible means of driving action by government. It states that HIV must be conceptualised as a development challenge, within a socio-economic context with interrelated development concerns such as basic services. The only direct reference to water is under the section on the living conditions in informal settlements (SANAC, n.d, p. 35):

The poor living conditions in informal settlements provide fertile ground for HIV, STI and TB transmission, as well as the spread of many other communicable diseases, especially among children – mainly as a result of the lack of proper building materials, the lack of access to basic services, such as sewerage, electricity and running water, and the lack of food security.

It is noted that the Department of Human Settlements has mapped all informal settlements and documented challenges including the need for improved access to basic services (SANAC, n.d, p. 35).

The NSP promotes the mainstreaming of HIV into the core mandates of all government departments at all levels, since they have a ‘critical role to play in addressing the social, economic and structural factors driving these diseases’ and have a constitutional obligation for the progressive realisation of the right to dignity and health, amongst others. The Department of Public Service and Administration’s guidelines for mainstreaming are ‘meant to sensitise national and provincial government departments to render their services in a gender sensitive and rights based manner that upholds the dignity of individuals especially those living with HIV’ (DPSA, 2011, p. 4). They specify that government needs to allocate adequate human and financial resources and that HIV objectives (and indicators) need to be clearly defined and aligned to national strategies and plans (DPSA, 2011). Therefore it is up to the Department of Water and Sanitation and other relevant departments to take this plan forward.

In 2003 the Department of Water and Sanitation expressed this commitment in its Strategic Framework for Water Services: municipalities ‘must take into account the impact of HIV/AIDS on water demand’ (Potter and Clacherty, 2007, p. 16; DWAF, 2003, p. 22). The plans of Water Services Authorities (WSAs) to do so should appear in the municipal Integrated Development Plans (IDPs) and specific Water Services Development Plans. Potter and Clacherty (2007) outlined possible ways for WSAs to reduce the impact of HIV/AIDS, and other authors note how steps can be taken at the community level to improve water quality, such as providing options for household water treatment, storage and handling to ensure an acceptable quality of water (Magrath and Tesfu, 2006; Ashton and Ramasar, 2002; Lule et al., 2005 in Potgieter and Du Preez 2012).

Municipalities, through the South African Local Government Association (SALGA), echoed this acknowledgement of the need to engage around HIV and water (SALGA, 2008). Its policy document on IDPs acknowledges that change is needed (SALGA, 2008, p. 5):

Good sanitation has particular relevance in a context of high HIV/AIDS prevalence. The health and well-being of those infected with the HIV virus are directly affected by the quality of their living environment. Poor sanitation and water services present the risk of exposure to infectious diseases and illnesses to which HIV positive people are particularly susceptible – including diarrhoea and cholera.

Good water and sanitation services reduce a significant area of stress on the ailing immune systems of those with the virus, and can thereby support the maintenance of strong immune functioning; this in turn can extend the period before anti-retroviral treatment becomes necessary, or before people fall prey to a range of opportunistic infections which eventually prove fatal. For those who have AIDS, and for those who care for them, clean water, accessible and hygienic toilets and effective grey water disposal systems are essential. Where hospital admission is not feasible, the burden of care is shifted to the home. It is essential that basic services ease this burden as much as possible.

Yet it does not appear that this has been operationalised through action plans or changes in the provision of water services at the municipal level. A few municipal IDPs, such as Beaufort West, restate the very same goals as in the NSP, which include (but are not limited to) partnering with other stakeholders (municipalities/NGOs/community members) in fighting HIV and TB illnesses and ensuring that clean water is accessible (Beaufort West Municipality, 2016). Yet it considers water and HIV as separate issues rather than issues that affect each other, and has no plans of how to achieve them. While it is possible that champions within these structures are building relationships that are the basis for improved cooperation, institutionally it appears that cooperation between municipalities and the Department of Health is lacking, despite some aspirational statements about water’s importance for PLHIV.

The second approach of policy makers was to formulate policy through a multi-stakeholder body. In 2007 the Water Sector Leadership Group (WSLG), a multi-stakeholder group regularly convened by the Department of Water and Sanitation, produced what is arguably the most detailed and thoughtful – and practically useful in terms of implementation – analysis of HIV and water policy. The process of drafting the ‘Strategic Framework for Mainstreaming HIV and AIDs in the Water Sector’ began in 2004 and was presented to the WSLG in November 2009. It is not surprising that the DWS Directorate Water Services: Policy and Strategy asked that it be referred to as a ‘draft strategy’ rather than a ‘strategic framework’. What is proposed has wide-ranging financial implications, and WSLG had increasingly little influence in the sector after the Masibambane programme ended. So over the past decade, the document has not moved past the draft stage, and was not formally adopted or implemented by DWS.

This strategic framework is an impressive document, which reviews the literature and carefully considers the relationship between HIV and water. Its premise is that access to safe water and sanitation plays a key role in mitigating the impact of HIV/AIDS. It highlights that, without access to safe water, people use rivers and unsafe sources that shorten their lives: ‘diarrhoea kills’ (p. 7). It moves past this acknowledgement to consider two inter-related policy approaches:

- Targeting and prioritising certain geographical areas according to agreed criteria
- Changing the ‘free basic water’ and water tariffs to assist PLHIV

These inter-related recommendations are best considered by examining the targeting approaches used to date: an inclusive design through the original implementation of FBW and a targeted design through the ‘indigent register’ used by some municipalities to implement FBW. The usefulness of these approaches and the WSLG’s recommended geographical approach are discussed below.

An inclusive design in formulating programmes considers

everyone's needs rather than targeting a specific audience (Bery and Rosenbaum, 2010). For example, in 2000 FBW was initially applied to all households in eThekweni Municipality, without targeting. To provide the 100 L needed by PLHIV, municipalities would have to increase the quantity of free basic water presently being provided to everyone and to ensure that the first step in their tariff structure is more affordable – for **all** households receiving FBW. Given the financial constraints faced by most municipalities, and many times their struggle to provide even the existing FBW amount, this scenario is highly unlikely to be implemented.

In contrast, targeting a specific audience tends to backfire as it makes households with those characteristics easy to identify within the community and subject to stigmatisation. The City of Johannesburg explored this issue in detail, concluding that it would be a 'grave invasion of privacy' to ask people to disclose their status (Eales, 2017). Paradoxically, targeting poor households is already in place in many municipalities (including the City of Johannesburg), where 'indigent' households are required to present proof of 'indigence' to the municipality in order to access FBW. So, if a municipality chooses to increase the amount of water provided to PLHIV, targeting could theoretically work in places where households are billed (metros and towns). With a revised indigent policy, households could register as 'indigent with a PLHIV' and the free basic water amount could be increased and/or they could be charged a reduced tariff for the quantity of water over the FBW amount. Aside from municipal budget constraints, this also raises issues of privacy.

While others focus on targeting areas with a proportionately high number of PLHIV (West et al., 2013), the WSLG proposed narrowing this further by targeting 'high prevalence areas' with poor access to basic water services. Here they would address backlogs and provide FBW and FBS. Areas were prioritised in the following order (DWA, 2007: section 3, p. 5):

1. Informal settlements (high poverty, low levels of service, highest infection rates)
2. Reliance on rivers/streams
3. Low levels of water services provision
4. High poverty and high prevalence
5. High poverty and low levels of service provision

Improving service levels in informal settlements and rural areas would mean decreasing the distance of standpipes from households so that they can access more water and ensuring safe water is used.

In summary, there has been recognition of the issue within the health and water sectors, but no further development of action plans or implementation of changes has followed. A promising strategic framework document developed by a multi-stakeholder group convened by the Department of Water and Sanitation was shelved by the same department for budget reasons or possibly due to political dynamics (Galvin and Roux, 2019). The document specified the importance of investing in and improving service levels in targeted areas, setting tariffs to subsidise services for the most vulnerable, and regulating providers to ensure that vulnerable communities have access to adequate and affordable quantities of water. It drew together considerations of researchers, practitioners and policy-makers into a single approach.

CONCLUSION

The need of PLHIV to access an adequate amount of safe water places increased physical, financial, time and/or psychological demands on them and their households (WaterAid, 2010). This article has reviewed detailed studies that capture the experience of caregivers and quantified the water required for various needs as up to 100 L/person per day. It has grappled with differences

between geographical areas and suggested ways that practitioners can use this estimation as a catalyst to improve service levels, although the questions of affordability remain. Finally the article showed how policy makers expressed their desire to address the need of PLHIV for improved water services, but when a strategy was crafted through a multi-stakeholder process to implement this commitment, it was not taken up by DWS. Practitioners continued business as usual: installing systems, improving service levels, and attending to operations and maintenance issues as needed in different areas.

Since water is required for all kinds of care, our analysis extends to other diseases, aging populations, climate displacement, and other situations that 'stretch' basic water needs. Policy makers must therefore increasingly reckon with a flexible and growing 'normal' demand, which may arguably necessitate increasing the quantity of free water provision for all.

A range of questions arise that require further research. First, around the same time that the multi-stakeholder strategy was drafted, academic literature began to explore the complex relationship between poverty and HIV (Shelton et al., 2005; Nattrass 2009; Parkhurst, 2010). Very generally analyses find that there is no statistically significant relationship between poverty and people contracting HIV. However poverty does make people more vulnerable to the effects of HIV, as they cannot access clinics easily and may not have adequate food to minimise the side effects of ARVs. Understanding the complex relationship between poverty and HIV can better inform support provided to PLHIV. Similarly the widespread roll-out of ARVs has changed the context, and the water needs of PLHIV need to be reassessed.

How can data collection be improved so that there is a deeper understanding of local dynamics related to the needs of specific populations and sufficient data to model nuanced policy responses? While DWS and municipalities do collect data, incentives to ensure data accuracy are absent as people know that data has implications for funding and profiling of municipalities. Here there is potential for researchers and civil society organisations to contribute to data collection prior to situations requiring urgent policy responses. Research is needed to review data collection and management systems in South Africa and those in comparable contexts in other countries, and to consider creative means of improving them.

Systemic questions also arise in relation to municipalities' inaction in formulating specific plans to meet the water needs of PLHIV. Further research is needed to assess whether the water needs of PLHIV have been considered as part of Water Services Development Plans and, if so, whether the lack of action is due to challenges of implementation or a lack of national guidance, support and regulation.

Finally, research is needed to explore what groups might act as a successful external source of pressure at the municipal level, as a direct incentive for the implementation of policies and guidelines. NGOs and social movements typically play that role. For example, the Treatment Action Campaign (TAC) achieved its aim of obtaining free antiretrovirals from government through a mixture of engagement and protest (Heywood, 2009), as evident in its own account of its extensive advocacy work:

TAC believes that the right to quality and affordable health care for all people is a basic right, along with the right to dignity, equality and life. In line with this, TAC campaigned for the prevention and elimination of HIV infections, and for equitable and affordable access to treatment, campaign and support; it advocated for and promoted legislation that supported these rights and it trained representative and effective leadership that could drive campaigns and struggles. All the actions of TAC were directed towards

improving health, particularly amongst poor and working class people. The original TAC mandate in the late 1990s was built on activism and lobbying with clear aims and objectives. During this period the TAC played a key role in changing mindsets and forcing action from Government towards HIV and AIDS. Over a decade the TAC has broadly achieved its original objectives and this could be seen through the renewed Government approach to HIV and AIDS in South Africa (TAC, 2010).

In terms of possible advocacy emanating from within the water sector, the commitment of activists from the Anti-Privatisation Forum (APF) was evident in their driving of the Mazibuko case all the way to the Constitutional Court (Bond and Dugard, 2008; Sahle et al., 2019). However the APF has subsequently folded and there is no sign of a group with the interest and capacity to take up the issue of adequate provision of water for PLHIV.

Multi-stakeholder groups such as the Water Sector Leadership Group or the Water Dialogues in South Africa's water sector might provide an option (Galvin, 2016). While the involvement of stakeholders was encouraged in the 1990s and 2000s through the Masibambane programme and its sector support approach, it now tends to be ignored or sidelined. Research with DWS officials could examine their perceptions of multi-stakeholder input and its utility, and barriers to its use. Research could also examine means of bringing in outside influence through coordinated engagement by donors or other oversight bodies.

Whether the intentions of researchers and activists, practitioners, and policy makers have failed in meeting the water services needs of PLHIV is open to interpretation. Most cynically, amidst many efforts and extensive discussion, business has carried on as usual. Conundrums of contention around financing and free services remain unresolved. However, by trying to meet the challenge of providing water for PLHIV, the resolve and commitment of all actors to achieve or surpass existing aims was arguably strengthened. They were forced to revisit and acknowledge the deeper challenges masked by business as usual, moving from policy to action and seeing what otherwise remains invisible.

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