The Zimbabwe Water Forum provides a platform for Government and Development Partners to share international best practices in the water sector between Zimbabwe and other countries. The forum was formed through a partnership between the Ministry of Water Resources Development and Management, the Multi-Donor Trust Fund and the World Bank and is hosted by the World Bank’s Zimbabwe Country Office and the Urban WSS Thematic Group.

The Future of Sanitation in Harare and Other Cities: Perspectives on Possible Pathways to Recovery

Perspectives on potential recovery pathways for urban sanitation in Zimbabwe are shared in this policy note based on a presentation given by Clarissa Brocklehurst to the Forum on 11 April and the ensuing discussion. Clarissa, until recently the global head of water, sanitation, and hygiene at UNICEF, is part of the team advising the government on the Greater Harare Water and Sanitation Strategic Plan. Discussants to the presentation included Peter Hawkins, WSP, World Bank; Barbara Evans, Lecturer, University of Leeds and Murtaza Malik, UNICEF, Zimbabwe. The Forum was moderated by Michael Webster, World Bank. The Policy Note also draws on the work being undertaken by the World Bank with the City of Harare and satellite towns on the development of a Greater Harare Water and Sanitation Strategic Plan.

Sanitation in urban Zimbabwe

Sanitation services in Zimbabwe used to be the envy of the continent, driven by the principles of high service standards and universal access. As cities expanded, roads, water supply systems, and sewers were built before homes were occupied, so that services could keep pace with urban growth. In the late 1990s, a severe economic crisis coupled with a rapid increase in the number of people moving into cities, left many city residents without adequate sanitation or water supply services. The services that were there fell into disrepair for lack of funds for maintenance. By 2008, the sanitation systems in most cities had virtually shut down, resulting in a public health crisis and contributing to a cholera epidemic that claimed 4,300 lives, most of them in cities. Although emergency measures halted the epidemic, diarrheal disease continues to be a threat, and typhoid cases are on the rise.

Although the Joint Monitoring Programme reported that access to improved and/or shared facilities decreased from 99 percent in 1990 to 96 percent in 2008, the data collected for the Greater Harare Sanitation Strategy, as well as more recent data for other towns collected through a benchmarking study, suggests that the actual situation is worse than this (see below). Municipalities are struggling to maintain existing sewerage networks and treatment facilities and many households in urban areas (or on the periphery of urban areas) do not have adequate sanitation facilities.

According to the 2012 census, about a third (31 percent) of Zimbabweans live in urban areas, and the numbers are increasing at a rate of about 4 percent per year. Many towns are unable to provide a reliable and continuous (24/7) supply of water. Households are finding it difficult to maintain functioning toilets without reliable flushing, and the sewer system as a whole suffers from frequent blockages, creating overflowing and impeding the operation of wastewater treatment works.

Without access to adequate sanitation, many urban households are forced to rely on improvised facilities or open defecation, creating serious health risks. Poorly maintained sewers and treatment works contribute further to these health risks by contaminating rivers and dams. The sanitation system not only needs major refurbishment, but rapid urban growth has created a need for a greatly expanded system as well. Given the current economic conditions, the funding for improvements and expansion are simply not available.
National sanitation policy & strategy

Recognising these challenges, the Government recently launched a National Water Policy and a National Sanitation and Hygiene Strategy (2011 to 2015). The Policy and Strategy recognise the need to adopt lower standards in the economic recovery period.

The Water Policy states: “for all urban residents the normal high service standards will be temporarily relaxed during the recovery period. The relaxation will include permitting certain onsite sanitation technologies for plots of a minimum prescribed size to allow housing delivery to recover. This will be followed by a full resumption of high standards once the situation is normalized. The policy is therefore to temporarily lower the technical standards during the recovery phase and upgrade them to the current standards during the normal development phase.” Evidence gathered over the past decade, indicated that, given current economic conditions in Zimbabwe, it would not be possible to simultaneously maintain high standards of sanitation delivery and universal access. The policy also points to the need to clarify the role of central government, urban authorities, and ZINWA and to the importance of developing institutional mechanisms for regulations, tariff-setting, and financing. The policy calls for the adoption of affordable, efficient, and sustainable solutions to sanitation service delivery.

Practical ways of implementing this Policy and Strategy in the Greater Harare area were explored by the Forum.

Sanitation in Greater Harare

According to the 2012 census, there are about 2.1 million people in Greater Harare (City of Harare and the four surrounding towns—Chitungwiza, Epworth, Ruwa and Norton). At the nadir of the economic problems in 2008 and early 2009, water and sanitation service delivery collapsed as a result of chronic power shortages, an inability to procure essential inputs such as chemicals to treat water, and significant disruptions in the pumping and treatment of water and wastewater. This resulted in an outbreak of waterborne disease—Greater Harare accounted for 26% of the 4300 reported cholera deaths.

An emergency response enabled services to be partially restored, but large challenges remain. Water supplies are still intermittent—with much of the network only receiving water a few times a week and some of the network no water at all—and much of the wastewater still flows into waterways without being treated.

The City of Harare supplies water to its own area as well as bulk water to Chitungwiza, Norton, Epworth, and Ruwa. Supplies to Ruwa are augmented by its own smaller supply system. However, provision of water across the metropolitan area is highly unequal due to inequitable allocation of the bulk supply and because each municipality is responsible for the distribution of water and for the collection and treatment of wastewater.

Current sanitation service coverage in Greater Harare is insufficient (see figure). The data show three notable features. First, there are a large number of households using sanitation that does not meet current standards (24 percent of households are not connected to a sewer network). Secondly, the distribution of types of sanitation used varies by area. Finally, there is a lot of uncertainty in the data with no information for a large number of properties.

Only a small fraction of the wastewater collected is treated (39 megaliters per day treated, 231 megaliters per day untreated). The untreated sewage runs into the water sources on which Greater Harare is reliant, creating a significant health hazard.

Even if the existing wastewater treatment facilities in the Greater Harare area are restored to full design capacity, these facilities will not be able to treat the existing volumes of wastewater generated and major expansions would be required to both treat existing flows and cater for more households if they were connected to the sewer network.

A survey of sanitation practices in the Greater Harare area found a wide range of alternative solutions being implemented. Some innovative practices were found: for example, the use of ecosan toilets and the conversion of standard pit latrines into pour-flush latrines. However, the absence of effective regulations, guidelines, and support for these alternative practices places households at considerable health risk. Pit latrines, septic tanks, and soakaways were found in close proximity to shallow wells. In many cases plot sizes were too small to properly support a sustainable septic tank solution.
The absence of effective urban planning, including land release and zoning policies, also contributes to the unsatisfactory urban sanitation conditions.

**A sanitation strategy for Greater Harare**

The City of Harare, in collaboration with the four satellite towns, is in the process of developing a strategic plan to restore water and sanitation services in the short term, and to expand and improve services in the long term. This strategy needs to take into account national plans as well as funding strategies that make use of limited resources while keeping tariffs affordable for all residents. Sanitation needs to be improved with available resources that are wisely spent for maximum benefit.

**Alternative approaches to urban sanitation**

The National Sanitation and Hygiene Strategy states that, “In urban areas, rehabilitation of wastewater treatment systems will be given priority, while expansion will focus on low energy, low maintenance systems such as septic tanks and stabilization ponds.” The Water Policy recommends adoption of onsite technologies for plots of a minimum prescribed size.

There are a wide range of technology options including:

- Double-pit pourflush latrines, commonly used in South Asia.
- Small bore, simplified or condominial sewers, used in some towns and cities in Latin America.
- Urine diverting dry toilets, one of a number of “ecosan” (ecological sanitation) options in which the nutrients from human waste are made available for reuse as fertilizer.
- Septic tanks with a soakaway. These normally require a minimum plot size and suitable soil conditions.

Historically, Zimbabwe has been a leader in the innovation of rural sanitation and urban wastewater treatment technologies. This rich heritage can be drawn on and reactivated to find the most appropriate approaches to meeting current and future needs.

Urban sanitation solutions adopted by other cities can also be used as models. For example, eThekwini Municipality in South Africa recognized that it would not be able to afford to invest in the sewer network and treatment facilities needed to serve the whole municipal area. A well-planned urban sanitation policy defined a “sewer boundary” that restricted sewer service to the central city. Areas lying outside this boundary are served by a range of alternative sanitation solutions. The municipality has found from experience that pit latrines in urban areas filled quickly, were expensive to empty, and were not a cost-effective and sustainable solution. Instead, the municipality promoted the use of double-vault urine-diversion toilets and has developed (fully serviced) communal toilet blocks in some of the very dense urban settlements where toilets for each household were not practical. They have constructed more than 50,000 double vault urine diversion toilets and are working in partnership with the Bill and Melinda Gates Foundation and other agencies to pilot other sustainable urban sanitation solutions.
Key premises informing strategy

The strategy is being developed based on the following premises:

- It is not practically or financially possible to extend the sewer network and provide wastewater treatment facilities to all households settled in the Greater Harare area given the current economic conditions.
- National policy supports the development of alternative sanitation solutions during the economic recovery phase.
- A key mechanism for managing urban sanitation effectively is to define a clear ‘sewer boundary’ for the whole Greater Harare area—based on a financial investment and affordability assessment—that defines the areas that will be provided with sewer connections in future and those that will not.
- Urban settlements—particularly land release and housing developments—need to be managed in terms of this ‘sewer boundary’ and with a clear set of policies and guidelines.
- These policies and guidelines need to be uniform (or at least consistent) between the five cities/towns comprising the greater Harare Area (including the urban fringe just outside the existing municipal boundaries) and effectively enforced.
- A clear financial framework needs to be developed to ensure that available subsidies are used to maximize the public good and promote equity, without creating perverse incentives. In almost all cases, this will involve allocating available subsidies in a way that best reduces public health risks.
- The institutional mechanisms to support these policies, regulations, guidelines and financial and subsidy framework need to be carefully explored to ensure alignment of incentives and sustainability. This may include the consideration of a metropolitan-wide planning mechanism and coordinated land-release policies and practices.
- When considering and comparing alternatives, full lifecycle costs need to be taken into account.

- The lack of adequate data to support planning and budgeting (for example, basic data on the number of properties and the type of sanitation facilities being used) severely constrains the development of an informed sanitation investment plan. These data gaps need to be urgently addressed.

Wider lessons

In most African cities a significant proportion of households do not have access to a flush toilet linked to a sewer network. Given scarce resources, a choice must be made between expanding conventional systems (which will not be able to provide services to all households) and supporting better health outcomes to households without access to conventional systems. Experience strongly suggests that the following questions need to be asked in order to develop appropriate and long-lasting solutions to a complex problem:

- It is helpful to think about solutions in terms of outcomes. What are household preferences and what are the health impacts of different approaches?
- Improving access to sanitation does not necessarily lead to improved health. What changes are needed in hygiene behaviours and how best can these be achieved?
- How should municipalities regulate and invest in the management of fecal sludge to reduce illegal dumping?
- Under what conditions can decentralized treatment facilities be cost effective?
- Experience shows that good support to operations and maintenance for on-site systems, such as pit latrine or septic tank emptying, can result in better outcomes. What role should municipalities play in supporting on-site sanitation systems?
- What roles can and should the municipality play in the full spectrum of activities related to sanitation, from education to service provision?
- Investing in an improved water supply can produce important health benefits. How can decision-making related to water and sanitation investments be more fully integrated?