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.

Zimbabwe Urban Water Tariff Study

At the request of the Ministry of Water Resources Development and Management, the World Bank undertook an Urban Water Tariff Study supported by the Zimbabwe Analytical Multi-Donor Trust Fund. The study was undertaken by Economics Consulting Associates in 2001–02 to consider tariffs for water and wastewater services (WWS) in seven municipalities in Zimbabwe (Harare, Bulawayo, Chitungwiza, Mutare, Kwekwe, Masvingo and Chegutu). The research group was tasked with coming up with recommendations for tariff setting for each municipality, as well as some general recommendations for regulation of the WWS as a whole. The team met extensively with authorities from each municipality to gather data and assess the status of each system. They also held a series of workshops to encourage discussion and debate of the issues with a broader range of stakeholders. The results of this research are summarized below. The study was presented to a stakeholder group in February 2012. The full study is available from the World Bank.

Water and wastewater services are struggling throughout Zimbabwe

Over the past few decades, water and wastewater services have been seriously underpriced in Zimbabwe, creating revenue shortfalls that were made worse by the hyperinflation of the late 1990s. Without enough revenue, water operators couldn’t afford the maintenance and renewal that are needed to keep systems operating smoothly. Leaks and blockages became routine, and broken water meters were the norm rather than the exception. Without functioning meters, municipalities either couldn’t collect for the water used, or were forced to switch to charging people a flat fee regardless of how much water they used, encouraging overuse of water resources that were already stretched to the limit. Combined with frequent power outages that could shut a system down for days, households in Zimbabwe were often faced with long periods of interrupted water service or no service at all. Many people simply refused to pay their water bills given the poor service, and others were forced to seek their own water supplies from wells and boreholes, or even sometimes from highly polluted surface water. Inadequate water treatment facilities combined with leaking or non-existent sewerage systems eventually created a health crisis, and in 2008–09 a nationwide cholera epidemic infected over 100,000 people and claimed 4,300 lives. Emergency measures were put in place to curtail the most serious health risks, and the Government of Zimbabwe, local councils, and international development partners are now working together to find long-term solutions to the WSS crisis.

WWS systems in the seven municipalities are not meeting demand

High urban population growth combined with deteriorating infrastructure has created a crisis for municipal water supply systems. Only two of the seven municipalities are more-or-less meeting the demand for water (Mutare and Kwekwe at 80
and 66 percent respectively). The remaining municipalities are struggling to meet even half the unconstrained demand, with most supplying only about one quarter of total demand with piped water. People without adequate municipal supplies of water are surviving by using boreholes (with handpumps in high-density areas), shallow wells, surface water, and water purchases. Households in Chitungwiza (9 percent of water supply) and Chegutu (12 percent of water supply) rely most heavily on these self-supplied water sources.

On the sewerage side, almost none of the biological nutrient reduction (BNR) plants are working. The ponds still function, but a great deal of pollution enters streams through spillage from sewers and sewage pump stations, discharge of raw sewage at treatment works, and the failure of effluent pumps. Pollution has the greatest impact in Harare and Chitungwiza, where the sewage discharge is upstream of water intakes.

**Main Water Issues in the Seven Municipalities**

**Harare** reported that it currently has two main problems: capacity is half the estimated demand, and the bill for their chemicals is high due to untreated sewage from Chitungwiza and Harare contaminating their water supply. NRW is the highest of the seven municipalities studied at 57 percent. Harare Water estimates that their monthly chemical bill could be significantly reduced if raw sewage entering the Manyame was treated properly.

**Bulawayo** is able to supply only about 75 percent of unconstrained demand. Tariffs are high for the upper bands of the rising block tariff structure. Water revenues are diverted to other uses (about half the revenues collected in the first half of 2011, for example). NRW is on the lower side at 35 percent. The city is receiving support for water and sanitation projects from a number of donors.

**Chitungwiza** estimates that the shortfall in supply from unrestricted demand is about 20 percent. The main problems are lack of supply capacity from Harare water and lack of functioning sewerage treatment works. NRW is the lowest of all the municipalities under review at 30 percent. Funds are being made available for repairs to the pipes and clearing of blocked sewers.

**Mutare** is fortunate to have a gravity-fed water system from uncontaminated sources; there are few pumping costs, and chemical costs are low. It can therefore price water below the $0.40/m³ mandate. There is no ring-fencing of the water budget, but there are plans to implement ring-fencing in the future. Mutare, however, reports a culture of non-payment of bills that affects revenues and contributes to the very high proportion of NRW of 52 percent, the highest of all seven municipalities in the study.

**Kwekwe** is able to fully supply demand. The biggest debtor is their bulk supply customer, ZISCO, which as of mid-2011 owed $7–$8 million or about two thirds of annual budgeted revenue. At 40 percent of production, NRW is high although close to the average for the municipalities. Tariffs are set through a process of consensus. The Municipality is keen to be able to borrow to finance its capital investment program.

**Masvingo** has to pump all its water from Lake Mutirikwe. Water is presently supplied in the city for only 12 hours per day, but this seems sufficient to meet a large proportion of unconstrained demand. The biggest problem is the low revenue collection rate: government institutions owe about $2 million for water, pushing NRW to 41 percent.

**Chegutu** has been plagued by major interruptions in its power supply that have limited the amount of water that can be supplied and billed. During months with a steady supply of electricity, revenue from water sales more than doubled; people are very willing to pay when the water flows. A new dedicated power line, funded by the PSIP, was installed in November. NRW is 40 percent of production. The Municipality plans to ring-fence the water account.

**A rational system of tariffs is key to restoring the WWS system in Zimbabwe**

The WWS system in Zimbabwe needs major refurbishment, and revenue from tariffs will play a large role in funding the necessary improvements. The goal of tariff reform in Zimbabwe is to make tariffs meet the costs of operations, maintenance, and expansion of the network to meet growing demand. But it is equally important for water bills to be affordable for all households and for vulnerable families to be buffered from any large increases. The challenge is to preserve the rights of all communities and households to a safe supply of water.
drinking water, while safeguarding the environment and ensuring that the cost is distributed equitably. WSS service providers need to be able to set tariffs locally to recover costs, but it should be clear to customers how the fees are determined, and that they are being used to improve services. A transparent regulatory system will be critical for communities to feel that the system is working again.

**Improvements to efficiency will lower costs and reduce the burden on water bills**

Currently, municipal WWS systems in Zimbabwe are very inefficient. A combination of leaking pipes, broken water meters, and poor bill collection has led to Non-Revenue Water (NRW) rates between 30 and 60 percent, when NRW rates of about 25 percent are an attainable benchmark for the region. Without enough revenue being collected, operators have been forced to cut costs by reducing staff salaries and allowing critical infrastructure to go unrepaired. This has led to service interruptions, unhappy customers who are reluctant to pay their bills, and ever lower revenues.

An essential component to keeping tariffs affordable will be to improve efficiency. The municipalities expect to make significant improvements in service delivery and revenue generation in the next few years. The benefits of these improvements will be cumulative: as non-revenue water declines not only will revenues go up, but access to water will improve, and willingness to pay will increase.

The ECA research team incorporated these expected efficiency improvements into policy scenarios for tariffs and found that with improved efficiency most municipalities (with the notable exception of Chitungwiza) could meet operation and maintenance expenses without substantial increases to water tariffs. Because of the virtual shutdown of wastewater treatment plants in the past decade, however, sewerage tariffs will need to be raised substantially to pay for the improvements needed to get the system up and running again. The report recommends that any necessary water tariff increases be introduced gradually to prevent affordability issues, but it suggests that sewerage tariffs, which have all but disappeared, be put into effect as soon as treatment plants can be brought back into operation, so that the much-needed funds can be brought back into the system as quickly as possible.

Current tariffs (2011) and cost-recovery tariffs calculated through ECA policy scenarios

<table>
<thead>
<tr>
<th>Calculated tariffs</th>
<th>Units</th>
<th>Harare</th>
<th>Bulawayo</th>
<th>Chitungwiza</th>
<th>Mutare</th>
<th>KweKwe</th>
<th>Masvingo</th>
<th>Chegutu</th>
</tr>
</thead>
<tbody>
<tr>
<td>Av water tariff as billed</td>
<td>$/m³</td>
<td>0.82</td>
<td>0.60</td>
<td>0.76</td>
<td>0.23</td>
<td>0.46</td>
<td>0.58</td>
<td>0.26</td>
</tr>
<tr>
<td>Policy scenario - O&amp;M - water</td>
<td>$/m³</td>
<td>0.75</td>
<td>0.48</td>
<td>1.36</td>
<td>0.24</td>
<td>0.42</td>
<td>0.57</td>
<td>0.31</td>
</tr>
<tr>
<td>Increase in water tariff</td>
<td>%</td>
<td>-8%</td>
<td>-21%</td>
<td>78%</td>
<td>7%</td>
<td>-8%</td>
<td>0%</td>
<td>19%</td>
</tr>
<tr>
<td>Av sewerage tariff as billed</td>
<td>$/m³</td>
<td>0.23</td>
<td>0.17</td>
<td>0.27</td>
<td>0.11</td>
<td>0.08</td>
<td>0.15</td>
<td>0.07</td>
</tr>
<tr>
<td>Policy scenario - O&amp;M - sewerage</td>
<td>$/m³</td>
<td>0.58</td>
<td>0.32</td>
<td>0.43</td>
<td>0.18</td>
<td>0.12</td>
<td>0.27</td>
<td>0.12</td>
</tr>
<tr>
<td>Increase in sewerage tariff</td>
<td>%</td>
<td>152%</td>
<td>80%</td>
<td>61%</td>
<td>57%</td>
<td>43%</td>
<td>89%</td>
<td>58%</td>
</tr>
<tr>
<td>Av combined tariff as billed</td>
<td>$/m³</td>
<td>0.98</td>
<td>0.73</td>
<td>0.95</td>
<td>0.31</td>
<td>0.51</td>
<td>0.68</td>
<td>0.31</td>
</tr>
<tr>
<td>Policy scenario - O&amp;M - 70% return</td>
<td>$/m³</td>
<td>1.15</td>
<td>0.70</td>
<td>1.66</td>
<td>0.37</td>
<td>0.50</td>
<td>0.77</td>
<td>0.39</td>
</tr>
<tr>
<td>Increase in combined tariff</td>
<td>%</td>
<td>18%</td>
<td>-4%</td>
<td>75%</td>
<td>20%</td>
<td>-2%</td>
<td>13%</td>
<td>26%</td>
</tr>
</tbody>
</table>
**WWS tariffs should primarily contribute to WWS services**

Zimbabwe’s water and sewerage departments are embedded in the municipalities, and revenues from WWS have traditionally been used to subsidize other municipal services. It is a system that has worked well in the past for municipal development, and the municipalities generally see it as the way of the future. When WWS systems were net revenue generators, the system was largely unquestioned, but given current needs, it may be necessary to ring-fence WWS tariff revenues by reserving them for reinvestment in the struggling WWS operations. At the very least, it is critical to institute independent accounting systems that will clearly reflect the actual costs and revenues of WWS services and that will record any transfers to other municipal departments. Accurate accounting, including reassessments of the value of all assets in the WWS systems, will be an important part of any plan for growth.

**Increasing block tariffs can be used to share the cost of service across income groups**

There are many possible models for tariff setting including flat fees, single volumetric fees, and volumetric fees that increase as water usage goes up (increasing block tariffs). The municipalities in this study have primarily used a combined tariff with a fixed monthly charge plus a volumetric fee that increases in blocks. This structure has the advantage of providing a basic amount of water at free or low cost—often called the lifeline block—and effectively subsidizing this low-cost water by charging a higher fee for customers who use larger amounts. The assumption is that higher-income households generally use more water (to run appliances and water gardens, for instance), and that increasing block tariffs, therefore, essentially provide a cross-subsidy from wealthier to poorer households. In practice, poorer households, which can include multiple or extended families, can be forced to pay the higher volume fees as well, and if the lifeline block is set to be too large, smaller users will actually end up paying more per unit. For the poorest households even the fixed monthly charge can be prohibitive.

To ensure affordability, increasing block tariffs should be accompanied by better data collection about the percentage of household budgets that is being spent on WWS bills, with the possible provision of further subsidies to the poorest households.

Increasing block tariffs require accurate meters to be effective. In most of the municipalities in the study, broken or missing meters have posed a serious challenge to bill creation and collection. Some areas have been forced to eliminate the volumetric portion of the tariff altogether, resulting in lost revenue and overuse of water. One quick-win suggested by the team is to use emergency funds to repair and replace meters immediately. Some municipalities have begun using prepayment meters that require pre-purchased tokens or cards to obtain a certain volume of water. These meters eliminate the need for billing and collection but are more complex to run on a block tariff basis.

**Rebuilding solid urban WWS systems will be a long-term process**

The political will exists in Zimbabwe at the local and national levels to restore and improve water and sewerage supply to all communities. But discussions are just beginning about the best way to regulate and run these systems. It will take considerable debate and consensus building for all levels of government to agree on the exact regulatory mechanisms for tariff setting. In the meantime, local urban councils will need to continue to set tariffs in consultation with, and with full accountability to, their constituents, and they will need as much knowledge as possible about both their own systems and the experiences of other WWS operators to make the most informed decisions. The ECA research report suggests that the Urban Councils Association of Zimbabwe (UCAZ) should go ahead with plans to create a Water Office that could monitor and provide benchmarks for local WWS providers as well as disseminate information about the experiences of their members and WWS providers worldwide.
The Zimbabwe Water Forum Policy Notes Series

Between 2011 and 2013, at the request of the Government of Zimbabwe, through the Ministry of Water Resources Development and Management, and with support from the Zimbabwe Analytical Multi-Donor Trust Fund, the World Bank has undertaken a series of analytical studies and technical assistance in the water and sanitation sector. These studies are captured in the Zimbabwe Water Forum Policy Note Series. The task team leader for the studies is Michael Webster, Sr. Water and Sanitation Specialist in Harare (mwebster@worldbank.org) with support from Priscilla Mutikani (pmutikani@worldbank.org). All notes have been edited by Rolfe Eberhard and Hilary Gopnik.

- Policy Note 1: A 24/7 water supply is possible for Harare and other cities: Lessons on what it takes from water manager Neil Macleod
- Policy Note 2: Modeling the water sector in South Africa and Zambia
- Policy Note 3: Zimbabwe’s new National Water Policy: Responding to Challenges to Create a Foundation for Sustainable Growth
- Policy Note 4: The Future of Sanitation in Harare and Other Cities: Perspectives on Possible Pathways to Recovery
- Policy Note 5: The Beitbridge Emergency Water Supply and Sanitation Project: Lessons Learnt
- Policy Note 6: Zimbabwe Urban Water Tariff Study
- Policy Note 7: Improving the operations of Harare’s water and wastewater treatment plants
- Policy note 8: Zimbabwe Dam Safety Study