

HARARE WATER CHALLENGES A STRATEGIC ISSUE

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ABSTRACT

This paper assesses Harare Water strategy and suggests recommendations necessary to the strategy as well as to its partnerships with other municipalities, eThekweni Municipality of South Africa and Munich of Germany. The assessment was carried out in 2012 to 2013 as the three municipalities exchanged ideas, interacted with municipalities' workers, held informative interviews, group discussions and literature reviews. The assessment was based on seven dimensions that are governance, globalisation, environment, economic, financial, technical and consumer psyche. Comparison of Harare Water with its partner eThekweni and other municipalities in the SADC region seems to suggest that the volume of water treated by Harare Water can adequately supply water to more than 70 % of its 1.4 million customers as well as a regulated supply to the satellite towns on a seven days a week basis, provided appropriate adjustments are instituted to the water operator's current strategy augmented by aligning the strategy to broader sector policies that were put in place.

The water operator's non-revenue water is increasing each month and it is believed to be more than 60 % as of June 2013. In the SADC region most of the utilities' non-revenue water ranges from 30 to 40 %. Thus Harare Water's 60 % non-revenue water is on the worst extreme. Revenue collection efficiency for Harare Water dropped from 60% to 43 % over a period of 1 year, necessitating a detailed assessment of the strategy. The assessment has shown that adjustments made to the broader sector policies will require proper policy implementation coupled with knowledge transfer from the water operator's partners to resolve socio-cultural and political complexities that are hindering Harare Water from addressing the current water challenges in the city. To its disadvantage, the water operator is currently viewed as a poor water steward by its stakeholders due to poor water and wastewater services; therefore, there is an urgent need to turn around the situation. It is against this background that this paper examines Harare Water's current strategy with a view of ascertaining challenges and achievements achieved thus far and then suggest recommendations to be adopted to achieve an acceptable service level.

BACKGROUND

Fort Salisbury was established in 1890, with erection of Union Jack by the British South Africa Company at the Africa Unity Square. Salisbury was proclaimed a municipality in 1897 and became a capital in 1923, then declared city status in 1935. When Zimbabwe attained independence in 1980 Salisbury was then named Harare.

Since 1980 Harare's population dynamics have been changing, with the rural to urban migration increasing given the economic opportunities available in urban set ups. The Zimbabwe to diaspora migration has even made the population dynamics of Harare more complex. According to 2012 population census by Zimstats, Harare's population is approximately 1.4 million with a growth rate of 0.23%. Due to Harare population dynamics the 2012 Zimstats population statistics should be well interpreted, according to Zimstats (2012), the Zimbabwe annual growth rates for 1969 to 1982, 1982 to 1992, 1992 to 2002, and 2002 to 2012 are 4.66, 6.09, 1.90 and 0.23 respectively, whereas United Nations

(2012) projected growth rates for 2010 to 2015, 2015 to 2020, 2020 to 2025 and 2025 to 2030 are 3.40, 3.35, 2.65 and 2.36 respectively. Medium and long term investment in the water sector should carefully assess the population growth nodes for Harare and properly factor in appropriate population growth projections. The city has a potential for a significant population growth if the required infrastructure is put in place, given that 220 000 undeveloped stands were allocated within the existing Harare boundaries, these include (i) 60 000 undeveloped stands in the Southern Incorporated Areas, (ii) 10 000 stands waiting for relocation of Donnybrook ponds to Lyndhurst farm, (iii) 20 000 stands in Whitecliffe development, a potential additional 20 000 stands in Gwebi area which can be available if Marlborough sewage ponds are relocated, incorporation of several farms in the north by the Government, and other several privately owned land waiting for provision of off-site infrastructure by Harare Water. The critical point to note is that Harare expansion is no longer driven by provision of off-site and basic onsite water and wastewater infrastructure as was the case before, rather it is now driven by availability of land. Harare Water has to weigh options of providing first class services against transitional technologies that will accommodate these developments within the current capacity. The projected population growth for Harare, given the land availability was estimated at 4% by a group of professionals who met in a recent workshop held at Bronte hotel by the African Development Bank (AfDB), at this growth rate the population for 2020 was projected at 2.1 million and 3 million by 2030. The workshop noted that the mean for population growth rates for cities with population greater than 1 million in the SADC region is 4.36 %, which means the 4 % growth rate projection for Harare will be within expected range for a city of that size. The population growth rate decline for Harare in the past 10 years is therefore artificial.

Historically, Harare's development of the infrastructure facilities has not kept pace with the growth pattern of the city and to make matters worse control of expansion in satellite towns of Chitungwiza, Norton, Ruwa and Epworth is out of its control, yet these towns depend on Harare Waterbulk water supply service. The most affected facilities which are key to development are the water supply system and wastewater disposal infrastructure, the development of which commenced in 1915 with the commissioning of the Cleveland Dam. The Harare Water Distribution System currently abstracts water from two lakes and two dams on the Manyame River, namely Harava and Seke Dams, and lakes Chivero and Manyame. In addition to the yield from these sources, the water supply to Harare is supplemented by the recycling of wastewater effluent into the water courses. At design and town planning stages it was assumed that the projected water demand in the city area will not exceed the yield of the water sources from Manyame catchment area, including an additional amount of 126 000 m³/day of recycled effluent. The network consists mainly of Asbestos Cement Pipes and steel with the total length of the network being approximately 6 500 km with diameters ranging from ND 50 mm to ND 1500 mm. This infrastructure is now beyond economic lifespan with some pipes more than 50 years old.

The water operator has not been able to recapitalise and has a weak asset management record. Most of the existing 16 treated water pump stations need overhaul, or replacement. Spare parts that are essential to maintain functional continuity of water pump systems are not readily available. The present water supply system includes 28 treated water reservoirs which are lacking proper control system such as automatic treated water reservoir control to equitably supply water to all customers. In an effort to improve the Harare water supply system, City of Harare, in 1988, launched the project called Harare Water Supply Phase 1 Upgrading of Morton Jaffray Water Treatment. This project aimed, at among other issues, to increase the production capacity of Morton Jaffray Water Treatment works by 227 000 m³/day, and increasing the pumping capacity of the associated treated water pumping stations

from Morton Jaffray Water Works to Warren Control Pump Station, this included a 1 300 mm diameter steel pumping mains from Morton Jaffray Water Works to Warren Control Pump Station. The steel pipeline was not protected from corrosion yet cathodic protection was suggested, today the steel pipe is constantly bursting with major leaks at valves which is increasing non-revenue water. In October 1991 another project the Harare Water Supply Phase 11 project commenced with the project consultant, putting to tender, adjudicating tenders and awarding projects for 1 500mm diameter steel pipe Warren to Letombo and Warren control pump station. In the same year another consultant an association of local and international consulting firms prepared a Master Plan for the water distribution requirements of Harare. In 1992, City Council approached the AfDB for assistance in solving the City's water problem, by identifying suitable additional water sources to augment the potable water supply to Harare. The projects targeted were the Kunzwi and Musami water schemes for future water expansion and to-date none of the projects have been implemented.

INTRODUCTION

Harare residents on several occasions since 2008 have protested due to poor service delivery including uncollected refuse and water supply problems amid fears of new outbreaks of diseases such as cholera and typhoid. The local authority seems to take long to learn from its mistakes and shortcomings of the 2008 cholera outbreak that killed nearly 4 000 people, and 98,000 cases reported showing an absence of short, medium and long term plans in place to address the water crisis gripping the once "Sunshine City". The state of the water and sanitation system in Harare is generally in a deplorable state. At least half the public toilets within the City of Harare are dysfunctional, despite evident increase in the outbreaks of typhoid and cholera.

The above is going on in Harare despite the growing awareness of policymakers, in both the developing and industrialised worlds, that improving water and sanitation services is key to achieving broader poverty reduction goals has been accompanied by calls for more concerted efforts and additional resources from all stakeholders, including the World Bank Group (WSSB, 2003). The United Nations (UN) estimates that the population of cities in developing countries will increase by 2.4 billion between 1995 and 2025. This impressive scale of urbanisation, UN argues, is such that it will have a significant impact on the already taxed urban infrastructure of cities and towns and further strain efforts of local governments to address present and future demands for local services. According to Schouten and Yillia, (2009) the urban population in Africa is growing at an increasing rate with estimates indicating that population in urban areas will more than double from the current 300 million to over 700 million by 2025. In Sub-Saharan Africa, urban population is growing at 6% per annum and is expected to double in the next ten years. About 250 million urbanites have no access to safe, piped water and about 400 million have no adequate sanitation (Mulindwa, 2003). According to Nhapi, (2009) Harare, the capital city of Zimbabwe, is facing water quantity and quality problems, with serious pollution of the downstream Lake Chivero. Nhapi claims that these problems are attributed to rapid population growth, inadequate maintenance of wastewater treatment plants, expensive technologies and a poor institutional framework.

According to leadership experts, a conclusion was reached that organisations normally focus on technical solutions to problems and then transform them to good practice. Research has indicated that this approach leads to uneven results suggesting that addressing developmental problems includes, and goes beyond, deploying technical solutions (Mead, 2013). Mead claims that to successfully implement transformational programs an organisation requires getting different people, teams

and organisations to collaborate towards achieving a complex set of objectives, through accepting new ways of doing things. To sum it up, success depends on managing organisational reform process skilfully. Against this school of thought and in an effort to address Harare Water challenges the World Bank in 2012 facilitated a partnership for Harare Water with eThekweni Water and Sanitation (EWS) to form a tripartite arrangement with Munich Municipality. This is a noble idea provided Harare Water is receptive to this arrangement; adequate measures are put in place and adhered to. According to Hashimoto Action Plan 2006, "Cooperation based on knowledge transfer between water operators is a useful support mechanism that can be used to strengthen capacity of public water operators".

The World Bank as the facilitator and the three water operators have not yet anchored this strategy with internal micro-strategies that include addressing basic issues such as providing continuous dialogue platforms, coupled with dynamic internal and external conflicts management which is weakening the partnership. There is need to set up an integral monitoring and evaluation framework fully supported financially. The water operator partnership from inception should have strengthened building blocks that include a clear and well resourced budget; performance based key indicators both at organisational and individual level. There was need to cultivate institutional momentum which is not simply a response to government regulations and pressure from public outcry by imparting real authority to drivers of the reform as a result of partial authority cracks developed due to vested interests at top management level. Key pathways for transformation such as capacity development, informal leadership skills and conflicts resolution need urgent attention with key objectives being team building and motivational strategies. Human resources policies should be put in place to avoid obstructive speculations that are blocking free implementation of strategic issues. Good governance to address basic issues of transparency, accountability and competitiveness which should then drive the whole transformation. Dealing with corruption which is a major threat to transformation if not adequately addressed and may reverse gains achieved thus far. The organisation should be refocused from input driven to results based; teams must be able to achieve set realistic goals with given resources.

The questions that remain to be answered are "Why is Harare lagging behind in attaining the set down MDGs in the water and sanitation field?" Suggestions were that there is a lack of sustainable technologies in the whole system, and others suggested Harare Water has a poor institutional set up, it lacks funding and poor legal framework, and some suggested a combination of all these are contributing. But does Harare Water have the right expertise to understand the needs, diagnose the problems and come up with the correct sustainable solutions for the current water challenges? According to a research by UNESCO, (2009) the right expertise is there in Africa, however the UN study indicates there is an alarming deficiency in the numbers of expertise, the fact is that Africa and Harare included do not have enough water managers. The complexity of the issues hindering provision of sustainable water services calls for exchanging of ideas both good and bad as a way of increasing capacity in the wider sector of water management. According to UN research, on average, every US dollar invested in water and sanitation provides an economic return of eight US dollars.

INSTITUTIONAL AND STRATEGIC ISSUES

To its advantage Harare Water is not operating in a vacuum with world standards to learn from at no cost. Worldwide there are many drivers behind the ongoing developments and changes in water resources; however the economic viability of the water utilities is a prerequisite particularly as private investors have shown their interest in the industry (Malmstena and Lekkasb, 2007). According to Thomassonet al., (2003), the level of investors' involvement differs between countries since it

involves complex dynamics of societies. For example when you go to UK, the water and wastewater systems are operated privately and are mainly regulated by the Office of Water Services, when you go to France, the local communities become responsible for managing the facilities and most of the communities, in the region of 75 percent have preferred to allow private actors operate the systems. Variably in Greece, most of the facilities approximately 60 to 75 percent are municipally owned and controlled. On the other hand in Sweden, few are privately owned facilities with most of the organisations being operated by regional municipalities. eThekweni amalgamated 38 local authorities to form one Metropolitan Municipality, Johannesburg has private entities wholly owned by the local authority, and Zambia has private companies, Harare Water was transferred to Zimbabwe National Water Authority from 2005 to 2008 and then back to City of Harare and currently transforming into a utility. The Zimbabwean constitution allows for formation of metropolitan water authorities and the Water Act has added support to formation of self supporting utilities.

The research noted that Harare Water has a weak capacity which can be defined as "Limited knowledge bases, small numbers of professionals with right education and skills, and, in general administrative and managerial arrangements, laws and regulations that eventually fail to facilitate the swift and effective actions that in their aggregate can deliver the desired outcomes and results on the ground (UNESCO, 2009). Institutional issues that encompass policy strategy, aligning organisational goals, legal and regulatory framework to create an enabling environment are imperative for the water operator's strategy yet they are not adequately and to be specific not appropriately addressed. Development of integrated management systems, implementing incentive based systems, striving to change workers attitudes; improving skills, utilising existing knowledge and experience as well as injecting new ideas to propel the strategy forward need to be in the main stream strategic framework. Surprisingly, attitude problems stem from top management with partnership strategies ignored and yet all this is condoned. Furthermore, there is need to encourage and support leadership within teams, delegation of management roles, clear promotion and appointment policies have to be addressed. The water operator should have a clear set of actions to achieve transformation which should include identifying the needs and sources, pulling resources together, defining roles and implementation plan, implementing and integration of knowledge gained from partners. It is important that Harare Water as the recipient in the eThekweni and Munich partnerships be willing to learn from its partners with strict measures put in place for information transfer, tangible goals set for early celebration and momentum building, creating platform for continued communication. Executive may have to assess the level of knowledge, skills and capacity in Harare Water and devise means and ways of building knowledge and capacity. According to Alaerts, (2009), knowledge and capacity is the generation and dissemination of knowledge, that take place through formal education, training and institutional development. Alaerts argues that knowledge and capacity development activities always implies a status change, and indeed, the capacity development in organisations and in the administrative and regulatory frameworks are irrevocably linked to change process and reform.

The broader policy changes that Harare Water should enjoy are the autonomy granted through the July 2013 council resolution, which authorised formation of a water utility named "Harare Water" and authority to form a metropolitan water authority, recently adopted National Water Policy and the parliament enacted National Constitution that consented to formation of a metropolitan water authority. Harare Water should be empowered to appoint and fire for poor performance at all levels and all processes should be divorced from government control except for policy monitoring and regulation. Of major concern in the previous set-up was that Harare Water's responsibilities were enmeshed in complex

governance processes which were presenting transformational challenges, yet a comprehensive response was still expected from the water operator. The policy making process together with the institutional arrangements in which Harare Water should operate as an autonomous entity should be free from defects to avoid constraints in achieving the strategic objectives. To facilitate this all interested parties should not be the drivers of changeover process so as to manage conflict of interest and ensure accountability during implementation. This transformation will see light if there is passing on of real degree of autonomy, responsibilities to control revenue collection and credit control management, promotional and dismissal authority. A key instrument of this is to strengthen the water operator's ability to manage and increase revenue base, expand and maintain infrastructure and pay for these costs over time through correct tariff models (Baietti et al., 2009). The water utility should be given targets with timelines to hold it accountable. Performance agreement entered into between the utility as an entity and the board as the performance monitoring unit with clear actions to be taken either on good performance or poor performance.

Key revenue sources such as metering services that include new connections, meter replacement, water leaks after the meter are revenue bases and should be properly guarded (Krynauw, 2011). Regrettably, the water operator currently requests beneficiaries to provide own meter and only provide connection services resulting in limited control on the type of meters being installed which then translate to poor meter management and increased commercial losses as a result the system is porous and unmanageable. Thus the metering system needs urgent attention. According to a recent survey by Harare Water more than 60% of the meters in the Central Business District and Industrial areas are not functioning with a significant number not located, as a result water consumption in these highly sensitive areas is being estimated yet these areas are receiving water continuously. There is massive corruption in the metering system with some senior officials benefiting from the defective metering system which has prompted most residents to lose confidence in the entire water billing system. The water operator managers have blamed the consolidated billing system and poor economic situation in the country. Revenue collection efficiency dropped from 60 % to less than 45% and continues to drop as more residents become aware of the weak credit control system and capitalise on the weakness. Resident associations have mobilised residents against settlement of water bills citing irregularities in the billing system. The movement of tenants in some areas especially avenues areas is subjecting revenue collection to aggressive conditions and dictate that prepaid and other such smart meters under strict water operator's control be used. eThekweni has outsourced their meter reading service and installed common meters in the system which enables them to monitor consumption to the last cubic meter. They use flow limiters and restrictors for their credit control system. They formed a revenue protection unit which monitors these gadgets and other revenue protection strategies such as enforcement of the law to defaulters.

The water operator needs to adopt an approach for monitoring and evaluation criteria to track progress and should consider investing in capacity building to progressively bring the situation under control. The two categories for monitoring and evaluation approaches normally used are the results based management and the evaluation based on complex system theory and a participatory approach. According to researchers of the evidence oriented method there is a linear causal relation from input to impact, which is simple and convenient when working with short term project goals and time slots. Another approach is the realistic evaluation which believes the relation between input, output, outcome and impact is non-linear. The argument is that what happens between input and impact are black boxes which must be investigated, the process is to map the dynamics in a program, institutional influences

together with social interactions that then determine the relation between input and impact (Hospes, 2008). Hospes goes on to argue that for the evaluation, complex systems different approaches need to be brought together, based on adaptive systems, institutional dynamics and assigning meanings. Adaptive management approach was developed from principles of complex evaluation and institutional dynamics in complex systems. Adaptive management is defined as "integration of design, management and monitoring to systematically test assumptions in order to adapt and learn" (Salafsky et al., 2002). An important component of this approach, which is useful to Harare Water is the involvement of stakeholders in the whole process, capturing their knowledge and using it to draw up management options. The meter reading and billing system should be subjected to adaptive management approach. The Municipality's records show a total of 400,000 stands were subdivided and allocated yet only 174,000 consumers are reflected on water bills. The number of illegal connections continues to increase (Fig 1) since there is no water balancing possible in the absence of bulk water meters, including lack of knowledge on raw water abstracted and treated water pumped into the system.



Figure 1: Illegal water connection in Mabvuku, Harare 2013

The water operator managers, political leaders, citizens and other stakeholders should come together and talk to facilitate better understanding of the quality of service offered by Harare Water against service level expectations by the stakeholders. Through this targeted interaction an agreement should be reached on the key issues required to bridge any gaps.

The water operator, Harare Water, should assess opportunities of allowing entry of substitute providers with alternative sources of funding as part of reform design because they play a pivotal role in alleviating urban water insecurity. To make this process lucrative and palatable to investors there is need to improve on urban planning; draw up and enforce legislation to minimise negatives such as water pollution. The city may then need to incentivise the private sector and even consider partnering with them in order to increase their involvement in water management issues. The water operator needs to take a cue from its partner eThekweni for partnering with private sector when internal inefficiencies compromise viability. Good examples are in reduction of non-revenue water with private players coming in to draw-up strategies and partnering through such arrangements as management contracts or direct partnering.

As a result of private sector participation, eThekweni like other regional water operators managed to reduce non-revenue water to ranges of 30 to 40%. In contrast, Harare Water has been trying to tackle the issue of non-revenue water internally with little success, as lack of capacity to tackle such complex issues has been an impediment to success causing viability problems to the water operator. Heavy financial knocks have not spared the water operator as NRW stands at 60 % which may

be contributing to consumer reluctance to settle bills as they now view Harare Water as a bad water steward. BiWater an international water consulting company undertook a study in Harare and recommended cathodic protection on all steel pipes in 1998 which was not implemented resulting in pipe corrosion (Fig 2)



Figure 2: Corroded 1300 mm Steel Water pipeline Warren Control Pump Station to Letombo Reservoirs 2012 in Harare

The water operator has no capacity to regularly monitor compliance to wastewater discharge limits and most industries have violated regulations going unpunished and uncorrected, disappointingly Harare Water is the chief polluting culprit. The Environmental Management Agency has tried to sanction the water operator with little success due to complex legal framework that let the offender off the hook on technicalities when facts on the ground prove otherwise. The industrialists are also offloading production costs to the common man in the street, with the water operator bearing the brunt in this set-up. Due to the on-going pollution Harare Water is using a combination of eight water treatment chemicals; however there is an opportunity from new technologies to reduce the number of water treatment chemicals from eight to three chemicals. Similarly a pollutant load tariff approach which incorporates efficiency pricing system will be beneficial for effective environmental protection. The water operator may need to consider managing pollution control more efficiently through outsourcing and then takeover a well established pollution control regulatory system. Alternatively, Harare Water may need to consider funding implementation of green drop and blue drop systems which will address the problem in a holistic manner, taking all stakeholders onboard. Sewage pump stations such as Budiriro (Fig. 2), Borrowdale Brooke, Chispitje, and Northeastern are discharging raw sewage into the environment with residents complaining of obnoxious smells and sewage backflows.



Figure 3: 10ML Budiriro Sewage Pump Station located 10 km upstream of Lake Chivero discharging 10 ML per day of raw sewage into the environment since 2002

Harare Water by following good examples from its partners needs to recognise the advantages to changeover its operational strategic approach through investing in automation and on-line monitoring in an effort to improve on transparency and accountability. System automation will eventually translate to efficiency and cost saving over time. Maintaining the current manual based system will not help Harare in any way given the prevailing inefficiencies which are triggered by poor performance due to worker perceived low remuneration, resulting in the system being prone to acts of sabotage. Automation is expected to break the vicious cycle that is threatening viability of the water operator, given the efficiency levels shown by such systems in most of the water operators who have implemented it within the SADC region. Information management technology through such systems as GIS and remote monitoring in this modern world is indispensable; considering the complexity of the Harare water supply system, the justification to implement it outweighs the current status. In addition, the missing links in the current data bases on infrastructure are due to lack of process mapping and internal controls; information is currently held in various formats, as a result the water operator relies on staff memory to make critical decisions and in many times resort to tracking information to outsiders compromising on privacy and decision making. Munich Municipality is assisting with the use of specialised technologies such as GIS, process mapping as internal control measures.

THE HARARE WATER MODELS

The water operator should consider connecting itself to the international community to tap from a vital pool of knowledge to address complex water risks that include water pollution, inadequate water sources, finite quantity, poor quality, and competition over use. The current lack of knowledge within the water operator on how to address such complexities should be challenged to trigger motion towards change. The operator's major challenge is how to mitigate on the risks given its current circumstance of unpredictable water regulation and poor resource governance, there is need for more players to come on board especially the Universities and private sector. There is need to build adequate knowledge and come up with accurate problem identification and develop sustainable solutions. The two models given these complexities which Harare Water has attempted to adopt are: (i) The micro-economic model which was first proposed, with guidance from an AfDB engaged consultant. This model projects future water demand and supply of water with the primary target of reducing the gap between demand and supply. The model prompted Harare Water to move towards economic and technological management changes, proposals to change the institutional set-up for Harare Water were made together with tariff reforms. It can be concluded that the set-up in which these transformational strategies were being proposed was unsustainable since the proposals collapsed as soon as AfDB withdrew. (ii) The second model was developed by Harare Water management when they faced challenges in securing funding for Kunzwi water treatment scheme. This model regards the water problem as a context-related, political (structures of power, procedures, institutions etc) and socio-economic problem, rather than a problem of economics and technology. From this point of view, Harare Water has realised there is enough water for an acceptable service level, but the prevailing socio-economic, cultural and political structures are causing adverse effects on the allocation and management of water resulting in the current poor service delivery which is unacceptable to its customers. Harare Water, therefore, strongly believes the context-related, political, cultural and socio-economic issues must be addressed first. It is against this realisation that Harare Water has partnered with major water operators such as eThekweni and Munich in an effort to solicit assistance to tackle these complex issues.

CONCLUSIONS AND RECOMMENDATIONS

It can be concluded that Harare Water is now operating in an enabling environment given the policy changes brought by formation of Harare Water utility, national water policy and enactment of the national constitution. However, the following are recommendations to the Harare Water strategy to achieve its objectives.

Firstly, strong leadership is required in Harare Water to tackle the three fundamental tasks, the first being to create a holding environment, which in the early stages of corporate change is a space where the leader creates conditions conducive for diverse groups to talk to each other, with more demanding issues phased in as they become manageable. Secondly, the leader is needed for direction, protection, managing conflict, orientation and shaping organisational values and norms. The leader needs to take on the adaptive approach and protecting the organisation by managing the rate of change, exposing conflict and helping to view it as the force for creativity and learning. The leader needs to also orient people to new roles and responsibilities through setting realistic business targets and key values. Finally, the leader has to regulate stress, as the pressure to restore equilibrium will be enormous, people bang up against leaders as they try to sustain pressure of conflict filled work.

Secondly, the water operator should focus on formulating key performance areas which include (i) risk management, (ii) process management and control, (iii) drinking water quality compliance, (iv) management, accountability and local regulations and (v) asset management. Most of the suggestions have been submitted by Munich Municipality which Harare needs to implement. Financing implementation of blue and green drop will assist in bringing in more players into water management by creating an open field to share ideas in a regulated framework which opens up opportunities for new ideas. The implementation will target low hanging fruits such as water safety plans, coming up with water safety planning processes, risk assessment and review of control measures, risk based monitoring programmes, credible and commitment in submission and publishing drinking water quality data and incident management, management accountability and commitment, publication of performance, service level agreements and performance agreements, comprehensive asset management systems, deploying such strategies as installation of similar pumps at all stations for easy of spare parts procurement. Key performance indicators that include availability and competence of maintenance teams, operations and maintenance manuals, maintenance and operations budgets and expenditure, design capacities versus operational capacities, management commitment, publication of performance, service level agreements, performance agreements, annual process audits, asset register, technical and managerial skill, classification of treatment works and staff, laboratory information and credibility, incident management protocol, waste water risk abatement plan, medium – long term planning of treatment and collector system, operational Efficiency Index, compliance with regulations and works classification, and process controller registration. Availability of signed water treatment plants logbooks, risk assessment and review of control measures, risk based monitoring programs. The water operator strategy should be focused on revenue base issues such as non-revenue water reduction, including other players, widening revenue base and cost reduction measures such as water treatment chemicals usage, optimisation on energy usage, and labour costs.

Thirdly, the water operator should seek to strengthen public private partnerships as a sustainable investment opportunity and in some cases seek outright outsourcing to private companies in return for efficiencies. Other utilities have outsourced meter reading, pollution monitoring, non-revenue water reduction. There is a need to weigh opportunities between maintaining a huge workforce on a regular salary bill against engaging contractors as and when required. Overall financial benefit assessment is paramount in mitigating against currently practised urban

agriculture; the water operator is incurring huge costs in frequently unblocking sewers as residents irrigate their crops, siltation of Lake Chivero from these cultivation practices, eutrophication from use of chemical fertilisers resulting in high water treatment costs, as an alternative the water operator has to weigh the opportunities of sub-contracting farmers in nearby farms to supply subsidised crops. The water operator will then minimise urban agriculture along the rivers by planting trees and constructing artificial wetlands. Similarly attention needs to be focused on repair of water bursts, together with taking up water insurances, subsidised and reduced water pressure to high density areas, unsubsidised high pressure to low density areas, industry and commerce coming up with an effective and sustainable credit control system,

Harare Water, the water operator, should consider entering into bulk water supply contracts with satellite towns and assisting them in managing their wastewater treatment plants to reduce pollution of raw water sources. As an alternative Harare Water can build up costs in water tariffs and operate the wastewater plants for them, as well as assisting with revenue collection strategies and customer care. Harare Water should then open a platform for partnering with the satellite towns in the same way it partnered with eThekweni and Munich to facilitate sustainable knowledge transfer.

Finally the water operator needs to consider engaging an economic resource planner who, through interaction with its stakeholders, will build a relationship based on a consensus around key driving factors that include (i) setting out and agreeing on baseline situation, (ii) estimating the short to long term financing gaps; (iii) putting in place policies that will assist in closing any financing gaps; (iv) development of alternative future water supply scenarios based on agreed projections; (v) production of a financing strategy that is realistic and affordable with all stakeholders committed to it. The water operator will then facilitate its transformation into a bankable document used for attracting investment and future financial plans for the water operator.

In conclusion, the water crisis currently faced by the greater Harare residents cannot be viewed in any other way but as a reflection of skewed strategies to tackle the water issues by the Municipality of Harare. The situation gets bad every day yet residents continue to pay for services which are seldom provided with suburbs like Glen Lorne, Borrowdale, Balantyne Park, Grendale, Highlands, Budiriro and Dzivarasekwa portraying the extent of negligence which the local authority is subjecting the residents to. Residents of these suburbs have gone for years without receiving constant water supplies yet they pay for the services, with extreme cases in Balantyne Park where no drop of water has been received.

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