Critical Water, Sanitation and Hygiene (WASH) Challenges in Rwanda

Aimé Tsinda and Pamela Abbott

Critical Water, Sanitation and Hygiene (WASH) challenges in Rwanda

Aimé Tsinda and Pamela Abbott

Published by the Centre for global Development, University of Aberdeen, September 2018
www.cgd@abdn.ac.uk

ISSN2399-4975

About the authors:

Dr. Aime Tsinda is a Senior Lecturer of Urban Planning and Environmental Sustainability at the University of Rwanda. Email: aime.tsinda@gmail.com; Tel: +250 788305960.

Prof. Pamela Abbott is Director of the Centre for Global Development and Honorary Professor of Sociology, University of Aberdeen, UK. Email: p.abbott@abdn.ac.uk.

Contents

1. Introduction

The world's population is expected to grow from 7.6 billion to 8.6 billion by 2030 and to 9.8 billion by 2050 [1]. A large proportion of this population growth is expected to occur in Africa where the population is expected to double from its current level of 1.3 billion by mid-century. Most of this growth will occur in urban areas as Africa's cities and towns triple in size [2].

Rwanda is among the countries with highest population density in Africa. In addition, the population is projected to double by 2050 and 70% of people will be in urban areas. Compared to 2012 levels, by 2032 the total number of households is expected to increase from 2.4 million to 5.3 million with over 100% increase [3]. Such rapid growth will further add pressure to the already increasing demand for water, sanitation and hygiene related facilities and services, especially from low-income households. Often, the latter bear the brunt of the burden of inadequate water, sanitation and hygiene (WASH).

The Sustainable Development Goals (SDGs), adopted in September 2015 by the United Nations, have sparked a renewed focus on what strategies will be necessary to achieve universal access to safe water and basic sanitation by 2030. To achieve SDGs targets, Rwanda will require US$134 million to build and maintain universal basic coverage and an additional $286 million to build and maintain safely managed services each year up to 2030 [4]. This working paper analyses four main challenges to achieving sustained, universal access to safe water and sanitation in the context of Rwanda:

1. The scale of the need for safe water, sanitation and hygiene.
2. How to best sustain essential WASH services over the long-term?
3. How to reach people most in need?
4. The integration of water, sanitation and hygiene for health.

2. Challenge 1: The Scale of the Need for safe Water, Sanitation and Hygiene

In Rwanda, the picture on improving household access to basic infrastructure and services is variable. Overall, only 47.3% of the population are served with an improved water supply within 500 metres of their home [5] and 49% of households spent 30 minutes or longer on a round-trip to water source [6]. The situation is most serious in Kigali, where the current production of about 90,000 m^3/day covers only three quarters of the demand of about 120,000 m^3/day [7]. Based on National Strategy for Transformation (NST1) as adopted in October 2017, households with access to improved drinking water source (without considering time and distance) was estimated at 85% in 2017. While about 84% of households use improved sanitation services, without considering some criteria like sharing between two or more households [8].

Considering SDG#6 indicators and according to the 2017 Joint Monitoring Program (JMP) Report, the percentage of households using basic[1] drinking water services was estimated at 57% while 62% of households use basic[2] sanitation services [9]. Furthermore, only 13% of households were estimated to use drinking water from improved water source located on premises countrywide while 36% of urban households use drinking water from improved water source located on premises [9].

There are also some specific issues in healfcare facilities (HCFs) as shown in a recent assessment:

- **Water supply:** On-site water access at HCFs did not directly translate into water access for patients and visitors. There were 119 functioning sinks with taps (66% of 181 total) primarily located within HCF services, but a combined total of 41 functional tippy taps, outdoor taps and rainwater tanks that were readily accessible to patients and visitors in the common areas of the HCFs [10].

- **Drinking water:** In the 17 HCFs evaluated, less than 20% of treated drinking water samples met WHO guidelines for total coliforms and free chlorine residual, but just one of 17 samples had ≥1 E. coli per 100 mL [10].

- **Hand hygiene infrastructure:** The WHO recommends that HCFs have '*a reliable water point, with soap or a suitable alternative, available at all critical points within the health-care setting and in service areas' and 'at least two hand washing sinks should be provided in wards with more than 20 beds*' [11]. However, seven out of ten HCFs evaluated had water available at all critical hand hygiene locations, but overall, less than a third of hand wash locations had soap available [10].

A range of software and hardware interventions are needed to overcome the above challenges. Solutions will require many organizations working cohesively to provide smaller-scale, decentralized WASH services and expand WASH infrastructure and services, especially at the household level.

Key messages:

- The picture on improving household access to basic infrastructure and services is variable….
- A range of software and hardware interventions are needed to over come the above challenges….
- Solutions will require many organizations working together….

[1]According to SDGs, households using basic drinking water services are defined as households using drinking water from improved water source (considering collection time is not more than 30 minutes for a roundtrip including queuing).

[2] According to SDGs, households using basic sanitation services are defined as those using improved sanitation facility which is not shared with other households.

3. Challenge 2: Sustaining Water, Sanitation and Hygiene Services for the Long-Term

As earlier mentioned, focus over the past decades has been on water and sanitation infrastructure. This approach is costly in up-front capital, operations and ongoing maintenance. It requires a highly educated, skilled workforce and often does not reach the most marginalized communities, nor address specific contextual challenges.

As coverage increases problems of sustainability persist, there is a high risk of 'slippage': coverage stagnating or even falling, in spite of new investment, because old infrastructure fails at least as fast as new infrastructure is built [12, 13]. The pressing challenge here is that the revenue is insufficient to cover running and maintenance costs and the cost recovery of initial investment. Sustained operation and maintenance of this infrastructure has been challenging [14], mainly due to the poorly-maintained old networks and deficient management of infrastructure.

Related issues are lack of reliable finance and high production and operation costs caused by poor quality raw water (high turbidity) and areas with difficult terrain, which require pumping. Due to Rwanda's hilly terrain and geographical position as a landlocked country, the cost of infrastructure is generally high [15]. The cost of pumping is high as high pressure pipes are required. A further related constraint is the lack of planning and implementation capacity to manage complex projects and monitor good performance of contractors (especially at local level).

To address the above challenges in the future, there will be a need to (i) increase the skills and knowledge of workforce to use and maintain the technology and/or service and (ii) select water and sanitation products and services – including household-level solutions – which are affordable to construct operate and maintain and appropriate to the context. There are many interrelated solutions:

- There must be a functioning management and maintenance system comprising tools, supply chains, transport, equipment, training and individuals/institutions with clear responsibilities;
- Households and communities need to be fully informed of the likely life cycle costs (operation, maintenance and eventual rehabilitation) of their services, and viable tariff structures or other arrangements need to be put in place to generate the necessary revenues, in a manner which takes full account of those unable to pay (for example, the elderly, widowed, disabled or otherwise disadvantaged).

Key highlights:

- Sustained operation and maintenance has been challenging……..
- There must be a functioning management and maintenance system….
- To increase skills and knowledge of people to use and maintain the technology and/or service…..

4. Challenge 3: Reaching People Most in Need

In Rwanda, there have been notable achievements in the provision of basic infrastructure and household services. Between 2010/11 and 2013/14, households having access to improved sanitation increased from 74.5% to 83.4% [5] (sharing between two or more households not considered), and household access to improved drinking water increased from 74% in 2010/11 to 84.8% in 2013/14 [5] (without considering time and distance, see point 2).

However, the more ambitious WASH targets and standards under the SDGs significantly raise some issues. Rwanda will aim to achieve 100% access to basic water supply and sanitation and 100% access to safely managed water and sanitation services by the years 2020 and 2030, respectively. The main challenge is insufficient money to fund infrastructure and increase access to WASH services, particularly in scattered settlements in difficult, hilly terrain [16].

Addressing this challenge requires improvement of the levels of disbursement and expenditure to make the most of increased sector allocations. It will also require to provide water and sanitation solutions that marginalized households can afford over the long-term.

Key highlights

- There have been notable achievements in the provision of basic infrastructure and household services….
- The main challenge is funding gaps for increasing access to WASH services, particularly in scattered settlements in difficult, hilly terrain.
- Two-fold solutions :
  - ✓ Improve the levels of disbursement and expenditure to make the most of increased sector allocations.
  - ✓ Provide water and sanitation solutions that marginalized households can afford over the long-term.

In addition, the promotion and provision of low-cost technologies that enable improved WASH practices could help to reduce high rates of morbidity and mortality due to infection in low-income countries [17]. Similarly, in addition to the rehabilitation of non-functional water supply systems, management systems require strengthening government systems to ensure services are provided over time.

5. Challenge 4: Integrating Water, Sanitation and Hygiene (WASH) for Health

The integration - national-level policies, institutional frameworks and implementation mechanisms - is recognized as crucial for the WASH sector, including its influence on the financing and sustainability of water and sanitation services [18]. Unfortunately, Rwanda does not have an institution specifically responsible for the WASH sector. Since 2008, responsibility for water supply and sanitation in Rwanda has been shared between the Ministry for Infrastructure (MININFRA) and the Ministry of Health (MoH). MININFRA is responsible for national policies, guidelines and strategies, enhancing human resource capacity at the district level and the monitoring and implementation of government policies. MoH leads primarily on the promotion of sanitation at the community level and provides preventive, curative and rehabilitative services. MoH also promotes hygiene behaviour change.

The Ministry of Education (MINEDUC) is involved in implementing hygiene programmes at school level. Other ministries involved include the Ministry of Finance and Economic Planning (MINECOFIN), which is responsible for budgeting and financing sanitation, the management of external funds and external aid coordination, and the Ministry of Local Government (MINALOC), which coordinates local actors and ensures effective service delivery on community development and socio-economic development. MINALOC also funds small-scale water supply and sanitation projects.

The districts (local government) and CBOs are responsible for providing access to basic sanitation services at the local level. Private sector actors operate under contracts with the district governments and play a major role at the local level. In 2014, the responsibility for managing water and sanitation services in Rwanda was transferred from the Energy, Water and Sanitation Authority (EWSA) created in 2010 to The Water and Sanitation Corporation (WASAC)[16].

The absence of an overarching body with overall responsibility has resulted in the absence of coordinated action in the WASH sector. The roles and responsibilities of key institutions for all subsectors—especially rural and urban sanitation—including for governance, regulation, ownership and operations need to be further clarified. The focus should be on clear definitions of roles of districts and Rwanda Water and Sanitation Corporation (WASAC) as a water utility in urban areas versus WASAC Rural Water Services directorate's role as a development and sector support agency.

Key highlights

- The absence of an overarching body with overall responsibility has resulted in the absence of coordinated action in the WASH sector.
- The roles and responsibilities of key institutions need to be further clarified…..

6. Conclusion and recommendations

There has been an inability to provide quality and quantity of services needed to meet the demand. From the discussion above, it is evident that operational solutions to the above five challenges are not always clear-cut and there is no magic bullet solution to solve entrenched political challenges [13].

To improve the WASH sector, Rwanda's most frequent approach to change has been 'sensitization', and the Government has been very effective at mobilizing community spirit through 'dialogue and consensus' in public rallies, regular local discussion meetings and 'clubs' in schools [19]. Opening a dialogue between districts and representatives of citizens through village councils (*inteko y'umudugu*) on the pressing issues in the WASH and decentralization bottlenecks identified may be fruitful.

The issue of sustainability and financing of water supply and sanitation services should be analysed within their wider political contexts, and particular attention must be paid to understanding the role of external organizations such as NGOs in influencing institutional change. As Lockwood and Smits argue, it is essential to address "what can be termed the political economy of water and sanitation services … a complex backdrop of powerful interests, competing agendas and dynamics, many of which are never formally captured in sector documentation or evaluations [20]. For rural water services to be sustainable, the full costs of providing the services must indefinitely be matched to sufficient sources of financing.

It was also discussed that many institutions are often involved in WASH issues, strengthening coordination may help to ensure that policies are drawn and programmes implemented. As demonstrated in Kenya, in 2010, the Ministry of Health established an Inter-Agency Coordination Committee (IACC) for Sanitation and Hygiene bringing together different ministries – including those for Water Resources, for Education, and Science and Technology – along with development partners. This fostered dialogue and ensured that some level of coordination was established between ministries. Effective inter-ministerial and cross-sectoral collaboration, particularly between the Ministry of Infrastructure and the Ministry of Health at the central level; Coordination between WASAC and districts at local level is required.

Above all, addressing the above four challenges will require organizations implementing many projects to work of varying scale, technology and approach to work in harmony and optimise interventions. There is a need to build capacity, create and sustain demand, provide products and services, monitor for improvement and provide appropriate financing. In this way, we can collectively achieve sustained services in WASH for generations to come.

Acknowledgement:

This working paper draws on research carried out as part of a Post-Doctoral Grants (Post-doc) Scheme through the University of Rwanda, UR-Sweden Programme of Research, Higher Education and Institutional Advancement, which is funded by the Swedish International Development Agency (SIDA). The authors would like to thank the University of Rwanda and the funder for the support provided.

References

1. United Nations Population Division, *World Population Prospects: the 2017 Revision, Key Findings and Advance Tables*. 2017, United Nations, Department of Economic and Social Affairs, Population Division: New York.
2. United Nations Population Division, *World Urbanization Prospects: the 2014 Revision*. 2014, United Nations, Department of Economic and Social Affairs, Population Divisio: New York.
3. NISR, *RPHC4: Population Projections*. 2017, National Institute of Statistics of Rwanda: Kigali.
4. GoR, *Achieving the SDGs targets for water, sanitation and hygiene:Rwanda Overview: Water, Sanitation and Hygiene*. 2017, Ministry of Infrastructure, Ministry of Health,Ministry of Finance and Economic Planning,Ministry of Natural Resources, Water and Sanitation Corporation, UNICEF, JICA, Water For People, Water Aid and World Vision: Kigali.
5. NISR, *Integrated Household Living Conditions Survey:Thematic report- Utilities and amenities* 2016, Republic of Rwanda: Kigali.
6. NISR, *Rwanda Demographic and Health Survey 2014/2015*. 2015, Republic of Rwanda: Kigali.
7. MININFRA, *Water and Sanitation Sector Strategic Plan (2018-2024): Draft Report*. 2017, Republic of Rwanda: Kigali.
8. GoR, *National Strategy for Transformation (NST1)/Seven Year Government Programme (7YGP)*. 2017, Office of the Prime Minister & Ministry of Finance and Economic Planning: Kigali.
9. GoR, *Water and Sanitation 2018/2019 Forward Looking Joint Sector Review Report* 2018, Ministry of Infrastrure Kigali.
10. Huttinger, A., et al., *Water, sanitation and hygiene infrastructure and quality in rural healthcare facilities in Rwanda.* BMC health services research, 2017. 17(1): p. 517.

11. Adams, J., J. Bartram, and Y. Chartier, *Essential environmental health standards in health care*. 2008: World Health Organization.
12. Deverill, P., et al., *Designing Water and Sanitation Projects to Meet Demand in Rural and Peri-Urban Areas—The Engineer's Role.* An Interim Report of WEDC (Water, Engineering and Development Centre, Loughborough Univesity, UK. 2001. p. 1–84, 2001.
13. Ekane, N., et al., *Multi-level sanitation governance: understanding and overcoming challenges in the sanitation sector in sub-Saharan Africa.* Waterlines, 2014. 33(3): p. 242-256.
14. Bhaduri, A., et al., *Achieving sustainable development goals from a water perspective.* Frontiers in Environmental Science, 2016. 4: p. 64.
15. Malik, M., et al., *Rural WASH programming: experiences from Rwanda*, in *40thWEDC International Conference*. 2017, WEDC: Loughborough, UK.
16. Ekane, N., et al., *Comparative assessment of sanitation and hygiene policies and institutional frameworks in Rwanda, Uganda and Tanzania.* Stockholm Environment Institute (SEI) Working Paper, 2016(2016-05).
17. Guzman, A., *Case study: Reducing preventable maternal mortality in Rwandan healthcare facilities through improvements in WASH protocols.* Journal of Patient Safety and Risk Management, 2018. 23(3): p. 129-134.
18. Moriarty, P., et al., *Trends in Rural Water Supply: Towards a Service Delivery Approach.* Water Alternatives, 2013. 6(3).
19. Abbott, P., et al., *A critical evaluation of Rwanda's potential to achieve the millennium development goals for clean water and sanitation.* Journal of Water Sanitation and Hygiene for Development, 2015. 5(1): p. 136-142.
20. Lockwood, H. and S. Smits, *Supporting rural water supply: moving towards a service delivery approach*. 2011: Practical Action Publishing.
21. Joshi, H., J. Ng, and L. Lauwa, *Kigali City Analysis, Benchmarking and Vision Report.* City of Kigali, Kigali, 2013.