Strategies for the sustainability of urban water, sanitation, and health in Malawi

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Highlights

The sustainability of water, sanitation, and health in urban areas in Malawi is crippled by unreliable water supply, limited access to safe water, low sanitation coverage in peri-urban areas, degradation of water catchment areas, poor waste management, and limited institutional capacity. To tackle these challenges, we recommend that Malawi's priorities focus on the following:

- improved access to safe drinking water and sanitation;
- enhanced human, financial, and capital investment capacity;
- smart watershed management;
- improvement of waste management practices and guiding policy; and
- raising awareness and maintaining good political will.

INTRODUCTION

This policy brief is an output from the project "Development Strategy for Urban Sustainability in Africa on the Basis of SDGs Interlinkage Analysis" (USiA), led by the University of Tokyo and United Nations University in Tokyo in collaboration with African partners and funded by Japan International Cooperation Agency (JICA). This project's goal for Malawi is to propose a set of potential solutions to contribute to the sustainability of water, sanitation, and health in urban areas, focusing on SDG 9 (industry, innovation, and infrastructure) and SDG 11 (sustainable cities and communities). A further intent is to guide decision-making and collective action to optimize synergies or trade-offs of urban–rural linkages.

The challenges and solutions were initially identified by research, including academic articles and policy documents, and elaborated through two local workshops in Malawi in August 2018 and March 2019. More than 20 policy makers, representatives from NGOs, funding agencies, and experts participated in each workshop. During the first workshop, more than 20 potential solutions were identified; these were prioritized using the three dimensions of sustainability: social, economic, and environment. Potential solutions were ranked based on the three dimensions separately and later combined to obtain the overall top five ranked solutions. Then the top five solutions were further elaborated to include specific examples and actions during the second workshop.

KEY CHALLENGES

Malawi, just as the rest of Sub-Saharan Africa, is urbanizing at a fast rate, thereby creating undue pressure on public services and infrastructure, including water, health, and sanitation infrastructure (Kayizzi-Mugerwa, Shimeles, and Yameogo, 2014). The human population has increased beyond the design capacity of the existing water and sanitation infrastructure systems in urban Malawi because of rural–urban migration (Gutierrez, 2007).

The Malawi government is making some efforts to improve the water and sanitation infrastructure in rural and peri-urban areas although at a marginal pace when compared with the rate of the population surge in urban areas. The Malawi government's efforts to improve water, health, and sanitation infrastructure for sustainable cities and

urbanization are evidenced by their being party to the SDG 2030. Malawi's Development Growth Strategy 3 (MDGS III), which is Malawi's recent policy guide on development, highlights water, health, sanitation, and infrastructure development as the key priority areas.

Apart from the population surge in the urban areas, a number of factors limit the Malawi government's efforts to achieve sustainable water, health, and sanitation infrastructure in the urban and peri-urban areas. These factors include but are not limited to competing demands with other priority sectors (e.g., agriculture and education sectors) and the paucity of expert- and evidence-based information regarding the crucial areas for prioritization and the effectiveness of possible solutions to the given challenges.

The analysis of the water, sanitation, and health issues in Malawi highlights the following challenges:

Access to water supply

The following are the characteristic features of the urban areas:

- Unreliable water supply
- High unaccounted for water (over 30% of water supplied)
- Rising demand for water from the population and industrial growth
- Declining water quality and quantity in catchments

Peri-urban areas suffer from the following malaises:

- Insufficient coverage of stand pipes
- High nonfunctional rate of these standpipes
- Lack of alternative improved water sources besides standpipes
- Vandalism
- Unreliable water supply
- Time burden associated with long waiting times for unreliable water supply and high population density
- Non-affordability, that is, high unit costs in comparison with core urban areas

Infrastructure

- Aged infrastructure
- Lack of financing for large-scale infrastructure investment
- Dependency on donors and development partners for financing
- Intermittent power supply leading to unreliable water supply
- High energy costs
- Limited innovation in management processes and technological products

Access to sanitation in peri-urban areas

- Low coverage of improved latrines (only 20%)
- Landlords are unwilling to invest in sanitation, which has resulted in shared sanitation facilities in these densely populated areas.
- High construction costs of improved latrines relative to income
- Most donors have either moved out of support or scaled down.

Solid waste management

- Waste management by councils is confined to a few middle- and high-income areas.
- Waste management is largely confined to collection and disposal, resulting in landfills of solid waste. Recycling is limited.
- Very low participation of private operators
- Indiscriminate disposal of waste in low-income areas

Catchment degradation

Forest cover loss in catchments to agriculture, charcoal production, and other income-generating activities resulting in poor water quality and reduced quantities has been observed.

Weak institutional capacity

Institutions have limited financial and technical capacity to manage water, sanitation, and health programs, resulting in the poor monitoring and enforcement of water, sanitation and health regulations and standards as well as service delivery.

HIGH-PRIORITY SOLUSIONS AND POLICY RECOMMENDATIONS

1. Access to safe drinking water

All communities should have access to clean drinking water at all times. Therefore, a tangible investment in drinking water infrastructure is necessary.

In achieving this, there are clear synergies with other SDGs that address the reduction of hunger and poverty, and improvement of health, sanitation, as well as the development of sustainable cities and communities. Indirectly, by relieving women, the youth and marginalized individuals from the burden of fetching water supports goals related to inclusion and equality, enabling their access to education and labor markets. Access to drinking water has tradeoffs with other goals such as the availability of water for irrigation to double food production and for hydropower generation. Similarly, an increase in the agricultural output will increase the contamination of water bodies by agrochemicals, and thereby the pollution of drinking water (Pradhan et al., 2017; Mollier et al., 2016; Weitz et al., 2014).

Governments should explore an innovative financing mechanism and partnerships that would spur tangible investment in new and existing infrastructure. Policy should allow utilities to invest in their own power sources. Alternative technologies in water production (e.g., rainwater harvesting technologies, such as tanks and earth dams) should be promoted.

The government should also ensure that policies advocate for city plans that adhere to prescribed standards to accommodate future city expansions and take into consideration the installation of water infrastructure with ease. It is also recommended that land ownership and settlement guidelines be harmonized to allow synergies in implementation. For example, land in cities has multiple land ownership, which contributes to conflicts in settlement establishment. Furthermore, policies should promote consented efforts among service providers and regulators, particularly regarding settlement allocations and the provision of service. Finally, policies should advocate the provision of affordable water, hence the need to explore avenues of making water affordable (e.g., VAT removal).

2. Enhancement of human, financial, and capital investment capacity

The human, financial, and capital investment in the water, sanitation and health sector will enhance service delivery. The investment will additionally improve financial and capital investment for water technologies and solutions and robust data collection and management.

The SDG synergies that this solution brings are investment and innovation in the water, sanitation and health infrastructure, as well as transparency, accountability, and partnerships for sustainable development. It also has positive externalities to ecosystems (life on land and below water). The significant tradeoff might be competing with other sectors (SDG 17) for implementing partners and support.

Governments should provide sufficient budget support to the water and sanitation sector and infrastructure. A set minimum percentage of the national budget should be considered. It is also recommended that water be an independent ministry that is delinked from the agriculture ministry, where agriculture issues take center stage. Finally, policies should advocate for training in ICT-based technologies.

3. Smart watershed management

Smart watershed management will help recharge water resources and protect ecosystem functions, generating synergetic effects on the SDGs related to the reduction of hunger, climate change effects and the environmental impact of cities (Mollier et al., 2016). Tradeoffs arise from land use change, where there is a demand for land for agricultural land/urban expansion, resulting in deforestation and unplanned settlements, respectively.

Policy recommendations include the enforcement of existing laws on land use planning and by-laws that protect watersheds. The involvement of the community is crucial for this effort. In addition, incentive-based watershed catchment management systems, such as payment for ecosystem services, to encourage communities to participate in watershed management should be promoted.

4. Improvement of waste management and policy

Recycling capacity must be increased, and waste disposal facilities must be improved along with strengthening waste management regulations and standards. Significant synergies using this measure include the use of organic waste in agriculture for improved health and minimal environmental impacts.

The government should promote onsite segregation, treatment, and use of waste (e.g., conversion of waste to compost, biogas, and brickets) with the participation of the private sector. Standards of waste management should be based on research in order to strengthen policies and regulations. Communities should also be trained and sensitized in waste management.

5. Awareness raising and maintenance of good political will

Public education is vital for raising awareness of water, sanitation and health; however, it requires political will and support for policy implementation. The local capacity to promote water, sanitation and health programs and projects will also need the involvement of the private sector.

The engagement of political leadership and civil society not only will enhance SDG synergies, but is also a condition for sustainable consumption and production.

Their engagement in water resource development and management should be complementary to that

of technocrats, bringing in solutions and reducing conflicting messages.

CONCLUSIONS

This policy brief is aimed at discussing key priority areas and possible solutions for achieving sustainable urban water, health, and sanitation in Malawi in the context of SDGs 9 and 11. We recommend that Malawi's priorities focus on improved access to safe drinking water and sanitation; enhanced human, financial, and capital investment capacity; smart watershed management; improvement of waste management practices and guiding policy; and raising awareness and maintaining good political will. The key solutions were highly interlinked, resulting in externalities that require policy coherence to maximize synergies and minimize tradeoffs (Tosun & Leininger, 2017; ICSU, 2017).

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