

WATER POLLUTION AND CONTROL MEASURES IN URBAN AREAS OF TANZANIA. STATUS AND PROSPECTS

By ¹Queen Elias Mwita, ²Majaha Malongo and ³Sospeter Godbless Maya

¹Environmental Officer at Tongyi Environmental Services Co.Ltd

²Climate Resilience Project Manager at Tongyi Environmental Services Co.Ltd

³Environmental Compliance Manager at Tongyi Environmental Services Co.Ltd

Summary

Water pollution in urban areas is an issue of global concern. Tanzania has experienced the problem of urban water pollution at an alarming rate. This policy brief addresses the status of water pollution in urban areas of Tanzania. It explores the causes, policy and legal framework, and challenges of urban water pollution. The policy recommends that the Tanzania government enhance investment in rehabilitation and expansion of water supply and sanitation infrastructure reform, emphasize the integration of systematic monitoring and assessment of the status and enforce the legal framework; promote a holistic and Sector Wide Approach to Planning (SWAP); promote effective and appropriate stakeholder participation; promote low-cost wastewater treatment technologies; train technical and professional staff; and provide awareness provision to the community.

INTRODUCTION

Globally, over 75% of the earth is covered by water and only 2.5% is freshwater. However, water pollution is a serious problem, and poor water quality is approximately about 39.5% of total freshwater. The status of clean and safe water is diminishing at an exponential rate. Approximately 80% of waste water is not treated, and only 10% of it is treated efficiently. The rapid expansion of population growth, which is associated with the increase of anthropogenic activities such as industrial, agriculture, and mining activities, is the main cause of water pollution in urban areas.

Urban areas in Africa experience the problem of water pollution more than any other region across the globe. Africa has more than 1 billion people

and is increasing at a rate of 2.4% annually. More than 341 million people have a shortage of safe and clean water, while 589 million are reported to have no access to adequate sanitation. The seriousness of the water pollution problem in Africa is associated with poor treatment of polluted water from industries and domestic sources, as well as unplanned settlements and underinvestment in the water sector in terms of infrastructure, technologies, and labor forces (Lufingo, 2019; UNEP, 2021). Besides, the recent study shows that in Sub-Saharan Africa, about 48.9% of the population has poor water quality. The conservation of water resources at a global level is contributed to by Sustainable Development Goal (SDG) number 6, which ensures clean water and sanitation.

Like many other countries in Africa, Tanzania also experienced the serious problem of water pollution in urban areas, which was associated with many factors, including urban agriculture, industrial, mining, and domestic activities. Many dwellers in urban areas across the country reported suffering from limited freshwater supply as a result of poor water resource management. Moreover, the water sector in Tanzania is faced with inefficient wastewater treatment techniques. As a result, waste is released to the environment from its source without being treated, thereby reducing the availability of safe and clean water.

This situation leads to more water pollution in the available safe and clean sources of water, such as rivers, streams, and deep wells found in urban areas. At the local level, Dar es Salaam is the largest city in Tanzania with a population of 6 million inhabitants. The city is facing a serious problem of water pollution. The Msimbazi River flows through the middle of the city and it is already polluted at an alarming rate due to a cocktail of hazardous and untreated wastewater from industrial effluent and domestic activities. Therefore, this policy brief aims to review the policy and legal framework status on water pollution management, explore the major causes of water pollution, and identify challenges in water pollution management.

POLICY, LEGAL FRAMEWORK, GUIDELINES STATUS ON URBAN WATER POLLUTION AND MANAGEMENT

❖ The National water policy of 2002

This policy focused on achieving maintainable, effective, and efficient development and ensuring proper management of urban water supply and sewerage services.

❖ The National Environmental Policy of 2021

This policy focused on ensuring public participation in the proper management of water resources, improving individual awareness and education in the conservation of water sources, and ensuring sustainable activities to protect and manage water quality.

❖ EWURA Act cap 414, water supply sanitation Act of 2019.

This Act focuses on ensuring there is an implementation of water and sanitation services to the people for a better price through the approved tariff, but there is no information on how people can manage and protect water sources.

❖ The Environmental Management Act of 2004

The Acts focus on prohibition and prevention of water pollution and show how people can commit an offense due to wrongdoings on water resources. The Acts support water pollution management, especially in urban areas.

❖ The Water Resource Management Act of 2009

This Act focuses on promoting sustainable management of water resources and ensuring the prevention and control of water pollution through the involvement of different stakeholders.

❖ Water Supply and Sanitation Regulation of 2019

This regulation stipulates the punishment for those who commit an offense for causing water pollution problems, and the lesser punishment is a fine of one million or imprisonment for a term of not less than six months. Also, the punishment given depends on the mistake.

❖ **Water Quality Regulation of 2007**

This regulation provides direction for harvesting, utilizing, and storing fresh water, as well as treatment of wastewater and controlling water pollution. Furthermore, this regulation provides direction for the conservation and management of water resources and sources to ensure they are utilized sustainably.

❖ **The Water Supply and Sanitation (Clustering of Water Authorities) Regulation of 2019**

This regulation focuses on the establishment of cluster water authorities to achieve commercial sustainability of water supply and sanitation services.

MAJOR CAUSES OF URBAN WATER POLLUTION IN TANZANIA

• **Rapid Population Growth**

Rapid population growth leads to the increase of unplanned settlements, putting increasing pressure on water resources available in the urban area as a result of the huge amount of waste generated which is not treated and ends up on water resources. In Tanzania, only eight towns have access to the sewage system and only 15-20% of the population has an appropriate means of human waste disposal. In Dar es Salaam, only 10% of the population is connected to the sewer network. There is a large amount of this waste ending up in water sources in Dar es Salaam (RRF, 2021).

• **Increase industries activities**

About 80% of all of Tanzania's industries are located in urban areas. Different industrial effluent that is drained into the river without treatment is the main reason for water pollution. Industry activities lead to the production of chemicals and toxic materials, thus causing surface and groundwater pollution and reducing water quality. Moreover, water contamination depends on the nature and type of industry. About 25% of pollution is caused by industries and is more harmful, (Haseena et al., 2017).

• **Urban agriculture practices**

In the urban area, there are artificial agricultural activities that involve the use of different pesticides, germs, and fertilizers. Fertilizers are used to remove and control various pests and disease carriers, such as ticks and mice. When poorly managed, pesticides and fertilizers contain chemicals that directly cause water pollution and reduce water quality (Mahipal et al., 2017).

• **Improper disposal of chemical and mine waste**

Mine waste and heavy metals, such as mercury, penetrate into the ground water through surface seepage and cause changes in the pH of the water body, affecting the self-purification ability of the water body and causing serious pollution damage to the surrounding water bodies.

CHALLENGES FACING WATER MANAGEMENT IN URBAN AREAS

• **Increase numbers of informal settlement**

In urban, there is the problem of an increasing number of informal settlements due to poverty, and most of the people live in unplanned areas and have a high number of houses. Hence, this community uses unimproved latrines such as shallow pit latrines.

• **Low priority accorded to sanitation and hygiene improvement**

The ongoing Local Government Reforms devolve the responsibilities of provision and facilitation of water and sanitation services to the local government authorities (LGAs). However, in reality, this devolution of responsibility and authority has been progressing at a low pace. Therefore, LGAs have yet to sufficiently assume their assigned roles. In addition, where resources have been available, a greater proportion is usually spent on constructing water infrastructure and not enough on promotion, planning, and support of sanitation initiatives.

- **Fragmented planning**

The sanitation and hygiene sub-sector in the country has over the years suffered from weak coordination amongst the actors, leading to poor sharing of available information and unclear sanitation implementation guidelines at the level of LGAs; duplication of work and hence wasteful of the scarce resources available.

- **Inadequate skilled human resource base**

The water supply and sanitation services sector has problems associated with human resources in terms of availability and capability of employees.

- **Environmental degradation and pollution of water sources**

Inadequate water quality management and pollution control practices, and weak enforcement due to weak institutional capacity, have led to the deterioration of the quality of water resources and limited their use or made treatment costly.

- **Poor enforcement of legal framework**

The Environmental Management Acts of 2004, Under Section 80(4), stipulated direction for water resource management, but still, there is little enforcement that makes people comply with water frameworks.

- **Inadequate Budgetary Funding**

There is a frequent collapse of pipes, which require continuous maintenance but suffer from a shortage of funds. Insufficient funds lead to an insufficient workforce and improper planning for the extension and rehabilitation of wastewater infrastructure.

- **Lack of an effective institutional framework**

Overlapping roles and responsibilities between various institutions have led to inefficient use of human and financial resources, duplication of effort, and gaps in the effective provision of wastewater management services.

- **Inadequate availability of effective sewerage and sanitation systems**

Most of the existing sewerage schemes have inadequate coverage of the population and are aged, with some of them being built over 50 years ago. This has implications for their operation and maintenance as it is often more expensive to continue maintaining aging sewerage systems.

- **Lack of attention given to the selection of the most appropriate technology**

The lack of attention to selecting the most appropriate technology for providing water supply and sanitation services has led to; higher capital and operation and maintenance costs, higher charges to consumers, limited sustainability, and a lack of consumer or community acceptability.

- **Limited participation of beneficiaries and other stakeholders**

The provision of water supply and sanitation schemes without the active participation and support of the beneficiary communities has led to; ineffective awareness raising of the communities' role as beneficiaries, and a lack of acceptance by the communities of their responsibilities for the sustainability of the wastewater management schemes.

- **Low public awareness**

The previous and current communications and advocacy instruments were weak and did not facilitate the imparting of information from the national level down through all levels to the community, and vice versa.

POLICY RECOMMENDATIONS

- Investment in rehabilitation and expansion of water supply and sanitation infrastructure should be based on a prioritized investment plan which aims at providing some form of safe water supply

and adequate sanitation service to the maximum number of people.

- The role of the Government needs to change from that of a service provider to that of a co-ordination, policy and guideline formulation and regulation.
- Emphasis on the integration of systematic monitoring and assessment of the status of water quality, sanitation, waste management, and hygiene education.
- A holistic and sector-wide approach to planning (SWAP) should be promoted to ensure efficient allocation of public financial resources.
- Service providers should provide water supply and sanitation services using the most cost-effective technology available that is suitable to the area and the socio-economic circumstances of the users.
- Mechanisms for effective and appropriate stakeholder participation in the provision of water supply and sanitation services should be instituted to ensure that all stakeholders understand and meet their obligations.
- The involvement of the private sector in the financing and provision of water supply and sanitation services should be encouraged.
- Low-cost wastewater treatment technologies such as constructed wetlands need to be promoted widely.
- The government should emphasize the polluter pay principle to reduce the generation of pollution and increase water quality.
- Capacity building, including training programs and the provision of necessary equipment, is necessary, particularly for technical and professional staff responsible for the management, operation, and maintenance of wastewater treatment systems.

- The government should increase the budget for improving the sewage system and managing water bodies due to the rapid increase in people.
- The government should ensure proper enforcement of legal frameworks related to water resource management and also reform policies and legal frameworks related to water resources to allow more participation of the local community in the management process.

CONCLUSION

The study concluded that there is no doubt that urban areas are facing the serious problem of water pollution. Water resources policy and legal frameworks related to water resources focused on top-down approaches, which limited community participation and hence limited effort in tackling the water pollution problem. Serious water pollution is caused by population growth and industrial, agricultural, and mining activities. Furthermore, several challenges affected the efforts in addressing urban water pollution, which included the increase of informal settlements and poor enforcement of the legal framework. Therefore, to reduce this problem in the urban areas of Tanzania, there is a need for proper enforcement of the legal framework related to water resource management, also increase the source of funds for the introduction of new infrastructure and rehabilitation of deteriorated infrastructure to reduce the water pollution problem. The problem of urban water pollution is solvable when different stakeholders related to the water sector play their roles effectively.

FURTHER READING

- Haseena, M., Muhammad, F., Ngayab, A., Sharon. & Jaweria, H. (2017), Water pollution and human health.
- Lufingo, M. (2019), Public Water Supply and Sanitation Authorities for Strategic Sustainable Domestic Water Management. A case of Iringa Region in Tanzania
- Mahipal, S, Mayuri. K, Kirti, S, Ravindra, S, & Rajeev, K. (2018), Water Contamination through Pesticide & Their Toxic Effect on Human Health
- United National Environmental Programme (2021), Progress on Ambient of Water Quality
- United Republic of Tanzania, (2002) – July; National Water Policy
- United Republic of Tanzania, (2021), National Environmental Policy
- United Republic of Tanzania, (2007), Water Quality Regulation
- RRF (2021), Reducing Environmental Pollution Using Decentralized Sanitation Solution for On-site Latrine in Dar Es Saalam Tanzania