**Assignment 1**

1. Describe the particular challenges of providing WASH services in urban settings arising from each of the following factors.
   1. Increasing population size
   2. The diverse nature of the urban community
   3. Infrastructure required for WASH services
   4. Governance, in particular the process through which resources for improving WASH services are allocated and utilized.

The particular challenges for providing WASH services in urban areas arising from these factors include:

1. Increasing population size:

The increase in population in urban setting diminishes the quantity and quality of WASH services to the entire population. When there is significant increase in the population, the WASH services provided will not be commensurate with the population thereby leaving a segment of the population resorting to poor practices such open defecation, disposal of waste and feces on drainages and consumption of unsafe water resulting in disease outbreak. Fecal contamination in water sources, an indicator for poor sanitation and hygiene, is still found around the world, especially in slum areas of mid-low income countries (Wolf et al, 2014)

1. The diverse nature of the urban community:

The diverse nature of the urban setting negatively affects the quality of WASH services because there would not be social accountability and personal responsibility, as the member of the communities do not share the same sense of responsibility for their Neighbour or environment. Urban communities that have experienced long-standing and recent ethnic violence, and tensions remain divisive within the city and in Government, impairing efforts to proactively plan for growth and development.

1. Infrastructure required for WASH services:

According to the Asian Development Bank, a large number of Asian cities cannot adequately provide urban basic services to the increasing number of urban residents. A number of cities do not have efficient systems of solid waste collection. Majority of the cities in developing countries do not have sewerage system connections, and sanitary landfill facilities. This is because the rapid rate of urbanization needs to be effectively managed and coordinated across sectors and ministries with the help of a comprehensive development plan in response to urbanization with the focus to reduce poverty, improve the quality of life and protect the environment.

In Nigeria, cities are challenged with poor infrastructure especially basic amenities in communities of urban poor. The urban poor are left to provide for their basic needs in terms of water supply, solid waste management and sanitation. Because of the economic condition of the urban poor, these services provided by the urban poor are mostly not in line with the national standard. Some members of the communities also resort to poor WASHH practices in an attempt for cut cost.

1. Governance

Governance in the management of WASH services is critical for a sustainable service delivery. In Nigeria, there is a governance structure for the management of WASH services both at the Federal, State and at the local government level (Umezulike, 2019). Despite this structure, the WASH service delivery at community levels still leaves room for improvement. The few national and state project across Nigeria are on the provision of pipe borne water with little to no focus on provision of sewages for the removal of liquid waste in urban areas in the past ten years.

In Rwanda the responsibility for water supply and sanitation 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 (Abbott, Tsinda, Sapsford & Rwirahira, 2014). The integration of national-level policies, institutional frameworks and implementation mechanisms is recognized as crucial sustainability of water and sanitation services.

1. What are the major health risks from?
   * + - 1. open defecation
         2. allowing food waste and litter to accumulate in a ditch
         3. not washing hands before eating.

Briefly explain how these risks could be reduced.

1. Open defecation:

Open defecation increase the likelihood of disease outbreak when humans come in contact with disease causing pathogen in faeces. When these pathogens are ingested through contaminated food or water, disease such as diarrhoea, dysentery, cholera, typhoid, and infection by intestinal worms and other parasites will occur and it is severe for the vulnerable members of the communities. According to Gro Harlem Brundtland, “*3.4 million people, mostly children, die annually from water-related diseases. Most of these illnesses and deaths can be prevented through simple, inexpensive measures. For instance, trachoma remains the leading cause of preventable blindness, accounting for 146 million acute cases around the world. But the disease is almost unheard of in places where basic water supply, sanitation and hygiene prevail*” (Harry Oosterveen, 2019).

In wet seasons or during flood, there is the likelihood of the pathogens from open defecation to contaminate sources of water for downstream communities resulting in an epidemic affecting a large population utilizing the source of water. It has also been reported that people used open defecation showed more positive results for parasitic infection (Kotian, Sharma, Juyal & Sharma, 2014).

The problem could be reduced with the construction and maintenance of toilets and latrines for both household and the public use. Other less expensive techniques for protecting human contact with disease pathogens in feces could also be adopted i.e cat method. For a sustainable change in behavior, a promotion on positive hygiene practices could be deployed in the target communities.

1. allowing food waste and litter to accumulate in a ditch

If food and other organic waste is allowed to accumulate, it will decompose and encourage flies and disease carrying rodents to breed. The stench constitute health hazard for people leaving around the accumulated organic waste.

A functional waste management service that ensures wastes are collected and disposed of at the right time will help eradicate this problem. The adoption of the 3Rs (Reduce, reuse and recycle) will also help in managing this challenge. The food and other organic waster could be used to feed the animals or used in producing biofuel for generating energy for home use.

1. Not washing hands before eating.

None washing of hands before eating will enable disease causing pathogens and other infectious substance to be ingested. Hands are contaminated when the toilet is visited or the feces of children are cleaned without proper handwashing. With the contaminated hands, there is a risk of transmitting pathogens into your mouth, which may result in the fecal transmitted diseases listed mentioned above (a).

These risks could be reduced by ensuring everyone has access to sufficient water and soap to make it easy to wash hands routinely and by introducing community programmes to inform people about the benefits of handwashing and good hygiene.

1. Describe three specific challenges posed by peri-urban areas and slums for improving access and utilization of WASH services.

Peri-urban areas and slums have particular characteristics that challenges sustainable WASH services. It includes:

1. Poverty

Communities are usually very poor and cannot pay for improved services and because was services are provided at basic level, any disruption in the payments of services delivered with truncate the service provision. The resident of peri-urban and slums are usually very poor and cannot afford this basic WASH services such as solid waste disposal, construction of standard toilets/latrines and provision of safe drinking water without the support of government.

1. Lack of infrastructure

Because most peri-urban and slums are illegal settlement, there is usually no plans, no infrastructure or budgetary provision for the provision of WASH services. Limited infrastructures are stretched to break point, even roads are not accessible in some of these areas.

1. Unplanned settlement patterns

These are a key feature in peri-urban and slum areas. This makes it difficult to provide basic infrastructure, including WASH services. Roads, water supply networks and public latrines with proper access for sludge removal are lacking. The settlement pattern also hinders attempts to plan interventions that can improve the situation.

1. Illegal settlement

People living in slum areas and at times in peri-urban areas have no legal status, which automatically makes it impossible to improve the WASH situation. For example, utilities provide connections to legally owned premises but most slum dwellers do not have these rights. The case of latrine construction is similar.

1. Explain three challenges associated with engaging stakeholders in planning and implementing urban WASH projects.

The challenges include:

Lack of or ineffective coordination between different sectors and organisations participating in WASH service provisioning. Even with the creation of WASH sectors in many countries, the issue of duplication of function and multiple targeting of beneficiaries for the similar intervention still occur at an alarming scale. Sometimes the focus to deliver a project acts are a barrier for communication and collaboration with other actors in the field.

It is difficult to reach all members of a community especially those on low income, hard to reach areas, people with disabilities and other vulnerable groups. Women may not be able to participate in meetings but it is important that they are involved in WASH developments. These is even a bigger challenge in times of emergencies.

Working across disciplinary and sector boundaries presents challenges because different ways of working must be brought together cooperatively, but this is not always easy to achieve. The adoption of a coordination and collaboration framework will help in bridging the gaps across the different disciplines.

## References

Abbott, P., Tsinda, A., Sapsford, R., & Rwirahira, J. (2014). 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*, *5*(1), 136-142. doi: 10.2166/washdev.2014.188

Harry Oosterveen, I. (2019). WHO World Water Day Report. Retrieved 31 July 2019, from https://www.who.int/water\_sanitation\_health/takingcharge.html

Irda Sari, S., Sunjaya, D., Shimizu-Furusawa, H., Watanabe, C., & Raksanagara, A. (2018). Water Sources Quality in Urban Slum Settlement along the Contaminated River Basin in Indonesia: Application of Quantitative Microbial Risk Assessment. *Journal Of Environmental And Public Health*, *2018*, 1. doi: 10.1155/2018/3806537

Kotian, S., Sharma, M., Juyal, D., & Sharma, N. (2014). Intestinal parasitic infection-intensity, prevalence and associated risk factors, a study in the general population from the Uttarakhand hills. *International Journal Of Medicine And Public Health*, *4*(4), 422. doi: 10.4103/2230-8598.144119

Umezulike, C. (2019). Challenges in The Nigerian Water Sector – If the Problem is not Lack of Comprehensive Regimes, then what is it?. Retrieved 31 July 2019, from http://www.connecteddevelopment.org/1963-2/

Unsettled:Water and Sanitationin Urban Settlement Communitiesof the Pacific. (2019). Retrieved 31 July 2019, from https://openknowledge.worldbank.org/bitstream/handle/10986/23336/Full0report.pdf?sequence=1&isAllowed=y

Urban Development: Issues, Challenges, and ADB's Approach. (2019). Retrieved 31 July 2019, from https://www.adb.org/themes/urban-development/issues