Access to Water for all: A Case of Dhaka

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Abstract

Water is literally the essence of life and unsafe water is a threat to human lives. Dhaka, the capital of Bangladesh, is one of the most densely populated cities in the world. Its nearly 20 million residents face tremendous difficulty in accessing safe water for their daily lives. A crisis of governance in terms of administrative and financial incapacity hinders supply of clean water. Added to that are disproportionate uses of water, knowledge gap about safe water, violation of law, and absence of ideas on sustainable water management. The Dhaka Water Supply and Sewerage Authority (DWASA) is not well-equipped to provide safe drinking water due reasons such as limited number of water treatment plants. This paper examines challenges to water management in Dhaka have been examined. It details how the existing authority of water management delivers services and how different stakeholder exert influence in the sector. Adopting a qualitative approach, the paper undertakes in-depth analysis to measure the current magnitude of the water crisis in Dhaka city. However, this is a qualitative research paper and descriptive in nature, based on secondary data along with personal observation.

Keywords: *Water governance, DWASA, Safe Water*

Introduction

The United Nations (UN) has acknowledged access to water as a fundamental human right. The UN Human Rights Declaration (2002) states:

> The human right to water entitles everyone to sufficient, safe, acceptable, physically accessible, and affordable water for personal and domestic uses. An adequate amount of safe

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> water is necessary to prevent death from dehydration, reduce the risk of water-related disease, and provide for consumption, cooking, personal, and domestic hygienic requirements.[1]

Water is a valuable commodity for the survival of human beings because of its use in various ways. The crisis of access to water is not a new phenomenon in Dhaka. Nearly 20 million people now live in Dhaka megacity and the continuous increase of population further complicates the status of access to safe water. Groundwater depletion is a major challenge in front of the Government of Bangladesh, where the levels of groundwater are falling drastically due to excessive extraction to meet its growing demands. Although the Government of Bangladesh is trying to encourage the use of surface water among Dhaka city dwellers, it is very far from reaching the target. Moreover, the Government of Bangladesh is conducting various activities, ranging from short-term to long-term plans of action to resolve the water crisis in the city. The Government of Bangladesh has already established different regulatory frameworks, such as the National Water Policy, 1999, and the National Water Supply and Sanitation Act, 2014, for safe water management. On the other hand, the roles and functions of the Dhaka Water and Sanitation Authority (DWASA) have been restructured by the DWASA Act introduced in 1996, making it an autonomous organisation. Considering the existing water management crisis in Dhaka, however, the study explores the present conditions of water management and re-examines the weakness of providing safe water in Dhaka. With regard to the methodology, the paper mainly relies on secondary literature. It also randomly observes the level and ways of water uses of 16 apartments in Dhaka in order to cross-check the reliability of the secondary data. Through its research, the paper attempts to answer the following questions:

- What are the challenges for better water distribution in Dhaka city?

- Is the existing authority adequately equipped for providing safe water services to Dhaka city dwellers?

Exploring Water Governance and its Crisis

The Global Water Partnership (2003) has defined water governance as a concept that relates to the range of political, social, economic, and administrative systems in place that influence the uses of water and its management.[2] It is worth mentioning that the concept refers to administrative arrangements depending on the needs of a specific region for the purpose of successful water management.[3] It has been pointed out that improving water governance does not necessarily mean establishing new institutions or infrastructure or major changes in the plan of action, it could rather focus on institutional cooperation, developing policy, and enhancing the transparency of activities in the sector.[4]

Water is also considered an important economic good for sustainable livelihood.[5] Poor quality of water threatens human health, which increases expenses in health treatment. Water is commonly perceived as a natural resource, which is a basic need required for the survival of human beings in their daily lives. Water is found in rivers, lakes, reservoirs, and shallow aquifers for the common uses and consumption of human beings. Access to freshwater in the world is not easy because of the natural composition of glaciers and deep aquifers.

Although this natural resource is renewable, it is very fragile. It is important for the existence of human beings because it dissolves nutrients and transfers them to cells. Added to these benefits, water regulates the level of global temperature and also supports the removal of waste products.[6] Safe water is identified as the water that does not cause any significant risks to human health over lifetime consumption.[7]

It is important to note that the world now faces a serious crisis with respect to increasing water scarcity.[8] Water scarcity is defined as a

condition where a person does not have access to 1,700m^3/year of water. There are several causes of water scarcity, such as excessive population growth, urbanisation, industrialisation, and climate change. Some structural reasons are also blamed for water scarcity.[9] A study conducted by the World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) found that 3 people out of 10 in the world, or 2.1 billion, lacked access to safe and readily available water at home.[10]

Inadequate access to and poor quality of water endangers the lives of human beings. It is important to note that people living in developing countries suffer from health problems because of poor quality of water supply. Poor and marginalised populations, especially those living in the slums and remote villages, suffer the most due to inadequate and poor access to water.

The Status of Dhaka Residents' Access to Water

The Constitution of Bangladesh mentions the fundamental rights of its citizen and acknowledges the role of the state in providing the basic necessities of life to human beings, such as food, clothing, accommodation, education, and medical service. Given the context, access to water right is recognised under food, however, no article or clause refers to access to water as a right explicitly.

> It shall be fundamental responsibility of the State to attain, through planned economic growth, a constant increase of productive forces and a steady improvement in the material and cultural standard of living of the people, with a view to securing its citizens through the provision of the basic necessities of life, including food, clothing, shelter, education and medical care.[11]

Water crisis basically relates to a crisis of governance in the face of a number of challenges related to ensuring access to water

effectively. Access to safe water is considered one of the important indicators of a country's development. For an individual, internationally accepted standard of water consumption is 110 Litres Per Day (LPD). A study has shown that one-third of the total population of Dhaka city receives only 40 LPD.[12] For exploring the water crisis, the reduction of groundwater, haphazard pipelines of water supply, illegal connection of water lines, misuse of supply water, pollution of surface water by industrial and garment wastes, dirty and foul-smelling supply of water, and shortage of preservation of surface water are the root causes of water crisis in Bangladesh.

During the summer season, especially from March to May, DWASA fails to extract sufficient water to fulfil the demands in the city. Therefore, many residents face acute water shortage every year.[13] 78 per cent of the city's total water requirement is met through the extraction of groundwater. It is, however, estimated that the level of groundwater is depleting at a rate of 2-3 meters per year in many places in Dhaka.[14] It is also predicted that the groundwater level will go further down to 120 meters by 2050.[15] Even the treated water is supplied with dirty and stinky supply lines in different areas. Considering the challenges of safe water in Dhaka, DWASA itself encourages the city residents to boil tap water before drinking. At present, the people living in apartments are using water filters in order to get safe water. Despite the use of water filters, the level of water quality is continuously degrading and puts immense strain on treatment costs with respect to water-related diseases in Bangladesh.

Water is distributed unevenly in different parts of the city and a huge quantity of water is being wasted and polluted. Furthermore, the residents of Dhaka are now living with unhygienic water as complaints from respondents about muddy water with bad smell are reported. In response, residents boil water before drinking and many of them use water-purifiers. Due to lack of trust in water purifying companies, some users boil water even before putting it into purifiers

for their mental satisfaction. It is worth mentioning that the Bangladesh Council of Scientific and Industrial Research (BCSIR) is responsible for verifying the quality of any product. While several water-purification companies are operating across the city, such as APEC Water Technology, Water Fine Treatment and Filters, Aqua-Pure Technology Ltd and others, only one purifier brand, i.e., Unilever's Pure It brand has passed the BCSIR test.[16]

Several companies are also selling bottled water. Among them are Pran, Mum Mineral Water, and Fresh Drinking Water. Average prices of 1 litre bottled water are approximately 20 Taka (around 24 cents). It is hard for the poorer residents, however, to buy bottled water for their daily needs for survival. Residents, who have low purchasing powers suffer more than the middle- or upper-class people in Dhaka. The underprivileged are unable to have access to personal water purifier or bottled water at home. They do not even have direct access to the water supply which is supposed to be provided by DWASA because they are largely slum-dwellers.

In emergency situations, slum-dwellers buy water from the few available water service provider agents without considering its quality.[17] Under high demand in critical situations, they have to at times pay more money for water compared to middle- and high-income residents. Several studies have shown that the residents complain about extra payment and wastage of time in water collection. Usually, housewives and schoolgoing children have to spend additional time for this purpose, which has an effect on all household activities of a woman. In addition, women are spending more time at the cost of their leisure to collect drinking water for their family members. The rest of the household water-related works are completed near the water supply spot on availability like a direct tap, pond, river, local mosque, deep tube wells or others.

Challenges of Water Governance in Dhaka

Following are the main challenges for water governance related to access to water in Bangladesh:

- Increasing demand for water and high pressure on traditional groundwater sources;[18]
- Negative impacts of climate change that disrupt water cycle, thus, impact the availability of safe water for human and environment health;[19] and
- An increased level of pollution due to unplanned location of industries and problems of poor sanitation.[20]

Water crisis remains one of the major problems of Dhaka city residents. This crisis has occurred due to the increased pace of urbanisation, polluted surface and groundwater, and lack of commitment of the government to take initiatives for providing adequate and safe water to its citizens.[21]

The government needs to bring appropriate, effective, and affordable solutions in response to governance challenges with respect to the water supply.[22] Many experts also fear that drinking water could become gradually more unsafe due to the effects of changing climatic conditions.[23] The same findings have also been echoed by pointing out that the availability of safe drinking water is expected to further worsen, as Bangladesh faces changes in climatic conditions.[24] According to a UN study, there will be a 50 per cent increase in the demand for water in Dhaka city by 2030.[25]

Ownership Pattern

There is a huge debate about the ownership pattern of water services in Bangladesh whether it should be transferred from the public sector to the private sector, but development partners focused on the privatisation of water services. Bangladesh Water Act of 2010 also encourages changes in the ownership patterns. At present, many residents in Dhaka city heavily rely on private water distributors as buying water-purification filter or bottled water without

compromising its quality is beyond their reach. There is a clear lack of proper management and regular monitoring of water purification services that have led to adverse impacts on health conditions.

Poor Implementation

As stated earlier, DWASA is a water service providing organisation in the public sector. The body is entrusted with the task of providing an adequate supply of water and related services to the residents of Dhaka. Jurisdictionally, DWASA covers more than 360 sq km area and with 12.5 million people who need almost 2,110 million litres per day.[26] However, for compliance, DWASA faces a number of challenges, including a high rate of population growth, unplanned development of city's planned and slum areas, and lack of resources for providing access to water for all.

Under the First Master Plan of the city in the 1950s, most underground pipelines were laid first for an area of 320 square kilometres. At the time, the population of Dhaka was only 6 million. Under the Second Master Plan of Dhaka city, introduced in 1996, DWASA covered an area of 590 sq km. The estimated population of Dhaka at the time was nearly 10 million.[27] The Government of Bangladesh has taken different initiatives to recover from the present water crisis in Dhaka city, including dredging Buriganga River, digging Dhaleswari, Pungli-Bangshi, and diverging water from Jamuna River for the survival of the Buriganga River.[28] In reality, these initiatives were not implemented successfully.

Excessive Pumping of Groundwater

A study conducted by the University of Delaware in 2016 mentioned that excessive pumping of groundwater to supply water for city residents could pose risks to future citizens who will live outside the city. It is important to note that Dhaka has now over 15 million residents and faces many challenges of water management. However, efforts are being undertaken by the Government of Bangladesh to sustain water quantity and to improve its quality with

respect to water supplies. Despite the efforts, over-pumping is the main factor responsible for the decreased level of groundwater. It is important to note that the level of groundwater dropped more than 200 feet over the last 50 years. These levels are expected to continue to decline at a rate of up to 9 feet every year.[29]

Unsafe Water

Bangladesh has made remarkable progress on Millennium Development Goals (MDGs) by significantly reducing the rate of population growth without access to an improved water supply. However, there are still significant challenges faced by Bangladesh in ensuring safe water. The International Centre for Diarrhea Disease Research Bangladesh (ICDDRB) in a study found E Coli bacteria in 63 per cent water supplied by DWASA.[30] Doctors also opined that the city people were suffering from water-borne diseases throughout the year. On the other hand, residents also complained of stinky and filthy water being provided by DWASA.[31]

The surface water is polluted by organic components, toxic metals, and other pollutants and the situation is continuing for a long time now, where the quality of water has become questionable.[32] *Asian Water Development Outlook* published in 2016 says that 80 per cent of the 250 industries are dumping chemical pollutants into Buriganga and Sitalakkha rivers near Dhaka. It is worth-mentioning that traditionally these two rivers have been an important source of surface water for the city. Added to that, every day four thousand tonnes of solid waste and 22 thousand tonnes of tannery waste is being dumped into the Buriganga River.[33] A continuously overlooked consequence of these actions is the water crisis in Dhaka. When the river became too polluted, DWASA started depending on groundwater as a source of drinking water.[34]

On the other hand, Bangladesh Agricultural Research Council (BARC) published a study stating that almost 97 per cent of the drinking water in jars, which was mainly used in offices and

restaurants, had Coliform bacteria.[35] Based on an analysis of 35 brands of bottled water, BARC also discovered that there were considerably fewer minerals in jar water as compared to water supply by DWASA.[36] Furthermore, the residents of Dhaka complain that DWASA could not carry out their responsibilities or even they don't trust all the private jar companies. Sometimes television reports on jar businesses and their crimes influence people's negativity about water safety.

Poor Coordination and Monitoring

There is a lack of coordination between various departments with regard to the water supply.[37] The underground water pipelines are damaged due to age and disrepair or disruption by other agencies like gas pipeline services, telephones, and internet line services. World Bank, in a study in 2016, blamed the government bodies saying that they did not avoid duplication of effort and paid very little attention to the periodic maintenance of the water supply system.[38] The Bangladesh Standards and Testing Institution (BSTI) is mandated to verify the quality of water purification products, be it bottled water or jarred water.

However, without consulting the BSTI, DWASA has allowed 38 companies to do business. Many of them do not have legal approval and sometimes many distributors do not renew their work permits.[39] Respondents also complained of a lack of monitoring systems of DWASA as ineffective. Although the Government of Bangladesh has been establishing new water pipelines with the expansion of the city, the old ones are not being repaired periodically. In addition, inadequate supply has forced people to rely on some alternative paths for water collection.

For the improvement of service performance of DWASA, the World Bank and Asian Development Bank (ADB) are working together, where ADB generally provides technical and financial assistance for continuous water supply services in Dhaka. The Department for International Development (DFID) basically worked for the slum

improvement with DWASA. Water Aid and Dustha Shastha Kendra (DSK) worked together in the slums and provided potable water to the slum people. In most of the cases, the private and international organisations prefer to work through planned public-private partnerships (PPP) in order to make water more accessible.

Conclusion and Recommendations

Water supply management in Dhaka city very much depends on groundwater, as all the sources of surface water are being destroyed and polluted due to illegal activities in the sector. Even though DWASA has claimed to initiate the use of surface water instead of groundwater, it does not show any signs of implementation. Shortage of safe water has long-term consequences for the sustainable development of Bangladesh and the people who are living in Dhaka city are really vulnerable. The Sendai Framework, the Millennium Development Goals (MDGs), and now the Sustainable Development Goals (SDGs) focus on the need for safe and sustainable uses of water. From the above discussion, the following recommendations for access to water in Dhaka city can be drawn:

- The government should develop awareness programs among residents about the existing water crisis and future demand in the city. To avoid water-related hazards, governments should develop integrated water resource management to run safe water supply services. All concerned organisations need better coordination and effective communication to achieve the objective.
- DWASA needs effective and reasonable solutions for the provision of safe water to the residents of Dhaka. The authority should introduce appropriate behaviour of sustainable uses of the water resource and ensure strict monitoring of healthy commercial water purifiers.
- The government should develop a sound mechanism for receipt of formal complaints at DWASA to provide fair services

to the residents. Besides this, monitoring systems need to be improved.

- DWASA must be empowered by recruiting skilled and eligible manpower in the sector, as water complexities are related with different specialised fields of knowledge like preservation of water, water purification and decontamination, distribution of water, water treatment, water line supply design, water campaigning, water administration, etc. Extensive investments are also necessary to sustain development in the water management sector.
- The government should revise and integrate safe water policy for the residents of Dhaka city that must deal with access to and the use of water, which will make it easier to achieve the SDGs.
- The government should show more concern about the rivers of Dhaka and protect them from pollution and illegal construction, dredging them every year for smooth water flow and maintain them as an important source of surface water.
- Public-Private Partnership (PPP) approach should be employed for better services of water.
- As an important natural resource, water should be distributed and used properly and the authority should apply an affordable charge of water as all the underprivileged people also have the right to get safe water for their living.

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