Access to Water for All: A Case of Dhaka of Bangladesh

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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, which has nearly 20 million residents who face tremendous difficulties in getting safe water for their daily needs. A crisis of water governance in terms of administrative and financial incapacity hinders the opportunity to access water. Added to that, disproportionate uses of water, knowledge gap about safe water, violation of laws, and absence of structural ideas on sustainable water management are critically important issues in terms of 'access to water'. However, Dhaka Water Supply and Sewerage Authority (DWASA) is not well-equipped for providing safe drinking water due to various reasons, including the limited number of water treatment plants. In this paper, key challenges of water management were examined. It explores how the existing authority of water management delivers services and how the role of different stakeholder exerts influence in the sector. Adopting the qualitative research approach, the study tried to find out the current magnitude of water crisis in Dhaka city. While this was a qualitative study, based on the secondary data with personal observations, the data was analysed descriptively.

Keywords: Bangladesh, Dhaka, Water, Access

Introduction

United Nations (UN) acknowledges that access to water is a fundamental human right. "*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 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*" (United Nations, 2002).

Water is a valuable commodity to the survival of human beings, as it is used for various purposes. The crisis of access to water in Dhaka, which is home to more than 20 million people is not a new phenomenon (Jahan, et al., 2015), and the continuous increase of population further complicates the status of access to safe water. Groundwater depletion is the major challenge to the Government of Bangladesh (GoB), where the levels of groundwater are falling drastically due to excessive extraction to meet its growing demands. Though the GoB tries to encourage the use of surface water among Dhaka city dwellers, the imitative is far from reaching the target. Moreover, the GoB has different activities, ranging from short-term to long-term plan of action to resolve the water crisis in the city. The GoB has already established different regulatory frameworks, such as the National Water Policy, 1999 and the National Water Supply and Sanitation Act, 2014, for the 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 as an autonomous organization.

Status of 'Access to Water' in Dhaka City

The constitution of Bangladesh states the fundamental rights of its citizens, and acknowledges the role of the state to provide with the basic needs of human beings for their citizens, such as food, clothing, accommodation, education and medical service. Given the context, right to water is recognized under food, while no article or clause explicitly discusses the right to water.

"*It shall be the 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*" (the Constitution of Bangladesh, Article 15, clause (a)).

Water crisis, basically relates to a crisis of governance that faces a number of challenges on how to ensure access to water effectively. Access to safe water is considered as one of the important indicators for a country to consider whether it is developed or not. For an individual, internationally accepted standard of water consumption is 110 Litres Per Day (L/P/D), but one-third of the total population in Dhaka city receives only 40 L/P/D (Uddin & Baten, 2011). When investigating the water crisis, the reduction of groundwater, haphazard pipelines of water supply, illegal connection of water line, misuse of supplied water, pollution of surface water by industrial and garment wastes, dirty and bad-smelling supplied water, shortage of preservation of surface water were highlighted as the underlying 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 and many residents suffer from acute water shortage in every year (The Independent, 2017). 78%

of the city's total water requirement is met through the extraction of groundwater. However, it is projected that the level of groundwater depletes at a rate of 2-3 meters per year in many places in Dhaka (Islam, 2015). It is also predicted that the groundwater depletion will decrease to 120 meters by 2050 (Uddin & Baten, 2011). Furthermore, the treated water is supplied through dirty and foul-smelling supply lines in different areas. Considering the challenges in the provision of safe water in Dhaka, DWASA itself encourages the city residents to boil tap water before drinking. At present, the people living in the apartments are using water filters to get safe water that is devoid of bad smells and other kinds of water-borne germs. Despite the use of water filters, the level of water quality is continuously degraded and it practically increases the medical expenses concerning water-related diseases in Bangladesh.

Water is distributed unevenly in different parts of the city and a large quantity of water is wasted and polluted. Furthermore, the residents of Dhaka are now living with unhygienic water, a common allegation from them being the supply of muddy and bad-smelling water in certain occasions. As a remedial measure, residents boil water before drinking and many of them use water purifiers. Due to the absence of the trust about Purifier Company, many of them boil water before pouring it into purifiers for their mental satisfaction, although some residents use the water purifier without boiling water and they have faith in the purifier company. Bangladesh Council of Scientific and Industrial Research (BCSIR) is responsible for verifying the quality of any product. There are many water-purifier manufacturers working across the city, including APEC water technology, Water fine treatment and filters, Aqua Pure Technology Ltd. and some others. Testing of one purifier brand: Unilever's 'Pure It' has revealed that the brand has maintained quality, certified by both

local and international testing organizations (Suliman, 2018). On the other hand, some companies sell bottled water; among them are Pran, Mum Mineral water, and Fresh drinking water. The average price of a 1 litre bottled water is approximately 20 Taka (Bangladesh currency). However, it is hard for poor residents to buy bottled water for their daily needs for survival. Residents who have low purchasing capacity, suffer more than people of middle or upper classes in Dhaka. The extremely poor people are more underprivileged of having access to a personal water purifier or bottled water at home. They also do not have the direct access to water supply which is supposed to be provided by DWASA, as such people live in slums.

Under the emergency situation, it was found that people who live in slums are used to buy water from certain water service provider agents without considering the quality of their products (Suliman, 2018). Due to the high demand for water in the critical situation, they have to pay more money for water. One of the commonest allegations from the residents is the over-payment and excessive time consumption for water collection. It is important to note that housewives and school children spend additional time for water collection which has effects on all household activities of a woman. Sacrificing their leisure, women spend extra time for collecting drinking water for their family members. However, households' water related requirements are fulfilled at a nearer spot based on the availability of water sources, such as a direct tap, pond, river, local mosque, deep tube well, etc. Through its research, the thrust of this paper is to answer the following questions;

1. What are the challenges for better water distribution in Dhaka city?
2. Is the existing authority adequately equipped with providing safe water services for Dhaka city dwellers?

Literature Review

Exploring Water Governance and Its Crisis

Water is also measured as one of the most important economic goods for sustainable livelihood (Uddin & Baten, 2011). 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 common uses and consumption by human beings. However, accessing fresh water is not easy in the world because of constitutions of glaciers and deep aquifers.

The Global Water Partnership defined water governance as the concept that relates to the range of political, social, economic, and administrative systems in place that influences the uses of water and its management (The Global Water Partnership, 2003 cited in Biswas & Tortajada, 2010). It is useful to mention that the concept is a kind of administrative arrangement depending on the needs of a specific region for the purpose of a successful water management (Gupta, 2004). However, 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, rather it needs to focus on institutional cooperation, developing policy, and enhancing transparency of activities in the sector (Rogers & Hall, 2003).

Hence, water for human beings remains a big challenge in the world today. Water is considered as the alternative part of life and this natural resource is renewable. But access to water is now in very deplorable conditions. However, water is very important for the existence of human being, because it dissolves nutrients and transfers them to cell. Added to these benefits, water regulates

the level of global temperature and also supports to remove waste products (Reza, 2018). Safe water is identified as the quality of water that does not cause any significant risks to the human's health over lifetime consumption (Ministry of Local Government, Rural Development and Cooperatives, 2014).

The world now faces a serious crisis concerning the increase in water scarcity (Lester, 2003). Water scarcity is defined as a condition where a person does not have access to 1700m^3/year of water. However, many of the activities may result to water scarcity; however, the conditions are exacerbated by some factors, including excessive population growth, urbanization, industrialization, and climate change. Some structural reasons for water scarcity are found (Van & Hildering, 2005) and World Health Organization (WHO) and United Nations Children's Fund (UNICEF) also mentioned that 3 people out of 10 in the world, or 2.1 billion, do not have access to safe, readily available water at their home (WHO, 2017).

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

Methodology

Considering the existing water management crisis in Dhaka, the study explores the present conditions of water management and re-examines the weaknesses in providing safe water in Dhaka. The paper is mainly based on secondary literature. The study observed the level and ways of water uses in

Dhaka city and purposively selected 16 apartments in Dhaka and one slum area in order to ensure the reliability of the existing literature.

Analysis and Discussion

It was found that the main challenges for water governance about access to water in Bangladesh include (i) an increasing demand for water and a high pressure on traditional ground water sources (Chowdhury, 2010); (ii) negative impacts of climate change that disrupts water cycle, thus affecting the availability of safe water for human and environmental health (Asaduzzaman et al., 2010); and (iii) an increased level of pollution due to unplanned location of industries and problems concerning poor sanitation (WorldBank, 2005). From the above three perspectives, it can be said that water crisis remains one of the major problems to residents in Dhaka city. This crisis has arisen due to the increased growth of urbanization, polluted surface and ground water. At the same time, the government's lack of commitment to take initiatives for providing adequate and safe water to its citizens was observed (Haq, 2014).

However, an appropriate, effective and affordable solution should be provided regarding the governance challenges in terms of water supply (The Independent, 2017). Many experts also fear that drinking water could become gradually more unsafe due to effects of changing climatic conditions (The Daily Star, 2017). The same findings have also been echoed by Islam (2013) who added that the availability of safe drinking water is expected to be further worsened, as Bangladesh faces the changes in climatic conditions (Islam, 2013). Again Reza (2018) quoted the UN findings by pointing out that there will be 50 percent increased demand for water in Dhaka city by 2030.

Ownership Pattern

There is a huge debate about the ownership pattern of water services in Bangladesh whether it should be transferred from public sector to private sector. But development partners focused on privatization of water services. Bangladesh Water Act (2013) also encourages the changes of ownership pattern initiative. It is worthy to mention that at present many residents in Dhaka city heavily depend on private water distributors and buying water purification filters or bottled water without compromising the quality of water. It was found that lack of proper management, and limitation of regular monitoring on water purification services have led to unfavourable health conditions.

Poor Implementation

As stated earlier, DWASA is a water service providing organization 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 2110 million litres per day (Sakib & Islam, 2014). However, DWASA faces a number of challenges, including an increased rate of population growth, unplanned development of city's plan and an increased number of slum areas, and the lack of resources for providing access to water for all.

Under the First Master Plan in 1950s, most underground pipelines were laid first for an area of 320 square kilometres during which period the population was only 6 million in Dhaka. Under the Second Master Plan of Dhaka city, introduced in 1996 through which DWASA covered an area of 590 Sq. km, including the next city of Dhaka with an estimated population of nearly 10

million (https://dwasa.org.bd/about-dhaka-wasa/). Over the years, the GOB has taken different initiatives to recover the present water crisis in Dhaka city. For instance, dredging Buriganga River, digging Dhaleswari, Pungli-Bangshi and bringing water from Jamuna River to the survival of the Buriganga River (Reza, 2018). In reality, these initiatives are, to some degree, quite inadequate in response to the requirements of the city dwellers.

Excessive Pumping of Groundwater

Excessive pumping of groundwater to supply water for city residents could put the future citizens who will live outside the city at risk. It is important to note that Dhaka has now over 15 million residents, and faces many of the challenges in terms of water management (University of Delaware, 2016). However, many efforts are being undertaken by the GOB to sustain water quantity and to improve its quality regarding water supplies. Despite the efforts, over-pumping is the main responsible factor which caused to decrease the level of groundwater. It is important to note that the level of groundwater has dropped more than 200 feet over the last 50 years, and in addition, these levels will continue to decline at a rate of up to 9 feet every year (University of Delaware, 2016).

Unsafe Water

Bangladesh has made remarkable progress on Millennium Development Goals (MDGs), but there are still significant challenges regarding accesses to improved water supply. The International Centre for Diarrhea Disease Research, Bangladesh (ICDDRB) in a study discovered that E coli bacteria was found in 63% of the water supplied by the DWASA (Islam, 2015). It is highlighted that the people of the city are suffering from water-borne diseases

throughout the year. Residents also complain about stinky and filthy water of DWASA (Suliman, 2018).

The surface water is polluted by organic components, toxic metals and other pollutants and the situation has been continuing for a long time while the quality of water is now questionable (Khan et al., 2016). Asian water development outlook published in 2016 highlights that 80 percent of 250 industries dumps into rivers in the city, and as chemical pollutants into Buriganga and Sitalakkha river which are in close proximity to Dhaka. Traditionally, these two rivers are the important sources of surface water in the city and everyday 4000 tons of solid waste and 22000 tons of tannery waste are dumped into the Buriganga River (Reza, 2018). Continuous overlooked consequence of these actions influences the higher level of risks for the safe water crisis in Dhaka. When the river becomes polluted, the DWASA heavily depends on ground water as a source of drinking water (Reza, 2018).

On the other hand, almost 97 percent of the drinking water in jars, which are mainly used in offices and restaurants has 'Coliform bacteria' (WorldBank, 2016). Based on 35 brands of bottled water, BARC also discovered that in jar water, there are very less minerals comparing to water supplied by DWASA (Suliman, 2018). Added to that, the residents of Dhaka complain that DWASA could not carry out their responsibilities. On the other hand, they don't trust all the private jar companies. However, it might be assumed that television reports on jar business and its crime influence people's negative perception towards water safety.

Poor Coordination and Monitoring

There is a lack of coordination among various public agencies about the facilities of water supply (Islam, 2015). The underground water pipes are

damaged due to long term use without repair and maintenance, or interruptions by other agencies like gas pipeline services, telephone and internet line services. WorldBank (2016) blamed the government bodies and criticised the government for not avoiding duplication of activities and paying very little attention to the periodic maintenance related to water supply issue. Bangladesh Standards and Testing Institution (BSTI) is the only institution that provides certification and information to consumers about the quality of water purifier products.

However, without the concern of BSTI, DWASA allowed 38 water purifier companies, thus without the legal approval, they are now in business and many distributors do not renew their work permission (Suliman, 2018). On the other hand, respondents highlight the monitoring systems of the DWASA as an authorized institution which is not effective. Though the GOB has been establishing new water pipelines alongside the expansion of the city, over the years, outdated water pipelines are not being repaired periodically. In addition, people bound by inadequate water supply depend on other alternative paths of water collection.

For the improvement of service performance of DWASA, WorldBank with the assistance of Asian Development Bank (ADB) are working together. ADB generally provides technical and financial assistances for continuous water supply services in Dhaka. Department for International Development (DFID) also worked for the slum improvement along with DWASA. Water Aid and Dustha Shastha Kendra (DSK) worked together in slum areas and provided potable water for the people in slums. However, in most of the cases, all private and international organizations prefer to work through a planned public-private partnerships (PPP) in order to make the water supply scenario more accessible.

Conclusion and Recommendations

Water supply in Dhaka city highly depends on groundwater, as all the sources of surface water are destroyed and polluted due to illegal activities. The country is not capable of preserving and using surface water, although DWASA has started to use surface water instead of ground water. But this public agency does not show any remarkable progress of implementing it. However, the shortage of safe water has long term consequences for sustainable development of a nation and the people who are living in Dhaka city are really vulnerable. The Sendai Framework, the Millennium Development Goals (MDGs) and through the Sustainable Development Goals (SDGs), everyone is focused on the necessity of safe and sustainable uses of water. Through the above discussion, the study has given the following recommendations for better 'access to water' in Dhaka city;

▪ The government should develop the water awareness program highlighting the present water crisis and the future demand in the city. To avoid all types of water-related hazards, governments should develop an integrated water resource management to run safe water supply services. All concerned organizations need better coordination and effective communication to fulfil the objective.

▪ The authority needs effective and reasonable solutions for water crisis. To avoid such hazardous situation, the authority should introduce appropriate behaviour for sustainable uses of water resource, and healthy commercial on water purifier.

▪ The government should allow access to public participation and should receive all complaints to provide fair services that will be facilitated by the DWASA. Besides this, a monitoring system should be developed for transparent work-related activities.

▪ The government should revise and integrate safe water policy for the residents that must deal with access to and the use of water, by which it will be easier to achieve the SDGs.

▪ The government should be more concerned about the rivers in Dhaka, and protect the rivers from pollution. Dragging the river, in every year, for smooth flowing of water, it should maintain as an important source of surface water.

▪ Focus should also be on the effective governance of water management. For instance, public-private partnership (PPP) approach should be employed for the better services of water.

▪ As an important natural resource, water should be distributed and used in a proper system and the authority (DWASA) should introduce an affordable charge for water, as all the extremely poor people in slum areas also have the right to get safe water for their sustainable livelihood.

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