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WATER PRICING IN FOUR SLUMS OF BARISAL CITY CORPORATION: AN ANALYSIS

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ABSTRACT

Nowadays, getting quality water has become very expensive for many developing countries. Despite being a riverine country, it has become a major challenge for Bangladesh to provide quality water at a reasonable price to the citizens. That is why an analysis is necessary to find out the current water pricing of Barisal City Corporation and to compare it with other cities around the world. This paper attempts to find out the current water pricing and affordability in four selected slums of Barishal City Corporation (BCC), i.e. Stadium Colony slum, Vatar Khal slum, Palaspur Guchchogram slum and Namar Char Slum. The aim of the paper is to generate a deeper understanding of the water pricing problems and to recommend some alternatives to improve the situation in the slums of BCC. A field survey has been performed in January 2017 that involves semi structured questionnaire survey and focused group discussions with slums dwellers and different stakeholders. It is found that the slums dwellers who are using the legal connection from Barisal City Corporation water supply system are paying around 40 to 80 times more than the people living in apartment complexes at Barishal City Corporation. Even slum dwellers are paying much more than the residents of many developed countries in the world. According to the chapter 1 of Bangladesh Water Act 2013, access to water for drinking and domestic uses is being considered as basic right to all citizens specially for poor and disadvantaged group of the society. For this reason an income sensetive affordable water pricing is necessary to in the slums in the Barishal City Cooporation where poor segment of the society resides. Water pricing can also play an effective role in acheiving sustainable development goals related to water.

Keywords: *water pricing; slum dwellers; Barisal City Corporation; affordability*

1. INTRODUCTION

Water is the most versatile of all elements. Every living organism in the world needs water to survive. The percentage of water in human body is approximately 70% by weight. The human brain is made up of 95% water. According to research every adults uses around 80-100 gallons of water daily (Perlman, 2016).

From the begging of human era water is being considered as a symbol of devotion and purity. Most of the cities have been established based on availability and access to water (WWAP, 2016). But water scarcity has become one of the major problems of the 21st century (Griffin, 2001). Scientists declared that there is enough fresh water on the planet for seven billons people but it is not distributed evenly and too much of it is being wasted, polluted or unsustainably managed (Mekkonen and Hoekstra, 2016). Mekkonen and Hoekstra (2016) found that four billion people or two-thirds of the global population are facing water scarcity at least 1 month of the year. Around half of those people live in Asia.

For this reason, ensuring affordable water pricing has become a urgent need for the society.. Bangladesh is not an exception. The major cities of Bangladesh are facing the challenge to provide affordable quality water to its residents especially in the slum areas (cf. Rahman and

Ahmed, 2016; UN-Habitat, 2003). This study focuses on the current water pricing in the slum areas of one of the major cities of Bangladesh, Barishal City Corporation.

The objectives of this study are as follows

- To find out the water pricing in four selected slums of Barishal City Corporation (BCC);
- To find out what percentage of income the slum dwellers are spending for water;
- To compare the water pricing in selected slums of BCC with other cities in the world.

2. METHODOLOGY

In Barisal City Corporation, there are around 137 slums with a population of 38,736. Among these 137 slums, this study focused on four major slums namely Stadium Colony Slum, Vatar Khal Slum, Palaspur Guchchhogram Slum and Namar Char Slum.

For the study a questionnaire survey has been conducted on January 2017 at Barisal City Corporation. Data have been collected through focus group discussions with the slums dwellers in the study area. Secondary data has been collected from journal articles, books, relevant databases and government and non-governmental organizations.

3. ANALYSIS AND RESULTS

3.1 Water pricing in the selected slums

The selected study slums are located near the main river of Barisal, namely, Kirtankhola. These four slums consists of total of 3151 households with 10458 residents. Table 1 presents the basic information about the study area.

Table 1: Basic information about the study area

Survey Area	Household	Population	Sources of water
Stadium colony Slum	756	1588	tube well and river water
Vatar Khal Slum	346	1206	tube well, river and BCC connection water
Palaspur G.Gram Slum	1898	7116	tube well, river and BCC connection water
Namar Char Slum	151	549	tube well and river water

(Source: BBS, 2014)

In the slums of Barisal City Corporation, the availability and affordability of legal connection is out of reach of the slum dwellers. The slum dwellers mainly rely on tube well water as well as river water for their daily drinking and domestic needs. It is observed that Barisal City Corporation (BCC) does not supply water to its resident in quantity basis. BCC charges BDT 200 (0.75 inch pipe diameter) per month for a residential connection with a onetime installation cost of BDT 6900. In this circumstance, the apartment complex residents install a single connection line for the whole building where almost 10-20 families reside. On the other hand, the slum dwellers take a connection line for 2-5 families, which generate a huge discrimination in terms of money spent for water in between the people of apartment complex and the slum dwellers

The slum dwellers of BCC are suffering a lot due to lack of water. They do not get clean and safe water in most of the cases. From the field survey, it is found that people from the apartment complex spend only 1.7 BDT for 1000 litres water and the slum dwellers of Vatarkhal and Palaspur Guchchhogram spend around 40.42 BDT and 78.6 BDT. By discussing with the slum dwellers, it is found that they are willing to take the connection from BCC but the installation cost and monthly cost is very high for them. Table 2 shows the current water pricing and residents' willing to pay for (1000 litres water) in selected slums in

Barisal City Corporation. And table 3 shows the percentage of income spent for water in selected slums in Barisal City Corporation.

Table 2: Current price and Resident's willing to pay for (1000 litres water) different slums in BCC

Name of slums	Current water price (BDT/1000 litres)	Resident's willingness to pay (BDT/1000 litres)
Stadium colony Slum	0	69.04
Vatar Khal Slum (legal)	40.42	24.73
Vatar Khal Slum (illegal)	0	50.86
Palaspur G.Gram Slum (legal)	78.6	38.22
Palaspur G.Gram Slum (illegal)	0	32.7
Namar Char Slum	0	55.3

It is quite surprising that the slum dwellers are spending high amount of their income percentage for water rather than the residents of apartment complex.

Table 3: Income percentage spent for water at different slums in BCC

Stadium colony Slum	Vatar Khal Slum		Palaspur G.Gram Slum		Namar Char Slum
	Legal	Illegal	Legal	illegal	
0%	1.64%	0%	1.24%	0%	0%

3.2 Water pricing in different cities

The cost of supplying water varies significantly between western and developing nations, but prices are rising all around the world (Rahaman and Varis, 2005). Africa and Asia have the highest rate of urbanization and the continued growth of cities has not kept up with the increase in population. This has put even more pressure on the existing water supply and it leaves many people, particularly those in the slums, without access to safe drinking water. Among 160 million people of Bangladesh, around 4 million people do not have safe water and 2.2 million of them living in slums. According to Census of Slum Areas and Floating Population 2014, 97.25% slum dwellers in BCC use tubewell water and only 2.39% people use the tap water from BCC (BCC, 2016).

In figure 1, a comparison of water tariffs in Dhaka Water Supply and Sanitation Authority (Dhaka WASA), Barisal City Corporation and the four selected slums in BCC are shown. It reveals that the slum dwellers in the study area of BCC are paying a very high amount (around 40 to 80 times) for water in comparison to the city dwellers residing in apartment complex of BCC. This is an injustice to the slums dwellers considering their economic condition. This discrimination is happening because BCC do not have quantity based water supply system. This system needs to be improved for bringing a proper balance between the slum dwellers and the residents of apartment complex.

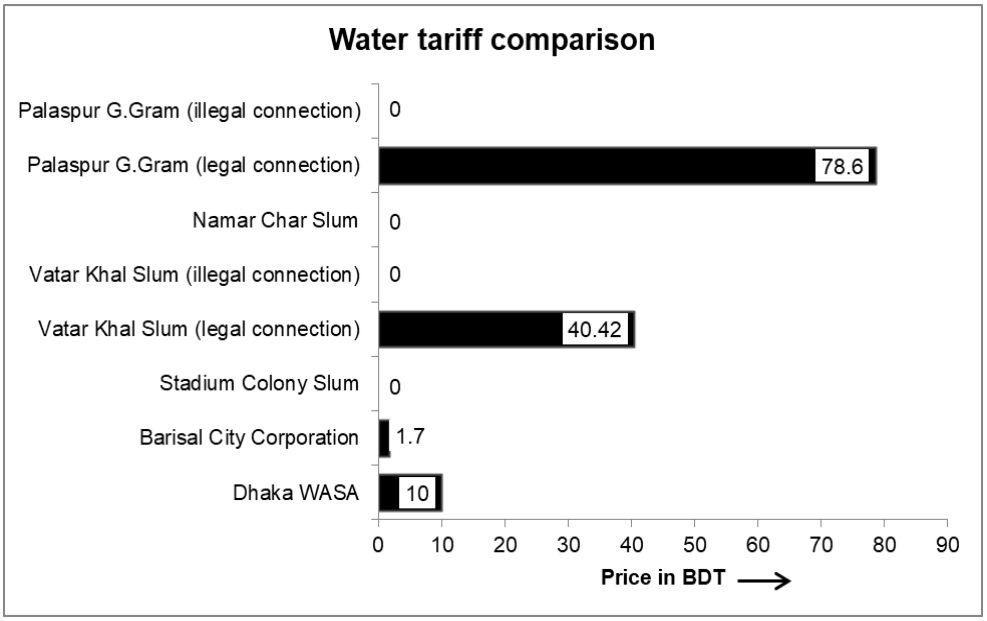

Figure 1: Water tariff per 100 litres in different slums and cities
Source: Rahman and Ahmed, 2016

Rahaman and Ahmed (2016) conducted a similar study in three slums of Dhaka City, namely, Koral slum, Godown slum and Tejgaon Slum. Figure 2 shows the water pricing n the selected slums of BCC and three slums in Dhaka. The water pricing in Palashpur Guchchhogram Slum of Barisal City Corporation is around BDT 78.6. Only slum dwellers in Korail slum of Dhaka are paying higher than that amount.

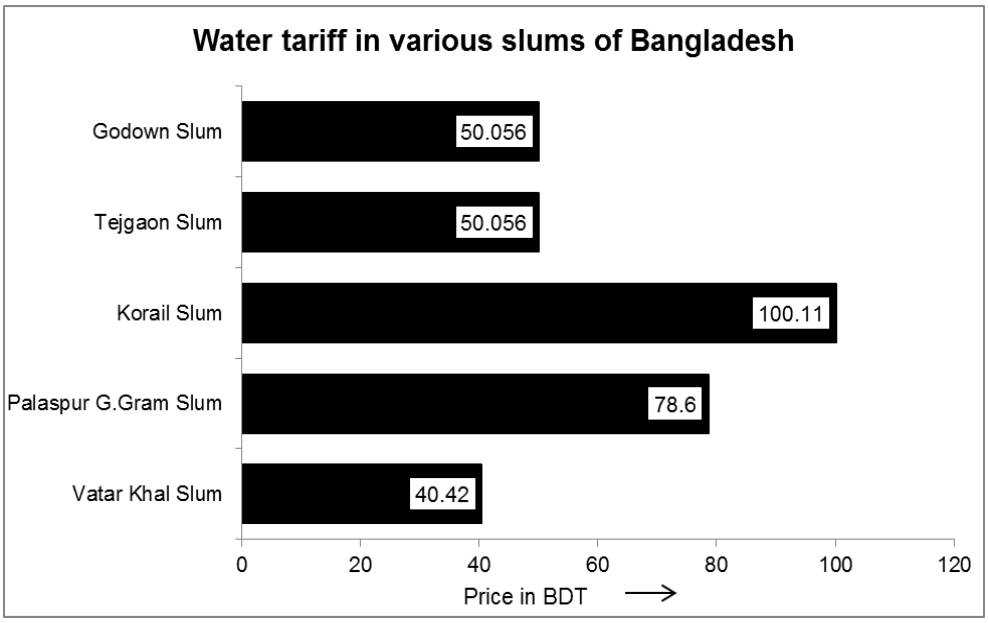

Figure 2: Water tariffs in selected slums of Dhaka City and Barishal City
Source: Rahaman and Ahmed (2016)

Figure 3 provides a graphical representation of water pricing around the world and in the selected slums of BCC. Figure 3 shows that the slum dwellers of Barisal City Corporation are paying higher amount of money for water in comparison to many developed western countries.

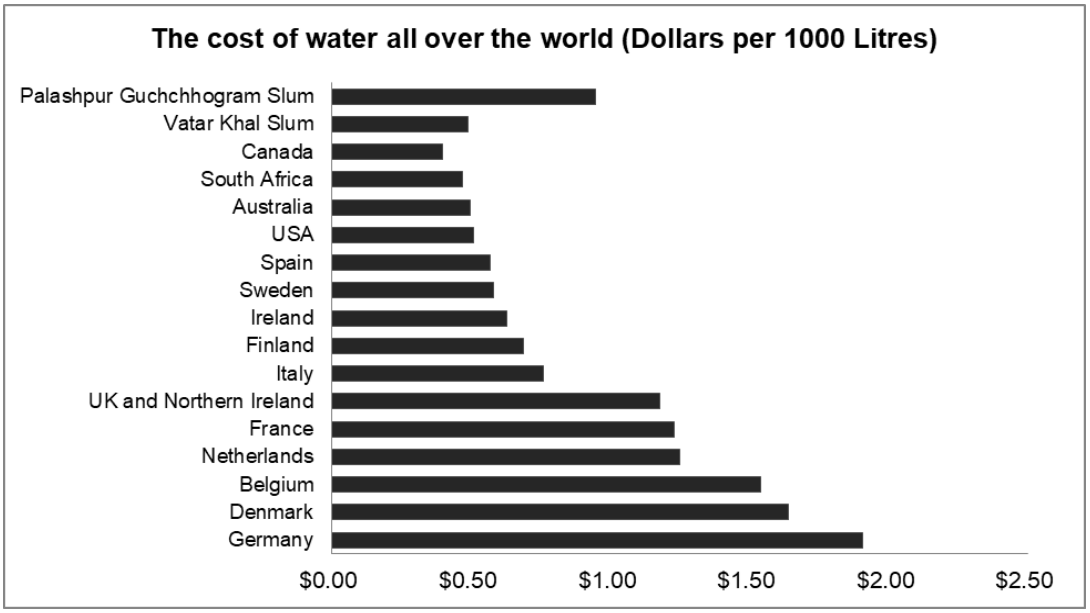

Figure 3: Water pricing per 1000 litres in selected countries
Source: Rahaman and Ahmed, 2016

In most of the developed countries, the price of 1000 litres water is below 1 USD which is maximum 0.1% of their income (Rahaman and Ahmed, 2016; Olmstead et al, 2007), but residents in the selected slums of BCC are paying almost same or higher then those countries. Table 4 shows the water pricing in different countries around the world and in the selected slums in BCC.

Table 4: Water pricing (1000 L) in selected countries

Country	Price (USD)	Price (Bdt)
Germany	$1.91	158.8165
Denmark	$1.64	136.366
Belgium	$1.54	128.051
Netherlands	$1.25	103.9375
France	$1.23	102.2745
Uk And Northern Ireland	$1.18	98.117
Italy	$0.76	63.194
Finland	$0.69	57.3735
Ireland	$0.63	52.3845
Sweden	$0.58	48.227
Spain	$0.57	47.3955
Usa	$0.51	42.4065
Australia	$0.50	41.575
South Africa	$0.47	39.0805
Canada	$0.40	33.26
Dhaka Wasa	$0.12	9.978
Barisal City Corporation	$0.02	1.663
Vatar Khal Slum	$0.49	40.7435
Palashpur Guchchhogram Slum	$0.95	78.9925

Source: Rahaman and Ahmed, 2016

4. CONCLUSIONS

This study analysed the current water pricing in four selected slums of Barishal City Corporations, i.e. Stadium Colony slum, Vatar Khal slum, Palaspur Guchchogram slum and Namar Char slum.

From this study, it is found that people residing in the apartment complex with legal connection from Barishal City Corporation spend only 1.7 BDT for 1000 litres of water and the slum dwellers of Vatarkhal and Palaspur Guchchhogram slums spend around 40.42 BDT and 78.6 BDT respectively, for the same amount of water. In addition to that, the slum dwellers are spending a higher percentage of income for water than people living in apartment complex in BCC. It is quite surprising that the slum dwellers with the legal connection of water from BCC are spending a very high amount for 1000 litres water even more than many developed countries (see Figure 3). This is a clear injustice to the slum dwellers considering their economic condition.

Still, slum dwellers in the four selected slums without having legal connections from BCC, are willing to take the legal connections of water from BCC. But they could not get the connections, as the installation cost is very high. Their willingness to be connected with BCC water supply system is due to the fact that the water quality from the illegal tube wells and river water is unsafe and unreliable. Collecting water from tube wells and river requires lots of efforts and it is not possible to have access to those sources all the time. If Barisal City Corporation provides water connections with low installation cost and price water on quantity basis; the slums dwellers in the selected slums will have access to better quality of water with an affordable price.

5. RECOMMENDATIONS

On the basis of the analysis on water pricing in four slums of Barisal City Corporation, following steps could improve the accessibility of quality water by slums dwellers in the study area:

- Since slum dwellers live in an illegal space in Barisal city, BCC can build a separate water supply system for the slum dwellers;
- Considering the poor economic condition of slum dwellers, BCC can provide connection with negligible installation cost and with a monthly rate based on water quantity;
- A treatment plant can be established to maintain the water quality, as the current quality of BCC is not good enough;
- Slum dwellers' not connected BCC water supply networks are collecting water from different unsafe water sources like tube wells and river. So BCC should ensure that the existing tube wells and surface water sources are safe.

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