

**ASSESSING WILLINGNESS TO PAY FOR SAFE DRINKING
WATER IN TALA UNION OF SATKHIRA DISTRICT,
BANGLADESH**

Nepal C. Dey

Research and Evaluation Division, BRAC, 75 Mohakhali, Dhaka 1212

email: nepal.cd@brac.net

Mahmood Parvez, Ratnajit Saha

Center for Water, Environment and Health Research & Development, Dhaka 1216

AS Moniruzzaman Khan, Md. Sajidur Rahman, Roufa Khanam, Md. Reaz Uddin
Khan

Centre for Climate Change and Environmental Research (C3ER), BRAC University

Milan K. Barua and Akramul Islam

Water, Sanitation and Hygiene Programme, BRAC

ABSTRACT

The people of the coastal region of Bangladesh are facing severe difficulties in accessing safe drinking water mainly during the dry period. Tala upazila of Satkhira district is one of the most affected areas because of widespread arsenic contamination in shallow aquifer, salinity in ground and surface water, difficulties in extracting saline free aquifer due to hard rocks/stones and excessive iron. There is an acute shortage of safe drinking water in the villages of Tala mainly due to low accessibility and inadequate quality of drinking water. This paper has been extracted from the pilot study conducted in Tala union in 2015 to identify local people's preference for drinking water sources, their preferred option for buying and willingness to pay for access to safe drinking water as well as to find out the opportunity of existing water selling business. Water pricing, as one of the most important element to develop water selling business model, requires the information regarding the willingness to pay and affordability of the users for access to safe drinking water. This paper focuses on the willingness of the households of Tala to pay for safe drinking water according to socio-economic class of the households. Data required to determine willingness of the households to pay was collected from survey, FGD and KII. All the households in Tala Union, 8613 in total was covered in the household census. The household census data revealed that the pipe water supply to households was the most preferred option by the local people for buying drinking water. However, a large percentage of households were willing to buy drinking water either from any specific place or if water is supplied to their house in gallons. On an average 60% of the households were willing to pay for access to safe drinking water. Most of the respondents were ready to spend Tk. 20 per week to buy safe drinking water. The positive response for willingness to pay for safe drinking water was found higher amongst the non-poor respondent (71%) as opposed to the poor (58%) and the ultra-poor (48%). So it is pretty obvious that socio-economic status has an effect on household's willingness to pay for safe drinking water. Households of different socio-economic class were willing to pay 3% to 6% of their respective monthly income to access safe drinking water. As most of the households are willing to pay for buying drinking water, entrepreneurship development for water selling business can be encouraged to supply safe drinking water with minimum cost; thus employment of some local people as well as ensuring access to safe drinking water can be achieved at the same time. At the same time, the water selling business, which has already started in Tala, should be given more importance and its promotion, proper management, technical support and supervision should be prioritized to ensure its sustainable growth.

Keywords: Safe drinking water, Coastal area, Willingness to pay

Introduction

Ensuring access to safe drinking water is one of the greatest challenges in attaining Sustainable Development Goals for most of the developing countries. Water is the most precious natural resource of this planet and is essential for all life forms. Ancient human civilizations evolved and flourished along major watercourses. Even now, with all the amenities of modern technology, water is an essential ingredient of household, economic and agricultural activities. However, rapid population growth and migration, together with changes in production and consumption, are placing unsustainable demands on local and global water resources. Furthermore, water quality and availability has a major impact on population density, distribution, and human health. Sustainability of water use in term of quantity and quality is becoming a big concern to meet relevant target of Sustainable Development Goals (Dey et al. 2016, 2017). The inter-relationship between water and population thus constitutes a critical arena for understanding and action. A safe, reliable, affordable, easily accessible and sustainable water supply is essential for good health and improved life. An inadequate water supply also prevents good sanitation and hygiene practices (Hunter et al. 2010). Thus, implementation of proper water safety measures can improve health status (WHO 2005). While Bangladesh has made significant progress in supplying safe water to its people, regional and socioeconomic disparity in access to quality water exists across the country. However, the discovery of the widespread arsenic contamination of groundwater has effectively lowered safe drinking water coverage from 97% to 74% in 2006 (GoB and UNDP 2009). The country has not been able to achieve 100% coverage of safe water supply till date. Different agency reports show variability in national coverage of safe water supply, i.e. GoB (2009) shows 97% whereas WHO and UNICEF (2010) show 80%. The progress in increasing the access to safe water is hindered by a number of factors such as arsenic contamination, increased salinity in groundwater in the coastal belt, declining groundwater levels, urban and industrial pollution, anticipated increase of human excreta load, natural disasters, etc. (UNICEF 2010; Dey et al. 2017).

In Bangladesh, the coastal areas are facing challenges in increasing access to safe drinking water. Due to sea level rise, frequent natural

disasters, changes of climate patterns and man-made alteration of natural setting, the situation is becoming more vulnerable day by day. According to the Bangladesh Poverty Maps 2010, about 35% of south-western coastal population is poor which is higher than national-rural average (Ahmed et al. 2010). These problems are threatening the poor communities living in the coastal areas and making them more vulnerable. The discovery of widespread arsenic contamination in groundwater has effectively lowered access of tube well water in rural settings of Bangladesh since 1990s. Moreover, there is a socio-economic disparity in access of arsenic safe tubewell water in rural areas of Bangladesh, particularly in Southern Bangladesh.

There is an acute shortage of safe drinking water in villages of Tala Upazila of Satkhira district. Due to siltation of Kobadak river, which flows through Tala; flood and waterlogging in rainy season is one of the major problems in many areas. Salinity in surface water sources Viz. rivers, ponds is also very high. Hence, surface water sources can be barely used as drinking water source. On the other hand, some areas have very deep lying aquifer, making it very difficult to install a functional deep tubewell. Additionally, tubewells in some areas of Tala are severely affected by Arsenics and excessive iron. Therefore groundwater sources are not wholly safe either. A joint team from RED and the Centre for Climate Change and Environmental Research (C3ER), BRAC University recently conducted a study in Tala Union to understand more about the present situation and to come up with effective and sustainable solutions to the existing drinking water related problems. Our goal was to understand the local peoples' problems and preference of safe drinking water sources and the amount of money they are ready to offer to get access to safe drinking water. The specific objectives of the study were to: (i) identify the water options most used by the local households for drinking purpose; (ii) identify the local peoples' preferred drinking water option; and (iii) determine the willingness of the households to pay and the amount of money they can afford to buy/access safe drinking water

Methodology

The research methodology of this project is based on the analysis from three sources of data. Triangulation of household census, focus group

discussion (FGD) and key informant interview (KII) have been adapted in this study to ensure the quality of data.

Study area

The study was conducted in Tala Union of Satkhira district of Bangladesh (Fig.1). Geographically, the study area extends from 22°44'37.5"N to 22°45'30.8"N latitudes and 89°14'58.6"E to 89°15'47.4"E longitudes.



Figure 1: Study area: Tala Union

Data Collection

First qualitative data has been collected through FGD and KII in the community level to get insights for a better understanding and contextualizing of the situation of safe drinking water availability and challenges in the study area. The qualitative data has therefore been used to design the quantitative data collection.

FGDs: Two FGDs were conducted in Baruhati village. Three other FGDs were conducted in Shahpur, Mohollapara and Bhaira village. Age of participants in FGDs ranged from 14 to 70 years. Participants came from various walks of life such as teaching, business, farming, student, service, journalism, housewife, doctor etc. Total household monthly income of the participants was between Tk. 2000 and Tk. 30000.

KIIs: KIIs were conducted over the phone. Respondents were key personnel from various fields who have insights on drinking water related problems in Tala. We have consulted with responsible persons from various governmental organizations like local government, DPHE, DGHS and NGOs such as Uttaran, Mukti Foundation, Nobolok etc.

Census: A detailed census of all the households of Tala Union were conducted to identify peoples preferences of safe water options, willingness to pay to get access to safe drinking water, drinking water based entrepreneurship, investment and so on. All the households of Tala Union, 8,613 in total, were covered in the census. A total of 38 enumerators were selected through interviews to conduct the census. The enumerators/POs were trained on the questionnaires and piloted the questionnaires on the field.

Data management and analysis

Filled-in questionnaires were edited and coded for computer entry. 20% of questionnaires were rechecked for consistencies. After rechecking of data, analysis was performed using STATA 11.0 for Windows.

Results

There are 16 mouzas¹ in Tala Union in total. As mouzas are the lowest administrative boundary, we have presented the mouza-wise result here. We believe mouza-wise representation of results will focus on the variation in local peoples' perception, preferences and their willingness to pay for safe drinking water more precisely and therefore will make tasks relatively easier during interventions. Households' willingness to pay for safe drinking water is presented according to various economic class: ultra-poor, poor and non-poor. Households with monthly income less than 3000 Taka has been assumed as poor, whereas households having monthly income in range of Tk. 3001 to Tk. 6000 and Tk. 6001 to above has been regarded as poor and non-poor respectively.

Socioeconomic and demographic profile of study samples

Socioeconomic and demographic profiles of the study area are presented in Table 1. About 38% of respondents never went to school, 21% attended up to primary level followed by 33% up to secondary level. Most households were poor (38%), whereas ultra-poor and non-poor households were 32% and 30% respectively. The main occupation of the principle earner of each household was non-

¹ Mouza is lowest revenue collection and administrative unit corresponding to a specific land area covering one or more villages.

agricultural labor (26%). Agricultural labor (21%), small business (18%) and farming (12%) were among other notable occupations of the respondents. Notably, most of the respondents (72%) aged between 11-40 years.

Table 1: Demographic characteristics of the study population

Indicators	Percentage (%)
Education	
Never schooling	37.8
Primary level	21.3
Secondary level	32.7
Higher secondary and above	7.2
Economic status	
Ultra poor	32.3
Poor	38.1
Non poor	29.6
Occupation of main earner	
Farming	12.4
Agricultural Labor	21.0
Non-Agricultural Labor	26.4
Small Business	18.5
Medium/Large scale business	6.4
Age of Respondent	
11-30	42.2
31-40	29.7
41-50	17.2
51-above	10.9
N	8406

Households' preferred drinking water source and option for buying safe drinking water

Household census in Tala Union has revealed that most of the households, both in the rainy and dry seasons use tubewell water for drinking (over 97%). About 65% households use shallow tubewell, while about 28 % households rely on deep tubewell for drinking water. Very few households (1.38%) use surface water for drinking purposes. Drinking water source use status in Tala Union is shown in Figure 2. In most of the mouzas, owned and shared shallow tubewells were the most used drinking water source. However, in Khanpur, Shapur and Tala mouza public/government deep tubewell were the predominant source of drinking water.

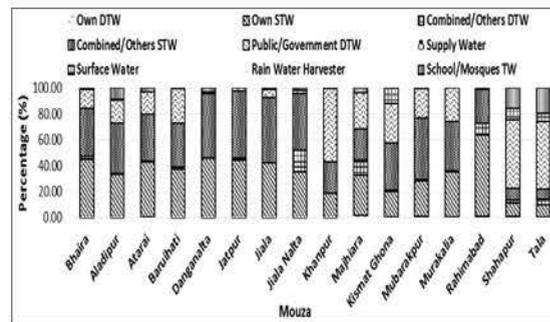


Figure 2: Mouza-wise main source of drinking water in Tala Union

In general, deep tubewell water was preferred by most of the households (89%) in all the mouzas. A significant finding was that in Shahpur mouza about 25% households said they prefer rain water for drinking purpose. However, when respondents were asked about their preferred option for buying safe drinking water, most of the households demanded pipe water supply system (35%). Buying Water from a specific place (29%) and conveying water to home by gallons (27%) were two other favorite options. Figure 3 shows the preferred option for buying drinking water in different mouzas of Tala Union. Pipe water supply system was most favored in Baruhati, Jatpur, Khanpur, Majhiara and Tala mouza. On the other hand maximum households in Bhaira, Danganalta, Rahimabad and Shahpur preferred carrying water to home in gallons as the best option for buying water. Buying water from any specific place was the most demanded option for buying drinking water in Aladipur, Atarai, Jiala, Jiala Nalta and Murakalia mouza. This shows that there is a big difference in local peoples' preference on option for buying water. As our main objective was to determine the amount of weekly money each household are willing to pay, their preference was vital. Most of the people would only pay money if their preferred option is installed.

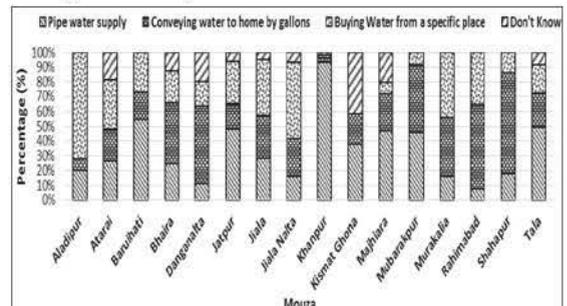


Figure 3: Mouza-wise preferred option for buying drinking water

Willingness to pay for safe drinking water

To understand peoples' perception about WTP for access to safe drinking water, the question was split into six categories: willing to pay Tk. 20; willing to pay Tk. 50; willing to pay Tk. 100; willing to pay Tk. 200; willing to pay Tk. 300; and willing to pay Tk. 500 per week. The overall survey results revealed that about 60% of the households in Tala Union were willing to pay for safe drinking water supply. The response (Figure 4 a) was found higher amongst the non-poor respondent (68%) than among the poor (60%) and the ultra-poor (48%). So it is pretty obvious that socio-economic status has an effect on the households' willingness to pay for safe water. The more the households earn, more they can spend for safe water. Most of the ultra-poor, poor and non-poor households were willing to pay Tk 20 per week (Figure 4 b). Regardless of their socio-economic class, only few households were willing to spend Tk. 200 or more per week to buy safe drinking water.

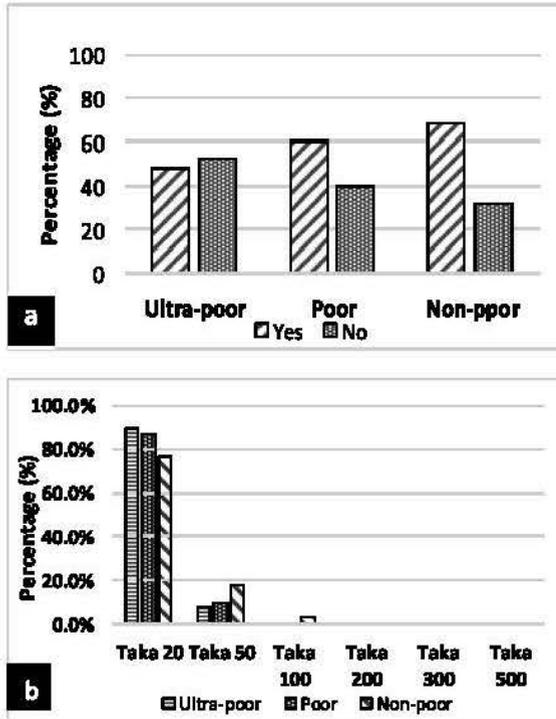


Figure 4: (a) Households willingness to pay status according to different socio-economic classes (b) Percentage of each socio-economic class willing to pay different amount of money for safe water

The highest percentage of households willing to pay money for buying drinking water was found in Danganalta; where about 91% households were

willing to pay money to buy water. On the other hand, willingness to pay for drinking water was found lowest in Shahpur (43%). Figure 5 shows the overall willingness status of households in Tala Union. On an average, irrespective of socio-economic classes, most of the households (84%) were willing to pay Tk. 20 per week for buying drinking water.

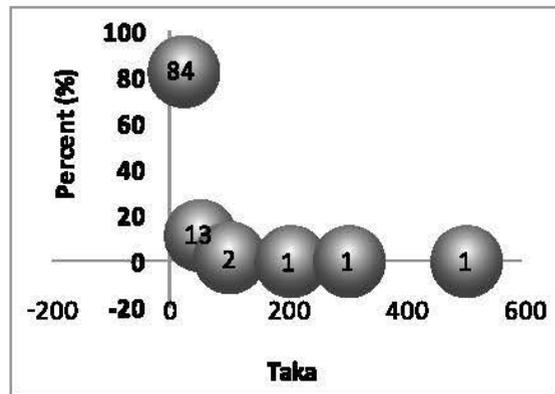


Figure 5: Overall willingness to pay status in Tala Union

Conclusion and recommendation

Most of the people of Tala feels that the available drinking water sources are neither adequate to fulfill their demand nor water quality is good enough for drinking purpose. Arsenic contamination in several area, salinity problem and excessive iron in some tubewells have made it really difficult for the local people to collect potable drinking water. Census data has revealed that people are aware of the problems and are willing to contribute money to improve this situation. Most of the people were interested to pay some weekly amount of money to get safe drinking water. So, if any well studied and structured business model can be developed for selling drinking water, it may be an instant success. Local peoples' preference for buying drinking water and willingness to pay varies from mouza to mouza. So, emphasis should be given on mouzawise solution of the existing problems. Entrepreneurship development for water selling business can be encouraged to supply safe drinking water with minimum cost; thus employment of some local people as well as ensuring access to safe drinking water can be achieved. As water selling business has already started in Tala, emphasis should be given on its promotion, proper management, technical support and supervision to ensure sustainable growth.

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