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A CONTINGENT VALUATION STUDY

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ABSTRACT

Safe drinking water is a basic need for the urban poor. However, in Dhaka's slums, as in many developing country cities, the public sector is unable to finance the provision of drinking water, because the prices charged are not sufficient to cover the costs. This study uses the contingent valuation method to estimate Dhaka slum-dwellers' willingness to pay for safe drinking water. The study serves two purposes. First, the results obtained show that slum dwellers are willing to pay enough for water to cover the costs of providing it, suggesting that higher water charges would be a financially viable way to generate funds for water system investments. Second, the study shows that contingent valuation is an effective tool for estimating willingness to pay for a variety of public services, which should be used to inform public decisions about a range of urban infrastructure in addition to water supply systems.

BACKGROUND

Water Supply in Dhaka Slums

Dhaka is one of the world's fastest growing cities. It is also one of the poorest. In 1981 the population of Dhaka was about 3.5 million; by 1991 it had increased to about 6.95 million. In 1989 0.34 million people, 7% of the city's population, were thought to live in Dhaka's slums. In terms of basic amenities, these slums are among the worst in the world.

Safe water is a basic need, yet millions of urban poor do not have legal access to it. In Dhaka alone, 70% of the estimated 2 million squatter dwellers are deprived of it. Consequently, they spend much of their time and resources buying water from local water lords, offices, factories, and other sources. Legal, financial and institutional obligations do not allow formal agencies such as Dhaka Water Supply and Sewerage Authority and Dhaka City Corporation to consider squatter settlements as legal entities eligible for basic urban services.

Objective

This study estimates Dhaka slum-dwellers' willingness to pay for safe water. It tests whether contingent valuation surveys can be used to estimate the water demand relationships which are suggested by consumer demand theory. Demand for a good is a function of the price of that good, the prices of substitute and complementary goods, income, and preferences. Whether or not households choose to purchase water from the public water system depends on its price. If the charge is higher than a given household's maximum willingness to pay (WTP), the household chooses not to use the new water system. Maximum willingness to pay varies from household to household and should be a function of all of the variables which determine demand except the price of the good itself. The households' WTP bids are thus expected to be positively

related to income and the cost of obtaining water from other sources, and negatively related to perceptions of the quality of water available from other sources.

METHODOLOGY

If water projects are to be made both sustainable and replicable, an improved planning methodology is required which includes a procedure for eliciting information on the value placed on different levels of service. Water prices must be set so that at least operating and maintenance costs, and preferably capital cost as well, can be recovered. If people are willing to pay the full costs of a particular service then it is clear that the service is valued and will probably be used and maintained. In such a case, it should be possible to generate the funds required to sustain and even replicate the project. It is therefore essential to estimate willingness to pay for water, so that water projects can be designed in a way which is likely to permit cost recovery and project replication.

Often it is not possible to estimate consumers' WTP by inference from actual behaviour. Rather, one may have to measure preferences in hypothetical situations or in artificially created markets. Two basic theoretical approaches are used for making reliable estimates of willingness to pay. The indirect approach uses data on observed water use behaviour (such as quantities used, travel time to collection points, and perceptions of water quality) to assess the response of consumers to different characteristics of an improved water system. The techniques used to do this include varying parameter demand, hedonic price analysis and the travel cost method. The direct approach is simply to ask an individual how much he or she would be willing to pay for the improved water service, for example a public water standpoint. This is called the contingent valuation method (CVM).

CVM uses surveys to elicit information about individuals' (or households') preferences for a good or service. Respondents to the survey are asked how much they value a good or service. The technique is termed "contingent" because the situation in which the respondent is asked to state his or her willingness to pay is hypothetical. This measure seeks to obtain a monetary measure of the change in well being that an individual would obtain from the provision of a particular good or service. Contingent valuation research typically focuses on preferences for public or mixed private-public goods.

Interview Techniques in Contingent Valuation (CV) Surveys

The interviews for a CV study can be conducted by mail, telephone, in person, or in some combination of these. Each type of interview is appropriate under certain conditions. In developing countries, in-person interviews are typically the only option because a substantial portion of the population does not have a telephone and is not able to read (or return) a mail questionnaire. For this reason, in-person interviews were used in this study to assess slum dwellers' WTP for water.

Contingent Valuation Bidding Games

One of the most common CV survey methods is the bidding game. In a bidding game, each individual is asked to evaluate a hypothetical situation and to express his or her willingness to pay for certain changes in the level of provision of a good. There are two major types of bidding games: single bid games and iterative (or converging) bid games. In iterative bidding games the respondent, rather than being asked to name a sum,

is asked whether he would pay a given amount for the situation or good described. This amount is then varied iteratively until a maximum willingness to pay (or a minimum willingness to accept compensation) is reached. One objection to the iterative technique is the potential existence of "starting point bias". This is the idea that the interviewer may bias the respondent's answer by establishing a reference point for an acceptable range of bids. Another disadvantage is that although single bid games can be conducted either in person or through a mail survey, iterative bidding games can take place only in face-to-face interviews. An advantage of iterative bidding games, however, is that answers often have a lower standard deviation around the mean as compared with single bid games.

Hypothetical bias is another problem inherent in bidding games and in survey techniques in general. People may not give answers which reflect their true values, particularly if they have no incentive correctly to answer questions which take time and thought. Another kind of bias may arise if people try to act strategically, based on what they feel will be done with their answers. If they actually expect to pay the amount they answer, they may undervalue their true response. If they expect high responses to bring about changes that they would like to see, but know they will not actually have to pay for, they may overstate their willingness to pay.

It is commonly thought that problems due to the hypothetical nature of CVM questions arise more frequently and are more serious when the choices are between goods with which people are not familiar. As a result, contingent values elicited for private goods such as improved water supply are expected to exhibit greater reliability and predictive validity than those elicited for public goods such as biodiversity conservation.

Testing for Biases and Errors in Contingent Valuation Studies

CV researchers respond to the risk of error or bias in two ways. First, they have devised ways of minimising the occurrence of some type of errors and biases. This can be done by constructing a hypothetical market scenario that would make it difficult for a respondent to determine how to behave strategically. One of the principal criteria for choosing among survey instruments is, in fact, how well they address the opportunity or incentive for respondents to act strategically.

Second, even if the probability of error or bias cannot be reduced, finding out whether it is present can reduce the cost of being misled by poor quality estimates. It may also be possible to estimate the magnitude of the bias and adjust WTP accordingly. This could be done by dividing the sample of respondents into two groups. The analyst could present one group with a statement that encourages strategic behaviour and the other with a statement designed to minimise it. If the results differ, they allow the researcher to estimate the magnitude of the bias and adjust the estimates of WTP to correct for it.

Many kinds of experiments can be designed for CV surveys in which split samples of respondents are given different questionnaires so that analysts can check to see whether variations in the questionnaire result in different willingness to pay responses. The results are then input into multivariate analyses of the determinants of the valuation responses. In other words, the analyst examines how respondent's willingness to pay varies with changes in the socioeconomic variables suggested by demand theory, such as income, education, family composition, housing conditions, etc.

Analysis of Willingness to Pay Responses

The information obtained from contingent valuation surveys is typically analysed in three increasingly

sophisticated ways. First, one can examine the frequency distribution of the responses to the valuation questions. Second, analysts can look at cross-tabulations between WTP responses and such variables as socioeconomic characteristics of the respondent and attitudes toward the environment. Third, one can use multivariate statistical techniques to estimate a valuation function that relates the respondent's answer to the socioeconomic characteristics of the respondent and attitudes toward the environment. These analyses serve two broader purposes. First, they allow the researcher to assess whether respondents' answers are consistent with both economic theory and common sense, in order to increase confidence in the results. Second, they establish statistical relationships or models used to aggregate sample responses to the overall population or to develop forecasts of benefits under alternate scenarios.

Multivariate Analysis of the Determinants of WTP Responses

Multivariate analysis can provide more insight into the determinants of WTP than simple cross-tabulations. The general approach is to estimate a valuation function that relates the hypothesized determinants to the WTP responses. The decision on what determinants of WTP should be included in the valuation function is typically based on consumer demand theory. Socio economic and demographic characteristics of the household (SE) and prices and availability of substitute goods and services (PS) are commonly used. The valuation function thus takes the form:

$WTP_I = (SE_i , PS_I)$

where I is an index of households in the sample.

Since the answers to open ended questions provide a continuous measure of willingness to pay for the good or service, ordinary least-squares regression models (OLS) can generally be used to explain the variations in the dependent variable WTP. OLS techniques have the advantage of being widely used, and the parameter estimates are easy to interpret. OLS requires that the determinants of the WTP responses be exogenous in order for the parameter estimates to be unbiased and consistent.

DESIGN OF THE DHAKA STUDY

This study involved a CVM survey in two slums located in the southeastern part of Dhaka City. TT Para slum is adjacent to the container yard of Bangladesh Railway at Kamlapur. It is under ward 31 of the Dhaka City Corporation, and the Sabujbag Police Station. The number of households in the slum ranges from 1200 to 1500. There is no electricity, and the few sanitary latrines installed by an NGO some years back are inadequate for the current population. There are only two tubewells, so most residents fetch water from adjacent areas --- mathorpotti, bazaar, mosque and other slums. Just before this survey an illegal connection was set up to the tap water supply, which has relieved the water crisis to some extent for those who can access it.

Sonar Bangla is another typical slum, with about 304 households. The residents are mainly riverbank erosion victims who have migrated from the southern part of the country. The water supply situation is even worse here, as there are no water points at all in this slum. Residents therefore rely on outside sources.

Research Design

This study tests whether WTP for water is systematically related to the variables suggested by economic theory. We chose a bidding game format because it works better than direct, open-ended questions. Moreover, it is familiar and easily understood because it is similar to ordinary bargaining in local markets. The survey design includes tests for the existence and magnitude of strategic bias, starting point bias, and hypothetical bias.

Strategic bias could influence answers in either of two ways. Suppose an individual is asked how much he would be willing to pay for a water point in his slum. If he/she thinks the water agency will provide the service if the responses are positive, but that someone else will ultimately pay for it, there will be an incentive to overstate his/her WTP. On the other hand, if the individual believes the decision has already been made to install waterpoints and the survey serves to set the charges, he/she will have an incentive to understate true WTP.

We estimate the magnitude of this kind of bias by dividing the sample into two groups of 116 households. One group was told that an NGO had already decided to build the new water point and the people would get water free of charge. The other was told that a community water committee would be set up for monitoring and collecting fees based on water use. The hypothesis is that if individuals act strategically, then bids from those who receive the second statement would be lower than bids from the first, because they would fear that a high bid would result in a higher charge by the community water committee.1

Starting point bias occurs when the respondent interprets the initial price suggested by the interviewer as a clue to the correct bid. To test for starting-point bias, two different versions of the questionnaire were randomly distributed, each with different initial prices (Tk 0.50 and Tk 1.50) in the bidding game.

Hypothetical bias may arise for two reasons. First, the respondents may not understand or correctly perceive the characteristics of the good being described by the interviewer. This is a particular problem when the contingent valuation method is used to measure individuals' WTP for changes in environmental quality. Such bias is not likely in this case, since respondents are familiar with public water points or private water connections. The second source of hypothetical bias is the possibility that the respondents do not take the questions seriously and will respond by giving whatever answer first comes to mind. The test for this is the same as for the applicability of consumer demand theory: are bids systematically related to the variables suggested by economic theory?

Field Procedure

Following interviews with the key informants, the enumerators completed 232 in-depth household interviews throughout the two slums described above. Among the key informants were local shopkeepers and teachers of a school in the slum. The household interview consisted of two sections. The first part included questions about socioeconomic characteristics such as occupation and monthly income and water-related questions such as the location of each water source, the time spent fetching water, and daily water use. In the second part the enumerator read one of the statements used to test for strategic bias and then asked about willingness to pay for water.

1 Copies of all of the statements and relevant survey questions are included in the appendix.

Sample Design

To select the survey sample, the 1800 households in the two slums were stratified first by location and then according to occupation. This led to the selection of 184 respondents in TT Para and 48 in Sonar Bangla. The 232 respondents were divided by occupation as shown in the table below, reflecting the distribution of occupations in the slum populations as a whole. The four questionnaires were then distributed randomly among the interviewees.

Table 1. Breakdown of respondents by occupation	
Rickshaw Pullers	96
Day Labourers	76
Housemaids	20
Garment Workers	14
Vendors and Shopkeepers	14
Others (beggars, etc.)	12
TOTAL	232

RESULTS

The monthly average WTP for water was found to be Tk 82.62 per household. Five percent of the respondents said, "I don't know" in response to the willingness to pay questions. The average travel time spent fetching water was just under 3 hours, and the average daily water use per household is at least 6.6 buckets (one bucket = 5 litres approximately). The average household size was found to be 5.14.

The first model used to analyse determinants of WTP (called Model A) used ordinary least-squares regression to estimate WTP as a function of household size, income, occupation, availability of other water sources, daily water use, time spent fetching water, and whether the respondent expected to pay for water. The OLS estimates of the coefficients, standard errors, and t-ratios for each variable are reported in the table below.

Table 2. Willingness to Pay for Water in Dhaka Slums, Model A					
Variable Name	Variable Description	Coefficient (B)	Standard Error	t-ratio	Sig. T
Constant		953.291	129.99	7.566	0
Free	1=if water is free 0= if water is not free	-31.06	28.02	-1.109	.269
Low	1=if bidding game uses low starting point 0=if bidding game uses high starting point	-2.33	17.72	-/132	/895
H	Household size	-7.6	5.59	-1.36	.175
I_1	1=if household income is Tk.1500 and below per month 0=otherwise	-913.83	110.29	-8.28	.000
I_2	1=if household income is between Tk.1501 and Tk.3000 per month 0=otherwise	-920.13	108.6	-8.47	.000
I_3	1=if income is between Tk.3001 and 5000 per month 0=otherwise	-981.49	111.69	-8.78	.000
I_4	1=if income is between Tk.5001 and 7000 0=otherwise	-995.36	138.63	-7.18	.000
O_1	1=if the respondent is a rickshawpuller 0=otherwise	30.359	29.528	1.028	.305
O_2	1=if the respondent is a day labourer 0=otherwise	-42.988	24.02	-1.79	.075
S	1=if TT para slum 0=otherwise (sonar bangla)	33.02	33.49	.986	.325
T_1	1=tapwater 0=otherwise	-69.33	35.19	-1.97	.05
T_2	1=tubewell 0=otherwise	-52.72	36.71	-1.44	.152
T_3	1=other nearby source 0=otherwise	-53.32	37.63	-1.42	.158
W	Daily water use (no. of buckets)	23.18	3.8	6.09	.000
X	Hours spent fetching water	-4.22	5.36	-.78	.432
r^2= .57					
adjusted r^2 = .54					
F=18.30 (significance F = .000)					
df = (15, 204)					

The dependent variable WTP is willingness to pay in Tk per month calculated from WTP per bucket multiplied by each household's monthly water requirement. In this model all independent variables are binary

except for household size (H), daily water use (W) and hours spent fetching water (X). Daily water use has a positive impact on WTP, as expected. Household size and time spent fetching water were also expected to have a positive impact on WTP, but they are both negative and insignificant. One explanation is that water use is positively related to household size, while time spent fetching water depends on both of the two variables. So there is a possible collinearity among these variables. Also, respondents may overestimate actual time spent fetching water. The negative sign of household size may be due to the fact that households in the high income groups with large family size tend to be willing to pay less than other households.

The variable "free" is introduced to determine whether strategic bias affects WTP. The value of the variable is 1 if households surveyed are promised free water and 0 if they are told they will pay for it. The bias would exist if the regression coefficient turns out to be significant. The t-statistic is insignificant, from which we may conclude that there is no strategic bias. Similarly, the variable "low" is designed to identify starting point bias. The survey used two starting points, Tk .50 and Tk 1.50 per bucket, in asking willingness to pay for water. As the t-statistic for this variable is also insignificant, there is no starting point bias in the survey either.

Income is a key independent variable in determining WTP. As it is difficult to elicit exact information on household income, five ranges of monthly income were set, identified by four dummy variables and a control group:

Table 3. Income Ranges	
I_1	< Tk 1500
I_2	Tk 1501-3000
I_3	Tk 3001-5000
I_4	Tk 5001-7000
Control group (all dummies = 0)	> Tk 7000

We would expect, *a priori*, that the higher the income, the higher would be WTP for water. However, we find that higher income households are willing to pay less than lower income households, although all four regression coefficients are highly significant.

Income and occupation are assumed to be independent. Two major occupation groups O_1 (rickshaw pullers) and O_2 (day labourers) were assessed to see if there is any variation in their WTP. Rickshaw pullers are willing to pay more than day labourers, but the coefficients are not significant. There is no difference in WTP as far as the two different slums are concerned. The availability of other sources of water also makes little difference. Those who do not have access to tapwater or a tubewell and rely on sources outside the slum (T_3) are willing to pay more than the tapwater users (T_1), whose willingness to pay is the lowest. Tubewell users (T_2) are willing to pay the most. However, all of these variables are found to be insignificant.

From the ANOVA table we see that R^2 is 0.54, which is a reasonably good fit with respect to cross section data. The F statistic is also very significant, indicating the overall significance of the multiple regression model.

In the next formulation (model B) household size and time spent fetching water were excluded, and only household size was retained. The occupational and water source variables were also omitted. A good reason to exclude them is to reduce any multicollinearity introduced by their inclusion. Estimates are less precise if

the redundant variables are retained in the model. In this analysis the variables "free" and "low" were again insignificant. The t-statistic for the income variables and water use has improved. We then obtain model C by dropping "low" and "free." In this formulation all the remaining variables have extremely significant coefficients, so model C was used for final interpretation.

Table 4. Willingness to Pay for Water in Dhaka Slums, Model C			
	Coefficients	T - Ratio	Sig. T
Constant	923.937	8.093	.000
I_1	-964.993	-9.141	.000
I_2	-957.763	-9.187	.000
I_3	-1015.23	-9.571	.000
I_4	-1025.49	-7.576	.000
W	17.54	6.334	.000
Adjusted R^2 = 0.523			
F = 51.724 (signi F = .000)			
DF = (5, 226)			

The variables included in the final model explain 52.3% of the variation in WTP, which is quite reasonable for a cross-sectional study. The value of the F-statistic, a formal test for the goodness of fit, is extremely good. All the income group coefficients are still highly significant but have negative signs. This is not surprising because the control group contains income earners who earn more than I_1, I_2, I_3 and I_4. Income and daily water requirement prove to be crucial determinants of household WTP for water in this study. Within each income group, WTP will vary according to daily water needs. The following table presents the major findings of this study in the two slums of Dhaka.

Table 5. Major Study Findings				
Income Group	**Monthly Income, TK.**	**Share of Population (%)**	**Daily Water Use in buckets**	**Monthly WTP in Tk.**
I_1	1500 and below	34.91	5.88	62.08
I_2	1501 to 3000	55.6	6.55	81.06
I_3	3001 to 5000	7.76	7.8	45.52
I_4	5001 to 7000	.86	7.5	30.00

From this table we see that households earning between Tk 1501 and Tk 3000 per month, which constitute more than half of the slum population, are willing to pay the most on average for water.

POLICY IMPLICATIONS

Surveys of willingness to pay for water supply can let us assess the financial viability of investments in public utilities. It is often argued that governments and utilities are reluctant to connect new customers because water prices are too low to allow them to recover their investment. Indeed, a survey of water projects financed

by the World Bank showed that the average price charged for water covered only a third of the cost of supplying it, with the gap filled by government subsidies. Since resources are insufficient for such subsidies, many people remain unserved even if they are willing to pay.

Since the government is unable to meet the water needs of the slum people, one alternative that has emerged in recent years is the intermediation of NGOs. They work with communities to form user groups, design water points, and formulate rules on water access and cost sharing. They provide technical inputs and initial construction funds, and they mediate with the public sector utilities. The key principle of their projects is to respond to demand for water indicated by a willingness to pay for it.

With this in mind, consider a slum in Dhaka city with 500 households where income distribution is such that 35% of them are in income group I_1, 56% are in I_2 and the rest is in I_3. If the daily water requirement is 5 buckets per household for all income groups, monthly WTP per household would be Tk 53, 62, and 29, respectively, for I_1, I_2 and I_3, based on the monthly WTP figures shown in the table above. The total monthly willingness to pay for 500 households, calculated on the basis of the income distribution and water use data in our survey, would be about 35,000 Tk per month. This compares with an average cost incurred by NGOs for water supply to slum area from Tk 30 thousand to Tk 40 thousand (personal communication). These figures suggest that such investments may often be financially viable, and may justify either public or private sector construction of new water projects.

The results of this study show that contingent valuation surveys are a feasible method for estimating willingness to pay for water in Dhaka slums. A more comprehensive study along this line would provide useful guidelines to the government and NGOs about the cost effectiveness and profitability of such projects. It would also prove to be a viable method for collecting information on individuals' willingness to pay for a wide range of other public infrastructure projects and services in Bangladesh and elsewhere.

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APPENDIX - FOUR BIDDING GAME VARIANTS

1. Free Water: High Starting Price

An NGO will be working with the people of this area to install water points for safe water. I am going to ask you some questions in order to know how much your household would be willing to pay each month to ensure the success of setting the project in your neighbourhood. We would appreciate if you give your answer after a careful thought on it. This NGO has decided to help the people of this village by installing water point. Ultimately they will not demand any money from you but we are asking you to know your willingness to pay for safe water. We would appreciate if you facilitate the success of the project by telling the truth about your willingness to pay.

a) If one bucket costs Tk.1.50, then how many buckets do you need on a daily basis? Would your household be willing to Tk.1.50 per bucket to have access to water from new source in your neighbourhood?

Yes ---- go to (b)
No ----- go to (c)
I don't know ----- go to (f)

b) If the committee decides for each household to pay Tk.3.00 per bucket, would your household be willing to pay this?

Yes ----- go to (f)
No ------ go to (d)
I don't know -----go to (f)

c) If the organizing committee decides for each household to pay Tk.0.75 per bucket, would your household be willing to pay this?

Yes----- go to (e)
No-------go to (f)
I don't know----- go to (f)

d) Would your household be willing to pay Tk.2.25 per bucket?

Yes----- go to (f)
No------ go to (f)
I don't know ---- go to (f)

e) Would your household be willing to pay Tk.1.10 per bucket?

Yes-----go to (f)
No------go to (f)
I don't know ------ go to (f)

f) Think for a while, what is the maximum amount would your household be willing to pay per bucket to use new source of water?

Amount of money:
I don't know.

2. Pay for Water: High Starting Price

An NGO will be working with the people of this area to install water points for safe water. I am going to ask you some questions in order to know how much your household would be willing to pay each month to ensure the success of setting the project in your neighbourhood. A community water committee will manage the project with the NGO's help and it will decide the amount each household will have to pay for each bucket of water.

a) If one bucket costs Tk.1.50, then how many buckets do you need on a daily basis? Would your household be willing

to Tk.1.50 per bucket to have access to water from new source in your neighbourhood?
Yes ---- go to (b)
No ----- go to (c)
I don't know ----- go to (f)

b) If the committee decides for each household to pay Tk.3.00 per bucket, would your household be willing to pay this?
Yes ----- go to (f)
No ------ go to (d)
I don't know -----go to (f)

c) If the organizing committee decides for each household to pay Tk.0.75 per bucket, would your household be willing to pay this?
Yes----- go to (e)
No-------go to (f)
I don't know----- go to (f)

b) Would your household be willing to pay Tk.2.25 per bucket?
Yes----- go to (f)
No------ go to (f)
I don't know ---- go to (f)

c) Would your household be willing to pay Tk.1.10 per bucket?
Yes-----go to (f)
No------go to (f)
I don't know ------ go to (f)

d) Think for a while, what is the maximum amount would your household be willing to pay per bucket to use new source of water?
Amount of money:
I don't know.

3. Pay for Water: Low Starting Price

An NGO will be working with the people of this area to install water points for safe water. I am going to ask you some questions in order to know how much your household would be willing to pay each month to ensure the success of setting the project in your neighbourhood. A community water committee will manage the project with the NGO's help and it will decide the amount each household will have to pay for each bucket of water.

a) If one bucket costs Tk.0.50, then how many buckets do you need on a daily basis? Would your household be willing to pay Tk.0.50 per bucket to have access to water from new source in your neighbourhood?
Yes ---- go to (b)
No ----- go to (c)
I don't know ----- go to (f)

b) If the committee decides for each household to pay Tk.1.00 per bucket, would your household be willing to pay this?
Yes ----- go to (f)
No ------ go to (d)
I don't know -----go to (f)

c) If the organizing committee decides for each household to pay Tk.0.25 per bucket, would your household be willing to pay this?
Yes----- go to (e)

No-------go to (f)
I don't know----- go to (f)

d) Would your household be willing to pay Tk.0.75 per bucket?
Yes----- go to (f)
No------ go to (f)
I don't know ---- go to (f)

e) Would your household be willing to pay Tk.0.40 per bucket?
Yes-----go to (f)
No------go to (f)
I don't know ------ go to (f)

f) Think for a while, what is the maximum amount would your household be willing to pay per bucket to use new source of water? And you will not be allowed to use new water source if the charge is higher than this amount.
Amount of money:
I don't know:

4. Free Water: Low Starting Price

An NGO will be working with the people of this area to install water points for safe water. I am going to ask you some questions in order to know how much your household would be willing to pay each month to ensure the success of setting the project in your neighbourhood. We would appreciate if you give your answer after a careful thought on it. This NGO has decided to help the people of this village by installing water point. Ultimately they will not demand any money from you but we are asking you to know your willingness to pay for safe water. We would appreciate if you facilitate the success of the project by telling the truth about your willingness to pay.

a) If one bucket costs Tk.0.50, then how many buckets do you need on a daily basis? Would your household be willing to Tk.0.50 per bucket to have access to water from new source in your neighbourhood?
Yes ---- go to (b)
No ----- go to (c)
I don't know ----- go to (f)

b) If the committee decides for each household to pay Tk.1.00 per bucket, would your household be willing to pay this?
Yes ----- go to (f)
No ------ go to (d)
I don't know -----go to (f)

c) If the organizing committee decides for each household to pay Tk.0.25 per bucket, would your household be willing to pay this?
Yes----- go to (e)
No-------go to (f)
I don't know----- go to (f)

d) Would your household be willing to pay Tk.0.75 per bucket?
Yes----- go to (f)
No------ go to (f)
I don't know ---- go to (f)

e) Would your household be willing to pay Tk.0.40 per bucket?
Yes-----go to (f)
No------go to (f)

I don’t know ------ go to (f)

f) Think for a while, what is the maximum amount would your household be willing to pay per bucket to use new source of water?

Amount of money:

I don’t know.