WILLIGNESS TO PAY FOR WATER IN TOWNS EAST OF COLOMBO

Srimal Gallege

Consultant Engineer (Ex. Deputy General Manager –Development,
National Water Supply and Drainage Board)

ABSTRACT

It has been carried out a study of households' willingness to pay for water service in Towns East of Colombo. Towns East Water Supply Project covers three areas; Pannipitiya, Battaramulla and Kaduwela. Due to the time constraints, the socio-economic survey has been restricted to Pannipitiya Project area.
The objectives of the study were to determine the following;

- The willingness of households to pay for water.
- The socio – economic factors of willingness to pay water.

Willingness to pay studies are simply household surveys in which a member of the household is asked a series of structured questions designed to determine the maximum amount of money the household is willing to pay for a good service.
Survey team consisted of ten enumerators. Sample size is 400 and it has been selected randomly to cover approximately 10% of the population of the said area.
The higher percentage of households are willing to pay for water at a monthly tariff of Sri Lankan Rupees 50- 100.
The principal finding of the study is that need/demand for water is the most significant variable decides the willingness to pay water. Income and other socio-economic factors are less significant.

1. INTRODUCTION

Water supply meets a variety of needs. In addition to meeting basic requirements for drinking, cooking and washing, and improved water supply often provides a greater degree of convenience to those who are afford it, when minimum standards are upgraded. The decision on what standards to use depends on many factors, including the intended user's perception of his needs, affordability, and population density, institutional capacity to implement and operate. Many countries have set targets to provide the community with improved water supply. Apart from the initial investments, an ongoing commitment sustained by cost recovery is also necessary to insure that improved water supplies continue to function through the year. If funds are not available to upgrading the water supply, the system will deteriorate. In view of the above facts, at least part of the capital and operating expenditure should be covered from water tariffs charged to the consumers. It is assumed that as long as water tariffs do not exceed the ability to pay, communities will choose to abandon, their existing water supply in favor of a new improved system. Subsequent to the rapid development in the city Sri Jayawardenapura Kotte, Pannipitya and Kaduwela areas have become more attractive for further development. Towns East of Colombo Project has initiated as one of the development projects among various infrastructures planned for Greater Colombo Region. One of the major activities undertaken by this project is to provide a water supply for the areas of Battaramulla, Pannipitiya and Kaduwela. Therefore, it is hoped to carry out a research study to find ways to improve the financial and economic performance of this water supply project by developing improved information on household willingness to pay for upgraded services in this particular area.

2. METHODOLOGY

Questionnaire prepared for collecting necessary information such as income level to ascertain their affordability levels and willingness to pay for water consumed. A team of ten field investigators attended to conduct the survey. In addition, some of the data and information were collected through Grama Sevakas in respective areas. Size of the sample is 400. It covers approximately 10% the total population. Sample has been selected randomly and it

covers all the distribution area and all types of income groups. Descriptive statistics and correlations were used to analyze the survey data.

3. FACTORS AND VARIABLES USED IN THE ANALYSIS

A set broad factors that are relevant to an analysis of water related behavior has been identified to capture particular aspects of these factors, a number of variables are specified within each. The factors, variables and their indicators are as follows;

Factor	Variable	Specifications
Need for water	Household size Consumption of water	Number of household members Liters per capita per day
Ability to pay	Household expenditure Ownership of land/property	Rupees per capita per month Dummy variable : 1 if household owns land/house or 0 otherwise
Existing arrangements	Private source	Dummy variable : 1 if household has a private source ,0 otherwise
Quality of water used	Quality	Dummy variable : 1 if water safe for currently health ,0 otherwise
Personal characteristics Of household members	Age Education Occupation Sex	Age of household head Number of years of education of household head Dummy variable: 1 if household head is employed Dummy variable : 1 if male respondent ,otherwise
Household attitudes	Satisfaction with existing water system Willingness to pay	Dummy variable : 1 if satisfied with existing source , 0 otherwise Dummy variable : 1 if head believes water provide free , 0 otherwise

4. ANALYSIS OF DATA

- Response rate: out of 400 households, 348 responded to the questionnaire. Therefore response rate is 87%. This higher response rate confirms credibility of the survey.
- The socio-economic survey has revealed that 97% of the residents of the project area live in their own houses. Only 3% of the population live in rented houses.
- Household size and distribution: Household size is an indication of the population growth and higher average household size would indicate a higher rate of growth of the population. The average urban household size in Sri Lanka is 5.6. Average household size in the project area is 4.25 and it is slightly below the national urban average. Household distribution in the project area is given in the table below.

No. of Persons	Pannipitiya area
Less than 4	65%
Between 4-6	29%
Above 6	6%

Sources of existing water supply: A very high proportion of households in the project area depend on their own wells as their source of drinking water supply.

- Satisfactory level of existing source: According to the survey with regard to satisfaction of existing source the following results were obtained.

Category of satisfaction	Percentage of households
Highly satisfied	8%
Satisfied, but preferred piped water	37%
Existing source is not adequate / quality is poor during drought	45%
No proper source is available	10%

Income /Expenditure levels

Income level	Range of income	% of households
Low	< 3000	7
Middle I	3000 - 6000	47
Middle II	6000 – 9000	37
High	>9000	9

Willingness to pay

The following table shows the willingness to pay responses recorded by income groups.

Income level	Income range	< 50	50-100	100-300	300-500	money does not matter
Low	< 3000	42%	42%	16%	-	-
Middle I	3000-6000	39%	47%	12%	-	2%
Middle II	6000 – 9000	11%	62%	21%	3%	3%
High	> 9000	55%	22%	17%	2%	4%

Affordability

Responses with regard to affordability could be summarized as follows.

Ability/willingness to pay – Rupees(monthly)	% of households
< 50	20
50-100	51
100-300	14
300-500	1
Paying for water is not a problem	2
Not willing to pay	12

5. FUTURE STUDIES

This project has been completed in 1995. In order to compare the different situations, it is recommended to continue the same study again. So, it will be possible to analyze the attitudes and behavioral changes of households in different situations. And also, it will help to improve the service provided by National Water Supply & Drainage Board for supplying quality, safe, reliable, potable water to the residents in those areas. Respondents have given valuable comments with regard to questionnaire which may be taken in to account in future studies.

6. CONCLUSIONS AND RECOMMENDATIONS

- Demand for water - 92% of the population in the area preferred piped water. Only 8% of the households are satisfied with existing source. Survey results reveals that water quality of most of the wells gets deteriorated during drought.
- Willingness to pay – The survey results indicate that 88% of the households is willing to pay for water. It indirectly indicates most of the households are not satisfied with their existing source. Only 7% of the households in a view that on principle it is the duty of the government to supply piped water free of charge.

  It is observed that major portion of the population is willing to pay for water at the cost of Rupees between 50 and 100. A reliable piped water service ought to cost a household approximately Rupees 18 per month at existing NWSDB rates. Water requirement and amount that willing to pay by households justify that National Water Supply & Drainage Board's existing domestic water tariffs are very reasonable.
- Socio-economic factors of willingness to pay – It indicates that the variables for wealth or income are not significant. Survey reveals that irrespective of income, education level and other socio-economic factors, a package of tariff increase for domestic consumption would be quite acceptable to the households.

Note: Survey has been done with the available figures in the year 1993

7. REFERENCES

1. Floyd. J .Fowler, Jr, Survey Research Methods, 2nd edition. Sage publications,1993
2. WASH field report No. 306: Guidelines for conducting willingness to pay studies for improved water services in developing countries.
3. Main Report: Greater Colombo Water Supply System, Master Plan Update, volume 2, Engineering Science. Inc., USA, July 1991
4. Franceys, Richard ,Paper on paying water – urban water tariffs: waterlines vol. 9 No.1 ,July 1990
5. Bernard J.D., Water Supply and Sanitation in Developing Countries, The Institution of Water Engineers and Scientists, London,1993
6. Cornnor, L.R., and Morell A.J.H., Statistics in theory and practice, 7th edition, Pitman Publishing Inc., 1982.