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WILLINGNESS TO PAY FOR AN IMPROVED SUPPLY OF URBAN WATER IN KOLLAM DISTRICT OF KERALA

Dr.Suprabha.L
Assistant Professor & Head Department of Development Economics Kunnamangalam Govt. Arts & Science College Choolur P O Calicut Kerala Mobile :9447123451 Email.suprabhajith@gmail.com

Abstract

One of the remarkable features of the second half of the 20th Century has been the spectacular growth of the urban population in the world . Between 2001 and 2011 India's population has increased by 17.6 percent and that of urban population by 31.8 percent. The problems faced by the urban population are many and of diverse nature. The growth in the infrastructural facilities in cities cannot keep pace with the growth in urban population. The problems of water supply and sanitation facilities are more disturbing in urban areas. The urban areas suffer from inadequate provision of safe drinking water and sanitation facilities. The bulk of the households in urban India depend on municipal water supply for their daily needs-more than 70 percent depend on tap water and an insignificant number on tankers. Although the accessibility of the urban population to safe drinking water has improved over the years, there are problems of inequity in water distribution, water quality and quantity. About 30 percent of the urban households do not obtain water from their Municipality or government. Only 40 percent have exclusive access to main source of water. The majority of the households does not have water within their dwellings but have to transport it from the source outside their place of stay. The present study examines the current water charges paid by the consumers, periodicity of scarcity of water, purification methods followed by the beneficiaries, willingness to pay for improved water supply system and compares the willingness to pay of the people with the rates fixed by the government for different water consumption slabs in an urban area in Kerala. The main finding of the study is that majority of the consumers are willing to pay a higher rate than the rate fixed by the government but the condition is that water should be reliable and should be provided on a 24x 7 basis.

Key Words*: Contingent Valuation, Government Tariff, Improved Water Supply , Willingness to pay.*

1.Introduction

Kerala is the southernmost state in the Indian subcontinent which is blessed with abundant rainfall and water bodies, especially rivers. Still drinking water is scarce and the state experiences water scarcity from the very beginning of January every year. In Kerala there are two systems operating for the provision of drinking water to the residents. The centralized supply system managed by the government and the decentralized supply system initiated and managed by the community. The planning ,execution and maintenance of all centralized water supply schemes in the state of Kerala is vested in the hands of Kerala Water Authority (K W A) , an autonomous body established in the year 1982. K W A is instrumental in implementing different category of water supply schemes with state, central and other institutional assistance. 84.8 percent of urban population has been covered by piped water supply in 2011.

However the centralized supply system suffers from a plethora of deficiencies. These deficiencies mainly arise out of mismanagement and poor conservation of this life supporting systems. The centralized supply system is grossly inefficient in terms of operation and maintenance. More over this supply system is not able to ensure fair distribution of the available water among different size of class of people. The drinking water provided is of poor quality and is often not potable.

The urban consumers in Kollam District face so many problems with regard to the quality and availability .Water is not available daily and whatever water available is not potable and have so many problems like brackishness, turbidity, chlorine smell, bad smell and green colour.

Majority of the population depend on water from public water supply as there are no other sources to depend on. Hence the consumers are willing to pay a higher rate for an improved water supply. This study examines the current water charges paid by the consumers, periodicity of scarcity of water, purification methods followed by the beneficiaries, willingness to pay for improved water supply system and compares the willingness to pay of the people with the rates fixed by the government for different water consumption slabs in an urban area in Kerala. This study relate to these aspects in urban areas of Kollam district in Kerala. The empirical part of the study is conducted in Kollam Corporation and Municipalities of Paravur, Punalur and Karunagappally.

As there are so many problems connected with availability and quality of public water the respondents were presented with a situation in which high quality water is provided on a 24x7 basis which is not far from reality. The respondents were asked whether they are willing to pay a higher rate for such an improved water supply system.

The contingent valuation method is adopted in this study for collecting the willingness to pay for an improved water supply system. The survey technique that attempts to obtain stated preferences is known as the Contingent Valuation Method (CVM) .The word contingent is used to reflect the preferences that are stated for a described hypothetical situation. In this study the hypothetical situation presented is that of one in which there is a supply of high quality water in a 24x7 basis. There are so many methods to obtain the responses of the consumers. In this study the Iterative Bidding method is used to obtain the preferences of the customers. The amount is incrementally increased in subsequent bids. Backward movement in bids is not practiced in this study as there is a base for the water charge levied from the customers by the water authority. Hence there is no meaning in reducing the amount of bid offered to the customers lower than the base amount.

The demand theory states that the demand for a commodity is influenced by the price of the commodity, price of related commodities, taste and preferences of the household, income of the household, size of population etc. Demand means a desire backed by the ability and willingness to pay for a commodity. The demand for water as a commodity is determined by its price, reliability, quality, income of the household or ability and willingness to pay etc. The present study aims at estimating the willingness to pay for an improved supply of water of the households that is it tests whether contingent valuation survey can be used to estimate the water demand relationships which are suggested by consumer demand theory.

2.Objectives

The main objectives of the study are

1. To calculate the beneficiaries ‘willingness to pay for an improved water supply system.
2. To compare it with the new rates fixed by the government.

3.Hypothesis

1. The beneficiaries are not willing to pay a higher rate for an improved water supply system.

4.Data and Methodology

The major source of primary data for empirical study is the 600 connected urban households whose data was collected from the concerned water authorities. Almost 1.5% connections rounding nearest 100 were selected randomly from total connection of 41937. Thus the total sample size becomes 600. Then number of samples from each

corporation/municipality was fixed with probability proportional to sample size. That is proportional to the total connections in each corporation/municipality. It was also decided to select households from a minimum of two wards from each corporation/municipality. As the sample size to be selected from Kollam Corporation is high sample households was selected from eight wards of Kollam Corporation. The details regarding the connected water consumers were collected from the Water Connection Register from the concerned water authority offices. Urban households included consumers from urban area comprising of the Corporation area and three Municipalities of Paravur,Punalur and Karunagappally. The contingent valuation method is adopted in this study for collecting the willingness to pay for an improved water supply system. The results are presented using descriptive statistics. One sample t-test was done for comparing maximum amount the consumers are willing to pay with government tariff.

1.1 Descriptive Statistics regarding the present water charge

The descriptive statistics of present water charge paid by the respondents show that in Corporation area the minimum water charge paid is Rs.20 and the maximum water charge paid is Rs.625.In municipality the minimum water charge paid is Rs.20 and the maximum water charge paid is Rs.180.Combining both the areas the minimum water charge paid is Rs.20 and the maximum water charge paid is Rs.625 (See Table -1:1).

Table -1:1

Descriptive Statistics regarding the present water charge

Group	N	Minimum	Maximum	Median	Mean	Std.Deviation
Corporation	392	20	625	42.00	55.91	56.66
Municipality	145	20	180	42.50	46.82	23.72
Total	537	20	625	42.00	53.45	50.10

Source: Sample Survey

1.2Periodicity of scarcity in drinking water

To know the extent of drinking water problem the data about the periodicity of occurrence of scarcity is collected and analyzed .It is presented in table-1:2

Table-1: 2

Periodicity of scarcity in drinking water

Period	Corporation		Municipality		Total	
	Count	Percent	Count	Percent	Count	Percent
Never	90	20.9	43	25.4	133	22.2
Occasionally	301	69.8	120	71.0	421	70.2
Once in a week	7	1.6	1	0.6	8	1.3
Twice in a week	12	2.8	1	0.6	13	2.2
Daily	20	4.6	4	2.4	24	4.0
Once in a month	1	0.2	0	0.0	1	0.2
Total	431	100	169	100	600	100

Source: Sample Survey

Percentage analysis in Table 2 reveals that in Corporation area 20.9 percent never experiences a drinking water problem, 69.8 percent have drinking water problem occasionally, 1.6 percent face drinking water problem once in a week, 2.8 percent face the problem twice in a week, 4.6 percent face the problem daily and 0.2 percent face the problem once in a month. In municipality area 25.4 percent never experiences a drinking water problem,71 percent have drinking water problem occasionally ,0.6 percent face drinking water problem once in a week,0.6 percent face the problem twice in a week ,2.4 percent face the problem daily .Out of the total respondents 22.2 percent never experiences a drinking water problem,70.2 percent have drinking water problem occasionally ,1.3 percent face drinking water problem once in a week,2.2 percent face the problem twice in a week ,4 percent face the problem daily and 0.2 percent face the problem once in a month.

1.3Method of purifying

The water available in the pipes is not safe to drink as such. It needs to be purified. The data on how the water is purified is presented in Table 1:3

Table -1:3

Method of purifying

Response	Corporation (n=431)		Municipality (n=169)		Total (n=600)	
	Count	Percent	Count	Percent	Count	Percent
Boiling	417	96.8	165	97.6	582	97.0
Filtering	34	7.9	10	5.9	44	7.3
Other methods	3	0.7	1	0.6	4	0.7
Not purifying	6	1.4	1	0.6	7	1.2

Source: Sample Survey

In Corporation area 96.8 percent of respondents boil water for purifying.7.9 percent of respondents use water purifiers for purifying,0.7 percent of respondents use some other methods for purifying such as filtering .A small percent that is 1.4 percent do not purify water. In municipality area 97.6 percent of respondents boil water for purifying.5.9 percent of respondents use water purifiers for purifying, 0.6 percent of respondents use some other methods for purifying such as filtering. A small percent of respondents that is 0.6 percent do not purify water. Out of the total respondents 97 percent of respondents purify water by boiling, 7.3 percent filter water for purification, 0.7 percent follows other methods for purifying and 1.2 percent of respondents do not purify water.

1.4 Willingness to pay (WTP)

The willingness to pay of the respondents a higher rate if they are provided good quality water on a 24x7 basis is collected and analyzed. The analysis of the willingness to pay is done by including

1. Classification on the basis of consumption slab
2. General Willingness to pay in different slabs
3. WTP 10 percent above the current water charge according to area
4. WTP 20 percent above the current water charge according to area
5. WTP 30 percent above the current water charge according to area
6. WTP of beneficiaries belonging to different slabs
7. WTP 20 percent above water charge of beneficiaries belonging to different slabs
8. WTP 30 percent above water charge of beneficiaries belonging to different slabs
9. Reason for not paying additional charge
10. Expenses reduced to pay the excess charge for water

1.5 Classification on the basis of consumption slab

Based on the quantity of water consumed a slab system is followed in Kerala for collecting water charges from different categories of consumers. These slabs include categories like BPL, those consuming 0-5 KL a month, those consuming 5-10 KL a month, those consuming 10-20 KL a month, those consuming 20-30 KL a month, those consuming 30-40 KL a month, those consuming 40-50 KL a month and those consuming above 50 KL a month. The distribution of consumers in different categories of consumption slabs is given in Table-1: 4.

Table -1:4

Classification on the basis of consumption slab

Slab (based on quantity in KL)	Corporation		Municipality		Total	
	Count	Percent	Count	Percent	Count	Percent
BPL	42	9.7	24	14.2	66	11.0
0-5	20	4.6	3	1.8	23	3.8
5-10	184	42.7	70	41.4	254	42.3
10-20	144	33.4	66	39.1	210	35.0
20-30	27	6.3	4	2.4	31	5.2
30-40	9	2.1	2	1.2	11	1.8
40-50	2	0.5	0	0.0	2	0.3
Above 50	3	0.7	0	0.0	3	0.5
Total	431	100	169	100	600	100

Source: Sample Survey

Analysis of data in Table 4 reveals that9.7 percent of respondents in the Corporation area are belonging to the category of BPL that is they are not paying water charges ,4.6 percent of consumers belong to the consumption slab of 0-5 KL , 42.7 percent of respondents belong to the consumption slab of 5-10 KL,33.4 percent of respondents belong to the consumption slab of 10-20 KL,6.3 percent of consumers belong to the consumption slab of 20-30 KL ,2.1 percent of respondents belong to the consumption slab of 30-40 KL and 0.5 percent of consumers belong to the consumption slab of above 50 KL. In Municipality area 14.2 percent of

respondents are belonging to the category of BPL that is they are not paying water charges, 1.8 percent of consumers belong to the consumption slab of 0-5 KL, 41.4 percent of respondents belong to the consumption slab of 5-10 KL, 39.1 percent of respondents belong to the consumption slab of 10-20 KL, 2.4 percent of consumers belong to the consumption slab of 20-30 KL and 1.2 percent of respondents belong to the consumption slab of 30-40 KL. Out of the total respondents 11 percent of respondents are belonging to the category of BPL that is they are not paying water charges,3.8 percent of consumers belong to the consumption slab of 0-5 KL , 42.3 percent of respondents belong to the consumption slab of 5-10 KL,35 percent of respondents belong to the consumption slab of 10-20 KL,5.2 percent of consumers belong to the consumption slab of 20-30 KL ,1.8 percent of respondents belong to the consumption slab of 30-40 KL and 0.3 percent of consumers belong to the consumption slab of 40-50 KL and 0.5 percent of respondents belong to the consumption slab of above 50 KL.

1.6 General Willingness to pay in different slabs

The respondents were provided the hypothetical situation and were asked whether they are willing to pay a higher rate for an improved water supply. The responses for willingness to pay for more improved supply of water are collected and are presented in Table 1. 5

Table-1: 5

General Willingness to Pay in different slabs

Response	Corporation		Municipality		Total	
	Count	Percent	Count	Percent	Count	Percent
Yes	359	83.3	136	80.5	495	82.5
No	72	16.7	33	19.5	105	17.5
Total	431	100	169	100	600	100

Source: Sample Survey

Percentage analysis shows that 83.3 percent of respondents in the Corporation area are willing to pay more for improved supply and 16.7 percent are not willing to pay for improved supply of water. In the municipality area 80.5 percent are willing to pay more for improved supply and 19.5 percent are not willing to pay for improved supply. Out of the total respondents 82.5 percent are willing to pay more for improved supply and 17.5 percent are not willing to pay for improved supply of water.Every respondents are willing to pay 10 percent more than the current water charge they are paying .One of the respondents responded that he or she do not know whether he or she is willing to pay more for improved supply of water.

1.7 Willingness to pay 20% more according to area

The Willingness to pay 20 percent above the current water charge is asked and is presented in Table 1.6.

Table-1: 6

Willingness to pay 20% more according to area

Response	Corporation		Municipality		Total	
	Count	Percent	Count	Percent	Count	Percent
Yes	328	91.4	130	95.6	458	92.5
No	31	8.6	6	4.4	37	7.5
Total	359	100	136	100	495	100

Source: Sample Survey

Perusal of data in Table 6 reveals that 91.4 percent of respondents in the Corporation area are willing to pay 20 percent more for improved supply of water and 8.6 percent are not willing to pay 20 percent more for improved supply of water. In municipality area 95.6 percent are willing to pay 20 percent more for improved supply of water and 4.4 percent are not willing to pay 20 percent more for improved supply of water .Out of the total respondents who are willing to pay 20 percent more is 92.5 percent and 7.5 percent are not willing to pay 20 percent more for improved supply.

1.8 Willingness to pay 30% more according to area

The willingness to pay 30 percent more than the current water charge for improved supply is collected and presented in Table1.7

Table -1:7

Willingness to pay 30% more according to area

Response	Corporation		Municipality		Total	
	Count	Percent	Count	Percent	Count	Percent
Yes	290	88.4	118	90.8	408	89.1
No	38	11.6	12	9.2	49	10.7
Total	328	100	130	100	458	100

Source: Sample Survey

Analysis of data in Table 7 makes it clear that 88.4 percent of respondents in the Corporation area are willing to pay 30 percent more for improved water supply and 11.6 percent are not willing to pay for improved supply. In the municipality area 90.8 percent are willing to pay 30 percent more for improved supply and 9.2 percent are not willing to pay for improved supply. Out of the total respondents 89.1 percent are willing to pay 30 percent more for improved supply and 10.7 percent are not willing to pay for improved supply.

1.9 Willingness to pay of beneficiaries belonging to different slabs

The responses of different slabs of people are codified and are presented in Table 1.8.

Table-1: 8

Willingness to pay according to beneficiaries belonging to different slabs

Response	Willing to pay		Not willing to pay		Total
	Count	Percent	Count	Percent	
BPL	52	78.8	14	21.2	66

0-5	21	91.3	2	8.7	23
5-10	200	78.7	54	21.3	254
10-20	179	85.2	31	14.8	210
20-30	29	93.5	2	6.5	31
30-40	9	81.8	2	18.2	11
40-50	2	100.0	0	0.0	2
Above 50	3	100.0	0	0.0	3
Total	495	82.5	105	17.5	600

Source: Sample Survey

Analysis of data in table 8 shows that among those people belonging to the BPL category 78.8 percent are willing to pay up to 10 percent more for improved supply and 21.2 percent are willing to pay nothing or10 percent more but they are ready to render their services to KWA twice in a month. Among those people belonging to the 0-5 slab 91.3 percent are willing to pay up to 10 percent more for improved supply and 8.7percent are willing to pay nothing or10 percent more for improved services. Among those people belonging to the 5-10 slab 78.7 percent are willing to pay up to 10 percent more for improved supply and 21.3 percent are willing to pay nothing or10 percent more for improved services. Among those people belonging to the 10-20 slab 85.2 percent are willing to pay up to 10 percent more for improved supply and 14.8 percent are willing to pay nothing or10 percent more for improved services. Among those people belonging to the 20-30 slab 93.5 percent are willing to pay up to 10 percent more for improved supply and 6.5 percent are willing to pay nothing or10 percent more. Among those people belonging to the 40-50 slab all respondents are willing to pay and 10 percent more for improved services. Among those people belonging to the slab of above 50 all respondents are willing to pay and 10 percent more for improved services. Out of the total respondents in all slabs 82.5 percent are willing to pay and 17.5 percent are not willing to pay or 10 percent more for improved services.

1.10 Willingness to pay 20% more according to beneficiaries belonging to different slabs

Responses of all slabs of people who are willing to pay 20 percent more than the current water charge are codified and presented in Table1. 9.

Table-1: 9

Willingness to pay 20% more of beneficiaries belonging to different slabs

Response	Willing to pay		Not willing to pay		Total
	Count	Percent	Count	Percent	
BPL#	48	92.3	4	7.7	52
0-5	19	90.5	2	9.5	21
5-10	186	93.0	14	7.0	200
10-20	165	92.2	14	7.8	179
20-30	26	89.7	3	10.3	29

30-40	9	100.0	0	0.0	9
40-50	2	100.0	0	0.0	2
Above 50	3	100.0	0	0.0	3
Total	458	92.5	37	7.5	495

in the case of BPL willingness to pay is Rs. 4/-

Source: Sample Survey

Perusal of data in table 9 reveals that among those people belonging to the BPL category 92.3 percent is willing to pay Rs.4 for an improved supply as now they are paying nothing and 7.7 percent are willing to pay nothing for improved services. Among those people belonging to the 0-5 slab 90.5 percent of respondents are willing to pay 20 percent more for improved services and 9.5 percent are not willing to pay more. Among those people belonging to the 5-10 slab 93 percent are willing to pay 20 percent more for improved supply and7 percent are not willing to pay 20 percent more for improved services. Among those people belonging to the 10-20 slab 92.2 percent are willing to pay 20 percent more for improved supply and7.8 percent are not willing to 20 percent more for improved services. Among those people belonging to the 20-30 slab 89.7 percent are willing to pay 20 percent more for improved supply and10.3 percent are not willing to pay 20 percent more for improved services. Among those people belonging to the 30-40 slabs all respondents are willing to pay 20 percent more for improved supply. Among those people belonging to the 40-50 slabs all respondents are willing to pay 20 percent more for improved supply. Among those people belonging to the slab of above 50 KL all respondents are willing to pay 20 percent more for improved supply.

1.11 Willingness to pay 30% more according to beneficiaries belonging to different slabs

Responses of all slabs of people, who are willing to pay 30 percent more than the current water charge are codified and presented in Table 1:10.

Table-1: 10

Willingness to pay 30% more of beneficiaries belonging to different slabs

Response	Willing to pay		Not willing to pay		Total
	Count	Percent	Count	Percent	
BPL#	44	91.7	4	8.3	48
0-5	16	84.2	3	15.8	19
5-10	171	91.9	15	8.1	186
10-20	144	87.3	21	12.7	165
20-30	20	76.9	6	23.1	26
30-40	8	88.9	1	11.1	9
40-50	2	100.0	0	0.0	2
Above 50	3	100.0	0	0.0	3
Total	408	89.1	50	10.9	458

in the case of BPL willingness to pay is Rs. 6/-

Source: Sample Survey

It is revealed from data in Table 10 that among those people belonging to the BPL category 91.7 percent are willing to pay Rs.6 for an improved supply as now they are paying nothing and 8.3 percent are willing to pay nothing for improved services. Among those people belonging to the 0-5 slab 84.2 percent of respondents are willing to pay 30 percent more for improved services and 15.8 percent are not willing to pay more. Among those people belonging to the 5-10 slab 91.9 percent are willing to pay up to 30 percent more for improved supply and 8.1percent are not willing to pay 30 percent more for improved services. Among those people belonging to the 10-20 slab 87.3 percent are willing to pay 30 percent more for improved supply and12.7 percent are not willing to pay 30 percent more for improved services. Among those people belonging to the 20-30 slab 76.9 percent are willing to pay 30 percent more for improved supply and 23.1percent are not willing to pay 30 percent more for improved services. Among those people belonging to the 30-40 slab 88.9 percent of respondents are willing to pay 30 percent more for improved supply and11.1 percent are not willing to pay 30 percent more for improved services. . Among those people belonging to the 40-50 slabs all respondents are willing to pay 30 percent more for improved supply. Among those people belonging to the slab of above 50 KL all respondents are willing to pay 30 percent more for improved supply.

1.12 Reason for not paying additional charge

The respondents who were not willing to pay were asked the reason for not willing to pay more for improved supply of water.

Table -1: 11

Reason for not paying additional charge

Reason	Corporation (n=72)		Municipality (n=33)		Total (105)	
	Count	Percent	Count	Percent	Count	Percent
Cannot afford to pay any amount	16	22.2	4	12.1	20	19.0
Satisfied with traditional source	19	26.4	10	30.3	29	27.6
Government should provide free water	29	40.3	10	30.3	39	37.1
Others	8	11.1	9	27.3	17	16.2

Source: Sample Survey

It is evident from the table that there are 105 respondents in different slabs who responded that they are not willing to pay. Out of these respondents 72 were from the Corporation area and 33 from the municipality area .22.2 percent of respondents from Corporation area said they cannot afford to pay any amount, 26.4 percent said they are satisfied with the traditional source of water, 40.3 percent said that the government should provide free water and 11.1 percent of respondents listed some other reasons. In municipality area 12.1 percent of respondents from Corporation area said they cannot afford to pay any amount,30.3 percent said they are satisfied with the traditional source of water,30.3 percent said that the government should provide free water and 27.3 percent of respondents listed some other reasons. Out of the total respondents 19 percent of respondents from Corporation area said they cannot afford to pay any amount,27.6 percent said they are satisfied with the traditional source of water,37.1 percent said that the government should provide free water and 16.2 percent of respondents listed some other reasons. It is notable that majority of the respondents wanted the government to provide them with free water.

1.13 Expenses reduced to pay the excess charge for water

The respondents who were ready to pay more for improved services were asked about what expenses they will reduce to pay the increased amount for water .The data about this is collected and presented in table 1:12.

Table -1:12

Expenses reduced to pay the excess charge for water

Expenses	Corporation (n=359)		Municipality (n=136)		Total (495)	
	Count	Percent	Count	Percent	Count	Percent
Food	13	3.7	5	3.7	18	3.6
Clothing	187	52.5	83	61.0	270	54.5
Transport	107	30.1	47	34.6	154	31.1
School fees	3	0.8	4	2.9	7	1.4
Others	27	7.6	10	7.4	37	7.5

Source: Sample Survey

Analysis of the data in Table 12 reveals that in Corporation area 3.7 percent respond that they will reduce the amount spend on food ,52.5 percent said they will reduce the amount spent for clothing,30.1 percent said they will reduce the amount spent on transport, 0.8 percent said they will deduct the amount spent on school fees and7.6 percent of respondents said they will reduce other items like savings .In municipality area 3.7 percent said they will reduce the amount spend on food ,61percent said they will reduce the amount spent for clothing,34.6 percent

said they will reduce the amount spent on transport, 2.9 percent said they will deduct the amount spent on school fees and7.4 percent of respondents said they will reduce other items like savings. Out of the total respondents 3.6 percent said they will reduce the amount spend on food, 54.5 percent said they will reduce the amount spent for clothing, 31.1 percent said they will reduce the amount spent on transport, 1.4 percent said they will deduct the amount spent on school fees and7.5 percent of respondents said they will reduce other items like savings. It is notable that the respondents are ready to sacrifice the amount spent on the basic necessities of life like clothing for getting improved supply of water as water is the life sustainer.

1.14 Comparison of the maximum amount willing to pay with the Government Tariff

The maximum amount that the respondents belonging to different slabs are willing to pay is compared with the current tariff fixed by the government as on 25-09-2014. One sample t-test was done for comparing maximum amount the consumers are willing to pay with government tariff. The test was done to know whether the amount the consumers are willing to pay is greater, lesser or equal to the current water tariff. It is illustrated in the following table.

H0: The beneficiaries are not willing to pay a higher rate for an improved water supply system

Table -1:13

Comparison of the maximum amount willing to pay with the Government tariff

Slab (based on quantity in KL)	Count	Govt. tariff	Mean ± SE	t-value	p-value
BPL	66		5.20 ± 3.31	-	-
0-5	23	4	4.75 ± 1.55	2.308*	0.031
5-10	254	4	5.28 ± 3.82	5.338**	< 0.001
10-20	210	5.5	6.62 ± 3.76	4.336**	< 0.001
20-30	31	8	7.33 ± 2.20	1.698^{ns}	0.100
30-40	11	12	12.00 ± 6.28	0	1.000
40-50	2	14	19.5 ± 0.71	-	
Above 50	3	40	35.00 ± 4.33	-	

*** significant at 0.01 level; * significant at 0.05 level; ns non significant at 0.05 level*

Source: Sample Survey

The result shows that the people belonging to BPL categories, even though they are paying nothing now are willing to pay Rs.5.20 per KL if they are provided with reliable water in a 24x7 basis. The test statistics reveals that in the case of two categories of consumption slabs (5-10 & 10-20 slabs) the calculated t-value is greater than the p –value and hence the null hypothesis is rejected. But in the case of three categories of consumption slabs (0-5, 20-30 and 30-40 slabs) the calculated t-value is lower than the p –value and hence the null hypothesis is accepted. As a general representation of the willingness to pay it is observed that those belonging to lower slabs are willing to pay more than those belonging to higher slabs. Higher slab consumers usually will have higher incomes but their willingness to pay is

lower compared to lower slab consumers who usually have lower incomes omitting some exceptional cases.

The water charges levied by Kerala Water Authority as on 25-09-2014 are given in Table 1:14.

Table-1:14

The current tariff fixed by the government as on 25-09-2014

Category and consumption level per month	Tariff	
	Fixed	
	DOMESTIC	
Upto 5000 litres	Nil	Rs. 4/KL with min.Rs.20
5000 to 10000 litres	Nil	Rs. 20 plus Rs. 4/KL
10000 to 15000 litres	Nil	Rs. 40 plus Rs.5.00 per every 1000 litres in excess of 10,000 litres.
15000 to 20000 litres	Nil	Rs. 6.00 per every 1000 litres for the entire consumption
20000 to 25000 litres	Nil	Rs. 7.00 per every 1000 litres for the entire consumption
25000 to 30000 litres	Nil	Rs. 9.00 per every 1000 litres for the entire consumption
30000 to 40000 litres	Nil	Rs. 12.00 per every 1000 litres for the entire consumption
40000 to 50000 litres	Nil	Rs. 14.00 per every 1000 litres for the entire consumption
above 50000 litres	Nil	Rs. 700.00 plus Rs.40.00 per every 1000 litres in excess of 50,000 litres

(a) No water charges will be collected from BPL families who consume up to 15,000 litres per month.

(b) For flats fixed charges will be @ Rs.50/- per dwelling unit.

Source: Water Resources (Water Supply - B) Department, Government of Kerala

5. Conclusion

A commodity is said to have demand when the consumers are willing and able to pay for a commodity. When the authorities opting for a hike in the water charges it is better to consider whether the consumers are willing to pay a higher rate or not .A study of the willingness to pay gives the conclusion that those belonging to lower slabs are willing to pay more than those belonging to higher slabs. Higher slab consumers usually will have higher incomes but their willingness to pay is lower. Compared to lower slab consumers who usually have lower incomes omitting some exceptional cases. Majority of the consumers are willing to pay a higher rate than the rate fixed by the government but the condition is that water should be reliable and should be provided on a 24x 7 basis. Those people who are not willing to pay a higher rate cited many reasons for nonpayment. Respondents are ready to sacrifice the amount spent on the basic

necessities of life like clothing for getting improved supply of water. These results of the study highlight the need for an improved water supply system in an urban area such as Kollam District.

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