

Willingness to pay for improved Rural Water Supply: A Case study

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Abstract:

The study analysed willingness to pay for improved water supply by households in Coimbatore District, Tamilnadu. A multistage sampling method viz., systematic, stratified, proportionate random techniques was used to select sample villages. 342 sample households were selected across 4 taluks, 3 blocks, 4 village Panchayats and 31 habitations. Method of data analysis involved the use of descriptive statistics and linear regression for the household sampled. The linear regression estimates, revealed that the family size and LPCD that a household is willing to pay for additional water supply and the willing to pay for connection charges to the improved source are statically significant at $P > 0.05$ level. The coefficient of willingness to pay from family size and LPCD are negative, this reveals that decrease in family size and LPCD will increase the proportion of households would be willing to pay for improved water supply.

Key word: Willingness to pay, Rural Water Supply, Per capita water, Regression, India.

Mathematics Subject Classification: 91B76

Journal of Economic Literature (JEL) Classification: Q56, P25

1. Introduction:

Water is the essence of life; human beings cannot live for more than a few days without water. Nearly 1.1 billion in South Asian countries do not have access to safe drinking water. Drinking water is the single biggest crisis being faced by India, Pakistan, Nepal and Bangladesh. The pattern of water consumption in the region is, approximately 90 percent in agriculture, domestic use 4 percent and the remaining 6 percent is by the industry. The stress on water resources is the result of multitude of factors such as rapidly increasing population and changing lifestyle that have increased the need for safe water (Jha U G, 2004). Over the last two decades, Tamilnadu has been allocating substantial resources for investment in rural water supply. The central government has been providing funds through the Accelerated Rural Water Supply Programme and the State Government through the Minimum Needs Programme to provide full coverage for all the rural habitations in the state. According the census 2001, 85 percent of the rural households have access to protected

drinking water. The Millennium Development Goal of halving the percentage of people without access to water supply achieved by 2010. While the rural water supply goal of increasing access for 85 percent to 92.5 percent is achievable, the per capita availability has to be improved. Although access to rural water supply, has improved considerably, there is concern that the marginal cost of improving coverage is going up steeply. Piped water schemes such as Power Pumps (PP) and Combined Water Supply Schemes (CWSS) have a much higher average cost of supply per capita than the earlier Hand Pump (HP) schemes. The Village Panchayats for its part will have to recover the cost of operation and maintenance to extend possible.

2. Review of Literature

Adepoju Adebisola Adenike (2009), the study analysed the willingness to pay for improved water supply service by households in Osogbo metropolis, Osun State. For this study multistage random sampling technique was employed to select one hundred and forty two households from areas with public water services and those without connection to public water. Method of data analysis involved the use of binary equation model (logistic regression) for the households sampled. 38 percent of the households are willing to pay between 1 and 3 percent of their income for alternative water supply service. This has implication on the need for private participation in the provision of water in the study area. The logistic regression estimates, however, revealed that the percentage of income that a household is willing to pay for improved water supply and willingness to pay for connection charges to the improved source are statistically significant. This study has shown that majority of the respondents are willing to pay for alternative water supply, particularly if the existing services are not improved on, in terms of the quality, quantity and the reliability of supply. An increase in income will increase the proportion of income that households would be willing to pay for improved water supply.

Ravichandran M and S. Boopathi (2007), in his book of Environmental Management issues and potable water in rural Tamilnadu, the study covered 311 sample respondents across 5 villages in Tiruchirappalli District of Tamilnadu; the empirical results showed that Water collection time increases, the Willingness to pay also increases across all the households. The households belongs to backward castes are willing to pay higher amount than the schedule caste households. Regarding farm size, larger the agricultural landholding, the higher will be the willingness to pay. On an average, the amount of money that they are willing to pay is Rs. 8 per month per house for improved water supply. Among the total respondents, the percentage of women water collectors constituted 93.8, inclusive of female school going children. Willingness to pay is positive with 75 percent of the respondents.

3. Rural Water Supply in Tamilnadu

The estimated average total quantity of drinking water supplied to the rural areas of Tamilnadu is about 9,332 lakhs litres per day. The average per-capita water supply to the rural areas of Tamilnadu is about 25 Litre Per Capita per Day (LPCD), which is lower than the prescribed norm of

40 lpcd¹. The Tamilnadu Water Supply and Drainage (TWAD) Board is the main implementing agency responsible for executing water supply and sewerage schemes in the State excluding the Chennai Metropolitan Area. Census, the NSS (54th round) and the National Family Health Survey (NFHS) clearly confirm that about 85 percent of rural households in Tamilnadu have access to safe drinking water, which is better than the All India figure of about 80 percent. Investments in the sector are clearly needed along with efforts to ensure the equitable distribution of water at the village level and among villages/ habitations. There can be no question that the rural water supply programmes such as the Accelerated Rural Water Supply Programme (ARWSP), Minimum Needs programme (MNP) and the other programmes have done a creditable job of substantially improving access to safe drinking water in rural Tamilnadu. Coverage data from the TWAD Board also indicate that (as on April 2005) about 96 per cent of the habitations in the State are either fully or partially covered with regard to protected water supply. However, it is equally important to ask whether these efforts have been cost effective and whether they are sustainable in the long term (Paul Appasamy, 2006).

Tamilnadu Water Supply and Drainage Board and analysed indicates the demand and supply of water according to block wise in Coimbatore district, with the given 2001 census population. It reveals the demand and supply of population of various blocks in Coimbatore district. Among the twelve blocks excluding of Sarkarsamukulam block which has the privilege of enjoying average consumption of water 40 litres, as prescribed by government norms, all other blocks has inadequate Litre Per Capita per Day. The average LPCD per individual to the district is only 33.12 which are proportionately lower as provided by the local bodies.

In Tamilnadu, water supply assets are being maintained at three tier system viz., Grama panchayat level, Panchayat union level and District panchayat level. Govt orders were issued regarding providing House Service Connection (HSC) by fixing the deposit amount as Rs.1000 and monthly tariff as Rs.30. It was also ordered to utilize minimum 20 percent of the house tax for water supply maintenance. The affordability of the house connection charge (Rs.30 per month) and the stand post charge (Rs.10 per month) can be determined by comparing these charges to the monthly income/expenditure of rural households. It would also be useful to assess the tariff in terms of the quantity of water supplied through house connections and stand posts. Given the income distribution of rural areas, 50 percent may be an upper bound of the population who can afford house connections and Government of Tamilnadu is committed to achieve 50 percent of house service connections (H.S.Cs) with affordable charges for stand posts from marginally poor category in rural areas.

4. Schemes for Rural Water Supply in India

Provision of water and sanitation services is the responsibility of the state in India. A number of rural water supply policies and programmes have been initiated by central and state governments since independence. They were added to the national agenda during the First Five Year Plan period. The Government of India launched the National Water Supply and Sanitation Programme in 1954 as

¹ The Government of India norms to provide 40 Litre Per Capita per Day (LPCD) drinking water to all human beings, one hand pump for every 250 population and availability of water source within 1.6 Km in plains and 100 metres elevation in hilly areas(Keshab das, 2006)

part of the government's health plan. Accelerated Rural Water Supply Programme (ARWSP) was introduced during the Fourth Five Year Plan (1969-74), while during the Fifth Five Year Plan (1974-79) it became the part of Minimum Needs Programme. During the Sixth plan period, the government established the National Drinking Water Mission renamed as Rajiv Gandhi Drinking Water Mission which aimed at providing technical and scientific assistance to states and to ensure availability of adequate water of acceptable quality on a long term basis. The main objective of the government is the provision of the basic amenity of potable water supply to every citizen, especially in the rural areas. But, despite concerted efforts for over five decades, vast rural areas face acute shortage of water. Eighth Five Year Plan for instance, found 75,782 not-covered and 3.32 lakh partially-covered habitations which did not have access to minimum supply of water. (Guidelines of Rajiv Gandhi National Drinking Water Mission, 2009-10), The Tenth Five Year Plan of India (2002 – 2007) document and the National Water Policy of 2002 have started examining, the dictum that the community must pay 100 percent of the operation and maintenance costs of the rural water supply scheme. Even among the households which benefited from piped water supply service there was no easy access near the household premises².

In view of this that the study was carried out to examine the willingness to pay for improved water supply in the rural areas of Coimbatore district. Specifically, the study examines the socio-economic factors that influence household's willingness to pay for improved water, the existing sources of water and their general characteristics, the households' willingness potential for improved water supply and identify the determinants of household willingness to pay for improved water supply.

5. Materials and methods

The study used primary data. The data were collected with the use of structured questionnaires. Coimbatore District in the state of Tamilnadu has been chosen for the study. 342 sample households were selected across 4 taluks, 3 blocks, 4 village Panchayats and 31 habitations. Multistage sampling method has used for this study viz., systematic, stratified proportionate random sampling methods to select the sample villages. Totally four villages were selected and grouped under four categories viz., Wet, Mixed (partially wet & partially dry), Dry (arid) and Hilly region. As per data classified the 'Anamalai' Block was chosen under Hill and Wet area categorization, where the villages viz., 'Nedungundra' was selected under Hill area category, where the Scheduled Tribes population is located, and, 'Subbegoundanpudur' was selected under Wet area. The 'Ambothi' Village in 'Annur' Block has acute dry nature; hence the Village was selected under Dry area. In the Mixed area (partially wet and partially dry) classification 'Thondamuthur' block was chosen in which 'Madampatti' village was selected as Study area. Of the total households, in the four selected villages, 10 per cent of the sample households were chosen proportionately.

² According to 2001 census 62.3 percent of the rural households were covered under piped water supply. Among these households only 23 percent were getting water within their household premises and 39.6 percent were getting water near their household premises. In urban areas 83.6 percent of the households were covered under piped water supply and among them 60.8 percent were getting water within their household premises.

Descriptive statistics such as frequency distribution tables, mean and standard deviation were used to analyse the socioeconomic characteristics of the respondents. The linear regression model was used to determine the mean willingness to pay for improved water supply by households. The regression model which is based on the cumulative probability function was adopted because of its ability to deal with a dichotomous dependent variable and a well established theoretical background. The model specified by (Ravichandran, *et.al.* 2008) was adopted for this study and used in a book on environmental management issues and potable water in rural Tamilnadu.

6. Factor influencing Willingness to Pay by Household:

To identify the factor influencing willingness to pay for improved supply by households, the household responses to the Willingness to pay question will be regressed against the prices the households are WTP and other socio-economic characteristics of the household. The regression linear model is specified as

$$Y = a + bX$$

Where Y = Willingness to pay money for improved water supply of water

a = Constants

X₁ = Family Size (FS)

X₂ = Litre Per Capita per Day (LPCD)

X₃ = Total Family Income (TFI)

X₄ = Do the Collection of Water and the Time Spend affect your routine work?
(1 = yes, 2 = no) (DCWTS)

X₅ = Total Time for Water Collection (TTWC)

X₆ = House Value (HV)

μ = Error term

7. Results

Table1: Socio-economic Characteristics of Respondents Family

	Wet	Mixed	Dry	Hilly	Total
Caste					
SC	40.66	13.16	38.24	0.00	26.60
BC	54.95	67.54	54.90	0.00	53.50
MBC	2.20	19.30	6.86	0.00	9.10
Others	2.20	0.00	0.00	0.00	0.60
Tribal	0.00	0.00	0.00	100.00	10.20
Family size					
Mean	4.21	4.32	4.49	3.91	4.30
S.D.	1.43	1.53	1.37	1.22	1.43

Monthly Family Income

Business	1269.23	846.49	147.06	0.00	663.74
Agriculture	4225.27	5155.70	4147.06	3157.14	4402.78
Private	1637.36	3004.39	1254.90	0.00	1811.40
Govt.	1967.03	662.28	161.76	114.29	804.09
Others	225.27	416.67	488.24	157.14	360.53
Total Family Income	9324.18	10085.53	6199.02	3428.57	8042.54
Per capita	2173.59	2241.01	1348.58	899.33	1819.60
Monthly Family Expenditure					
Drinking	17.03	9.74	5.88	0.00	9.53
Total Exp.	3492.9	4144.77	2893.75	1074.84	3284.03
Per capita Exp.	807.65	950.69	619.04	289.86	746.09

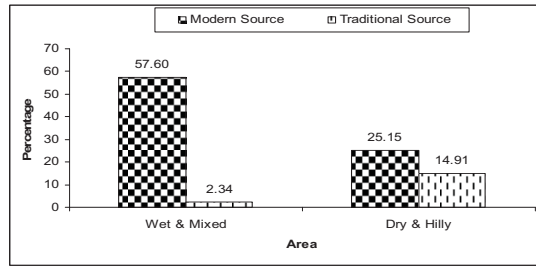
Source: Primary data (2010)

The above table shows that the Socio-economic characteristics of respondents of selected villages. Family income, expenditure and family size is the economic variable which is influenced by the willingness to pay for improved water supply.

Table 2: Sources and Water available of Drinking and Cooking water

Sources	Wet	Mixed	Dry	Hilly
All Sources for Drinking and Cooking				
HSC	30.77	26.32	19.61	0.00
Stand post	65.93	45.61	64.71	0.00
OHT (on spot)	0.00	23.68	0.00	0.00
spring	0.00	0.00	0.00	100.0
Agricultural well	3.30	4.39	15.69	0.00
Principal sources for Drinking and Cooking				
Modern	31.10	38.52	30.39	0.00
Traditional	5.08	8.47	27.12	59.32
Total	26.61	33.33	29.82	10.23
Reliability of Drinking and Cooking water				
Daily	100.0	33.33	65.69	100.0
Two days once	0.00	0.00	19.61	0.00
Four days once	0.00	0.00	14.71	0.00
Weekly once	0.00	66.67	0.00	0.00
Litre Per Capita per Day (LPCD)				
Drinking and Cooking only	39.79	38.00	27.53	41.86
LPCD (as per norms)	60.67	56.44	32.27	76.58
LPCD (incl. washing)	80.17	74.78	44.28	94.93
Willingness to Pay for improved rural water supply				
Yes	6.59	14.04	13.73	0.00
No	85.71	67.54	26.47	100.0
Yes, but unable to pay	7.69	18.42	59.80	0.00
Amount for WTP (in `)				
	6.32	8.96	13.39	0.00

Source: Primary data (2010), WTP –Willingness to Pay.



8. Regression Result:

At the household level twelve variables have been identified, which include Area, Family size, LPCD, Total Family Income, Total time for water collection and House value etc. Correlation matrices were applied to understand and shortlist the variables, which influence the willingness to pay for improved water supply at the household level. Out of twelve variables, six variables exhibit a high percentage of correlation. Family size, LPCD, Total family income, Do the collection of water and time spent affect your routine work?, Total time for water collection and House value were considered for running the regression against the willingness to pay for improved water supply.

Table 3: Regression – Willingness to pay for improved water supply

Sl.No.	Independent Variables	Regression Co-efficient	Std. Error	't' Value	Sig.
1	Constant	3.674	.209	17.589	.000
2	X ₁	-.128	.024	-5.216	.000
3	X ₂	-.009	.001	-6.972	.000
4	X ₃	-3.298	.000	-0.462	.644
5	X ₄	-.199	.074	-2.707	.007
6	X ₅	.001	.001	.646	.519
7	X ₆	-8.845	.000	-.366	.714
N = 342, R = .542, R ² = .294					
Significant at 5% level					

Functions: $Y = a \pm bX$

$$Y = 3.674 - .128_{(FS)} - .009_{(LPCD)} - 3.298_{(TFI)} - .199_{(DCWTS)} + .001_{(TTWC)} - 8.845_{(HV)} + \text{Error}$$

Table 3 presents the regression analysis of the factors that determine willingness to pay for improved water supply. The result shows that Total family income, do the collection of water and time spent affect your routine work?, total time for water collection and house value do not significantly influence the willingness to pay for improved water supply. However, family size and Litre per capita per day (LPCD) are willing to pay for connection charges to the improved sources are statistically significant at $P > 0.05$ level. The R square value turns at to be 0.29. This shows that 29 percent of the variations are explained by the variations in the independent variables. Total time spent for water collection is positively related to family size and LPCD for improved water supply. This indicates that

total time spent for water collection increases the tendencies to adopt and pay for improved water supply will also increases.

9. Discussion and Conclusion

Table 1 illustrates the socio-economic characteristics of the respondents in the rural sample villages. The distribution of households with caste, family size, monthly income and expenditure and occupation are discussed in the available table. The percentage of Schedule Caste (SC) respondents are highly residing in the wet area of the sample village that is around 41 percent and lowest in the SC are located in mixed area that is about 13 percent. Similarly, the percentage of sample respondents under the SC in dry area is about 38 percent likewise, the estimated Backward Caste (BC) respondents are highly located in mixed area that is about 67 percent and the rest of the BC are residing in both wet and dry area that is about 54 percent equally. About 20 percent of Most Backward Caste respondents were greatly occupied the mixed area and the rest of respondents belonging to MBC category are residing at a least percentage in both of the wet and dry area, that is 2 percent and 7 percent respectively. Others were only 2 percent in wet area alone. The analysis of data confirmed that the estimated average family size has recorded in all the sample villages in and around 5 percent. Regarding monthly income of the family, the average agricultural income has recorded the maximum level of income earned by the sample respondents in all sample villages comparing all other incomes. The overall income earned by sample respondents engaged in agricultural sector is Rs. 5155.70 in mixed area of the sample village, which is the maximum income followed by agricultural sector, the income earned by private sector has recorded maximum level. The private income is Rs. 3004.39 in mixed area, which the maximum income compared with all other sample villages. Government income is Rs. 1967.03 which is the superior income earned by the wet area respondents, with the maximum level. Similarly the business income is greatly recorded in wet area that is Rs. 1269.23. Hence, the total family income is high in mixed area that is Rs. 10085. 53 followed by wet area. Whereas, estimating the expenditure for drinking water through house service connection in the sample villages, the maximum amount of expenditure for drinking goes to the wet village. The average monthly expenditure for drinking is Rs. 17 per head. In general fact, the Panchayats is collecting Rs. 50 per month for the supply of water through house service connection in the sample wet village. Other than that of hilly area, two sample villages in the remaining area, Rs. 30 is collected as a water charge. The reason for collecting Rs. 50 in wet area is because of the water distribution in both morning and evening.

In wet area the supply of water is regular and 5 hours of water is distributed to the whole village through the modern sources such as stand post and house service connection. The distribution time of water is three hours in the morning and in the evening for two hours. The average amount of expenditure is the least for drinking water in the dry area. The reason behind this is naturally because of the acute shortage of water in the dry area. People take bath once in two weeks. Hygiene level of the Households in the dry village is poor, particularly in SC habitation. There is no drainage facility. School going children are able to take bath only once in a week. Since the sample

village is facing water problem, the villagers in SC habitation goes for their work without washing their clothes for months. This is the condition prevailing in the SC habitation. Whereas, other habitations, mostly people are depending on agriculture and non-farm employment. The people are not well in their economical background. Even the people who avail house service connection in their houses is also unable to afford the water charge. In dry village, Attikadavu dam water is distributed through the available source after the purification process. In wet area, Aliyar dam water is distributed to the villagers, Siruvani is the principal source of drinking water in the mixed area villagers. The per capita expenditure for drinking in mixed area is recorded to be Rs. 950.69, Rs. 807.65 in wet and Rs. 619.04 in dry village.

The table 2 reveals the estimated available sources of water supply for drinking and cooking with the fact. Before the introduction of modern sources of water supply, domestic use of water was obviously done dominantly through the traditional sources such as open well and irrigation open well, canals and ponds. But now this tendency gets slowly changed and people are interested to use the modern sources for drinking, cooking, bathing and livestock maintenance purposes. People are not solely depending upon the single source for all their domestic uses, since, like traditional source, availability of modern sources is numerous, namely house service connection, hand pump (HP), stand post, power pumps and over head tank (OHT). Detailed analysis of data confirmed that about 31 percent of the respondents in the wet area depend on house service connection for their drinking and cooking needs.

In mixed area, about 26 percent of the sample respondents depends house service connection for their water needs for drinking and cooking, 20 percent of the dry village respondents utilizing house service connection for both drinking and cooking needs. Therefore, wet area respondents were greatly benefited by house service connection, stand post are more or less equally utilized by both wet and dry area sample villagers for both drinking and cooking that is 66 percent and 46 percent by mixed area. Whereas, stand post are the principal source for both drinking and cooking in all sample villages compared to all other sources. Only 24 percent of the mixed area sample households depends over head tank (on spot) for drinking and cooking.

Spring water is utilized by the hilly area sample respondents alone. Hence, it recorded 100 percentage of utilization in hilly area. Although, it is hilly, none other water source is available for their needs except spring water. Agricultural well is utilized maximum by dry area households followed by mixed area. Traditional sources of water supply are comparatively less with modern source supply of water. This is proved with the following available information and facts. About 31 percent of wet area respondents mostly depend on modern sources rather than traditional sources. Similarly in mixed area, about 38 percent of the sample respondents depend on modern sources and only 8 percent depend on traditional sources for drinking and cooking in mixed area. Whereas, in dry area there is not much difference pertaining in the dependency on modern and traditional sources quite a few percent prevailing for their water needs that is 30 percent of the sample respondents on modern source and 27 percent of them are giving priority to traditional source. None of the sample

respondents in hilly area is giving priority to modern source, 59 percent of the hilly area respondents depend on traditional source. Moreover, there is no other source except spring. Reliability of water sources are estimated, 100 percent of wet and hilly area respondents are collecting water regularly. About 33 and 66 percent of the mixed and dry area respondent are consuming water daily, some of the dry area respondents are collecting water once in two days, that is about 20 percent and once in four days about 15 percent. This is because of the shortage of water in the village in some habitations, particularly SC habitations. In summer the problem gets much more crucial. The households who are having house service connection is free from the water scarcity problem and the poor people gets adversely affected. Weekly once 67 percent of the sample respondents are collecting water in mixed area. The Department of Drinking Water Supply (DDWS), Ministry of Rural Development, has set itself the goal of providing safe and adequate water for drinking, cooking and other domestic needs on a sustainable basis to every rural person. This above table reveals the average consumption of water per household in the study area. Actually, the government norms allot 40 litres of water per individual per day. It incorporates drinking, cooking, bathing, washing utensils, house cleaning and ablution per day every individual. The table expresses the consumption of water collectively at household level and corresponding LPCD. In wet area average litres of water consumed for drinking and cooking is 39.79 litres per households.

The average family size in dry area is 4.49 persons but the supply according to norms of LPCD is only 32 litres. That supply even is amalgamation of government source and private sources of distribution. There is vast difference in water consumption pattern lies naturally in this area due to acute dryness compared to other areas.

An effort is made to find out the willingness to pay by the households towards sustainable water supply in all the study villages. The available data gives the information and facts in wet area that about 6.59 percent of respondents are agree to pay for improved water supply. The majority of respondents that is 85 percent do not agree to pay for improved water supply. Around 8 percent of the sample respondents are willing to pay but they are not affordable. In general fact, the majority of sample respondents do not agree to pay for improved water supply in the sample village, the reason behind this is the sample village situated near Aliyar dam, a naturally fertile area, and supply of water is also properly distributed to the sample village to all habitations. In wet area average consumption of water exceeds the government norms of 40 litres. The distribution of water is regular in the sample village, 5 hours of water is distributed daily. Aliyar dam water is distributed to the village people after the purification process for drinking and cooking. In addition to this, traditional source of well water is also utilized by the village people through the modern source such as house service connection and stand post. Whereas, in some of the habitations in the wet area, are willing to pay for quality water. The reason behind this is the purified dam water is not distributed to the people and they make use of well water which is salty. This salty water is not suitable for drinking and the respondents are ready to pay for good quality water. Quite a few sample respondents are willing to pay but they are not affordable because of the poor economical condition.

On average, the willingness to pay for improved quality of water per households sample respondents per month is Rs. 6.32. In the mixed area, majority of sample respondents are not willing to pay for quality and additional water supply that is about 67.54 percent. The reason is that, there is regular supply of bore water for domestic uses other than drinking and cooking and siruvani water is distributed through house service connection, stand post and over head tank (on spot) for drinking and cooking for weekly once. Above all, people are consuming adequate water in some of the habitation. Therefore they are not interested to pay for additional water supply. Around 33 percent of the respondents have expressed willingness to pay for additional and quality of water. In which, 14 percent of them can afford to pay Rs. 8.96 for additional water supply. The reason is that both the siruvani water and bore water are distributed through the same pipeline. Because of this practice, the water gets salty and the people feel that taste of the siruvani water gets too affected to drink. In some of the habitations even this tasteless water is in scarcity for drinking purpose. About 18 percent of the respondents are unable to pay to get good quality water. In dry area, 73 percent of the sample respondents are willing to pay for additional and better quality of water. Because, it is naturally dry area, the village people are greatly facing acute water shortage problem. Inadequate water supply is throughout the village. The village people in some of the habitations are not washing their clothes even for a month's time owing to the unavailability of water. People are able to take bath only once in fortnight. School going children are bathing weekly once. There is no arrangement of drainage even. So, people are willing to pay Rs. 13.39 for additional and quality water in about 73 percent reportedly, in which 60 percent of them are unable to pay because they are not well in their economical condition and 14 percent can pay for it. In addition to this, 26 percent of the sample respondents are not willing to pay, because, they have house service connection in their house and they make use of the available source. In hilly area, 100 percent of the respondents are not willing to pay and they make use of the traditional source of spring water.

The study has shown that the majority (73 percent) of the sample respondents who are habitats of dry area is willing to pay for additional and quality of water supply. Among the respondents who have agreed and showed their willingness for additional and quality water supply irrespective of their domestic usages nearly 14 percentage of the respondents do have the affordability to pay and the rest of them have the willingness but unable to pay. The Willingness to pay in terms of money for additional and quality of water for domestic consumption is more in dry area compared to other regions such as wet, mixed and hilly regions for there is acute availability of water. Hence, considering acute nature of water persistence percolated throughout the dry area needs immediate and immense attention of the policy makers and government authorities to derive policies in favour of the people for the public purse is the only reliable source which people render themselves.

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