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A STUDY OF DRINKING WATER SUPPLY IN TIRUCHENDUR TALUK

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ABSTRACT

Safe drinking water plays a major role in the overall well-being of the people, with a significant bearing on infant mortality rate, longevity and productivity. This study aims at evaluating the facilities made available by town panchayats related with drinking water supply and other issues such as utilization of water, frequencies of tap water, payment of water revenue, family members engaged in water collecting beneficiary families relating to drinking waterin Tiruchendur taluk.The present study is based both on the primary data and secondary data. Primary data has been collected through the 7 sample villages from Tiruchendur Taluk by using purposive sampling method in order to study the situation of drinking water supply. For analysis of data, statistical tools like averages, percentages, standard deviation, chi square test, t test and probability analysis used.It is revealed that out of selected sample beneficiary families, the highest number of beneficiary families i.e. 37.5% were highly dissatisfied, followed by 26.67% beneficiary families were satisfied from scheme services, whereas 11.67% beneficiary families were dissatisfied, 9.17% beneficiary families were highly satisfied from the implemented schemes and 15% beneficiary families not given their opinion clearly. In order to find out the significant difference in satisfaction of payment of water revenue by sample beneficiary families based on marital status, the 't' value was calculated and the calculated 't' value was found to be 0.2732 which is lower than the table value 1.97 which is significant at 0.05 level. Therefore the null hypothesis is accepted and concluded that there is no significant difference in satisfaction of payment of water revenue by sample beneficiary families between marital statuses of respondents.In conclusion, the existing guidelines need to be modified. Proper measures should be formulated for periodic monitoring and stricter implementation of these guidelines, and policy makers should be sensitized.

KEYWORDS: *chemical substance, consumption, infant mortality, longevity, periodic monitoring.*

INTRODUCTION :

Water is energetic for life. Life and water on this planet are attached. Water is an everlasting wonder, a life given force, a powerful agent of progress or ruin. Man must connect the basic resources wisely for the progress and wealth of mankind. Water is the most valuable commodity to the human life; if it is appropriately managed it can serve the society in number of ways. Depending upon the situations it can be both priceless and worthless, blessing and a curse. Water is a mutual chemical substance that is essential to all known forms of life.

Water is essential to sustain life, and a satisfactory supply must be made available to

consumers (A. R. Hari). Safe drinking water plays a major role in the overall well-being of the people, with a significant bearing on infant mortality rate, longevity and productivity (Economic Survey, 2003-04). Safe water is one of the most important felt needs in public health in developing countries in the twenty first century (Sobsey MD, Bartram, 2003). Provision of safe drinking water has been of primary concern in rural India (Bilas, 1981 and Kang 2001).

In India, ensuring access to safe drinking water is being interpreted as a constitutional mandate in the recent past; both the Supreme Court of India and the High Courts around the country have recognized this right (Constitution of India, Article 21). Both Central and State Governments have undertaken various programmes since Independence to provide safe drinking water to rural communities. "Water that does not represent any significant risk to health over a lifetime of consumption" (AnuradhaMujumdar, 2007).

After independence in 1951 five year plan was accepted in order to develop our country by all means. 1951-56 was the first five year plan for achieving above desired goal. So for developing our nation Government was investing lot of money on the various sectors through such five year plans. Especially Government has invested totally Rs. 158932.3 crore for rural drinking water supply through the five year plan means from the first five year plan (1951-56) to eleventh five year plan (2007-12). Out of this investment, 45.96% has come from the central Government and 54.04% was the contribution from the state Governments. In the first three five year plans Rs. 3 crore, 30 crore and Rs. 48 crore had invested by state Governments respectively. It means that in first three five year plans there was no provision by central Government for rural drinking water supply.

In Tamil Nadu, there are guidelines for provision of potable drinking water in villages and to ensure segregation of sewage and drinking water. This includes setting up a village level water and sanitation committee to formulate a master plan for sewage and drainage (TWAD Board, 2007).Open air defecation, a common practice among villagers, may lead to contamination of the water supply system and result in outbreaks of diarrhoeal disease (Bora, 1997 and Sarkar 2007). The practice of tethering animals close to human dwellings and the consequent proximity to animal faecal matter further enhances the risk of contamination of drinking water (Licence, 2001 and Howe 2002).

The key to providing microbiologically safe drinking water lies in understanding the various mechanisms by which water gets contaminated, and formulating interventions at critical points to decrease and prevent contamination of drinking water (Trevett 2004). This study aims at evaluating the facilities made available by town panchayats related with drinking water supply and other issues such as utilization of water, frequencies of tap water, payment of water revenue, family members engaged in water collecting beneficiary families relating to drinking waterin Tiruchendur taluk.

OBJECTIVES OF THE PRESENT STUDY

1.To analyze the socio economic conditions of sample respondents
2.To know the availability of drinking water
3.To examine the time spent by sample families for collecting water and payment of water revenue and
4.To study satisfaction levels of sample beneficiary families about implemented drinking water supply schemes

METHODOLOGY

The present study is based both on the primary data and secondary data. Primary data has been collected through the 7 sample villages like Ammanpuram, Chettiyapathu, Kayamozhi, Kulasekaranpattinam, Lakshmipuram, Megnanapuram and Paramankurichiwere selected from Tiruchendur Talukby using purposive sampling method in order to study the situation of drinking water supply. The information about drinking water supply by town panchayats was collected from the firkas of each sample village through the interview-scheduled. In these 7 sample villages, 120 sample beneficiary families were selected in order to collect the information about the facilities made available by town panchayats related with drinking water supply and other issues such as utilization of water, frequencies of tap water, payment of water revenue, family members engaged in water collecting, families affected by scarcity, time and money spent for fetching drinking water and problems of beneficiary families relating to drinking water through the interview scheduled. The most important source of

the collection of the secondary data is various websites such as- www.cwc.nic.in, www.wateraid.org.gov.in, www.indiawaterportal.org, economic survey of India, economic survey of Tamilnadu, Thoothukudi district socio-economic review, census 2011 of India and Tamilnadu, various publications of the Government, journals, related subject books, reports, research articles, and reviews of literatures were used for data collection. For analysis of data, statistical tools like averages, percentages, standard deviation, chi square test, t test and probability analysis used.

Selected Sample Villages and Beneficiary Families

Name of the village	No. of respondents	Percentage
Ammanpuram	23	19.2
Chettiyapathu	38	31.7
Kayamozhi	19	15.8
Kulasekaranpattinam	12	10
Lakshmipuram	6	5
Megnanapuram	10	8.3
Paramankurichi	12	10
Total	120	100

Source: primary data

The table shows 7 sample villages like Ammanpuram, Chettiyapathu, Kayamozhi, Kulasekaranpattinam, Lakshmipuram, Megnanapuram and Paramankurichi selected for field survey. In Ammanpuram, Chettiyapathu, Kayamozhi, Kulasekaranpattinam, Lakshmipuram, Megnanapuram and Paramankurichi19.2, 31.7, 15.8, 10, 5, 8.3 and 10 percent sample respondents were selected for the study.

Availability of Tap Facilities

Availability of Tap Facilities	No. of. Respondents	Percentage
Only public stand posts	29	24.17
Only household tap	14	11.67
Only hand pumps	18	15.00
All	59	49.17
Total	120	100

Source: primary data

In rural area generally various sources are used for collecting the water. Such as public stand posts, household tap, hand pumps, bore wells, wells, rivers, lakes, canals and dams. The information about availability of such various sources was collected.Out of the 120 sample respondents, there were 11.67 sample respondents where at only household tap facility was available, out of these, 24.17% samplerespondents where at only public stand posts were available, 15% sample respondents where at only hand pumps facility was available and the highest 49.17 % sample respondents where at all the public stand post, hand pumps and household tap facilities were available for water supply.

Age wise distribution of sample Respondents

Age (in years)	No. of. Respondents	Percentage
25-30	9	7.5
30-35	40	33.3
35-40	54	45
40 and above	17	14.2
Total	120	100

Source: primary data

The study shows that 45% of the sample respondents are in the age group of 35-40 years, 33.3% of the sample respondents in the age group 30 – 35 years, 14.2% of the sample respondents are 40 above years and 7.5% of the sample respondents are in 25 – 30 years. Thus 45% of the sample respondents are belonging to the age group of 35 – 4o years.

Marital status

Marital status	No. of Respondents	Percentage
Married	95	79.17
Unmarried	25	20.83
Total	120	100

Source: primary data

Table supplementary shows that a considerablenumber of the respondents are married. They constitute 79.17 per cent of the sample and the rest 20.83 per cent are unmarried.

Caste of the Respondents

Caste	No. of respondents	Percentage
MBC	65	54.2
BC	35	27.5
SC	22	18.3
Total	120	100

Source: primary Data

The above table reveals that 54.2 % of the sample respondents belong to MBC and 27.5% of the sample respondents belong to BC and 18.3% of the sample respondents belong to SC.

Religions of the Respondents

Religion	No. of Respondents	Percentage
Hindu	98	81.7
Christian	22	18.3
Total	120	100

Source: primary data

The above table shows that 81.7% of the sample respondents are Hindu and 18.3% of the sample respondents are Christian. Most of them are Hindus.

Educational Status of the Respondents

Education	No. of Respondent	Percentage
High school	81	67.5
Higher secondary	25	20.8
College	14	11.7
Total	120	100

Source: primary data

It shows that 67.5% of the sample respondent studied under high school education, 20.8% of the sample respondent is studied under higher secondary school education, 11.7% of the sample respondent studied under college education.

Family size of the Respondents

Family size	No. of respondents	Percentage
1-3	42	35
3-6	68	56.7
6 and above	10	8.3
Total	120	100

Source: primary data

It reveals that 56.7% of the sample respondents have the family size between 3-6 members, 35% of the sample respondents have 1-3 member, and 8.3% of the sample respondents having the size of 6 and above members.

Housing Type of the Respondents

Housing type	No. of respondent	Percentage
Thatched	37	30.8
Tiled	11	9.2
Concrete	72	60
Total	120	100

Source: primary data

It discloses that 30.8% of the sample respondents have tiled house and 9.2% of the sample respondents have thatched house and 60% of the sample respondent have concrete house.

Respondents family Types

Family type	No. of respondents	Percentage
Nuclear	66	55
Joint	54	45
Total	120	100

Source: primary data

It reveals that 55% of the sample respondent is living in under type and 45% of the sample respondents are joint family type.

Residential Positions of Sample Respondents

Residential position	No. of respondent	Percentage
Owned house	78	65
Rented house	42	35
Total	120	100

Source: primary data

It show that 65% of the sample respondent are own house and 35% of the sample respondents are rent house.

Monthly Income of Sample Respondents

Monthly Income in (Rs)	No. of respondents	Percentage
Below 10000	6	5
10000-20000	44	36.7
20000-30000	48	40
30000-40000	6	5
40000-50000	10	8.3
Above 50000	6	5
Total	120	100

Source: primary data

The above table shows that 36.7% the sample respondents income between 10000 -20000, 40% of the sample respondent's income between 20000-30000, 10% of the sample respondent's income between 30000-4000, 8.3% of the sample respondent income between 40000-50000 and 5% of sample respondent's income between above 50000 and below 100000. The mean monthlyincome worked out to be Rs. 20,550.

Availability of Drinking Water

Availability of Drinking Water	No. of respondents	Percentage
More than Sufficient	32	26.7
Sufficient	65	54.2
Scarcity	13	10.8
Intensive Scarcity	10	8.3
Total	120	100

Source: primary data

Out of the selected 120 sample respondents, there were only 26.7% sample respondents at which drinking water was available more than necessity, 54.2% sample respondents where at drinking water was available sufficiently. However at 10.8% sample respondents there was always the problem of water scarcity and at 8.3% sample respondents there was intensive scarcity of water.

Drinking Water Storage Facilities

Drinking Water Storage Facilities	No. of Respondents	Percentage
Yes	83	69.2
No	37	30.8
Total	120	100

Source: primary data

The above table shows the availability of drinking water storage facilities in selected sample respondents. Out of 120 sample respondents, 69.2%respondents were replied 'Yes' and remaining 30.8%respondents replied 'No'.

Payment of Water Revenue by Sample Beneficiary Families

Payment of Water Revenue	No. of Respondents	Percentage
Yes	98	81.7
No	22	18.3
Total	120	100

Source: primary data

Table shows the percentage of beneficiary families regarding the payment of water revenue. Out of the total 120 sample beneficiary families, 81.7 percent families replied 'yes' means they were paying water revenue

regularly and 18.3 percent beneficiary families replied 'no' means they were not paying water revenue regularly.

Time Spent by Sample Families for Collecting Water in a week

Time Spent (in hour)	No. of respondents	Percentage
Less than 1	20	16.7
1-2	32	26.7
2-3	21	17.5
3-4	10	8.3
More than 4	37	30.8
Total	120	100

Source: primary data

Table indicates the time spent for fetching water by the beneficiary families in a week. Out of the 120 beneficiary families, there were 16.7% beneficiary families spent less than 1 hour for collecting water, 26.7% families were spent 1-2 hour for fetching water, 17.5% beneficiary families were spent 2 hour to 3 hours for fetching water, the highest 30.8% beneficiary families were spent more than 4 hours for fetching water and 8.3% beneficiary families were spent 3 -4 hours for fetching water.

Response of Sample Families Regarding Efforts of Government to Avoid Scarcity

Response	No. of Respondents	Percentage
Yes	81	67.5
No	39	32.5
Total	120	100

Source: primary data

Table shows response of scarcity affected sample beneficiary families about efforts of the Government for removing scarcity. Out of these 120 beneficiary families, 67.5% beneficiary families were replied 'yes' means according these families Government was taken various efforts for removing the problem of scarcity in their villages and 32.5% beneficiary families said 'No' means according to these beneficiary families, Government was not taken any effort for removing scarcity in their villages.

Satisfaction Levels of Sample Beneficiary Families about implemented Drinking Water Supply Schemes

Satisfaction Levels	No. of respondents	Percentage
Highly satisfied	11	9.17
Satisfied	32	26.67
Dissatisfied	14	11.67
Highly dissatisfied	45	37.5
Can't say	18	15.0
Total	120	100

Source: primary data

Out of selected sample beneficiary families, the highest number of beneficiary families i.e. 37.5% were highly dissatisfied, followed by 26.67%beneficiary families were satisfied from scheme services, whereas 11.67% beneficiary families were dissatisfied, 9.17% beneficiary families were highly satisfied from the implemented schemes and 15% beneficiary families not given their opinion clearly. It means out of total sample beneficiary families, only 35.84 percent beneficiary families were satisfied about implemented drinking water supply schemes.

The Summary of Opinion of the sample beneficiary families

Factors	Chi-Square Value	Result
Age	14.81	Significant**
Educational Qualification	11.25	Significant**
Family Size	1.04	Not Significant
Family type	6.35	Significant*
Marital status	4.01	Not Significant
Monthly income	10.94	Significant*

Source: Compiled from Primary Data

The opinion of the respondents and socio-economic characters relationship is applied for chi square test. The selected variables only applied in this model. The table reveals that the summary of the respondents. The chi-square analysis reveals that the factors are age and education are significant at 1% level. Family typeand monthly incomeare significant at 5% level of significance. The remaining factors are not significant at 5% level.

Significant difference in satisfaction of payment of water revenue by sample beneficiary Familiesbased on marital status

Marital Status	Percentage	Mean	S.D	't'Value	Interpretation
Married	79.17	17.24	5.31	0.2732	Not Significant
Unmarried	20.83	3.83	1.85		

Source: Computed from Primary Data

In order to find out the significant difference in satisfaction of payment of water revenue by sample beneficiary familiesbased on marital status, the't' value was calculated and the calculated't' value was found to be 0.2732 which is lower than the table value 1.97 which is significant at 0.05 level. Therefore the null hypothesis is accepted and concluded that there is no significant difference in satisfaction of payment of water revenue by sample beneficiary familiesbetween marital statuses of respondents.

CONCLUSION

In conclusion, poor planning and maintenance of the water supply system has led to inappropriate usage and over-exploitation of available resources, thereby causing contamination in the study village. The existing guidelines need to be modified. Proper measures should be formulated for periodic monitoring and stricter implementation of these guidelines, and policy makers should be sensitized.

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