# Knowledge attitude and practice of Using the surface water in Tamil Nadu,

**Dr.K.Tamilselvi,**

Research Associate, Central Theme, RUSA 2.0, Bharathidasan University,

**Abstract:**

India accounts for 18 per cent of the world population and 4 per cent of the world’s water resources. In spite of adequate average rainfall in India, there is large area under the less water conditions/drought prone. Because the people behavior of rainwater harvesting system changed compare with ancient Indians’. When the bore well technology was arrived in India, after the bore well technology the uses of surface water usage was gradually change and now 70 percent of surface water sources were polluted. The objectives of the study are to analyze the knowledge, attitudes, and practices (KAP) of population in Ariyalur and Perambalur districts, Tamil nadu. This study used the Focus group discussion method. From the results, both district having different experiences in surface water. In Perambalur Municipality surface water totally polluted, as well as the Village Panchayats people using the partial surface water that means, they using open well for non drinking purposes. Ariyalur Municipality and Village panchayats has different from Perambalur district. In Ariualur district’s people using the surface water for drinking and non drinking purpose. This study concludes the urgent need to gives awareness to the people to save and use the surface water for future India.

**Key Words:** Surface water, Knowledge Attitude and Practice of surface water, Quality of surface water

**Introduction:**

 Surface water is any body of water above ground, like ocean, streams, rivers, lakes, wetlands, reservoirs, and creeks. The ocean surface water participates in the hydrologic cycle, or water cycle, which involves the movement of water to and from the Earth’s surface. Surface is an important direct main source of drinking non drinking purposes, and also used for the irrigation of farmland, recharge the ground water, and other eco system also. In common usage, it is usually used specifically for terrestrial (inland) water bodies, the vast majority of which is produced by precipitation and runoff from nearby higher areas. As the climate warms in the spring, snowmelt runs off towards nearby streams and rivers contributing towards a large portion of human drinking water. India accounts for 18 per cent of the world population and about 4 per cent of the world’s water resources. India currently stores only 6 percent its annual rainfall or 253 billion cubic metres. In spite of adequate average rainfall in India, there is large area under the less water conditions/drought prone. There is lot of places, where the quality of groundwater is not good. Another issue lies in interstate distribution of rivers. Water supply of the 90% of India's territory is served by inter-state rivers. It has created growing number of conflicts across the states and to the whole country on water sharing issues (8).

 Although India possesses only 4% of the world's renewable water resources, it is home to roughly 18% of the world's population. India has an average annual precipitation of 4,000 billion cubic meters (BCM), making it the country's primary source of freshwater. Surface water, subsurface river flow, groundwater, and frozen water are all-natural sources of freshwater. In 1970 bore well technology arrived in India, after the bore well technology the uses of surface water gradually change and now 70 percent of surface water sources were polluted moreover overharvesting occurred due to bore well technology, and the groundwater resources is causing a water crisis. Starvation of water make problems including health issues, according to the World Health Organization, water is the responsible for half of the Indian’s sickness.

**Objectives:**

The main objective of the study is to know the status of surface water in Municipalities and Town Panchayats and to study the knowledge, attitudes and practice of usage of surface water in the same areas.

**Methodology:**

**Study area:**

 Above study was conducted in two district (1) Ariyalur and (2) Peramablur, both districts has different geographical nature. Ariyalur district located in the Central eastern part of the Tamil Nadu lies between North Latitudes 10o52’30”- 112552’20” and East Longitudes 78o57’00”- 79o31’00”. Ariyalur district with Headquarter at Ariyalur consists of two revenue division of Ariyalur and Udaiyarpalayam. The district comprises 15 Firkas with 201 village Panchayats, two Town panchayats and Municipalities. It is an inland district without coast line. Perambalur is the one of district of Tamilnadu state, Latitude and longitude coordinates are: **11.230000, 78.879997.** Towns place category with the gaps coordinates of 11° 13' 48.0000'' N and 78° 52' 47.9892'' E. The city is divided into 21 wards, it has population of 49,648 of which 24,65 are males while 24,989 are females as per report released by Census India 2011. Perambalur Municipality has total administration over 12,732 houses to which it supplies basic amenities like water and sewerage. It is also authorize to build roads within Municipality limits and impose taxes on properties coming under its jurisdiction.Perambalur Municipality has 21 wards.

**Data:**

This is a qualitative study, data collect through focus group discussion, which aims to analyze knowledge, attitudes, and practices (KAP) on Surface water treatment of people in the district of Ariyalur and Perambalur. The venue was chosen to ensure accessibility for all, absolute neutrality, and a relaxed and quiet atmosphere. The date and time of the meeting considered the personal constraints of most participants. Each participant was contacted the day before the meeting date to ensure their presence and to answer any questions. Arrangements were also made to record all discussions.

 In addition to handwritten notes in local language (Tamil) during the focus groups, the discussions were recorded and later transcribed and translated into English. All questions were open questions. The topics covered were: importance of surface water, the quality of surface water sources used for drinking, the sources of contamination of surface water, types of surface water bodies, storage capacity of water bodies, trend of water bodies, current situation of water bodies, known and using the surface water in Ariyalur and Perambalur district. The privacy and confidentiality of the interviewees, and positive interactions between the individuals and the interviewer, were maintained during data collection.

Additionally, 84 participants were selected for seven (7) focus groups. Women and men were participated and opinions were also gathered on the question of surface water hygiene. The groups consisted of a mix of water point users and managers to confront the behaviors and practices around the water bodies. The number of participants twelve.

**Results:**

**Socio-Economic and Demographic characteristics:**

The analysis revealed that the both districts, among the participants 41.1 percent male and 58.9 per cent female, average current age of the respondents were 24.6 years. Majority of respondents were Hindus 65.4 per cent constituted the followed by Christians 34.5 per cent. 60.9 per cent of the respondents belonging scheduled community, 39.0 per cent of others. The average household size was 3.8 persons. The educational status of respondent ranged from 18.1 per cent of illiteracy in 47.2 per cent of primary and 34.5 per cent middle level. 71.8 per cent of the respondent was currently married living with their husband, 17.2 per cent of separated and 10.9 per cent of widowed. All the women belonged from nuclear families. Average number of children of women was male 1.08 and 1.0 of female children. Buildings construction labour workers and housekeeping labour constituted the majority of women. The average monthly income of respondent was Rs. 9063.63 (Table 1).

**Table 1**

**Percentage distribution of Background characteristics of the**

**Respondents**

|  |  |  |
| --- | --- | --- |
| **Sl.No** | **Background characteristics** | **Percentage** |
|  1. | Current age | 15-19 | 16.3 |
| 20-24 | 31.8 |
| 25-29 | 36.3 |
| 30-34 | 15.4 |
| Average 24.6 years |  |
| 2. | Sex | Male | 41.1 |
| Female | 58.8 |
| 3. | Religion | Hindu | 65.4 |
| Christian | 34.5 |
| 4. | Caste | SC | 60.9 |
| Others | 39.0 |
| 4. | Marital status | Currently married  | 71.8 |
| Widow  | 17.2 |
| Separate  | 10.9 |
| 4. | Family Type | Nuclear | 100 |
| Joint |  |
| 6. | Household size | 2-3 | 33.6 |
| 4-5 | 64.5 |
| 5+ | 1.8 |
| Average 3.8 |
| 7. | Educational Attainment | Illiterate | 18.1 |
| Primary | 47.2 |
| Middle | 34.5 |
| 8. | Occupation | Housekeeping | 27.2 |
| Construction work labour | 52.7 |
| Small business | 20 |
| 9. | Monthly Income | <=10000 | 60.9 |
| 10000-15000 | 39.0 |
| Average 9063.63 |

**Access and availability surface water in Study areas:**

 According to the Focus Group Discussion the sources of drinking water for Perambalur Municipality is Kollidam river water. The people reported ‘once upon a time that area people used the open well and Thoraimangalam lake water drinking and non-drinking purpose, but at present cannot use the surface water due to pollution’. But most of the household having own bore well in the municipality, among them wealthiest people using RO system for purifying the water and others using for non drinking purpose. In Ariyalur Municipalities has Arasan lake and Kurunjan lake and smalle pond also there, all were polluted. Since the entire water bodies have been covered with the vegetation and surrounded with the Seemai Karuvelam trees, the major resource which could irrigate several thousand acres of land in and around Ariyalur. Village panchayats has many small pond and more open well. In that Amman Koil Theppakulam Lake is very big and famous, the people using the water for non drinking purpose like bath, wash dress and domestic animal purpose. Moreover in the Lake has water whole year. As well as a Nalla thanni Open well is there, the people using the water for only drinking purpose. Because of taste is good other sources of water. In village panchayat has many Lake, and most of the household has Open well. At the time that area people using the surface water for non-drinking and drinking purpose also.

**Situation of surface water:**

Current situation of surface in Perambalur is very worst condition. 20 years back that people used the Thoraimangalam Lake, bond and open well water for drinking and non drinking purpose. A 78 years elder person reported as “I am a farmer, in my early age (may be 30), we were using the open well water for agriculture as well as drinking purpose, and used the Eswaran Koil bond water for drinking purpose, but now all are polluted, now cannot use for any purpose”. At present the Thoraimangalam Lake is using for open defecation to the people, and also they dumping the wastage in the lake, moreover in the lake full of filling cypress oak.

 One woman reported her situation, that is, “we have a open well more than three generation, we were using that water for all the purposes, but now it was polluted, because when the lake water polluted automatically well also polluted”, now we cannot use the water, struggling for water”.

 In Perambalur city’s open surface water bodies filled by wastage including plastics papers, cups, bottles, cloths, even the people throw their children’ napkin, and menstrual napkin also. So cannot use the surface water any purpose. Most of the surface water totally polluted in Perambalur. Water saving habit is absence in the area. Rare people having rain water harvesting system. In ward 4 Manathagobala puram a person saving the rain water. Compare with the Ariyalur district totally reverse condition of surface water. In Ariyalur Minicipality and Village panchayat like water bodies being good conditions.

**Quality of surface water:**

Perambalur Municipality is supplying combinedCavery river water, which is acceptable for drinking, colourlessand transparent and taste also good. Most of the household having own bore well that is salty water. But sometimes the water having color because the cavery river water comes fifteen days once, in between the bore water would supply in the same pipe, so the water taste changed. If have any problems like the pipe would damaged in rainy seasons or any other issues the water would change color and taste. Most of the household having RO system for purify the water and use for drinking purpose.

A man was explained, “In my early age we used the Sivann Temple Theppakula water for drinking purpose, but now even cannot bath because of pollution. And my grandfather and father using our open well water for agriculture purpose and drinking purpose also, but when the city developed our open well were become as waste water”. Some bodies told the same narration regarding quality of surface water in Perambalur Municipality.

**KAP of the surface water:**

Both district having knowledge, attitudes and practice in usage of the surface water. In perambalur the people don’t have knowledge about surface water. Most of the people responses don’t know the surface water. They explained, total surface water was affected by Seema Karuvela Trees, and plastics, and other garbage so cannot use it. Some bodies did not have knowledge about their areas surface water bodies, even they forgotten the name of the lake and pond also. At the same time in Arialur district the people knows the importance of the surface water and they practicing the use of the surface water

**Conclusion:**

According to the study both district having different knowledge attitudes and practices. In perambalur surface water bodies using for dumping garbage, and filled the Seema Karuvela Trees, the people using the surface of lake for open defecation. But Ariyalur district’s people maximum using the surface water for drinking and non-drinking purpose. Particularly in Udaiyarpalayam Town panchayat people like more open well water for drinking purpose because of taste. The entire households like more a particular open well, that name is Nalla Thannir Kinaru. The quality of water, status of water, knowledge, attitudes and practice was different. Both district having different geographical nature, water resources. So, the Ariyalur district Knowledge, attitudes and practice are good compare with Perambalur district.

 **Suggestions:**

Since the creation of this earth on which we live, the five elements, which are the source of living beings, have renewed themselves and acquired a lasting character. This is nature's best sustainable scientific method. Unfortunate man failed to understand the nature of the earth with his knowledge and called what appeared to him as scientific knowledge and created a change in the land, water, air, and fire that existed since the beginning of the earth and spoiled its balance. When human science started in the world, nature started to perish. Nature has created a perfect scientific method and it has lasted for ages. But not only does man's knowledge fail to understand natural science, he destroys nature and seeks harm for himself without realizing that creating with his knowledge is an act of destroying nature. Land, air, water, fire and sky those five elements is base to the living things. Five elements are the source of living being. But Man pollutes the land, air, air and water with his knowledge and meets its effects. That is, he hurts his eyes with his own hand. Since both water and land are visible to the eye, man owns them as much as he wants with his strength and desire moreover human sense changed water and land nature and spoiled it. The result is that man has become unable to live by using them. So this study suggested:

The major conclusion drawn from this research stress the need for some of the following recommendations:

* Cypress oak is major reason for scarcity of water. Urgent need to remove the cypress oak, it is serious issues, because it can observe moisture from air and grow healthy, so even in dry will became dry more and more. So should take action immediately to destruct and safe the surface water.
* Should develop the rain water harvesting in Municipality administration level, and motivate the individual also.
* Should prevent the waste water generation.
* Should organize the awareness camp to the entire people get surface water.
* Perambalur Municipality ward members should take effort to clean the surface water bodies and ratification the access and availability of drinking and non-drinking water.

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