

Drinking Water Quality of Open Wells in Sukkampatti Village – Tamilnadu

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Abstract - Current study is based on the analysis of drinking water parameters in sukkampatti village, Dindigul district, Tamilnadu. The basic parameters of drinking water like PH, Total solids, alkalinity, hardness, etc are selected for the study to analyse the water quality of the drinking water available for this small village. Values obtained in the various parameters were compared with ICMR standards of water quality.

Keywords -pH, Total Solid, Alkalinity, Hardness, Dissolved Oxygen.

I.INTRODUCTION

Water plays an essential role in human life. Although statistics, the WHO reports that approximately 36% of urban and 65% of rural Indian were without access to safe drinking water [1]. Fresh water is one of the most important resources crucial for the survival of all the living beings. It is even more important for the human being as they depend upon it for food production, industrial and waste disposal, as well as cultural requirement [2]. Human and ecological use of ground water depends upon ambient water quality. Human alteration of the landscape has an extensive influence on watershed hydrology. Ground water plays a vital role in human life. The consequences of urbanization and industrialization leads to spoil the water for agricultural purposes ground water is explored in rural especially in those areas where other sources of water like dam and river or a canal is not considerable. During last decade, this is observed that ground water get polluted drastically because of increased human activities.

Consequently number of cases of water borne diseases has been seen which a cause of health hazards. The quality of water is of vital concern for the mankind since it is directly linked with human welfare. It is a matter of history that facial pollution of drinking water caused water-borne diseases. The present work is an attempt to measure the water quality of the drinking water available for the village people.

II.METHOD

In present investigation water samples were collected in polythene bottles which were cleaned with acid water, followed by rinsing twice with

distilled water. From each point three water samples were collected and the water samples are chemically analyzed. Average of the three samples was taken as the value of the particular point(well). The analysis of water was done using procedure of standard methods. The pH was measured with laboratory PH meter. Hardness was measured by EDTA titration method and the values are given in ppm (as calcium carbonate equivalent). Total alkalinity was determined volumetrically using methylorange indicator and the values are given in ppm (as calcium carbonate equivalent). Total Solid was determined by evaporation method and the values are given in ppm. Dissolved oxygen was estimated by wingers method and the values are given in ppm.

Table 1-Water parameter values observed for water samples collected from the study area.

Sam ple num ber	PH	Total solids (ppm)	Hardn ess (ppm)	Alkali nity (ppm)	Disso lved Oxyg en (ppm)
1	7.5	742	535	483	2.5
2	7.2	810	589	412	3.8
3	7.8	785	540	533	1.2
4	6.8	913	560	384	5.6
5	7.9	696	482	605	4.2
6	7.4	945	534	554	3.7
7	7.3	960	526	494	2.9
8	6.5	1070	615	264	1.8
9	6.9	982	594	376	2.7
10	6.7	1050	587	325	2.5
Aver age	7.2	895.3	556.2	443.0	3.09

Table 2-Ground water quality at the study area with drinking water standards (ICMR)

Serial No.	Standard Parameters	Average values	ICMR (Recommended Limits)
1	PH	7.2	7.0-8.5
2	Total dissolved solids	895.3	500
3.	Hardness	556.2	300
4	Alkalinity	443.0	600
5	Dissolved Oxygen	3.09	-

III.RESULTS AND DISCUSSION

The water from the study area has negligible colour and odour. Taste of the water sample in most of the locations was good. The result of the chemical analysis of water in the present study is shown in Table-1. It is necessary to make a comparison of water quality with ICMR standards [3]. These parameters are shown (and the values are given in ppm as calcium carbonate equivalent) in Table-2. PH and Alkalinity are within the limits. Other parameters Total solid and Hardness are slightly higher than the recommended values. Dissolved oxygen content is not important for drinking purpose. But it is the important factor for aquatic life especially for fishes.

IV.CONCLUSION

This study shows that ground water is the only source for people in the study area, and the results of the chemical analyses of ground water indicate considerable variation. Most of the water samples do not match with ICMR standard, especially Total solid and Hardness are higher. In future, the values may go up which will make the water unsuitable for drinking purpose. The water quality in the investigated area is found above the margin. It must be noted that a regular chemical analysis must be done to ensure the quality of water in this area, because of the increased chemical fertilizer usage in agricultural activities, in this area.

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