

Ground Water Quality in Mohendergarh Town, Haryana (India)

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ABSTRACT

Water is most important commodities and mainly most misused one and essential for the survival of life. The present research paper undertaken to account to bring an acute awareness among the people about the quality of ground water in Mohendergarh Town, Haryana. The water samples from specific locations for analysis. The experiment analyses its various Physico-Chemical parameters such as pH, Electrical conductivity, TDS, TH, TA, Ca²⁺, Mg²⁺, Cl⁻, So₄²⁻, Na⁺, K⁺, Co₃²⁻, Hco₃⁻, F⁻ content in ground water. Also results of Mohendergarh Town, Haryana India.

Keywords: Ground water quality, Physico-Chemical parameters, Mohendergarh (Haryana).

INTRODUCTION

Water is one of the most indispensable resources and is the elixir of life. Water constitutes about 70% of the body weight of almost all living organism. Life is not possible on this planet without water. It exists in three states namely solid, liquid and gas. It acts as a media for both chemical and biochemical reactions and also as internal and external medium for several organisms. About 97.2% of water on earth is salty and only 2.8% is present as fresh water from which about 20% constitutes ground water. Ground water is highly valued because of certain properties not possessed by surfaces water¹. The rapid growth of urban areas, domestic and irrigation uses have further affected the ground water quality due to over exploitation of resources and improper waste disposal practices. Therefore it is essential for protection and management of the ground water quality. Consequently number of cases due to water pollution, water borne diseases has been seen which cause health hazards²⁻⁴. It is matter of history that facial pollution of drinking water caused diseases which wiped out the entire population of the studied area⁵. The present work is an attempt to measure the Ground water quality of Mohendergarh Town, Haryana.

EXPERIMENTAL

1. Water Sampling

A total of 20 ground water samples taken from ten locations of Mohendergarh town were collected in polythene bottles which were cleaned with acid water, followed by rinsing twice with distilled water. The water samples are chemically analyzed. The analysis of water was done using procedure of standard methods⁶.

2. Study Area

Mohender garh is one of the 21 district of haryana state in northern India. The district occupies an area of 1,859 km². The district has a population of 812,022 (2001 census). Narnual Town is the administrative headquarters of the district. Mohendergarh is one of the very few district in india where the name of the district and its town are different. As of 2011 it is the third least populous district of haryana (out of 21), after panchkula and Rewari. The district lies between north latitude 27° 0' to 28° 26' and east longitude 75° 56' to 76° 51'. It is bounded on the north by Bhiwani and Rohtak districts, on the east by Rewari

district and Alwar district of Rajasthan, on the South by Alwar, Jaipur and Sikar districts of

Rajasthan, and on the west by Sikar and Jhunjhunu of Rajasthan.



MATERIALS AND METHODS

METHODOLOGY

The pH and EC were measured by using Eutech-cybernetics PH meter and EC scan meter⁷. Total hardness, calcium, magnesium were measured by EDTA titration methods⁸. Total alkalinity was determined by volumetrically by silver nitrate titrametric methods using potassium chromate as indicator⁹. Sodium and Potassium were analyzed using Flame Photometer. Sulphate was determined nephelometrically using ELICO-52 Nephelometer¹⁰. For bicarbonate, a titration with 0.01N sulphuric acid is used. Fluoride content in water was measured by ELICO-52 Spectrophotometer. The Physico-chemical analysis was carried out according to standards methods^{11, 12 and 13}.

RESULT AND DISCUSSION

The ground water from the study area of Mohendragarh town has no colour, odour and turbidity. Taste of the water of the water sample in most of the locations showed brackish water. The result of the chemical analysis of ground water in the present study in Table-1. The data of chemical parameters showing consider variations which reflect the chemical composition. The pH of ground water ranges from 7.1-8.1. It indicates that they are in range of ground water quality parameter permissible limits i.e., 6.5-9.2¹⁵. The EC of water samples shows wide variation in Mohendragarh Town. Ground water of studied block is found hard in maximum locations. The Ca²⁺ and TA content were beyond the accepted limits. Carbonate was either present or absent in the study block. The fluoride content in water is higher in maximum locations.

Table 1: Physio-Chemical Parameter Of Ground Water At Mohendergarh Town, Haryana

S.No.	pH	EC	TDS	TH	TA	Ca ²⁺	Mg ²⁺	Na ⁺	K ⁺	HCO ³⁻	Co ₃ ²⁻	Cl ⁻	So ₄ ²⁻	F
1	7.5	2.10	540	834	834	40	04	140	8	156	67	31	156	1.5
2	7.2	3.33	1251	1016	1031	49	18	170	8	393	94	170	238	2.02
3	7.3	1.18	840	176	772	36	22	512	3	256	59	172	302	2.60
4	7.5	1.75	1007	160	1016	48	18	602	6	902	239	303	806	4.36
5	7.2	2.03	930	157	820	33	27	440	3	768	79	349	365	4.75
6	8.1	3.98	1210	85	786	68	32	310	6	520	90	413	70	1.23
7	7.2	3.69	828	916	555	54	10	388	7	515	60	458	610	2.28
8	8.0	5.02	796	417	907	58	29	292	3	942	866	306	280	3.00
9	7.8	4.06	648	424	956	45	40	104	7	885	170	142	480	2.24
10	7.7	1.02	540	619	782	33	28	408	4	906	110	210	260	3.86
11	8.0	1.25	510	586	730	44	21	300	16	777	54	28	80	2.95
12	7.1	3.86	414	926	632	55	26	327	1	607	81	17	240	1.58
13	7.4	7.45	2108	1027	798	66	68	272	3	803	82	52	252	1.88
14	7.3	2.96	1620	225	740	57	68	288	3	815	37	99	810	1.17
15	8.1	2.01	1516	328	701	31	32	310	2	614	62	108	354	4.02

CONCLUSION

This study shows that ground water is the only source for the people in the Mohendergarh Town and the result of the chemical analyses of ground water indicates considerable variation. In maximum locations it is contaminated. It must be noted that a regular chemical analysis must be done to insure that the quality of water Mohendergarh Town is not further contaminated.

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