

Status of Ground Water (Specific Well) & Quality

in Soygaon Taluka, Aurangabad District (MS)

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Abstract

Ground water Quality & Depth level assessment was carried out in Soygaon taluka of Aurangabad district. Water is the most vital resources for humanity. Eighteen samples from different Dug well samples were analyzed for Physico-chemical parameter including Temperature, Ph, Conductivity, total dissolved solids, Alkalinity, Calcium, Magnesium, Sulphate, Sodium, Potassium, Salinity, Depth have been the reported data were in compliance with WHO, Bureau of Indian Standard, suitable for drinking purposes irrigation

Keyword:

Ground water quality, Status, Distribution, Dug well, Recoulement time, Well yield, Soygaon area, physico-chemical parameter.

Introduction:

Groundwater resources play a major role in ensuring livelihood security across the world, especially in economies that depend on agriculture. Water is located in all regions of the earth. In the recent decades there have been frequent conflicts between groundwater water resources and environmentally hazardous activities. Changes in groundwater quality are due to rock-water interaction and oxidation-reduction reaction during the percolation of water through the aquifers. Groundwater quality is influenced considerably by the quality of the

Water Harvesting Manual, Centre for Science and Environment

CGW/2012: Indian Standard Code of Basic for Water Supply, Drainage and

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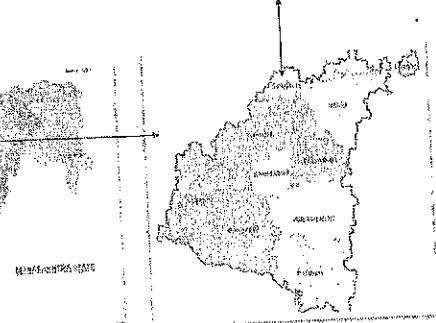


Changes in source waters or degraded quality of source supplies may seriously impair quality of the groundwater supply. Groundwater is an important source but unfortunately prone to contamination by materials deleterious to human health. Ground water is the most suitable fresh water source for human consumption in both urban as well as rural areas. Among the various sources of groundwater is said to be the safest for drinking a domestic purpose. The study of water level and quality monitoring is of particular importance in coastal as well inland environment to assess the changes in the ground water regime.

Study Area:

Aurangabad sits in a strategic position on Deccan plateau. Aurangabad district is situated mainly in Godavari Basin and its some parts towards North West of Tapi river basin. The general down level is towards south and the North West part comes in Purna-Godavari river basin. Soyaon is one of the major places of Aurangabad district of Maharashtra. It lies northern side of Aurangabad about 100 km and covers a total area of 13.5 sq km. It has eighty four village and total population of the taluka is 113087 (India census 2011). Soyaon is bounded on the north by Wadgaon district, on the south by Kannad & Sillod, on the east by Buldhana district and Jalna district and on the west by Wadgaon on Jalgaon district. Agriculture is the main occupation of the area. Its geographical location is latitude 20°35'50" longitude 75° 37' and altitude 365 mts.

Study Area



Objective:

1. To study the groundwater quality with reference to irrigation purpose.
2. To study well depth is increasing or decreasing.
3. To measurement Average Well in Soyaon Teshil

Material & Method

Water samples were collected from Various Dug well. To assess the ground water quality 18 sampling testing dug wells which are scattered and different sample were collected. Randomly selected in good quality polyethylene bottles of one liter capacity. The parameters like temperature and PH and electrical conductivity (EC) were measured using digital instruments immediately after sampling other parameters Total dissolved (TH) Total alkalinity, Total hardness (TH) calcium (Ca) sulphate (SO₄), magnesium (mg) sodium (Na), potassium (K) Sulphate (SO₄), dissolved oxygen (DO), biological oxygen demand (BOD) were determined as per the standard methods for examination of water & wastewater (APHA; 1992). The results were compared with WHO, BIS and ICMR.

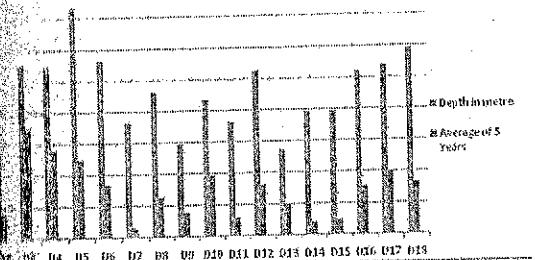
Results and Discussion:

Groundwater quality is a major environmental concern. Management of ground water resources in the Indian context is an extremely complex proposition as it deals with the interactions between the human society and the physical environment. The highly uneven distribution of ground water availability and its utilization indicates that no single management strategy can be adopted for the Aurangabad District. On the other hand, each situation demands a solution which takes into account the geomorphic set-up, climatic, hydrologic and hydrogeologic settings, ground water availability, water utilization pattern for various sectors and the socio-economic set-up of the region. The concentration of calcium ion, magnesium, sulphate, sodium and potassium are presented. In study area the rock type is basalt hence source of magnesium in the ground water in basaltic rock type

No. 1 Specific Capacity of Observation wells from the study area

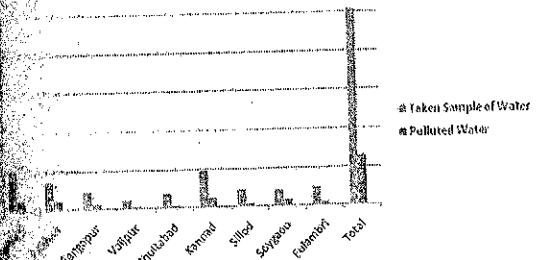
Depth In Metres	2010	2011	2012	2013	2014	Total	Average of 5 Years
12.20	5.80	5.40	10.45	5.00	5.65	32.3	6.46
8.00	1.10	1.40	3.15	0.90	1.45	8.00	1.60
10.95	4.60	4.55	16.20	4.30	5.4	35	7.01
10.90	5.20	5.80	6.20	5.00	5.7	27.9	5.58
14.70	2.10	1.00	8.45	6.40	6.85	24.8	4.96
11.30	3.80	2.10	7.20	1.50	2.4	17	3.40
7.30	0.60	0.20	0.95	0.50	1.35	2.70	0.54
9.25	3.10	1.70	4.70	1.10	2.1	12.7	2.54
5.90	2.70	0.50	2.10	0.90	1.40	7.6	1.52
8.70	3.90	4.00	4.40	3.40	4.00	19.7	3.94
7.30	2.20	0.50	2.10	0.60	0.5	5.9	1.18
10.50	2.00	2.55	4.60	3.50	3.85	16.5	3.30
5.45	2.60	1.50	2.30	2.10	1.4	9.9	1.98
7.90	0.90	1.00	1.05	0.20	0.9	4.05	0.81
7.90	1.20	1.00	1.00	0.50	1.1	4.8	0.96
10.40	2.10	2.80	7.10	1.55	1.90	15.45	3.09
10.75	4.30	3.10	7.35	2.45	2.90	20.1	4.02
11.90	2.80	1.40	8.00	2.00	2.40	16.6	3.32

Well yields of Observation wells in the study area



Status of Ground Water in Aurangabad District (Jan to Sep 2016) Sample Testing

District	No. Sample Taken	Water Polluted	Percentage %
Aurangabad (T)	1996	526	28 %
Wardhan	1412	434	31 %
Gadipur	897	219	24 %
Khurpur	416	66	16 %
Khurabad	756	129	17%
Gundad	1947	517	27 %
Hilid	919	140	15 %
Soygaon	880	360	41 %
Ghambri	992	191	19 %
Total	10135	2585	26 %



Conclusions:

The rainfall condition was good during last year's. Correspondingly, there was increase in Ground water level. Based on the situation of rainfall & Ground Water level during last years, it has been predicated during this year that scarcity conditions will be observed in Aurangabad district. Because In proper management. The suitability of ground water for drinking purpose is determined keeping in view the effects of various chemical constituents in water on the biological system of human being. The analysis that most of the parameters of the water sample do not comply with WHO and Indian standards BIS recommendations hence it is suggested that precautionary measures be adopted before drinking in order to avoid adverse health effects on human beings. Salinity, Magnesium, Nitrates, lead are very high in Soyaon area

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