

**ANALYSIS OF DRINKING WATER QUALITY USING CHEMICAL  
PARAMETERS IN DROUGHT AND NON-IRRIGATED AREA OF SANGAMNER  
TALUKA, DIST. AHMEDNAGAR, AND MAHARASHTRA, INDIA**

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**ABSTRACT**

Actually water is basic requirement of human being but the use of natural sources in undisciplined way is causing harmful effect. The contaminated water created large problem for health of human being. So I have decided to check quality of drinking water of drought non-irrigated area of Sangamner Taluka. I was collected water samples from Dongergoan, Chikani and Nimgaon villages and analyzed for pH, total dissolved solids, chlorides, calcium, magnesium and dissolved oxygen by using standard procedures. All water samples in non-irrigated study area containing excess of magnesium so it is hard water. Therefore it required further treatment to make it soft for drinking purpose. Overall water samples of study area are not problematic for drinking purpose. But we can use some techniques like U V purification for such water to get highly safe water for drinking purpose.

**Keywords:** Drinking Water Quality, Chemical Parameters, Drought, Non-Irrigated Area

## **INTRODUCTION**

Water pollution is the major problem which we are facing now a days and which is going to be more and more complicated. Actually water is basic requirement of human being but use of natural sources in undisciplined way is causing harmful effect. The contaminated water created large problem for health of human being. The presence of impurities in excess is depends on area, so proper study of such contaminant (impurity) is very necessary.

### **Study area**

In irrigated area some inorganic salts as well as some organic matter dissolve in water in large quantity as compare to non-irrigated area and reaches into ground water so that we have selected drought non-irrigated area of Sangamner Taluka i.e. Nimgaon, Dongergoan and Chikani villages which are under non-irrigated area for study. The drinking water samples were collected from above study areas and analyzed.

### **METHODOLOGY**

Water samples were collected in clean plastic bottles (1Ltr.) from the source and then bottles labeled. The collected water samples were analyzed for pH, total dissolved solids, chlorides, calcium, magnesium and dissolved oxygen by using standard proceduresas given in Ref. 1,2 and 3.

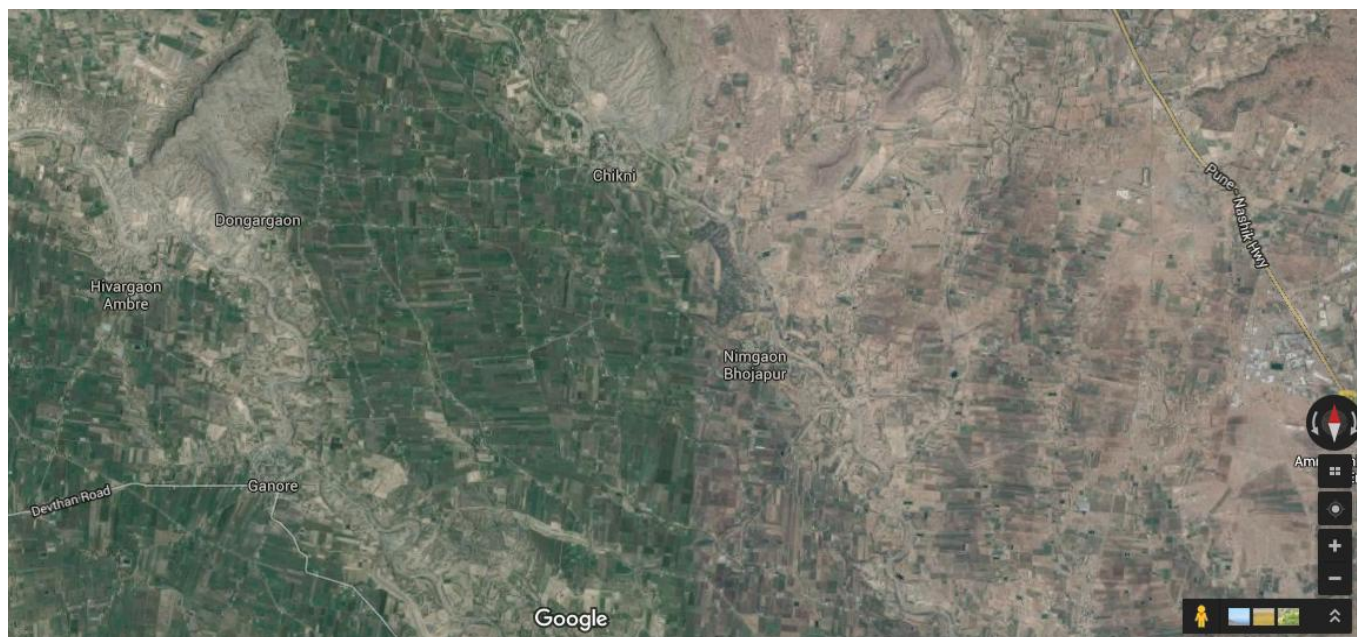
## RESULTS AND DISCUSSION

### Standard Values: Indian Standard Specifications for Drinking Water IS: 10500

	Parameter	Requirement desirable limit	Remarks
1	P <sup>H</sup>	6.5 - 8.5	No relaxation
2	TDS	500 mg/l	May be extended up to 2000
3	Cl <sup>-</sup>	250 mg/l	May be extended up to 1000
4	Ca <sup>2+</sup>	75 mg/l	May be extended up to 200
5	Mg <sup>2+</sup>	30 mg/l	May be extended up to 100
6	Total hardness	200 mg/l	600 mg/l
7	Sodium	20 mg/l	-----
8	DO	4-6 ppm	More than 6 ppm polluted water

**Result Table 1**

Sample code	Locality	pH	TDS in ppm	Carbonate in (mg/l)	Bicarbonate (mg/l)	chlorides (mg/l)	Calcium (mg/l)	Magnesium (mg/l)	Sodium(mg/l)	DO (ppm)
D-1	Nimgoan	8.1	165	7.2	87.8	340.8	112.7	99.3	52	4
D-2	Nimgoan	8.2	129	4.8	78.0	95.9	47.2	75.1	48	5.2
D-3	Nimgoan	7.58	135	6.8	69.78	75.02	78.3	52.1	23	6.1
D-4	Dongargoan	8.1	108	2.4	53.6	88.7	43.6	44.1	42	5.9
D-5	Dongargoan	8.2	84	4.8	43.9	67.4	65.4	35.3	8	4.8
D-6	Dongargoan	8.12	129.3	6.86	103.4	78.2	58.85	49.5	55	6
D-7	Chikani	7.8	154	7.2	87.8	173.9	65.4	61.8	54	6.6
D-8	Chikani	7.8	190	2.4	97.6	347.9	79.9	123.7	58	5.4
D-9	Chikani	8.3	160	4.8	102.4	110.0	58.1	48.5	59	4.7
D-10	Chikani	7.90	136.2	4.56	87.99	174.2	81.2	125.8	60	5.98



**Figure 1: Locations of selected study area for drinking water analysis**

## DISCUSSION

The pH of all water samples are within the range of desirable limit may be due to lower contents of carbonates and bicarbonates. Conductivity is used to determine the total amount of dissolved solids in the water. Total dissolved solids (TDS) of all water samples are within limit. The chloride content in D-1 and D-8 is higher than desirable limits so it effect on its taste. Sodium content in all water samples are quite high but according to WHO guidelines excess sodium has no remarkable effect on human health. Excessive calcium may contribute to the formation of kidney or bladder stones. Calcium also contributes to the hardness of water and may cause problems with laundering, washing and bathing. Excessive magnesium may give water a bitter taste, but is normally not a health hazard. The calcium in D-1and D-8 water samples are bit higher than desirable limit but not more than permissible limit. All water samples content excess of magnesium than desirable limit so all water are hard water which gives a bitter taste. Dissolved Oxygen level in all water samples are in the desirable range.

## CONCLUSION

All water samples in Non-irrigated study area containing excess of magnesium so it is hard water. Therefore it required further treatment to make it soft for drinking purpose. Overall water samples of study area are not much problematic for drinking purpose .But we can use some techniques to purify such water to get highly safe water for drinking purpose.

## REFERENCES

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