

# Detailed Ground Water Study of Bidar Taluka

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## I. INTRODUCTION

Groundwater contamination is nearly always the result of human activity. In areas where population density is high and human use of the land is intensive, ground water is especially vulnerable. Virtually any activity where by chemical or Waste may be released to the environment either intentionally or accidentally has the potential to pollute groundwater. When groundwater becomes contaminated, it is difficult and expensive to cleanup. Since from last two decades the intensity of rain fall is very low in the district, this leads to the more uses of ground water.

Hence in the present study it is decided to study the physical and chemical parameters of ground water of Bidar taluka

## II. MATERIALS AND METHODOLOGY

In the present study, Bidar taluka Zilla Panchayata Circle wise water samples colleted for the period of six month once in fortnight for all the sampling point.

For the testing of samples, the samples were collected from the five different zones around the Bidar taluka (zilla panchayata circle wise).

Those five different zones are

1. KAMATHANA
2. MANHALLI
3. JANWADA
4. BAGDAL
5. CHITTA



Fig 1 Details of Sampling Points

## III. RESULT AND DISCUSSION

Water samples where collected as per the standard procedure and all the samples were tested for physiochemical parameters as per standard methods prescribed in NEERI.

### ZONE I - KAMTHANA REGION

#### A. Physical Parameters

S.NO:	PARAMETERS	RESULTS
1	Colour	Colorless
2	Odour	Odourless
3	pH	6.5
4	Turbidity	Clear

#### B. Chemical Parameters

S.NO:	PARAMETERS	RESULTS
1	Acidity	28.8 mg/ltr
2	Alkalinity	60 mg/ltr
3	Hardness	156 mg/ltr
4	Dissolved Oxygen	5.8 mg/ltr
5	Chloride	82mg/ltr

### ZONE II - MANHALLI REGION

A. Physical Parameters

S.NO:	PARAMETERS	RESULTS
1	Colour	Colorless
2	Odour	Odourless
3	pH	7.4
4	Turbidity	Clear

B. Chemical Parameters

S.NO:	PARAMETERS	RESULTS
1	Acidity	30.7 mg/ltr
2	Alkalinity	62.3 mg/ltr
3	Hardness	149 mg/ltr
4	Dissolved Oxygen	5.65 mg/ltr
5	Chloride	83.26 mg/ltr

ZONE III - JANWADA REGION

A. Physical Parameters

S.NO:	PARAMETERS	RESULTS
1	Colour	Colorless
2	Odour	Odourless
3	pH	7.1
4	Turbidity	Clear

B. Chemical Parameters

S.NO:	PARAMETERS	RESULTS
1	Acidity	31.47 mg/ltr
2	Alkalinity	59.7 mg/ltr
3	Hardness	153 mg/ltr
4	Dissolved Oxygen	5.43 mg/ltr
5	Chloride	81.29 mg/ltr

ZONE IV - BAGDAL REGION

A. Physical Parameters

S.NO:	PARAMETERS	RESULTS
1	Colour	Colorless
2	Odour	Odourless
3	pH	7.8
4	Turbidity	Clear

B. Chemical Parameters

S.NO:	PARAMETERS	RESULTS
1	Acidity	32.5 mg/ltr
2	Alkalinity	60.87mg/ltr

3	Hardness	151mg/ltr
4	Dissolved Oxygen	5.59 mg/ltr
5	Chloride	85.19 mg/ltr

ZONE V - CHITTA REGION

A. Physical Parameters

S.NO:	PARAMETERS	RESULTS
1	Colour	Colorless
2	Odour	Odourless
3	pH	7.8
4	Turbidity	Clear

B. Chemical Parameters

S.NO:	PARAMETERS	RESULTS
1	Acidity	32.1 mg/ltr
2	Alkalinity	59.8 mg/ltr
3	Hardness	160 mg/ltr
4	Dissolved Oxygen	5.63mg/ltr
	Chloride	83.4 mg/ltr

- Colour: The physical appearance of the water sample is known as color. Normally water is colorless if it is not highly contaminated; hence in this water analysis the sample is colorless and also suitable for drinking purpose.
- Odour: It is property of substance that gives a characteristics smell or scent. Drinking water should not be odoured as it indicates contaminated by any chemical compounds. Above tested these water samples are odorless, hence suitable for drinking purpose.
- pH: pH is the tables expressing the acidity or alkalinity of a solution or samples on a logarithmic scale on which 7 is neutral, lower and higher values indicates acid and alkaline respectively. Usually the drinking water is neutral in pH i.s.less than 8.5 which is suitable for drinking purpose, hence these above mentioned water analysis is within the permissible limit thus suitable for drinking purpose.
- Acidity: Acidity is the capacity of water to neutralize bases. According to standard

permissible limits the acidity should be < 60 mg/ltr. As the higher acidity content in water is harmful to users and also not useful. Hence in this analysis of water samples the acidity is low i.s. less than permissible limit, thus suitable for drinking purpose.

- Alkalinity: It is the capacity of water to neutralize the acid. Exceeding value of pH >7 indicates base solution. As per the standard limits alkalinity should be less than 200 mg/ltr. Thus in this water analysis the tests were confirmed the water is less alkaline i.s. within permissible limits, hence suitable for drinking.
- Total Hardness: Hardness is the amount of dissolved calcium and magnesium in the water. Hard water is not used for any purpose as they content of salt compounds. Usually drinking water should contain hardness less than 300mg/ltr. As per the standard permissible limits. The tests were conducted confirmed the water is not harder as the water samples are too less than 300 mg/ltr. Within the permissible limits, hence suitable for drinking water.
- Chloride content: It is the presence of chloride concentration in water. It is also a salty content of the water, as the salty water are not suitable for drinking purpose. It should be within the permissible limit as per standard limits i.s. less than 250 mg/ltr. The test or water analysis of these water samples are less than permissible limit, hence suitable for drinking water.
- Dissolved oxygen: It is the amount of maximum oxygen dissolved in water. Dissolved oxygen is more than 5 mg/ltr in the drinking water. Hence the tests are within the permissible limit.
- The above mentioned all the water analysis parameters are within the permissible limits, hence it is suitable for drinking purpose.

#### CONCLUSION

From the study it is concluded that the water quality parameters of ground water from 5 different Zilla Panchayata centers of Bidar Taluka ( Kamthana region,

Manhalli region, Janwada region, Bagdal region, Chitta region) shows that the all Physical and Chemical parameters results are within the Permissible limits, and hence the water is fit for drinking in the study zone.

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