

Primary Study of Drinking Water Quality (Groundwater) from Adivasi Pada of Sanjay Gandhi National Park, Mumbai, (M. S.) Bharat

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Abstract: Groundwater is vital component of water supply for residential, industrial and agriculture purposes. However, many groundwater basins are being used unsustainably and groundwater contamination is growing water quality problem. Although anthropogenic activities and natural process have been increasing the contamination in this valuable water resources. This review paper focus on recent studies develop on groundwater pollution and ground water management.

Keywords: Groundwater assessment, Adivasipada, National Park, potability

1. Introduction

Sanjay Gandhi National park is most protected area in Mumbai. It has diverse biodiversity of variety of animal and tree species hence it is also known as lungs of Mumbai (19°15'N 72°55'E). The area is also famous for its 2400 year old Kanheri caves, sculpted by Buddhist Monks. Park area has highest visitors and hence many facilities have been introduced in the national park. Local Adivasi communities have been living there for more than 3000 years. As we all know water is life and drinking potable water is basic human right for every human being. Proper drinking water improves people's health and gives ability to work and keeps the person healthy thus this will help small children to keep them away from diarrhea and other diseases.

Thus the basic purpose of this work is to check the water quality of Groundwater in three Adivasi pada and the Tap water provided by the BMC for visitors.

2. Materials and Methods

Collection of water has been done only once as it is a Primary study and water was collected in clean plastic bottle of 1 litre capacity. Water analysis of sample water was carried out according the standard methods (APHA 1995; Trivedi and Goel, 1986). Air and water temperature was recorded on spot. Other parameter such as Temperature, pH, Turbidity, TDS, Total alkalinity, Total Hardness, Sulphates.

3. Result and Discussion

Table 1

Parameters	Navapada 1	Navapada 2	Navapada 3	Navapada 4
pH	6.63	6.65	7.12	7.26
Turbidity	00	01	00	01
Total dissolved Solid (TDS)	318	113	156	67.6
Total Alkanity	101	50.0	95.0	44.0
Total Hardness	154	38.0	114	36.0
Sulphates	27.8	5.22	22.5	6.10
Odour	Odourless	Odourless	Odourless	Odourless
Colour	Colourless	Colourless	Colourless	Colourless

The physico - chemical parameter are studied to check the quality of water and the variation are given in tabular form, from table 1

1) Atmospheric Temperature:

The photoperiod is very important factor with respect to every living being. the temperature was about 28 C when the water was collected.

2) Water Temperature:

Water temperature of all samples fluctuated between 22 C to 25 C. The groundwater temperature was a little bit low as compared to other samples.

3) pH:

Determination of pH is very important as it plays a vital role in plants and animals. If the pH is slightly towards weak acid it can show adverse effect on the plants and animals. Due to soil pollution and various anthropogenic activity the pH of water changes. pH of water of C area and E area is acidic while the water from F and G were alkaline. Acidic pH

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indicate that the water can cause adverse effect on the plants and animals.

4) Turbidity:

The maximum turbidity was 01 NTU samples collected from spot E and G spot C and F had Zero reading. The lower the turbidity the water is clear and safe to drink with less substance dissolved.

5) Total Dissolved Solids –

The more the abrasive actions caused by human leads to causing increased of TDS in water. The maximum TDS value was in spot C with 318 mg/litre and minimum was found at spot G with 67.6 mg/litre. According to WHO water higher than 300 TDS is not permissible to drink as it makes cause make diseases related to stomach.

6) Total alkalinity:

Variety of minerals like carbonates and bicarbonates in the soil is the cause of total alkalinity in soil. The maximum total alkalinity was recorded at C spot was 101mg/Litre and the minimum total alkalinity was recorded at G spot was 44 mg/Litre. According to the WHO guidelines 200 mg/Litre of Total Alkalinity is permissible.

7) Total Hardness:

Presence of divalent metallic cation like Fe^{++} , Ca^{++} , Mg^{++} causes of hardness of water. The maximum total hardness values were at C spot and minimum total hardness values was at G spot. Thus, the total hardness was within permissible limit of 300mg/Litre. Thus, this should be monitored as total hardness can cause Malfunctioning of kidney.

8) Sulphates:

Sulphates occur naturally in water and dissolution of natural source like gypsum. Anthropogenic activity and discharge of sewage water leads to increase in sulphates concentration. Thus, it is been observed that sulphate concentration is in good amount within the Indian and international level standards.

4. Conclusion

According to the study with observe that physico chemical level of pH in BMC drinking water is 7.26 which is considered neutral where turbidity was noted 01 in Navapada 2 and BMC drinking water and TDS was highest that 318 mg/l at Navapada 1. Total alkalinity, Total hardness, Sulphates was highest in sample Navapada 1. All these values are below (WHO standards)

It is concluded that water sample which was collected from Sanjay Gandhi National Park is good for drinking purpose and for public health, but TDS which noted 318mg/litre is highest and beyond the permissible limit which is concerned topic and detailed research must be carried out to study the high amount TDS in water.

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