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Ground Water Quality of Various Villages of Bundi District of Rajasthan India

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Abstract

Water is a universal solvent and renewable resource. Groundwater is the most precious natural resources, expected to be free from pollution. Water can be regarded polluted when it changes it quality or composition either naturally or as a result of human activities Ground water forms the major source of drinking water in the rural areas of Bundi. In the study area 101 ground water sample have been collected and analyzed from different areas of Bundi district Rajasthan. The 37 villages are covered in our study area. Current study is to investigate salinity concentration in ground water.

Keywords: Ground Water, Salinity, Hardness.

Introduction

Water, the most abundant natural resource is extremely essential for survival of all living organism.Lots of factors affecting the drinking water quality. Salinity is a measure of the amount of dissolved particles and ions in water. There are several different way to measure salinity, the one of most frequently used analyses is Total dissolved solids (TDS). TDS is a measure of all dissolved substances in water including organic and suspended particles. Salinity can include hundreds of different ions however, relatively few make up most of the dissolved material in water like chloride, sodium in, hitrate, calcium ion magnesium ion, bicarbonate and sulphate.

Calcium and Magnesium are important part of hardness of water. When water is combined with carbondioxide to form a very weak carbonic acid. An carbonic acid better solvent than water As a result water moves through, soil and rock it dissolves small amount of mineral and make a solution. Generally calcium and magnesium dissolved in water and that make water hard. The degree of hardness will greater as the calcium and magnesium content increases and it related to the concentration of multivalent cations dissolved in the water. Basically monovalent ion such as sodium and potassium do not cose hardness. But these divalent cations like calcium and magnesium they react anions in water to form stable salt.

Aim of the Study

I want to work on salinity in drinking water.The a second objective is to be taken into account is water hardness. That is to say that both these elements have not been analysed individually in drinking water in the past years.This approach was applied in many studies focused on health effects of these water factor.

That drinking water is also an important source of essential elements such as Ca and Mg. is already known before 1927. Health significance of water hardness was directly evidence in the later 1950's.

The concentration of salts in surface and ground water can be increase in several ways. Ground water contains naturally- occurring salt from dissolving rock and organic material. Some rocks dissolve very easily thus ground water in these are as can naturally be very high in salinity. Human activity also effect salinity level in ground and surface water. Application of synthetic fertilizers manures, and waste water treatment facilities etc. can contribute salt to surface and ground water. The high concentration of salt can damage crops, affect plants growth, degrade drinking water quality and damage industrial equipments.

Experimental

The sample was collected in 37 villages during Jan. 2014 to 2015 in Bundi district Rajasthan India for the analysis. Sample were collected from well, handpump, PWS and other sources. The water of these well and handpump is being used in drinking and agriculture. These

water sample were analysed and we find the hardness of water. The salinity value of samples is given below the table.

Salinity Analysis of Ground water

S.No.	Source	Block	No. of Villages	Average Value of Salinity (mg/l.)
1.	Handpump – 8 PWS = 7 Well = 3 Other = 1	Hindoli	10	605 mg./l.
2.	Handpump – 7 PWS = 3 Well = 7 Other = 21	Keshoraipatan	7	609 mg./l.
3.	Handpump – 2 Well = 2	Nainwa	4	601 mg./l.
4.	Handpump – 10 PWS = 7 Well = 18 Other = 5	Talera	16	601 mg./l.

Result and Discussion

In current study only single but important pollutant is selected.Investigation show salinity range from average value 601 to 605 mg/lt. The hardness of water will be reported in grains per gallon, milligram per liter (mg/l.) or parts per million (ppm) Hard water is not a health hazard. Hard water interferes with almost every cleaning, task from laundering and dish washing Hard water may cause a film on glass shower doors, bath tubs, sinks etc. water flow be reduced by deposits in pipes.Hard water has no health effect but very hard water, could provide an important supplementary contribution to total calcium and Magnesium in take. Both of these elements are essential for the human body. Calcium is part of bones and teeth. Magnesium plays an important role as a cofactor and activator of more than 300 enzymatic reaction including glucolysis. ATP metabolism, transport of element such as Na, K, and Ca through membranes, synthesis of proteins and nucleic acid etc.Calcium and Magnesium are important part of drinking water and are of both direct and indirect health significant. A certain minimum amount of these element in drinking water is desirable since their deficiency poses at least comparable health risk an exceedance of the limit for some toxic substance does.

Cardiovascular mortality, and this is the hardness of the drinking water. In addition, several epidemiological investigation have demonstraled the relation between risk for cardiovascular disease, growth retardation, reproductive failure and other health problems and hardness of drinking water or its content of magnesium and calcium. Drinking water in which both magnesium and sulphate are present in high concentration can have laxative effect Laxative effect have also been associated with excess intake of magnesium taken in the form of supplements, but not magnesium in the diet.

Conclusion

The major sources of pollution in the study area are synthetic fertilizers, wast water treatment facilities etc. can all increase salt concentration in ground water. The result of the current study should help the general public and local administrator to recognize the current ground water quality in Bundi. There are same significant recommendations for preventing further ground water quality deterioration. Agricultural activities, particularly those using large amount of fertilizers and pesticide, must be excluded from the recharge sites. Environmental and water department should introduce ground water monitoring system, so continuously monitor ground water level and quality so that problems can be recognized. It will also help out to resolve within limited time.

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