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Study on Ground Water Quality of Moradabad Region (U.P) A Review

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Abstract

Due to human and industrial activities the ground water is contaminated. This is the serious problem now a day. Thus the analysis of the water quality is very important to preserve and prefect the natural eco system. The assessment of the ground water quality was carried out in the different wards of Moradabad City. The present work is aimed at assessing the water quality index (WQI) for the ground water of Moradabad City and its industrial area .The ground water samples of all the selected stations from the wards were collected for a physiochemical analysis. For calculating present water quality status by statistical evaluation and water quality index, following parameters have been considered Viz. pH, total dissolved solids. Electrical conductivity, total alkalinity, total hardness, Residual chlorine, Turbidity and more. The obtained results are compared with Indian Standard Drinking Water specification IS: 10500-2012. The study of physico-chemical and biological characteristics of this ground water sample suggests that the evaluation of water quality parameters as well as water quality Management practices should be carried out periodically to protect the water resources.

Keywords: *Ground Water Quality, Moradabad Region*

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INTRODUCTION

Water is the most important in shaping the land and regulating the climate. It is one of the most important compounds that profoundly influence life. Groundwater is used for domestic and industrial water supply and also for irrigation purposes in all over the world. In the last few decades, there has been a tremendous increase in the demand for fresh water due to rapid growth of population and the accelerated pace of industrialization. According to WHO organization, about 80% of all the diseases in human beings are caused by water . Once the groundwater is contaminated, its quality cannot be restored back easily and to device ways and means to protect it. Moradabad is situated at a distance of 167 km (104 miles) from the national capital, New Delhi and 262 miles (421 km) north-west of the largest city of state i.e. Kanpur., on the banks of the River (a tributary of the Ganges). The city is nicknamed Pital Nagri, ("City of Brass") for its famous brass handicrafts industry. The district of Moradabad lies between 28°21′ to 28°16′ north latitude and 78°4′ to 79° east longitude. The district occupies an area of 3493 km2.. Moradabad is a B class city of western Uttar Pradesh having urban population more than 38 lacs. Moradabad is situated at the bank of Ram Ganga river and its altitude from the sea level is about 670 feet. District Bijnor and Nainital are in the north, Rampur in the east, Ganga river in the west and district Budaun is in the north of district Moradabad. Moradabad has seen rapid industrialization and population growth during the last few decades. The major industries are brassware, steel ware, paper mills, sugar mills, crushers, dye factories and a number of associated ancillaries. Most of these industries and different kinds of human activities are playing their roles in multiplying the level of water pollution. For providing safe water to the people in effective manner a study of quality of water being consumed by the people is essential to carried out. This will help in improving the quality of water.

LITERATURE REVIEW:-

General: I referred various technical research papers on assessment of ground water quality for bore wells of different cities and countries, which are presented in Dissertation Phase-1. Reported work on assessment of ground water quality index is summarized below.

Shweta Tyagi, Bhavtosh Sharma, Prashant Singh, Rajendra Dobhal carried out Water quality assessment in terms of

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Water Quality Index at Uttarakhand (India). The study states that Water quality index (WQI) is valuable and unique rating to depict the overall water quality status in a single term that is helpful for the selection of appropriate treatment technique to meet the concerned issues. However, WQI depicts the composite influence of different water quality parameters and communicates water quality information to the public and legislative decision makers.

In spite of absence of a globally accepted composite index of water quality, some countries have used and are using aggregated water quality data in the development of water quality indices. Attempts have been made to review the WQI criteria for the appropriateness of drinking water sources. Besides, the present article also highlights and draws attention towards the development of a new and globally accepted "Water Quality Index" in a simplified format, which may be used at large and could represent the reliable picture of water quality. Initially, WQI selecting 10 most commonly used water quality variables like dissolved oxygen (DO), pH, coliforms, specific conductance, alkalinity and chloride etc. and has been widely applied and accepted in European, African and Asian countries.

Manjesh Kumar and Ramesh Kumar Carried out experimental work on Physico-Chemical Properties of Ground Water of U.P., (India) the study deals with evaluation of granite mines situated in jhansi (Goramachia) for their status about physicochemical contamination of ground water. Six different sites are selected for sample testing collected from mines and urban area. Three samples have been taken at various distances on the site. This location is 10Km above from Jhansi city. The physic-chemical parameters such as pH, D.O., E.C., T.D.S., alkalinity, turbidity, Ca (calcium) and Mg (magnesium) hardness, total hardness, NO3 (nitrate), F (fluoride), Fe+3 (iron) and Cl- (chloride) have been tested. It has been found that parameters are not in limit when compared with W.H.O. standards.

Shivasharanappa, Padaki Srinivas and Mallikarjun S Huggi carried out research work on Bidar city (Karnataka) for their characteristics of ground water and Water quality index (W.Q.I.). This research work deals with revaluation of W.Q.I. for ground water for the residential and industrial area

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of bidar. In the city there are 35 wards, samples collected from all wards and tested for 17 parameters. The parameters are pH, total hardness, Ca (Calcium), Mg (magnesium), chloride (Cl), NO3 (Nitrate), SO4 (sulphate), T.D.S., Fe+3 (Iron), F (Fluoride), sodium (Na), potassium (K), alkalinity, manganese (Mn), D.O., total solids and Zinc (Zn). Tested results were used for suggest the models for water quality analysis.

J Sirajudeen, S Arul Manikandan and V Manivel (2013) 6 Carried out the work on ground water for evaluating the W.Q.I. Samples collected an Ampikapuram area near Uyyakondan channel Tiruchirappalli district. For Evolution of water quality index following parameters are examined: pH, E.C., T.D.S., Total hardness, D.O., C.O.D., B.O.D., Cl- , NO3 and Mg .The WQI for these samples ranged between is 244 to 383.8.The analysis reveals that the groundwater of the area needs some degree of treatment before consumption, and it also needs to be protected from the perils of contamination.

Assessment of water quality-

General: Due to increasing urbanization, surface water is getting over contaminated and more stringent treatments would be required to make surface water potable. Therefore, it is required to additional sources for fulfil the requirement of water. Because the ground water sources are safe and potable for drinking and other useful purposes of human being. Hence studies of physic-chemical characteristics of underground water to find out whether it is fit for drinking or some other beneficial uses.

Parameters to be analyzed: For the assessment of ground water quality of the bore well of the Indore city, Taking in view the following drinking water parameters are analyzed pH(1), Conductivity(2), Hardness(3), Alkalinity(4), Residual chlorine(5), Turbidity(6), TDS(7), Etc.

CONCLUSION AND RECOMMENDATIONS

Water quality is dependent on the type of the pollutant added and the nature of mineral found at particular zone of bore well. Monitoring of the water quality of ground water is done by Collecting representative water samples and analysis of physicochemical characteristics of water samples at different locations of Indore City. Estimation of water quality index

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through formulation of appropriate using method and evaluate the quality of tube well water by statistical analysis for post and pre monsoon seasons i.e. from nov. to feb. and march to may. Result of water quality assessment showed that most of the water quality parameters slightly higher in the wet season than in the dry season. Correlations the physico-chemical characteristics water pollutants by appropriate statistical method.

The focus of the present study was to assess the water quality of ground Water. Based on the experimental data and data collected from Ground Water following conclusion could be made.

- On basis of various parameter analysed in this investigation, it was concluded that the water quality of Ground Water is unfit for drinking purpose.

- WQI may be used as indicator to know the health of Water.
- The discharging of domestic and industrial wastewater and also other anthropogenic activities were the main factors for contaminating Ground Water.

Hence, there is need for regular monitoring of water quality in order to detect changes in physiochemical parameters of Ground Water at different sites, implementation of remediation measures and public awareness.

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