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LITERATURE PAPER ON ANALYSIS OF GROUNDWATER QUALITY FOR GANDHINAGAR TALUKA

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Abstract: The main source of drinking water is groundwater. This is a serious problem once due to the human and industrial processes. At present work our purpose is to evaluate the quality of groundwater in the village near Gandhinagar taluka. Ground water samples have been collected for physiochemical analysis, which are selected station village near Gandhinagar taluka. To assess the quality and quantitative value of groundwater, calculated groundwater parameters by Water Quality Index (WQI). We take this 7 parameters for the quality analysis for study: Ph, Calcium, Magnesium, Chloride, Sulphate, Total Dissolved Solid, and Sodium Absorption Ratio. we collect data from Gujarat Engineering Research Institute (GERI) Gandhinagar. (K. RAMAMOCHAN REDDY, 2013) We are use a SPSS software for our work and we are compare result with BIS and WHO limits shown a ground water is very contaminated and responsible for human health and human useful life.

Keywords: Groundwater Table, Groundwater quality, aquifer, pH, GWQI.

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INTRODUCTION

Groundwater is suited in vast underground and should be removed from the ground after a deep well tacking. Ground water quality usually detected by water physical properties. Groundwater monitoring is very compulsory to control and reduce groundwater pollution. Various type of pollution like seasonal deviations and groundwater disposal are significantly altered by different type of factor.

We take 7 parameters for the following quality analysis for study: Ph, calcium, magnesium, chloride, sulphate, total dissolved solid, sodium absorption ratio .a mathematically tool for the water quality index that convert large quality of water into a single number of attribute data. Which is shown the characteristics of the water. A simple multivariate analysis method for this study has been developed for a groundwater quality index (GWQI), water quality, and water level.

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. Water quality index is one of the most effective tools to communicate information on the quality of water to the concerned citizens and policy makers. It, thus, becomes an important parameter for the assessment and management of groundwater.(1)

1) The problem connected with supply of safe water to rural communities from individual wells is often neglected. Added to this with rapid solid waste leachate pollution of groundwater due to rapid increasing of population, urbanization and industrialization, the available groundwater is rapidly getting polluted.(2) . Study of ground water used for drinking purpose, irrigation purpose becomes important. This review articles is to report the quality of ground water from various study area, used for drinking purpose.(3)

II. scope and objective

- 1) To provide an overview of the quality of groundwater of the area.
- 2) To determine the spatial distribution so that the trend of the water quality can be assessed for future development plans.

III.STUDY AREA

Gandhinagar Taluka

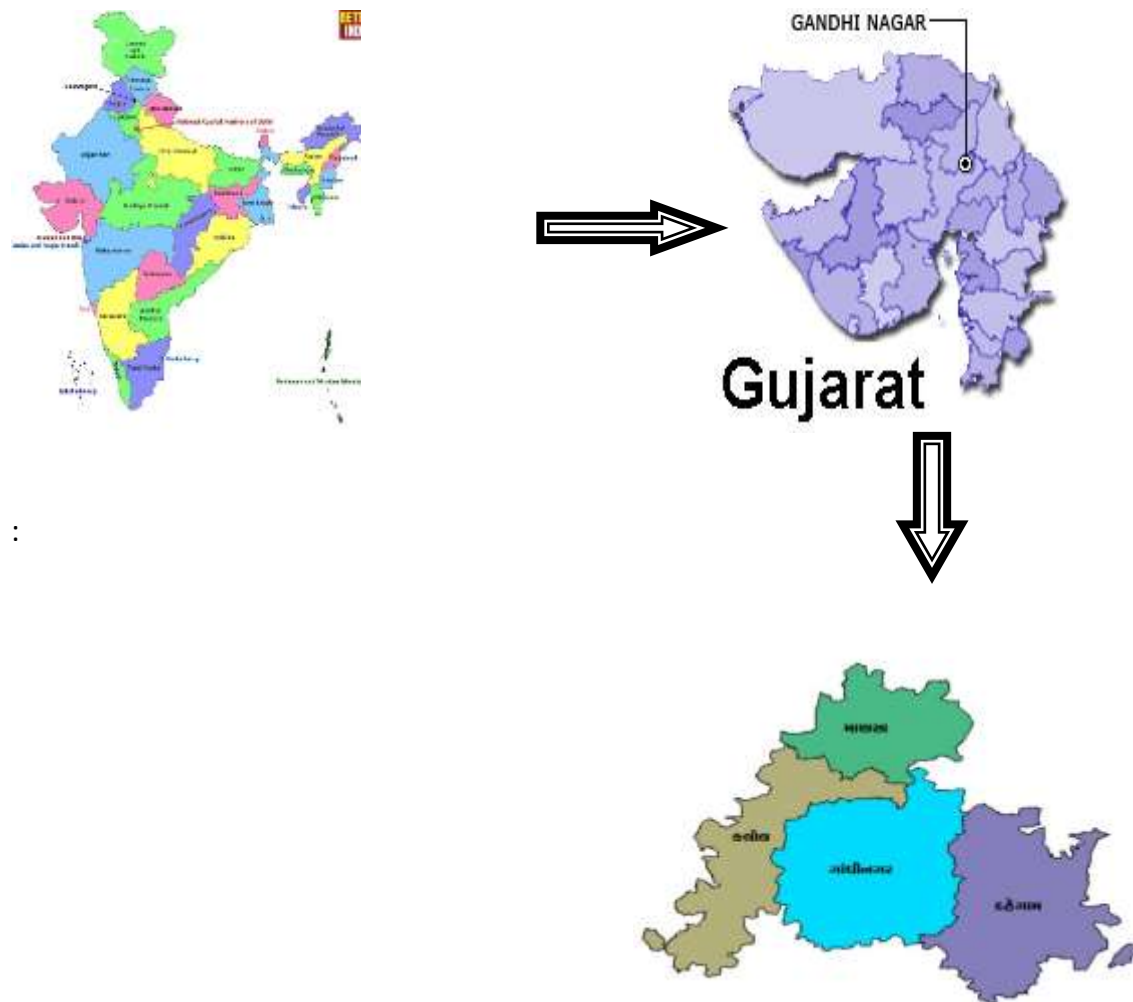


FIG: STUDY AREA OF GANDHINAGR TALUKA [11]

IV. METHODOLOGY

Step 1. Problem identification

Step2. To study of water quality of parameters.

Step3. To identify different problem for our area.

Step4. To collect the different data like PH, TDS, Calcium, Chloride, Sulphate, Sodium Absorption Ratio.

Step5. Data analysis with using SPSS (Statistical Package for the Social Sciences).

Step6. To identify result and conclusion.

V.DATA COLLECTION

Material Data of Groundwater Quality Parameters (Gandhinagar taluka) of Pre Monsoon Season & Post Monsoon Season for 10 years (1997 to 2006) are obtained from Gujarat Engineering Research Institute (GERI) Gandhinagar. Water Parameters Such as ph, Chloride (Cl⁻), Sulphate (So₄⁻), Calcium (Ca⁺), Magnesium (Mg⁺), Sodium Absorption Ratio (SAR), Total Dissolved Solids (TDS) were analysed.

District	Taluka	Village	PH	CL-	So ₄ -	Ca+	Mg+	SAR	TDS
		Adraj Moti	8	11	1.5	1.25	8.5	5.77	900
		Alampur	7.4	14	2.25	6.25	4.5	5.2	1030
		Ambapur	7.4	11.5	2.5	3.25	4.5	10.3	830
		Amiyapur	8	10	2.5	1.75	0.75	20.7	700
		Basan	8	11.5	3.25	1.25	3.25	14.8	1040
		Kolavada	7.7	12.5	2.25	2.25	8.5	5.6	1160
		Koteshwar	7.5	14	1.75	1.75	6.75	8.5	1070
		Kudasan	7.6	14	2	2.5	5.25	9.6	1150
		Lavarpur	7.6	15	2	2.25	5	9.9	1230
		Lekawada	7.4	15.5	2.5	2	3.25	14	790
		Vasana Hadmatia	7.4	15	3.25	2	4.25	13.1	1240
		Vavol	7.5	17	2	2.25	4.75	11.8	1200
		Palaj	7.8	18.5	1.25	2.75	7.25	9.8	1260
		Pethapur	8.1	20	1.5	2	9.75	7.5	890
		Pindharada	7.7	20	3	2.25	5.25	12.7	760
		Piplaj	8.1	16	1.5	2.5	3	16.7	1080
		Vasan	7.8	23	4	1.5	10.5	9.6	980
		Unava	7.7	22	4	3.5	8.75	10.2	990

TABLE NO.1 (Source: Government office)

Test and methods

SPSS is a Windows based program that can be used to perform data entry and analysis and to create Tables and graphs. SPSS is capable of handling large amounts of data and can perform all of the analyses covered in the text and much more. SPSS is commonly used in the Social Sciences and in the business world. Linear regression is used to specify the nature of the relation between two variables. Another way of looking at it is, given the value of one variable (independent variable), how can you predict the value of some other variable (dependent variable). Remember that you will want to perform a scatterplot and correlation before you perform the linear regression.



FIG:1 SPSS

The Linear Regression dialog box will appear, select the variable that you want to predict by clicking on it in the left hand pane of the Linear Regression dialog box. Then click on the top arrow button to move the variable into the Dependent box.



FIG: 2 LINEAR REGRESSION DIALOG BOX

Select the single variable that you want the prediction based on by clicking on it in the left hand pane of the Linear Regression dialog box. If you move more than one variable into the Independent box, then you will be performing multiple regression. While this is a very useful statistical procedure, Then click on the arrow button next to the Independent(s) box, Enter Method and press OK to perform the regression. The SPSS Output Viewer will appear with the output.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.244 ^a	.059	.001	288.30913
2	.000 ^b	.000	.000	288.38895

a. Predictors: (Constant), VAR00001

b. Predictor: (constant)

FIG: 3 MODEL SUMMARY DIALOG BOX

The Model Summary part of the output is most useful when you are performing multiple regression. Capital R is the multiple correlation coefficient that tells us how strongly the multiple independent variables are related to the dependent variable. In the simple bivariate

case $R=|r|$ (multiple correlation equals the absolute value of the bivariate correlation.) R square is useful as it gives us the coefficient of determination.

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-470.331	2149.317		-.219	.830
	VAR00001	280.101	278.791	.244	1.005	.330
2	(Constant)	1688.000	67.974		24.833	.000

a. Dependent Variable: VAR00007

FIG: 4 COEFFICIENTS OF CORRELATIONS

The Coefficients part of the output gives us the values that we need in order to write the regression equation. The regression equation will take the form:

Predicted variable (dependent variable) = (slope * independent variable) + intercept

The slope is how steep the line regression line is. A slope of 0 is a horizontal line, a slope of 1 is a diagonal line from the lower left to the upper right, and a vertical line has an infinite slope. The intercept is where the regression line strikes the Y axis when the independent variable has a value of 0.

CONCLUSION

Main sources of the water is groundwater, is suited in vast underground and should be removed from the ground after a deep well tacking. Ground water quality usually detected by water physical properties. groundwater monitoring is very compulsory to control and reduce groundwater pollution. various type of pollution like seasonal deviations and groundwater disposal are significantly altered by different type of factor. for the study of the our area we can identify using the software and analysis the ground data . the main purpose this research paper to identification of the ground water and the analysis the different data

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