Investigation of Groundwater quality in two different geological conditions

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Investigation of hydrogeological condition in two sites in Assam having two distinct different geological conditions one having the hilly terrain for younger alluvium (Tangla) and flat plan for lower alluvium (Guwahati) was taken up for the purpose of assessing the safe and secure clean drinking water system. The study was carried out by assessing the water quality parameters, sieve analysis of the soil by hydrometer analysis I.S: . Water samples and soils sample were collected from the sites and taken to environmental engineering laboratory at Bineswar Brahma Engineering College, Kokrajhar for further analyzing.

The results obtained from the analysis the data of water quality parameters suggest that it is freshly feeded water into the groundwater. The pH and Electrical Conductivity (EC) of the water sample were range ranged between 5.1 and 7.6 and from 51µS/cm to 170 µS/cm respectively. The value of alkanity was found to be 0.0014 to 0.078 meq/L. Other parameters are given in table. 1.

Table 1 Ground water quality Parameter

Sr. No	Sample ID	Name Of the Location	Cl^- (mg/l)	TH (mg/L)	Turbidity (NTU)	Ca^{2+} (mg/l)	Mg^{2+} (mg/L)	T(°C)
1	TW-01	Bongrum LP School	100	75	0.1	10.6	64.4	23
2	TW-02	4 NO Bongrum	100	105	0.1	10.6	94.4	29
3	TW-03	No 1 Pobkhoriabari	80	75	0.1	10.2	64.8	28.4
4	TW-04	Ganesh Ghat	60	90	0.1	12.4	77.6	29
5	TW-05	Bormukhli(Advasi line)	80	75	2.5	14.6	60.4	27.7
6	TW-06	Borbari Pathar	40	120	0.1	13.0	107.0	21.8
7	TW-07	Barangabari NO-2	80	90	0.1	21.2	68.8	30
8	TW-08	Bangurum (N0-1)	40	60	0.1	9.3	50.7	28
9	TW-09	Amjuli Colony	80	75	0.1	13.0	62.0	27
10	TW-10	Amjuli Beragaon	60	60	0.1	20.5	39.5	27.7C
11	TW-11	Nepali Gaon	120	105	0.1	15.8	89.2	29.9°C
12	TW-12	Nepali Gaon (MWSS)	80	105	0.1	15.7	89.4	29
13	TW-13	Uttar Bormukhuli	180	90	0.1	16.7	73.3	28
14	TW-14	Barangabari	80	105	0.1	15.8	89.2	26
15	TW-15	Borongobari (Athgoria)	40	60	0.1	17.7	42.3	29
16	TW-16	Majuli Gaon	80	90	2.5	15.4	74.6	26
17	TW-17	No-4 bongururm	100	120	0.1	17.7	102.3	25
18	TW-18	Sathgoria No-2	80	105	0.1	12.0	93.0	27.4

19	TW-19	Pachim Majuli Grand	80	75	0.1	18.2	56.8	28
20	TW-20	Kirimbapur	80	92	0.1	12.1	79.9	29
21	TW-21	Sagalijhar No-1	60	120	0.1	14.9	105.1	26.7
22	TW-22	No-2 Sagalijhar	140	105	0.1	9.3	95.7	30
23	TW-23	Sagalijhar No-2 pub	100	60	0.1	15.8	44.2	28.8
24	TW-24	Jurpukhuri	60	90	0.1	9.3	80.7	28

The water were obtained from the well depth ranging from 60.96 m (TW-06) to 121.92m at well TW-09 as shown in the (Figure 4.4).The aquifer material obtained from sieve analysis suggest that the soil sample (depth 1m to 17m at 24 hours) has highest finer of 6.9%.

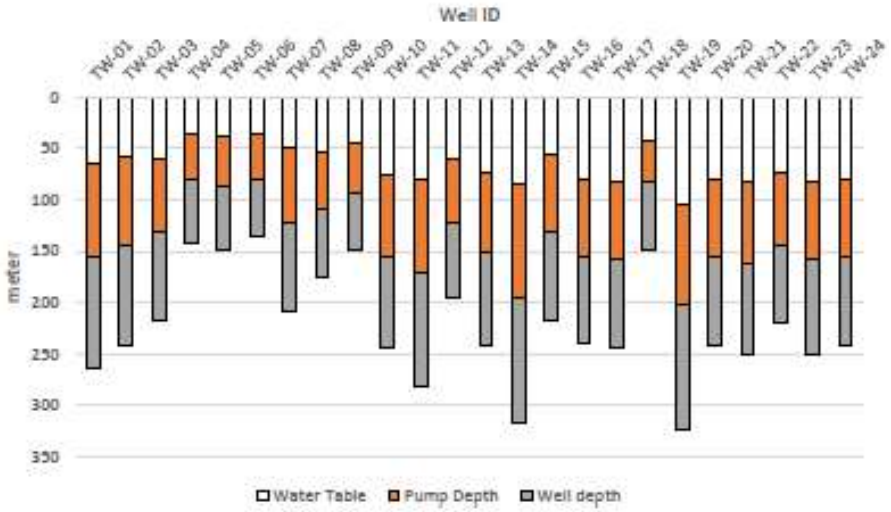

Figure 1 Water level, Pump depth and Well depth.

From the field and laboratory study it is evidence that water quality obtained from the well has good quality as per IS:10500 (2012).The water were obtained from these well has nothing to do with the geological formation as all the water quality parameters did not change in the geographical or geological location.

References:

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