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POSITION OF WATER SUPERIORITY OF HEALTH WATER: A STUDY OF AMBAJOGAI TALUKA OF BEED DISTRICT

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ABSTRACT

The major source of heavy metal pollution in well water which are in city, villages it carries lot of untreated sewage, industrial waste metallic solid waste disposal religious festival waste material human social activity, coal combustion over use of fertilizer and pesticides. The heavy metals are biologically non-degradable and though the food chain there may pass on to human and can cause signification health concern.

KEY WORDS: *Heavy metal pollution, water superiority of health water.*

INTRODUCTION

Our aim is to study the physico-chemical parameters of water and soil of well water and determine status of water quality of well water in and around Ambajogai. Ground water of contamination can originate on the surface of ground from the ground above or below water table. As the contaminants move through this layer a number of processes come in operation (e.g. filtration, dilution, oxidation and biological decay) substance which contaminate ground water can be divide into two basic categories. Substance that occur naturally and substance produced or introduced by man's activities, included minerals, such as iron, calcium, selenium etc;

Heavy metals becomes toxic when they are not metabolized by the body and accumulate in the soft tissue heavy metal may enter the human body through food, water, air or absorption through the skin when they come in contact with human in agriculture and in manufacturing pharmaceutical industrial or residential setting. Children may develop toxic level from the normal hand to mouth activity of small children who come in contact with contaminated soil or by actually eating objects that are not food (dirt or paints chips) (pupler 2001) Most of the rivers in India's are polluted, mainly because of direct flows of untreated sewage resulting in an acceptable level in them of biological oxygen demand (BOD) and suspended solids (ss) and water containing DDT derivatives from agriculture are dumped daily Any water body at its origin is naturally so pristine that can be used for almost all purposes without treatment which urbanization, industrialization and human activates along the river banks pose sever attempts have been made to study the impact of pollution on major Indian rivers.

RESEARCH METHODOLOGY:

Environment pollutant from anthropogenic source affect the aquatic ecosystem in synergistic manner, which cannot be detected comprehensively by determination of selected physico-chemical parameter alone whereas biological system can integrate all environmental variable over long period to times of effect which can be easily measured and quantified. A physico-chemical parameters of water quality analyzed using standards method given by APHA.

OBJECTIVE:

- To search the contamination stage of ground water through determination of physical and chemical properties of ground water
- To suggest the defensive measure in favour of the decrease of contamination stage of earth water
- To superiority of soil has an impact on public fitness standards through human food chain
- The data heavy metal assists to recognize the character of this metal and their species, particularly within aquatic atmosphere

HYPOTHESIS:

- The Physico-chemical condition of water in open well and bore well is badly affected due to excessive use of organic and inorganic fertilizer and use of pesticides and insecticides and affecting health and life of population. On both bank the river and water available in well around the region is not potable. i.e. much below standard laid down by WHO regarding drinking water made available to people dependent on river and wells.

SCOPE OF PRESENT STUDY:

The scope of study under taken is to access the physico-chemical parameter soil sample on course of ground water. The physical studies include colour, clarity, transparency, specific gravity, temperature, and presence of turbidity, precipitation of solid insoluble in water sample taken from ground water for drinking, domestic and agricultural purpose.

ABOUT STUDY AREA:

Beed district is one of the eight districts of Marathwada region and is located in the heart of Maharashtra, from 188 to 1927, in the north latitude and 74 54 'and 76 57' east longitude. The size of the district is mostly the southern and southern triangle which is almost parallel. In Ahmednagar district of the Ashti taluka of the district it is located in the district. The northern districts are Jalna and Parbhani districts, Parbhani and Latur districts on the east, Osmanabad and Latur districts in the south. On the north there are natural boundaries carved by rivers in Godavadi. The southern border mainly corresponds to the passage of the cat, but there is a large amount of deviation from it. The answer is some and the other south. The southern boundary also runs along three deviations from Sina Marg and includes a small plateau south of only one river. Apart from the boundaries built by these rivers, the district boundary is the result of historical accident and administrative facilities elsewhere.

The name of the city of district bead's headquarters got the name of which two explanations were created. A hall or a bay is situated in the Scrap of the Balaghat Plateau built by the Bendusara River and hence the name of the city has been kept as Bhir. The word beed happened in the past and then went to beed. The meaning of the word parsian also means the origin of the name of the water.

This city is famous for the queen Champawati, after the Champawati Nagar. Champawati Fort, Kankaleshwar Temple, Khandeshwari Temple and the Treasury Treasures are the remains of ancient Khajura. There are also holy shrines like Shahnashahawali, Mansoor Shah and Balpeer. The total area of the district is 10,615.3 sq. Km. Which is 3.45% of the total geographical area of Maharashtra and 16.24% of Marathwada region.

Table 1 Monthly Difference of pH in Ambajogai Taluka from January 2017 to December 2017

Sr. No	St.	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Mean
1.	AM1	6.13	6.32	5.21	7.12	7.11	7.07	8.52	8.69	7.19	6.82	7.34	7.36	7.07
2.	AM2	6.18	6.12	5.32	7.23	7.19	7.13	8.03	8.49	7.34	6.34	7.25	7.60	7.02
3.	AM3	6.65	6.45	5.16	7.02	7.28	7.24	8.19	8.78	7.10	6.19	7.16	7.43	7.05
4.	AM4	6.05	6.95	5.19	7.31	7.08	7.37	7.83	8.98	7.19	6.90	7.36	7.32	7.13
5.	AM5	6.40	6.13	5.84	7.14	7.17	7.09	7.72	9.28	7.60	6.27	8.02	7.89	7.21
6.	AM6	6.28	6.03	5.64	7.36	7.64	7.10	7.61	9.03	7.39	5.73	7.69	7.54	7.09
7.	AM7	6.34	6.10	5.20	7.42	7.39	7.53	7.13	7.81	7.46	5.28	7.42	7.67	6.90
8.	AM8	6.0	5.32	5.29	7.39	7.43	7.49	7.28	7.91	7.82	5.41	7.63	7.06	6.84
9.	AM9	5.64	6.35	5.37	7.19	7.19	7.28	7.06	7.64	7.13	5.09	8.13	7.99	6.84
Mean		6.18	6.19	5.35	7.24	7.28	7.26	7.71	8.51	7.36	6.00	7.56	7.54	

Source: Field work

In pure water, hydrogen and hydroxyl ion are equal in size, so we refer to this as a neutral solution. The amount of hydrogen ion in acidic solution is higher than the concentration of hydroxyl ions. Hydrogen ion activity is expressed in pH units. Natural water hydrogen ions are one of the important environmental factors, which are related to chemical reactions, species composition and the life of communities of animals and plants. Water pH is controlled at the same time as dissolved carbon dioxide, carbonate and bicarbonate.

The sample collected from the Ambajogai taulka showed a maximum recorded pH was at 9.28 from A5 station in August month, and a minimum pH was recorded at 5.16 from A3 station in the month of March. The annual average of Ambajogai taluka was maximum at 7.21 from A5 station and minimum at 6.84 simultaneously A8 and A9 station.

Table 2 Monthly Difference of EC (µs/cm) in Ambajogai Taulka from January to December 2017

Sr. No	St.	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Mean
1.	AM1	632	682	327	534	640	317	597	631	794	303	241	410	509.00
2.	AM2	872	964	752	641	819	904	749	667	821	671	628	701	765.75
3.	AM3	486	362	340	247	475	561	603	483	514	420	492	417	450.00
4.	AM4	743	645	687	541	746	710	737	654	601	671	514	474	643.58
5.	AM5	369	532	471	360	308	389	473	537	500	463	409	341	429.33
6.	AM6	900	864	956	947	816	766	890	1029	1247	957	804	823	916.58
7.	AM7	481	420	367	529	471	534	589	647	607	537	594	480	521.33
8.	AM8	620	539	649	707	784	517	683	753	801	685	606	493	653.08
9.	AM9	764	1067	1284	946	780	627	867	1154	1012	746	859	815	910.08
Mean		651.89	675.00	648.11	605.78	648.78	591.67	687.56	728.33	766.33	605.89	571.89	550.44	

Source: Fieldwork

The above table 2 describes about the monthly difference of EC in Ambajogai taluka from January to December 2017 and it was observed from the collected sample of water the maximum electrical conductivity was recorded at 1247 **µs/cm** at AM6 station in the month of September, and the minimum electrical conductivity was recorded at 247 **µs/cm** at AM3 station in the month of April, the annual average that is the maximum mean value was recorded at 916.53 from AM6 station and minimum mean value was recorded at 429.33 **µs/cm** at AM5 station.

Table 3 Monthly Difference of Dissolved Oxygen (mg/l) in Ambajogai Taluka from January 2017 to December 2017

Sr. No	St.	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Mean
1.	AM1	3.3	5.1	2.3	4.3	3.5	3.9	4.1	3.7	5.3	4.6	3.9	2.8	3.90
2.	AM2	4.9	4.9	4.1	4.1	4.6	3.7	4.3	4.0	3.4	3.5	4.2	3.1	4.07
3.	AM3	2.9	3.6	3.5	5.2	4.9	4.1	3.9	3.2	4.6	3.5	4.1	3.7	3.93
4.	AM4	3.7	4.7	3.7	2.9	3.1	4.6	3.8	3.4	4.1	3.7	4.6	3.4	3.81
5.	AM5	4.3	2.8	4.6	4.9	3.8	3.1	2.7	4.3	5.3	4.2	3.4	2.4	3.82
6.	AM6	2.4	3.1	5.1	3.4	2.9	3.9	3.3	4.8	4.2	4.7	5.3	3.7	3.90
7.	AM7	5.3	4.2	4.3	2.7	3.4	4.2	3.1	5.2	4.7	3.8	3.7	2.6	3.93
8.	AM8	4.9	3.7	3.8	2.9	3.5	3.7	2.1	3.7	4.1	4.3	2.9	3.4	3.58
9.	AM9	3.8	5.4	4.7	3.9	2.9	4.1	3.4	3.9	3.7	5.4	3.3	4.2	4.06
Mean		3.94	4.17	4.01	3.81	3.62	3.92	3.41	4.02	4.38	4.19	3.93	3.26	

Source: Fieldwork

The above table 3 describes about the monthly difference of Dissolved Oxygen (mg/l) in Beed taluka and from the collected water it was observed that the maximum Dissolved Oxygen was recorded at 5.4 mg/l at AM9 in the month of February and October simultaneously and minimum Dissolved Oxygen was recorded at 2.1 mg/l at AM8 station in the month of July, the annual maximum mean value was recorded at 4.07 mg/l from AM2 station and the minimum mean value was recorded at 3.58 mg/l from B8 station.

Table 4 Monthly Difference of Total Dissolved Solid (mg/l) in Ambajogai Taluka from January 2017 to December 2017

Sr. No	St.	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Mean
1	AM1	532	465	698	781	847	974	623	732	746	864	780	806	**737.33**
2	AM2	547	539	627	864	953	967	769	954	957	768	840	1207	**832.67**
3	AM3	460	582	631	749	974	1171	870	829	648	459	784	765	**743.50**
4	AM4	963	1056	1948	1694	2149	2286	1785	1952	1239	2149	1429	1558	**1684.00**
5	AM5	756	851	654	957	1563	1347	1069	1147	1743	2047	1746	1640	**1293.33**
6	AM6	832	753	639	968	1175	1274	1348	1653	1128	1789	1394	1049	**1166.83**
7	AM7	436	594	745	840	967	1086	967	1127	943	956	730	875	**855.50**
8	AM8	947	845	690	981	847	1183	760	984	829	947	843	857	**892.75**
9	AM9	850	776	743	996	1095	985	1347	1083	959	849	1640	1068	**1032.58**
Mean		**702.56**	**717.89**	**819.44**	**981.11**	**1174.44**	**1252.56**	**1059.78**	**1162.33**	**1021.33**	**1203.11**	**1131.78**	**1091.67**	

Source: *Fieldwork*

The above table 4 describes about the monthly difference of total dissolved solid in Ambajogai taluka and it was observed from the collected sample water that the maximum value of total dissolved solid is recorded at 2286 mg/l from B4 station in the month of June and the minimum value of total dissolved solid is recorded at 436 mg/l from B7 station in the month of June and the annual average maximum mean value was recorded at 1684.00 mg/l from B4 station and the minimum mean value was recorded at 737.33 mg/l from B1 station.

Table 5 Monthly Difference of BOD (mg/l) in Ambajogai Taluka from January 2017 to December 2017

Sr. No	St.	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Mean
1.	AM1	3.3	3.1	3.6	3.4	2.9	2.5	2.1	2.4	2.9	3.2	3.4	3.0	2.98
2.	AM2	3.6	3.4	4.2	3.7	4.1	3.7	3.4	3.9	4.3	4.1	3.9	3.5	3.82
3.	AM3	2.9	2.1	2.7	3.2	3.9	4.4	3.8	3.4	3.6	3.1	3.4	3.0	3.29
4.	AM4	2.7	2.0	3.1	3.6	4.2	3.9	3.4	3.7	3.9	3.5	3.6	3.1	3.39
5.	AM5	3.1	3.3	3.6	3.2	3.5	3.4	3.6	3.1	3.6	3.2	3.3	3.5	3.37
6.	AM6	3.0	3.5	3.9	3.5	3.0	2.8	3.1	2.8	3.3	2.9	2.8	3.1	3.14
7.	AM7	1.9	1.8	2.5	3.1	3.6	3.2	2.4	2.9	3.2	2.9	3.1	3.2	2.82
8.	AM8	2.8	2.1	2.3	2.9	3.1	3.4	3.0	2.6	3.0	2.7	3.2	3.5	2.88
9.	AM9	3.2	3.5	3.9	3.5	3.4	3.0	2.7	2.8	3.2	3.0	3.3	3.4	3.24
Mean		2.94	2.76	3.31	3.34	3.52	3.37	3.06	3.07	3.44	3.18	3.33	3.26	

Source: *Fieldwork*

The above table 5 describes about the monthly difference of BOD in Ambajogai taluka from January 2017 to December 2017 and it was observed from the collected water sample that the maximum BOD was recorded at 4.4 mg/l from AM2 station in the month of June and the minimum BOD was recorded at 1.8 mg/l from AM7 station in the month of February and the annual average maximum mean value was recorded at 3.39 mg/l from AM4 station and the minimum mean value was recorded at 2.82 mg/l from AM7 station.

Table 6 Monthly Difference of Hardness of Water (mg/l) in Ambajogai Taluka from January 2017 to December 2017

Sr. No	St.	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Mean
1.	AM1	68	51	72	82	94	75	86	90	93	84	80	73	79.00
2.	AM2	132	127	139	166	183	145	180	194	203	184	176	154	165.25
3.	AM3	84	61	72	79	96	82	104	98	105	86	72	64	83.58
4.	AM4	356	328	303	342	374	347	333	368	402	392	364	340	354.08
5.	AM5	425	394	371	386	395	347	359	373	387	360	349	325	372.58
6.	AM6	257	234	203	217	249	219	273	294	314	293	271	238	255.17
7.	AM7	89	71	56	69	72	81	91	102	113	101	89	67	83.42
8.	AM8	168	135	127	154	167	178	182	213	219	198	179	157	173.08
9.	AM9	380	334	315	329	318	338	347	385	410	376	357	339	352.33
Mean		217.67	192.78	184.22	202.67	216.44	201.33	217.22	235.22	249.56	230.44	215.22	195.22	

Source: *Fieldwork*

The above table 6 describes about the monthly difference of hardness of water in Ambajogai Taluka from January to December 2017 and it was observed from the collected sample of water that the maximum Hardness of Water was recorded at 425 mg/l from AM5 station in the month of January and the minimum Hardness of Water was recorded at 51 mg/l from AM1 station in the month of February and the annual average maximum mean value was recorded at 372.58 mg/l from AM5 station and the minimum mean value was recorded at 79.00 mg/l from AM1 station.

Table 7 Monthly Difference of Total Acidity (mg/l) in Ambajogai Taluka from January 2017 to December 2017

Sr. No	St.	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Mean
1.	AM1	12.5	16.9	19.2	17.4	15.5	16.7	18.6	17.2	18.4	19.4	19.1	17.2	17.34
2.	AM2	32.8	36.7	38.8	37.2	35.4	36.8	37.5	38.4	37.6	39.4	38.5	36.5	37.13
3.	AM3	45.8	40.6	42.5	40.4	43.8	45.7	47.9	46.8	44.2	47.0	45.3	42.6	44.38
4.	AM4	22.9	28.3	25.7	23.8	21.9	23.1	26.0	27.3	28.7	29.7	28.5	27.4	26.11
5.	AM5	56.7	59.7	57.3	55.6	54.7	56.3	55.1	54.9	56.7	59.3	58.7	26.7	54.31
6.	AM6	13.9	16.7	17.8	15.7	14.7	18.4	19.7	18.4	19.7	17.8	16.2	15.8	17.07
7.	AM7	25.7	28.9	25.8	24.3	26.7	27.6	25.3	23.3	22.1	21.5	23.4	21.7	24.69
8.	AM8	42.3	45.6	44.6	42.9	43.3	44.9	42.7	40.8	42.8	41.1	43.8	41.8	43.05
9.	AM9	51.2	53.7	52.9	54.3	54.8	55.7	52.3	54.9	55.2	53.4	51.8	52.7	53.58
Mean		33.76	36.34	36.07	34.62	34.53	36.13	36.12	35.78	36.16	36.51	36.14	31.38	

Source: *Fieldwork*

The above table 7 describes about the monthly difference of total acidity of water in Ambajogai Taluka from January to December 2017 and from the collected sample it was observed that the maximum total acidity of water was recorded at 59.7 mg/l from AM5 station in the month of February and the minimum total acidity of water was recorded at 12.5 mg/l from AM1 station in the month of January and the annual average maximum mean value was recorded at 54.31 mg/l from AM5 station and the minimum mean value was recorded at 17.07mg/l from AM6 station.

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