



RESEARCH ARTICLE

PHYSICO-CHEMICAL PARAMETERS APPLY TO ANALYSIS OF DRINKING WATER IN NANDED DISTRICT: MAHARASHTRA.

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Abstract

Generally we have survey of drinking water of some selected area's in Nanded(MS). Nanded city having the population approximately 3361292 and the chief sources of water supply are the Hand pumps, Bore wells, Wells, Ponds, Dam and River etc. The following parameters applied for monitoring of drinking water qualities for practical and study proposes. We are using some analytical parameter such as Temperature, pH, Electrical Conductivity (EC), Total Dissolved Solids (TDS), Alkalinity, Hardness, Chlorides and Fluoride quantity in Drinking Water.

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Introduction:-

Water is an essential not only for survival of human being, but also for animal plants and all other living being. Water is one of the most valuable natural resources used for drinking, irrigation, navigation, propagation of wild life, fisheries etc. Ground water is the most important source of water supply for drinking, irrigation and industrial purpose. Increasing population and its necessities have led to the deterioration of surface and sub-ground water.

Water the matrix of life is exposed to pollution, unhealthy environment resulting in human affliction and diseases transmission due to rapid industrialization and population.

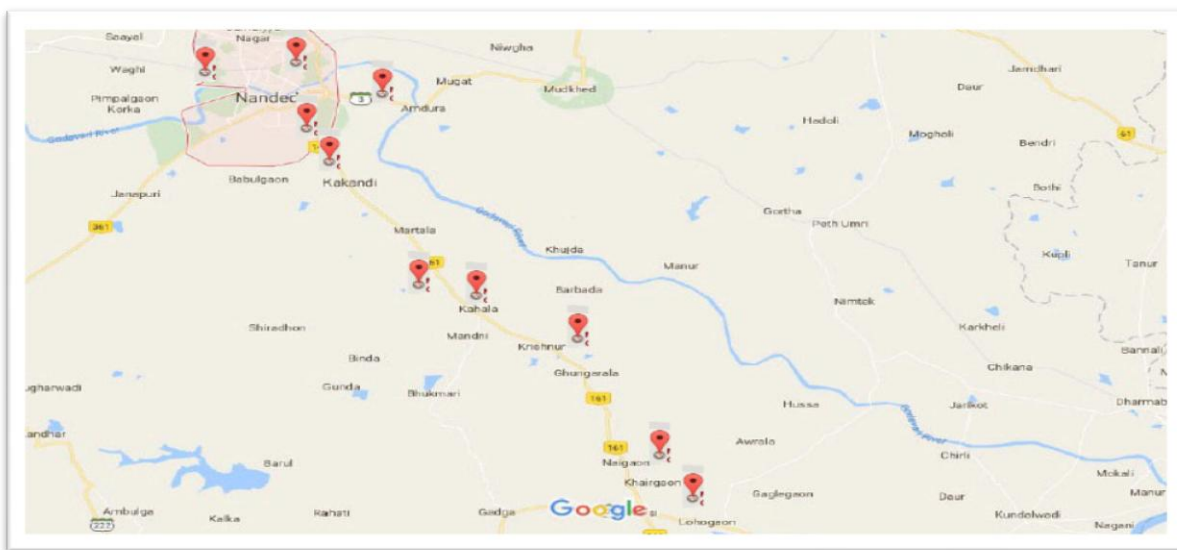
The monitoring and assessment of water quality on continual basis has become essential on part of the associated. Water quality can be defined on the basis of two criteria such as abiotic and biotic, along with the water quality standards are also formulated based on this classification of water quality through estimation of various parameters.

Materials And Methods:-

We have randomly selected ten area of Nanded District of Maharashtra shown in table -I, collected drinking water samples in sterilized bottles from various water resources like as hand pumps, bore wells, wells, ponds, dam and river etc. We have applied some physicochemical parameter for analysis of drinking water qualities, like Temperature, Colour, Odour, pH, Electrical conductivity [EC], Total dissolved solids [TDS], Alkalinity, Hardness, Chlorides and Fluoride etc. First to know the Temperature of each sample at RT by thermometer in °C, pH by digital pH meter, electrical conductivity measured by conductivity instrument in $\mu\text{S}/\text{cm}$, TDS by disk filtration in mg/l . Titration Method used for Total alkalinity, total hardness and Ca concentration of drinking water known in mg/l . For chloride test, AgNO_3 with K_2CrO_4 indicator is used. Standard 0.02N H_2SO_4 with methyl orange indicator is used for alkalinity measured in mg/l . Fluoride was estimated with standard method as prescribed by Grolman at (1978), Trivedi and Geol (1984) and APHA (1998).

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Location sites

* Physico-Chemical Parameter Analysis of Drinking Water Samples.

Sr.No	Area of Nanded district	Resources	Temp °C	pH	TDS mg/l	Conductivity $\mu\text{S}/\text{cm}$	Alkalinity mg/l	Hardness mg/l	Ca mg/l	Cl mg/l	F mg/l
1	North Nanded	River	32	7.5	400	585	260	290	64	70	0.42
2	South Nanded	Dam	32	7.4	425	560	248	280	55	76	0.38
3	CIDCO Nanded	Hand pump	30	7.2	336	640	328	290	68	68	0.56
4	MIDC Nanded	Well	27	6.2	782	1262	140	428	180	60	0.65
5	Tupa	Hand pump	27	6.5	640	926	186	310	90	65	0.57
6	Malegaon	Tube well	25	7.7	414	802	340	280	85	72	0.06
7	Krishnur MIDC	Hand pump	30	6.4	624	1134	160	390	150	63	0.54
8	Kahala	Hand pump	28	7.4	276	432	290	234	64	70	0.24
9	Naigaon	Tube well	27	7.2	313	686	190	297	78	85	0.48
10	Narsi	Tube well	27	7.4	306	611	231	260	72	90	0.36

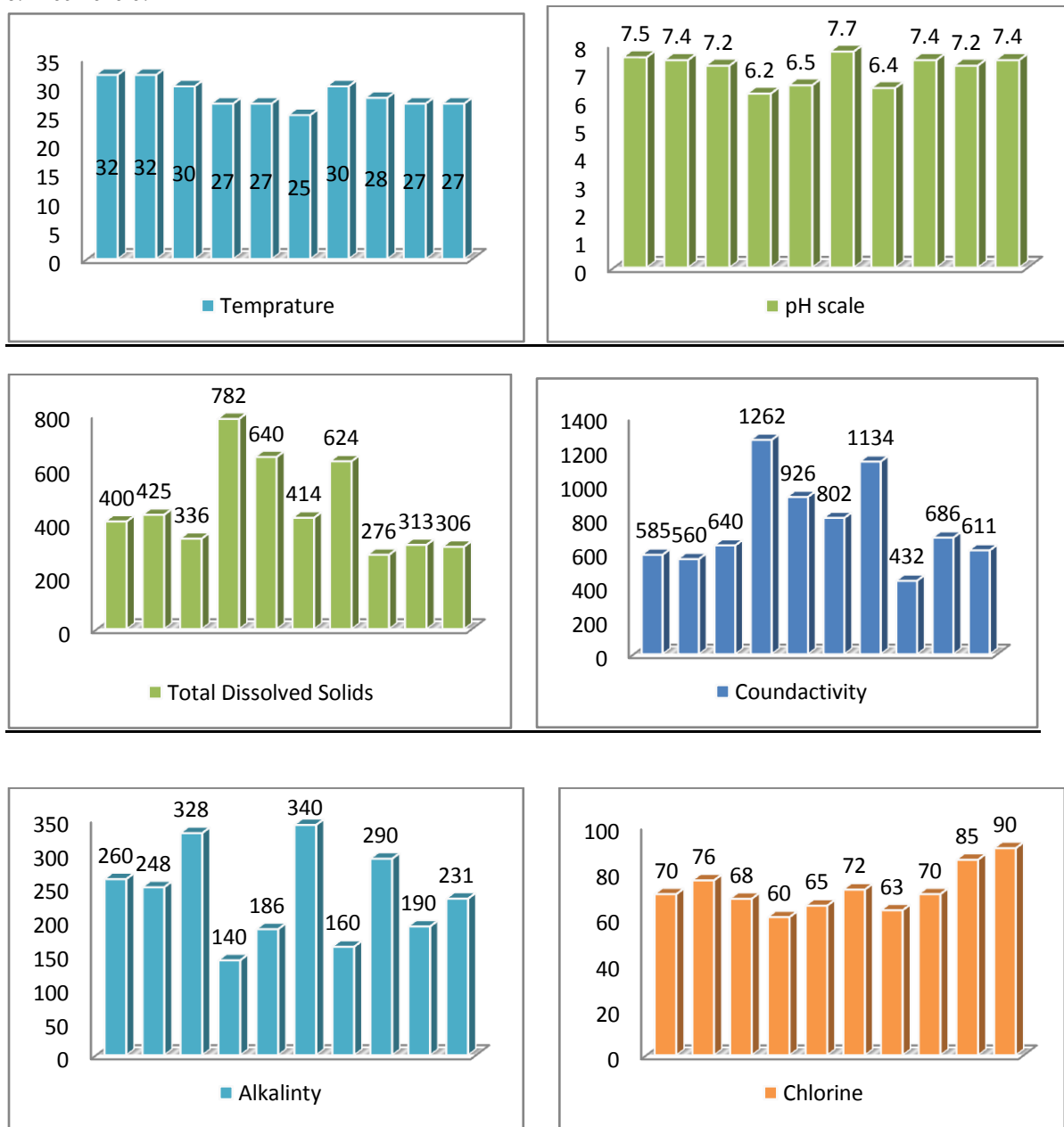
Results and Discussions:-

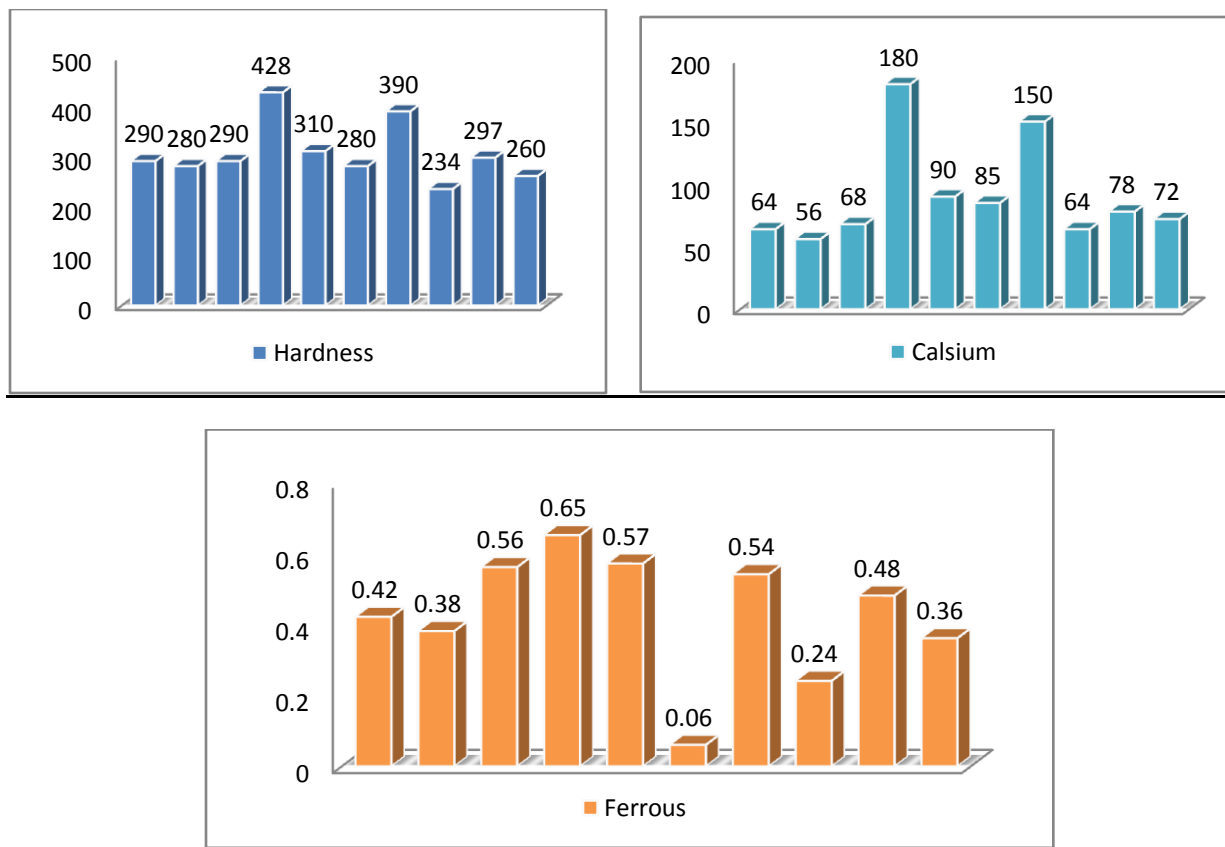
The pH values are normal drinking water ranges 6.5-8.5 on pH meter scale, most natural water is alkaline in nature due to presence of bicarbonate and carbonate. The carbonate are much stronger alkaline than bicarbonates.

we have gain pH value of water from selected area shown in table-I. The maximum pH value 7.7 Malegaon and minimum 6.2 MIDC Nanded (Maharashtra Industrial Development Corporation). The most of bio-chemical and chemical reactions changes the pH value of drinking water. The industrial area located in this area which exhaust there waste effluent without treatment. Commonly drinking water has EC range 500- 800 $\mu\text{S}/\text{cm}$ at 25°C. The EC is used to measure the concentration of dissolved solids substances in water [Navneet, *et al*, 2010]. We have our research gain results of EC highest 1262 $\mu\text{S}/\text{cm}$ at MIDC Nanded and another 1134 $\mu\text{S}/\text{cm}$ of Krishnur Nanded and lowest 132 $\mu\text{S}/\text{cm}$ Kahla as shown in fig. Alkalinity of water is due to the presence of hydroxide carbonates and bicarbonates total alkalinity for drinking water ranges 200-600mg/l we gain research. The results of the alkalinity maximum value 340 mg/l at Malegaon and minimum value 160 mg/l of MIDC Krishnur. Total hardness range 300-

600mg/l. The maximum values 428 mg/l at MIDC Nanded and lower value 234 at Kahala high value of hardness at MIDC attribute industrial west effluent discharge.

The recommended limit of Ca are 75-200 mg/l Our research experiments result are maximum concentration of Ca at MIDC site and minimum value 56 mg/l dam. Almost all natural water contain chloride ion .There concentration vary considerably according to the mineral content of the earth in any given area . In small amount it is not significant zn large concentration it present problem ,low to moderate concentration of chloride ion add palability to water. Zn fail it is for in fact this reason, excessive concentration of it ,can make water unpleasant to drink .The value of chloride in normal drinking water are range 250-1000mg/l .We have gain quantites of chloride such results the maximum value 90mg/l at Narsi and manimum value 70mg/l at Kahala. Recommended fluoride concentration in drinking water limits 1-1.5mg/l ,it is an essential constituent of drinking water mainly because of it's role in prevention of dental .We have gain experimental result ,the maximum value 0.65 at MIDC and minimum value at 0.24 at Kahala.





Conclusions:-

The present study indicates the effect of overall development, industrialization and urbanization are felt on the quality of water has resulted few untreated wastes and impact can be easily observed by water minerals, properties changed.

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