

**STUDIES ON POLLUTION LEVEL OF GROUND WATER IN SULTANPUR DISTRICT (U.P.)****ADITYA BAHADUR SINGH<sup>1</sup>**

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**ABSTRACT**

The area under investigation consists of mix society pattern having different casts, creeds, culture, social systems and religions. The people within the area have multiple trades such as, farming, Poultry, Dairy workshops, laundry; routine outflows affect the environment adversely. During investigation the tube well Water was approximated to be zero level water regarding the plant nutrients.

**KEYWORDS:** Pollution, Measurement, Plant Nutrients, Ground Water

The Safe limit for occurrence of iron in drinking water supply is 0.3 mg/L The presence of iron in water restricts its utility due to production of colour, turbidity and taste. The ground water of north eastern and eastern states have iron exceeding the maximum permissible limit of 1 mg/L in certain parts.

Salinity in ground water has been observed in the inland areas of the country. An estimate shows that about 1.9 lakh sq. km in the state of Haryana, Punjab, Delhi, Rajasthan, Gujrat, UP, Karnataka and Tamil Nadu, are effected by inland salinity which is primarily caused by over-exploitation of ground water and excessive surface irrigation. In Rajasthan alone the area underlain by saline ground water has been estimate as 1.40 lakh sq. km.

Almost 60 percent of total water pollution load is being contributed by the domestic sector. At present, very little of the sewage is treated. If the treatment capacity of sewage remains at 10 percent of the total generation the pollution load from domestic sector would approximately double by 2047. Clearly, investing in sewage treatment plants is necessary, after treatment, The waste water can be used for irrigation. Already, in Gurgaon, treated sewage is being sold to the nearby farms.

Pollution load from industries could be reduced significantly if existing standards are enforced. If current trends of increased compliance with CPCB (Central Pollution Control Board) standards continue, the organic pollution from the alcohol manufacturing industry would fall by as much as 74 Percent. With improved water recovery systems, would fall by as much as 74 percent. With improved water recovery systems, the pollution discharge can be reduced by a further 50 percent.

**STUDY AREA**

The area under investigation consists of a mix society pattern having different casts, creeds culture, social systems and religions. The people within the area have multiple trades such as, farming, poultry, dairy, workshops, laundry, whole sale and retail marketing. All these human activities coupled with daily Sultanpur. Nearly 65% of the citizens of this municipal board are fed on the production from the adjacent outskirt zone. The economic significance of the study undertaken can thus be evaluated.

In the municipal board area these is not any big dairy, but is self dependent for milk requirements it indicated a good number of small scale dairies which may be ill managed pouring through the drains. III managed small scale industry rendere more pollution than a well managed large scale industry.

**Qualitative & Quantitative Analysis of Effluents from Different Sources in Various Seasons**

The qualitative and quantitative analysis for the ingredients of drain water has periodically have been done.

**Qualitative Analysis**

The qualitative analysis was done by atomic adsorption spectro photometer.

**Quantitative Analysis**

Water analysis needed for the study of useful as well as harmful constituents. The latter are particularly important for determining value for irrigation and from health and environmental angles. Out of net irrigated area of around 45 m. ha in India, 36.2% is irrigated by canals, 30.2% by tube wells, 19.8% by other wells, 7.3% by thanks and 6.6 by other sources. Generally the nutrient content of

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**SINGH: STUDIES ON POLLUTION LEVEL OF GROUND WATER IN SULTANPUR DISTRICT (U.P.)**

river waters is less than that of well/ ground water. This is because while river waters carry whatever nutrients are dissolved from land surface along their course, ground water are essentially leachiest and will contain all that has leached down from soils and the underlying layers over a period of time.

**REAGENTS**

**Mixed Indicator**

Dissolved 200 mg. Metyle red indicator in 100 mL/ 95% ethyl or iso propyl alcohol. Combined solutions prepared monthly.

**Indicator Boric Acid Solution**

Dissolved 20g in mmonia free distilled water, added 10 ml mixed indicator solution and diluted to 1000 mL prepared monthly.

**Procedure**

**Dilution:** Taken 25 mL sample (filter) and siluted with 75 mL. Distilled water.

Added 25 mL phosphate buffer in dilute sample and 2 or 3 drops of phenol- phthalein indicator and adjust pH, using NaOH solution.

Now taken 80 mL Boric Acid + Mix indicator solution and dip tube of distillation apparatus to colleting NH<sub>3</sub> -N.

Samples was taken for distillation and collected NH<sub>3</sub> -N in Boric Acid + Mixed indicator. After changing blue colur of reday for titration with H<sub>2</sub>So<sub>4</sub> (0.099N) when color changed (Brown) noted.

**Calculation**

$$\text{Ammonia - N mg/L} = \frac{B.R. \times N \text{ of Rea gen t} \times 14 \times 1000}{25}$$

**Table 1: Fertilizer consumption in India 1965-1997 in million metric tonnes (mmt)**

Year	N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	Ratio N: P <sub>2</sub> O <sub>5</sub> : K <sub>2</sub> O
1665	0.575	0.133	0.077	1:0.23:0.13
1975	2.149	0.467	0.278	1:0.22:0.13
1985	5.661	2.005	0.808	1:0.35:0.14
1990	7.997	3.221	1.328	1:0.40:0.16
1992	8.427	2.844	0.884	1:0.31:1.12
1994	9.507	2.932	1.125	1:0.31:0.12
1996	10.30	2.977	1.030	1:0.28:0.10
1997	10.91	3.92	1.37	1:0.35:0.13

**RESULTS AND DISCUSSION**

The daily out flow of water in the area towards east zone has been estimated to be 10,500 kL in 1998, 12,800 kL in 1999, and 14, 600 kL in 2000 as indicated in Month wise and annual out flow of water estimations reveal that within a short span of 3 years the out flow has highly been raised as indicated in. The huge out flow of polluted water from the drains if unmanaged or illmanaged will cause serious pollution threatening to men, animals and plants.

The observation is found highly significant of relatively small economy in proportion to very large population, scarce resources and a large Ag. sector which roughly 29% GDP with sub-level nutrients. Growth in India

is greatly affected by its agricultural sector which needs to be healthy for the overall growth of the nation. No, doubt, there will be long term effect of drain water on crop production and soil properties as observed by some investigations.

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**SINGH: STUDIES ON POLLUTION LEVEL OF GROUND WATER IN SULTANPUR DISTRICT (U.P.)**

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