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Research Article

ECOLOGICAL DEGRADATION AND PHYSICO CHEMICAL ANALYSIS OF SLURRY WATER

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ABSTRACT
Ecological degradation refers to the deterioration in its physical component brought by the biological processes mainly by human activities to such an extent that it cannot be set right by the self regulatory mechanism or homeostatic mechanism of the environment. In the present study physic chemical properties of slurry water was studied and are the main cause of water pollution which affect the biota.

INTRODUCTION
Ecological degradation and pollution are synonyms as both are concerned with the lowering of the quality of the environment. But a distinction between these two aspects of the lowering and deterioration of the quality of the environment may be drawn on the basis of causative factor and scale of deterioration of environmental quality in terms of magnitude. Environmental pollution means lowering of the quality of environment at local scale caused exclusively by human activities where as environmental degradation means lowering of environmental quality at local, regional, global and social scale by both natural process and anthropogenic activities. When environmental degradation crosses the critical limit to such an extent that it became lethal to biota in general and human beings in particular, it became pollution. Thus pollution is the upper limit of environmental degradation such the realization of environmental degradation and pollution has become of global concern and there is a growing awareness about pollution. Kumara V.K. (1982) studied that pollution is also a important factor of environmental degradation the physico chemical properties of water changed when industrial waste is mixed with water in Kanpur city. Sharma, H.S. (1983) studied ecological degradation, in Jaipur Urban Complex. Singh, B.B., Sinha A.P. and Singh D.N. (1983) studied environmental pollution hazard in Calcutta metropolitan District in Allahabad. Singh, Pramod (1985) gave emphasis the environmental pollution and management regarding the biotic system.

MATERIALS AND METHODS
Physico chemical analysis of Ground water and sediment was done with the help of standard method mentioned in American Public Health Association (A.P.H.A) (1989) and Goyal & Trivedi (1984).
pH- pH is the negative log 10 of hydrogen ion concentration in a solution. It can be measured by calorimetric method using various indicator or paper stripes. pH electrometric method are using employing the hydrogen ion sensitive electrodes.
Turbidity - The turbidity of a sample is thus measured of the amount of light scattered by the sample taking a reference with standard turbidity suspension.
Nephelometer (turbiditymeter) it measures the scattered light at the right angle of the path of incident light.
Turbidity NTU – Nephalometer reading X 0.4 X dilution factor.
Chloride - Silver nitrate reacts with chloride to form very slightly soluble white precipitate of AgCl. At the end point when all the chlorides get precipited, free silver ions react with chromate of radish brown colour.
Chloride, mg/ = (ml X N) of AgNo3 X 1OOO X 35.5 ml. sample
Calcium – Many cations such as ammonium purpurate, calcium etc. form a complex with only calcium but not with magnesium at higher pH. As EDTA is having a higher affinity towards calcium, the former

complex is broken down and a new complex is formed. However EDTA has a property to combine with both Ca++ therefore magnesium is highly precipitated as its hydroxide at sufficiently higher pH.
Magnesium - Calcium and magnesium form a complex of red colour with Eriochrome black T at pH 10.0 the EDTA has got a stronger affinity for Ca++ and Mg++ the former complex is broken down and a new complex of blue colour is formed. The value of Mg++ can be obtained by subtracting the value of calcium from the total of Ca++ and Mg++

$$Mg^{++}, mg/L = \quad Y - X \quad X = \quad 400.8 \text{ volume of sample X}$$

Ground water analysis -

1.	pH	7.5
2.	Turbidity	15 N.T.U
3.	Chloride	7.2 mg/l
4.	COD	Absent
5.	Calcium	5.1 mg/l
6.	Magnesium	14.9 mg/l

Slurry water analysis -

1.	pH	6.5
2.	Turbidity	37 N.T.U
3.	COD	376 mg/l
4.	Chloride content	609.96 mg/l
5.	Calcium	539.76 mg/l
6.	Magnesium	743.75 mg/l

RESULTS AND DISCUSSION

The pH of slurry was 6.5 whereas that of belong to ground water was 7.5 this pH indicate the acidic nature of slurry. The chloride of slurry water was 609.96 mg/l where as that of ground water was 7.2 mg/l the ground water pH of different site was more or less same but in coming times it may have impact of this chloride rich slurry water. This chloride rich concentration is also indication of pollution as reported by Dr. Ranga (1995).The turbidity of slurry water was 37 N.T.U where as that of ground water was 15 N.T.U. Turbidity is important physical factor is due to suspended particulate matter is also a cause of pollution. Calcium of slurry water was 539.76 mg/l and where as that of ground water was only 5.1 mg/l the present studies indicate that the hike in calcium in slurry water is due to chemical deposition. The magnesium of slurry water was 743.75 mg/l and whereas that of ground water was only 14.9 mg/l. The present studies indicate that the hike in magnesium in slurry water indicate due to chemical deposition. Concentration of magnesium is also important for the biota in fresh water ecosystem so this higher magnesium conc. In slurry water will have impact on flora and fauna studied by Upadhaya (1996). The COD of slurry water was 376 mg/l where as that of ground water was absent. Pillai, Panday, Shukla (1999) studied the physic chemical properties of drinking water is affected by addition of drug by the municipality. Reddy, Prasad and Rajesh (1999) reported that pH, electric conductivity and fluoride content are affected in Andhra Pradesh, leading to the ecological degradation.

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