



# **INDUSTRIAL EFFLUENTS DISCHARGE AND THEIR BAD EFFECT OF ENVIRONMENT AND RESPONSIBLE TO CHANGE OUR BIODIVERSITY**

Sangeeta Banjare<sup>1</sup> A.L.S. Chandel<sup>2</sup> M.Upadhyay<sup>3</sup>

E-mail;-Che.sangeeta@gmail.com

<sup>1</sup>Dept.Of Chem.D.L.S.P.G.College Bilaspur (C.G.)

<sup>2</sup>Dept.Of Chem.Govt E.R.R Science P.G.Collge Bilaspur [C.G.]

<sup>3</sup>Dept.Of Chem. Dr. C.V.Raman University Bilaspur [C.G.]

## **ABSTRACT**

**We know that environmental pollution problem is affect human beings, plants, animal and all living organism. Wastewater effluents are damaging quality of water, soil which is very harmful. About wastewater techniques, while important to countless people around the world, are no strangers to facing issues. In fact human nature is too greedy they don't think about what we give our future. We set our mind to give our future a better greener ways to live happy and healthy. This is human responsibility to take care our environment a growing movement for many are a number of ways industrial parks and businesses are generate waste water. Rain water that is contaminated by the material used in the industrial parks. We know that clean water is blessing from god don't pollute it. Save water from pollution to secure the future. One must be a sea to receive a polluted stream without becoming impure, "Water and air" the two essential fluids on which all life depends, have become global garbage cans. Stop the pollution quick don't make the water sick, Water sustains life don't kill it, or you will die too. If you harm today's, it will harm tomorrow.**

**Keywords: Industrial, effluents, water quality, BOD, COD, TSS**

## **1. Introduction:**

When industrial effluents discharge entering a water body they make water pollution and makes river water biodiversity more vulnerable to climate warming and they are represent a

heavy source of environmental pollution in Indian rivers. Many organic pollutants are breakdown such as sewage and farm run-off uses oxygen, meaning that polluted waterways often suffer severe drops in dissolved oxygen level. We know that our states people life is agriculture based. The main pollution sources are from transport and agriculture in today's industries. Industrial discharges are affecting the quality of water as well as the microbial and aquatic flora; we occur many changes in our biodiversity. Over all Worlds with competing demands on limited water resources, we listen and read people always talk about the "Third World War" are fighting for "Water". Many conferences, debts, talk show are organized but today we know that what is the result? Now a days Chhattisgarh district many villagers are used river water for agriculture and domestic purpose. Some Industries and thermal power plants are here which discharges are affecting river water. Villager are do not know about discharged effluents are how harmful for their bodies, they don't disturbed water bodies but soap, detergent, fungicides pesticide, insecticide, fertilizers are affect the water quality in ponds and river. Allots of bohrwells are generated and we lose our ground water level so deep and heavy metals are present in there. [1]

We need to create awareness of the issues involved in water pollution has led to considerable public debate about the environmental effects of industrial effluents discharged into aquatic environments and include some "Gram Sabha" create a Natak for villagers to create awareness. Generally industrial effluents are characterized by their

abnormal turbidity, temperature, taste, pH, conductivity, hardness, total hardness, permanent hardness, chemical oxygen demand (COD), total suspended solids, total dissolved solid, oxygen demand (DO), biological oxygen demand (BOD), nitrate, nitrite, ammonia, chlorine and include some heavy metals Lead, Mercury, Arsenic, cadmium etc. In thermal power plants effluents containing high concentration of microbial nutrients which promote on after growth of significantly high coliform types and other microbial forms. Our country is developing country and in Chhattisgarh state villagers people are live here, in urban areas people are too greedy they also throw their house wastes in open area, they use drinking water for domestic purpose, we face many water crises in summer in urban areas, in rainy season we face flood, sewage system is not good the overflow of raining water in urban areas found many diseases diarrhea is common and many peoples are dead, typhoid etc. Thermal power plants effluents contamination of natural water bodies has emerged as a major challenge in developing and densely populated countries like Bharat. Ponds, river, groundwater wells are the major sources of drinking water in Chhattisgarh, are often contaminated by the activities of the raising population and industrialization.[2]

In thermal power plants generally river water system are the primary means for disposal of waste and these disposed effluents are affect physical chemical and biological nature of the receiving water body and harm our natural friends. Increasing industrialization activities are creating stress on surface waters both from industrial, agricultural and domestic sources. Effluents entering in water bodies are both in solids and liquid forms. Effluents are mostly derived from Industrial agricultural and domestic activities. As a result water bodies which are major receptacles of treated and untreated or partially treated industrial waste have become highly polluted. The resultant effects of this on public health and the environment are usually great in magnitude. [3] Industries are the major sources of pollution in all environments -Water pollution, Air pollution, Soil pollution, noise pollution and they are based on the type of industry, varies levels of pollutants can discharged into the environment directly or indirectly through

public sewer lines, wastewater from industries include employees sanitary waste.[4]

Healthy ecosystem and rich biodiversity are fundamental to life on our planet. Climate change is affecting the habitats of several species, which must either adapt or migrate to areas with more favorable condition. Even small changes in average temperatures can have a significant effect upon ecosystem. The industries operated without adequate treatment facilities generates a large amount of wastewater that flows outside to the mainstream of Hasdeo River. The continuous discharge of toxic trace elements effluents into the streams and river may affect the freshwater resource and aquatic biota. By releasing a huge amount of pollutants into rivers will drastically increase biological oxygen demand (BOD), COD, TDS, TSS, cations, anions and toxic trace elements, which make the water unsuitable for irrigation and daily life purposes.[5]

## **2. Experimental Techniques**

We collect the water sample in three site, site 1, site 2, site 3 in summer winter and rainy season. For determination of surface temperature, collect water in some suitable container. Soon after collecting of the sample, insert mercury thermometer and note the reading. The thermometer should be of small thermal capacity to attain equilibrium rapidly and must be graduated up to an accuracy at 0.1 to 0.2 degree centigrade. Odor is generally measured as threshold odor number which is equal to dilution ratio of the sample at which the odor is just detectable. As the taste is a chemical sense and depends upon the actual contact with the receptor organ, it can be only be measured by tasting a sample. When light passed through a sample having a suspended turbidity, some of the light is scattered by the particles.[6]

Electrical conductance is the ability of a substance to conduct the electric current. It is measured with the help of a conductivity meter. Conductance depends on the area of the metallic electrodes and the distance between them. The factor used to convert the observed conductance into conductivity is called as the "cell constant". Total solids (TS) are determined as the residue left after evaporation of the unfiltered sample. Total dissolved solids (TDS) are determined as the residue left after evaporation of the filtered sample. Determine total suspended (TSS) solids as the difference

between the total solids and total dissolved solids. Ph is the most important characteristic of water, essential aspect to use the entire ph meter is to calibrate it with suitable buffers. In total alkalinity determination we take water sample in a conical flask and add 2 drop of phenolphthalein indicator. If the solution is colorless and total alkalinity is determined. We determine acidity we take 100ml of colorless sample in a conical flask and add 2-3 drops of methyl orange indicator. [7]

We take collecting water sample in BOD stoppered bottles to determine dissolved oxygen, fill the sample a glass stoppered (BOD) bottles of known volume (100-300ml) carefully, avoiding any kind of bubbling and trapping of the air bubbles in the bottle after placing the stopper. Pour 1ml of each  $MnSO_4$  and alkaline KI solution well below the surface from the walls. Place the stopper and shake the contents well by inverting the bottle repeatedly. Add 1-2 ml of concentrated  $H_2SO_4$  and shake well to dissolve the precipitate. Titrate the contents within one hour dissolution of the precipitate against sodium thiosulphate solution using starch as indicator. Biochemical oxygen demand (BOD) is a measure of the degradable organic material present in a water sample. Prepare dilution water in a glass container by bubbling compressed air in distilled water for about 30 minutes. Add 1ml each of phosphate buffer, magnesium sulphate, calcium chloride solution for each liter of dilution water and mix thoroughly. Neutralize the sample to ph. around 7.0 by using 1N NaOH or  $H_2SO_4$ . Prepare dilution in a bucket or 4 large glass troughs; mix the contents thoroughly fill 2 sets of the BOD bottles. Keep one set of the bottles in BOD incubator at 20 degree centigrade for 5 days and determine the DO content in another set immediately after the completion of 5 days incubation. Similarly for blank, take 2 BOD bottles for dilution water, in on determine the DO content and incubate with the sample to determine do after 5 days. Chemical oxygen demand (COD) we take 20ml of sample in a 250-500ml COD flask. If the sample is expected to have COD more than 50 Mg/l add 10ml of potassium dichromate solution. Add a pinch of silver sulphate and mercury sulphate. If the sample contains chlorides in higher amounts, mercury sulphate is added in the ratio of 10:1 to the chlorides. Add 30ml of sulphuric acid; replace at least for 2 hours on a water bath or a

hot plate the reflux. Remove the flasks, cool and add distilled water to make the final volume to about 140ml add 2-3 drops ferroin indicator, mix thoroughly and with N ferrous ammonium sulphate, run a blank with distilled water using same quantity of the chemicals.[8]

Nitrogen is present in water in the form of ammonia, nitrites and nitrates. The presence of these substances in water indicates the presence of organic contamination. Lead is serious cumulative body poison. Natural waters usually contain upto 20 pph of lead, but in some cases, they have been reported to contain as high as 400 ppb of Pb. Manganese is not a toxic metal, but occurs in domestic waste waters, industrial effluents and receiving streams and thereby enters water bodies. Mercury is a toxic metal. Organic mercury compounds have been found to be most toxic. Cadmium enters water through industrial wastes or through the determination of galvanized pipes. It is very toxic and poisonous and traces of it may cause adverse changes in arteries of human kidneys. Arsenic occurs in water as a result of mineral as a result of mineral dissolution, industrial wastes or the application of insecticides. [9]

### **3. RESULT AND DISCUSSION**

Waste water manufacturing or chemical processes in industries contribute to water pollution. Industrial waste water usually contains specific and really identifiable chemical compounds. During the last fifty years, the number of industries in India has grown rapidly. Water samples collect for two consecutive months of this year and analysis on different parameters was carried out using standard method recommended by APHA/NEERI and Trivedi Goel. Standard method steps mentioned below. [10]

Selection of the sampling spots: - Sampling spots of water analysis is mentaioned in the location map. The sampling spots are named as S-1, S-2, and S-3.

Sample collection:-Water sample was collected in one liter polythene bottle previous soaked with cons.  $HNO_3$  acid then cleaned with detergent followed by rinsing with double distilling water.

Sample preservations: -Collected water sample was preserved in ice cooled chamber and kept in dark room. Temperature, PH, EC, DO, was monitored on the sampling spots.

BOD value in water station S1 in sept-8mg/l, oct-7mg/l, S2-sept-2.8 mg/l, oct-2.2mg/l, S3-sept-3.4mg/l, oct-3mg/l. In this method involves, measuring the difference of the oxygen concentration between the sample and after incubating, it for 5days at 200C.

COD:- Water station S1 in sept-100mg/l oct-80mg/l, S2-sept-30mg/l, oct-20mg/l, S3-sept-40mg/l, oct-44mg/l was obtained.

Total dissolved solid:- The value of this parameter in water station S-1 in sept-360mg/L, oct-354mg/L, S-2 in sept-460mg/L, oct-360mg/L S-3 in sept-550mg/L, oct-476mg/L. the result of the sampling spot S-3 indicated when effluent confluence with river the value of TDS are higher value. The reason of higher value of TDS may be dissolved ions and dust coal particles as the suspended particles.

Total suspended solids:- The value of TSS is difference between the total solids and total dissolved solids. The value of TSS in sample station S-1-sept-106mg/L, oct-104mg/L, S-2 in sept-200mg/L, oct-50mg/L, S-3-sept-190mg/L, oct-152mg/L

PH:- During the sampling it was measured on the sampling station. The result of the PH parameter was recorded from 7.5 to 8.12 range. In water station S-1-sept-8.10, oct-8.12, in S-2-sept-7.5, oct-7.5, S-3-sept-7.5, oct-7.62 was found. There is slight variation in PH of different sites on two month on looking the table value we can say that this water is slight alkaline the value of s1 was slightly higher than permissible value of prescribed standard WHO 7.8 to 8.5.

Total alkalinity:- Titrametric method was used for the find out the value of alkalinity of the collected water samples. The maximum value are observed at the sampling station S-1-sept-100mg/L, oct- 95mg/L and minimum value was observed S-2-sept-54, oct-60mg/l. Alkalinity in itself is not harmful to human beings, still the water supplies with less than 100mg/l are desirable for domestic use.

Cd is present in the waste water from electroplating, chemical industry. The value of cadmium in before confluence effluent in river 0.02ppm. And after confluence effluents was 0.05ppm. It accumulates in varies parts of the body (liver, kidney).

Lead:- The value of lead in Hasdeo River before confluence effluent 2.04ppm, after confluence effluent 3.80 lead is also a toxic element and it increase in water due to the discharge of

industrial waste water. It accumulates in the body, mainly in the bones.

Mercury:- Hg is highly poisonous substance and increases in natural waters by the industrial wastes. The values of mercury in Hasdeo River before confluence effluents 0.02 ppm, and after confluence 1.22ppm, when effluent are joined with river the value of mercury is higher value. It accumulates mainly in the form of methyl mercury and affects the central nervous system and at higher doses may be fatal.

Zinc:- Zn is very essential micronutrient in human beings and only at very high concentration it may cause some toxic effect. The value of Hasdeo River before confluence effluents 9.15 ppm, and after confluence effluents 10.25mg/l.[10]

#### 4. Conclusion

Today we know that environmental pollution is big problem, industrial effluents are destroy our natural friends, allots of people eat fish, waste water contain many carcinogenic substance. This is our selfish nature to make money why not we destroy holy things which is giving us life. Human use to water bodies as a sink of waste materials, greediness is destroying future lives. One of the most effective ways to stand up for our water is to speak out In support of the clean water rule, which clarifies the clean water acts scope and protects the drinking water of one in three in Indian. Presence of dangerous unnatural substances causing imbalance in the ecosystem and health hazards to human beings and animal called pollution. However fast growing population and high capital requirement is the major problem being faced to implement the scientific methods of pollution control and some strict government act to protect water bodies and environments. In natural life on India we see that human make their homes their both sides because of people live without love but not live without one drop of water. Allots of people making jokes about water we see and swim in big dam, river, pond, and we drink in water in wells, handpumps, now a big container, a tank, tab water and our future, our kids are see water in capsule' these words are very scary. Pure water is god gifts for us and we make them unsafe in bad activities. The problem is diverse and some are only being recognized but it is important to keep a close control over pollutants so that we can maintain

the environment in an acceptable condition for future generation. [11]

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