

ASSESSMENT OF INDUSTRIAL EFFLUENT WASTES IN WATER RESOURCES AND THERE MEASUREMENT IN DIFFERENT PARAMETER AND STUDY OF ENVIRONMENTAL DEGRADATION

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Abstract

Today human activities are constantly adding industrial, domestic and agricultural wastes to river water and ground water reservoirs at an alarming rate. Ground water contamination is generally irreversible ones it is contaminated, it is difficult to restore the original water quality of the aquifer. Excessive mineralization of ground water degrades water quality producing an objectionable taste, odor and excessive hardness. Industrial Effluents discharged into water bodies contain toxic chemicals. Effluents from urban areas contain large concentration of oils, greases, nutrients, heavy metals and detergents. The detergents being soluble can pass through the soil and pollute ground water. Raw sewage dumped in shallow soak pits and seepage from polluted lake, pond or stream also polluted water. Rainfall could pick up substantial contaminants from dust and air and join the aquifer below. The infiltration of liquids containing toxic pollutants may cause pollution in sandy soil and well waters. Supply of potable water has been affecting the contamination of water resources in most of the developing countries. Rivers, lake and ground water have been polluted by industrial effluents, pesticides and fertilizers from agricultural runoff and urban waste. Chronic water scarcity is common in areas where ground water has been overdrawn for irrigation, industrial use or to meet the requirements of urban population. Clearing of forest which increase surface runoff and reduce ground water have worsen the situation. Many countries are fast using up their ground water and moving from a situation of crises to disaster. Almost two thirds of the world population by the year 2025 will be subject to moderate to high water management difficulties. Some parameter is on spot testing kit is used and laboratory work also done for wastewater analysis.

Keywords:-Industrial pollution, Temperature, pH, TDS, DO, etc.

Introduction

The enormous varieties of natural resources on this planet provide everything for the survival of all forms of life. It is not only the physical and biological diversity that is enormous. India is a land of physical, ecological, social, cultural and linguistic diversity. Population poverty and environment is interrelated. Water management and water pollution is another problem. Another challenge is to sustain and increase agricultural growth. Land degradation is great challenge, forest in our country have been shrinking for several centuries owing to pressures of agriculture, industrialization, mining and other uses. Another challenge is that of reorienting institutions, attitudes, and infrastructures which were essentially built up during the colonial times, to suit conditions and needs of today, human settlement is another major problem. Growing population and rapid urbanization could put enormous burden on human settlements. Air and water pollution, particularly latter have become serious problems in the country. Energy crisis is also a major question. Much could be done to expand conventional energy sources-thermal and

hydroelectric power. Biodiversity has also faced serious threat due to overexploitation and habitat destruction and it has also become a major challenge to us. India is recognized as a country which is uniquely rich in all aspects of biodiversity-ecosystem. It is seldom realized that the world first recorded conservation measures, especially for wildlife, were enacted in India during third century BC. Emperor Ashoka benevolence extended to all living beings- he set up hospitals reserves for wild animals and birds, and extended his protection to many species. Not only the rulers, but common people of India are also involved in protection of this heritage. An example is that of the Bishnoi cult, founded by a Rajpoot saint towards the end of 15th century. Bishnois emphasis nonviolence and respect for all life. They do not permit hunting or felling of trees in their areas. Modern lifestyle wants facilities for everyday life. In busy life and tight schedule of working people don't have time to think about the environment concerns. When they face health issues they notice what's the problem and finds the perspective methods. Thermal power plants are very important for economically growth of the nation. They provide electricity for everything, industries. The term environment has been derived from a French word "Environia" means to surround. It refers to both Abiotic [physical or non-living] and biotic [living] environment. The word environment means surrounding in which organism live. Ecosystem diversity is very rich, and according to wildlife institute of India, the country has ten biogeographic zones. Surface water is any body of water above ground, including streams, rivers, lakes, wetlands, reservoirs, and creeks. The ocean, despite being saltwater, is also considered surface water.[4]

Pollution of the environment is one of the most horrible ecological crisis to which we are subjected today. We know that three basic amenities for living organism are air, land or soil and water. Sometimes in the past, these amenities were pure, virgin, undisturbed, uncontaminated and basically most hospitable for living organisms. But the situation is just the reverse today, because progress in science and technologies is also leading to pollution of environment and serious ecological imbalance which in the long run, may prove disastrous for mankind. "Environmental pollution is the result of urban-industrial technological revolution and speedy exploitation of every bit of natural resources." In covid-19 time people use many protection for himself and also for environment, planted trees and taking care of them, and the result is beautiful blue sky.

Materials and Method

Samples are taken by three season rainy, winter and summer; in here I present rainy season data. Sampling site designated like river upstream to downstream and also selects canal area. The selected area for this analysis was Korba and Janjgir - Champa district both are falls under the hot temperate climate zone and hence the district experiences hot and dry. Korba district is rural area and they have natural forest, and tree planted by the people who works in that area. Janjgir-Champa district is Education area but not properly developed. Waste water collect from different sites where the upstream s1, releasing effluents s2.0- s2.1, and downstream s3, before confluence Mahanadi s4 and after confluence Mahanadi s5 in two consecutive month. The sampling sites were designated as s1, s2.0 - s2.1, s3, s4, s5, samples were collected with the help of clean plastic container well cleaned with nonionic detergent rinsed three times with tap water and finally washed with deionized water. Prior to usage while collecting samples contamination of the samples was avoided with any foreign material collected samples were brought to laboratory and stored. Some parameter Temperature , pH, TDS are tested on spot by thermometer and pocket pH meter, TDS meter, post sampling physicochemical parameter are temperature, acidity,

alkalinity, DO, COD, in the water were analyzed according to APHA(1995) and Trivedi and Goels (1986).[5]

Result and discussion

Odor

In sampling site 1 river area odor in found odorless, site 2 is canal area odor is found not good, site 3 and site 4 also contain some smell site 5 and site 6 is found odorless. Water quality is good when we found odorless..

Turbidity

In rainy season allots of dissolved solids are enter the river water and s₁ is found slightly turbid, s_{2.0} - turbid, s_{2.1} - turbid s₃- turbid, and s₄ – turbid , s₅ and s₆ are slightly turbid. Winter season s₁-ST, s_{2.0} -ST, s_{2.1}- T, s₃- ST, s₄-ST, s₅-ST, s₆-ST. Summer season s₁-ST, s_{2.0} -ST, s_{2.1}- T, s₃- ST, s₄-ST, s₅-ST, s₆-ST.

pH

Potential of hydrogen ion concentration in river water found range is 6.5 to 8.6.

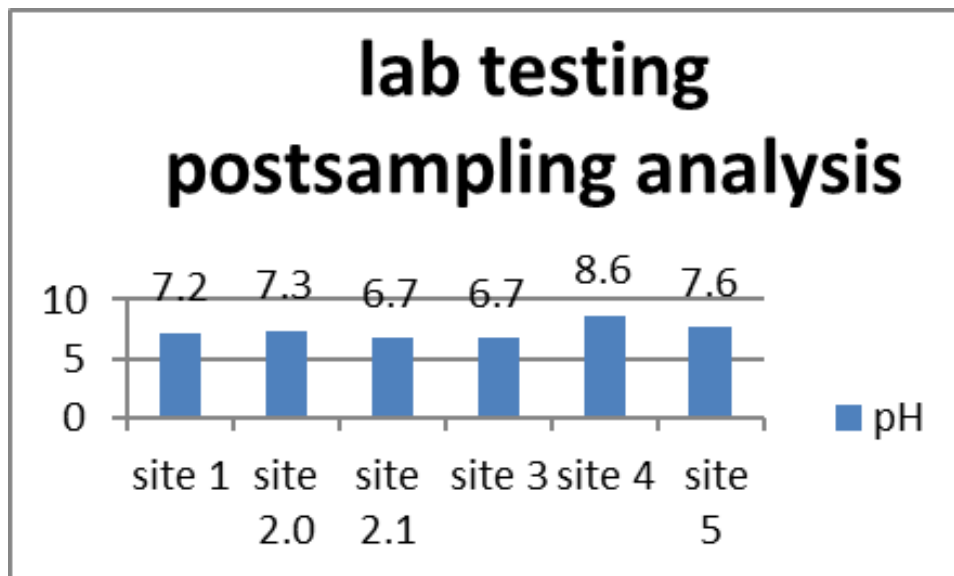
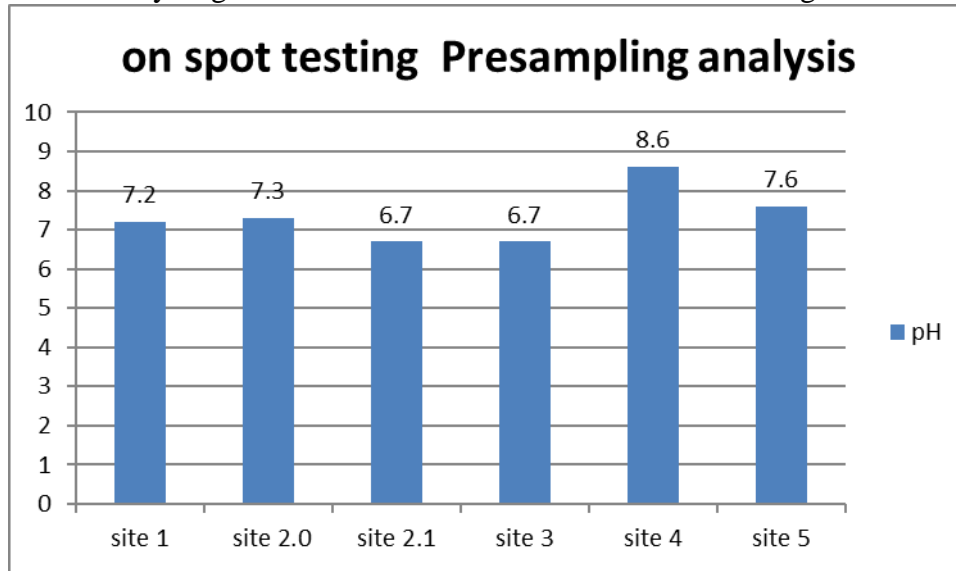


Figure 1.

Temperature

The temperature of River water influences its overall quality. Variation of temperature is recorded in present study. Temperature is basically important for the effect on chemical reaction, reaction rate, aquatic life and the suitability of water for beneficial uses. The temperature values observed were 29.7 °C at s₁ and 35.4 °C at s_{2.0} and 36.6 °C at s_{2.1} and 35.3 °C at s₃ and 26.8 °C at s₄ and 26.6 °C at s₅. Temperature of wastewater is coming because of addition of warm water from industrial activities. Increase in temperature can cause a change in the species of fish, crabs, frogs, and other water-living organisms and face thermal shock that can exist in the receiving body.

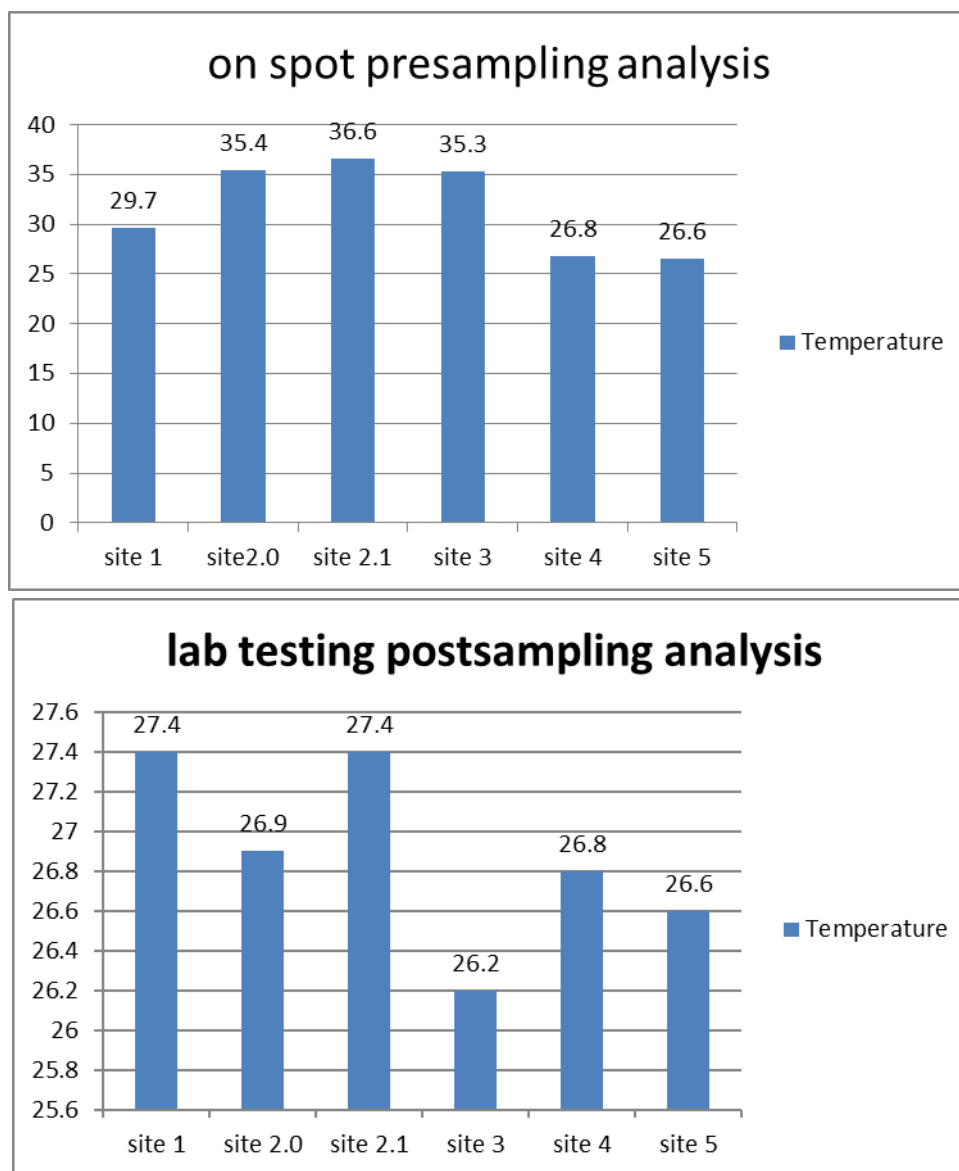


Figure 2.

Acidity

High acidity and concentration of heavy metals can have several negative health consequences. One of the main common with acidic water is that it often contains high amount of heavy metals. The range goes from 0 to 14, with 7 being neutral. pH of less than 7 indicate acidity, whereas a pH of greater than 7 indicates a base. Site1, site 5, and site 6 are found greater than 7 pH value and s 2.0, s 2.1 and s3 are showing acidity.

Alkalinity

Alkaline water has a higher pH level than regular drinking water. Because of this, some advocates of alkaline water believe it can neutralize the acid. Unless you have a kidney disease, alkaline water doesn't pose any serious health risks. The high pH could make your skin dry and itchy or cause an upset stomach, but that's about all. Just because it's safe, though, doesn't mean it does anything for you. s1, s4 and s5 is alkaline.

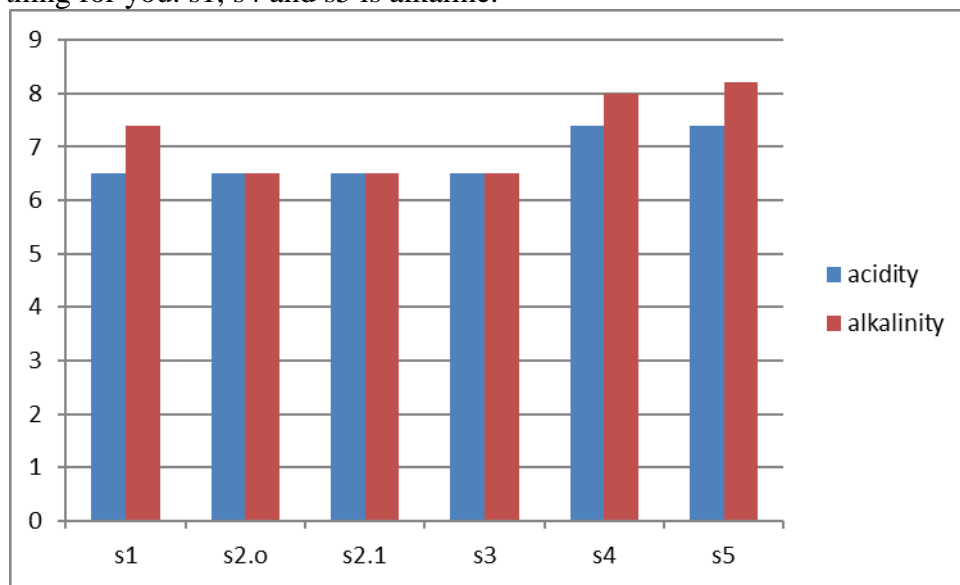


Figure 3

TDS - The solid contained in the filtrate that passes through a filter with a normal pore size of 2 micrometer are less are classified as dissolved solids.

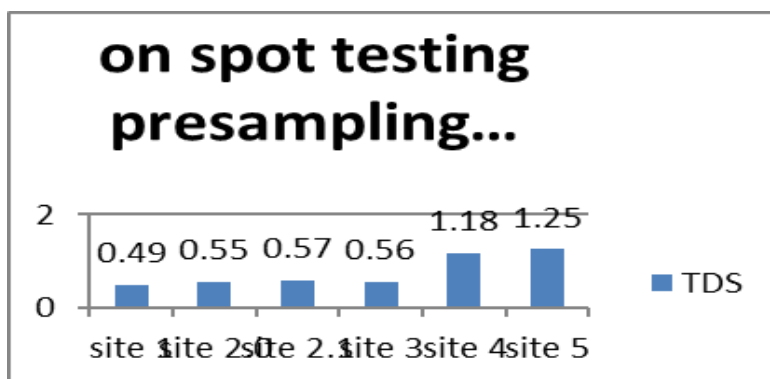


Figure 4.

DO

In s1 DO level is good, s2.1 s3, s4, DO level is less amount, site 2.0 and site 5 and 6 DO level is good. When dissolved oxygen becomes too low, fish and other aquatic organisms cannot survive. The colder water is the more oxygen it can hold. As the water becomes warmer, less oxygen can be dissolved in the water.

COD

Chemical oxygen demand is the amount of oxygen needed to oxidize the organic matter present in water. Chemical oxygen demand testing is used to determine the amount of oxidation that will occur and the amount of organic matter in a water sample. Chemical oxygen demand testing is also used to determine the amount of inorganic chemicals in a sample.

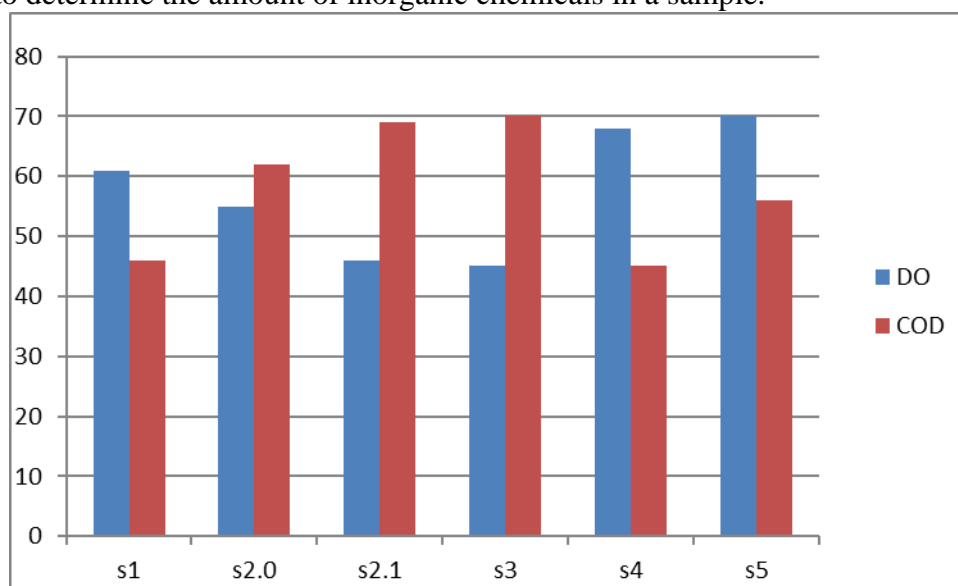


Figure 5.

Fly ash

In Korba area people suffer pollution problem of fly ash, oxides have due to its small size and light it has potential to get airborne and pollute the environment. The oxides of iron and aluminium present on the surface of the fly-ash particles attract toxic trace elements, such as Sb, As, Be, Cd, Pb, Hg, Se, V and they are found to be concentrated largely on the surface of fly ash.[5] They also affect that area crops, and land. In village raliya is critical condition.

Conclusion

A water resource is gift of god, and people activity are deplete them. The studies indicate a number of questions for future research. Fly ash management techniques are used for utilization purpose for making concrete. If they put orange peel take it from orange joos company in upside of fly ash and soil they maintain the fertility of soil and break desertification and control pollution, one day we observe that side forest of oranges. Allots of great reason to drink water and great relation between humans, plants living organism, water has no fat, no calories, no carbs, no sugar good for weight loss, lowers our risk of a heart attack, when being dehydrated can sap our energy and make us feel tired, headache cure, healthy skin, digestive problems, cancer risk, cleaning etc. the aim of the present study is to impure water and poor sanitation are linked to transmission of diseases. Industries are very important for sustainable development and energy generation they providing jobs for people facilitate the nation, if they manages urban, industrial and agricultural waste water for safety of human health, wild life because river water

uses by wild animals, and that area people health risk. When industry give jobs their social impacts are very good, and they take land cut forest the environmental impact is not good. Analysis of river water in industrial area is very essential.

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