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WATER POLLUTION

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ABSTRACT

This study was conducted at University of Gujrat during 2016 to 2017 as a term paper for Master of Philosophy. The data regarding effect of ozone depletion on human was reviewed and compiled as a review paper from various published articles of international reputed journals annual/environmental reports of recognized organization and e- books. Factors which are effecting water pollution are addressed. Water pollution is very important problem of 21st century. Due to water pollution pure water is becoming less scarce day by day. The biggest cause of water pollution is industrialization and increase in population. By drinking polluted water people becoming more and more ill.

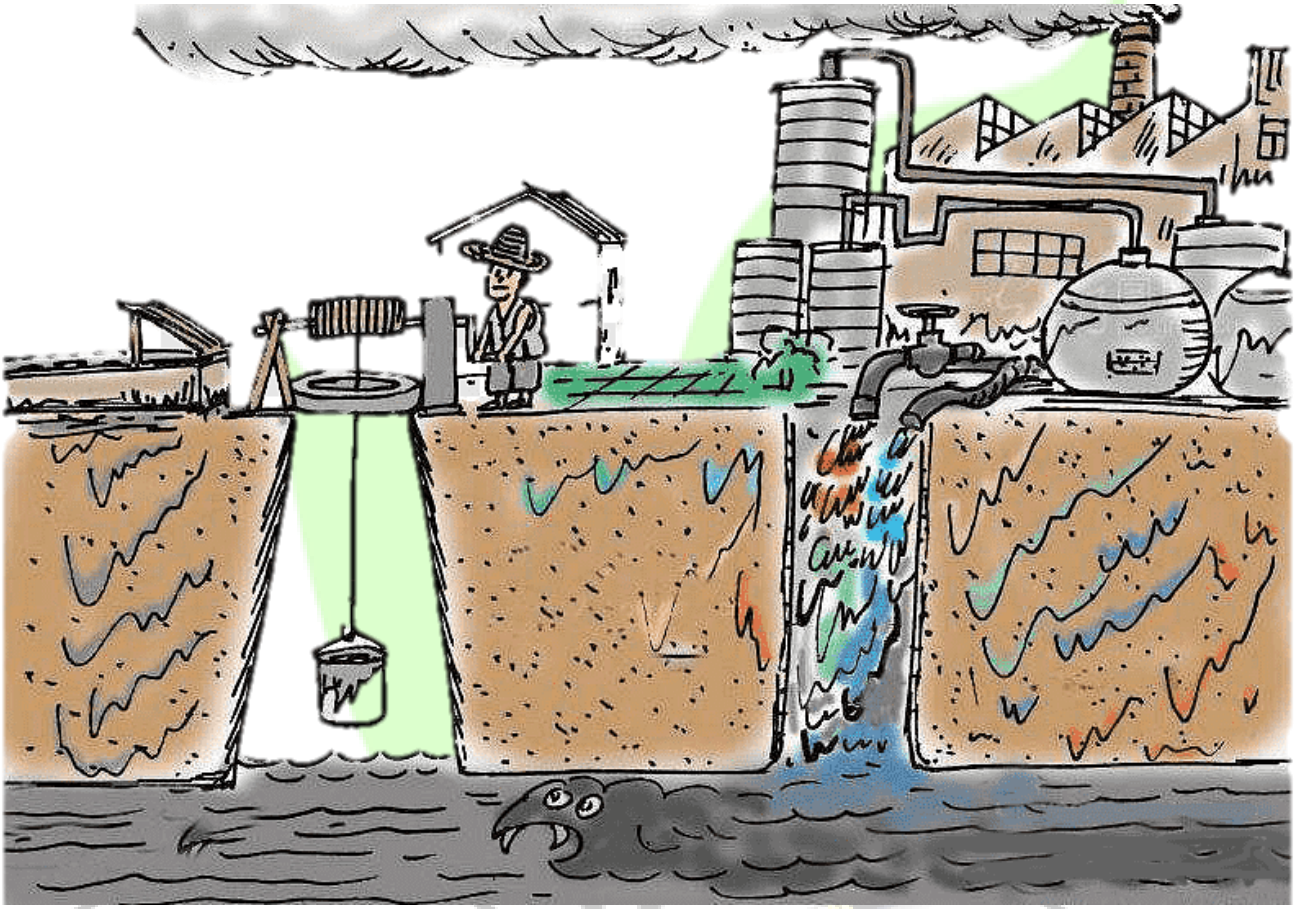
INTRODUCTION

Water pollution has become a global problem now a day's ongoing evaluation of water resource policy is needed to counter this problem. Deaths and diseases are caused worldwide due to water pollution an approximately 14000 people die every day due to water pollution. Both developed as well as developing countries are facing water pollution problems. Water quality is influenced by many factors like precipitation, climate, soil type, vegetation, geology, floZ conditions, ground water and human activities. He greatest threat to water quality is posed by point sources of industries and municipalities. Activities like mining, Urban development and Agriculture also **effect** water quality. Non-point source pollution also includes nutrients, sediments and toxic contaminants.

AGRICULTURAL POLLUTANTS

As in rural areas population is less so it mostly contains fertilizers, pesticides and eroded soil and these pollutants reach to water bodies through **runoff** after rain and flood . Agricultural **runoff cases** fresh water body's eutrophication. Half of lakes in US are eutrophic .Phosphate is the main contributor to eutrophication its high concentration promotes Cyano bacteria and Algae growth which ultimately reduces dissolved oxygen in water. Harmful toxins which accumulate in food chain are produced by cyano bacterial blooms. Nitrogen rich fertilizer compounds causes dissolved oxygen deficiency in rivers, lakes and coastal zones which have devastating subject's on oceanic fauna. In America and Northwest Europe nitrogen fertilizer use is controlled from 2006. Nitrogen Fertilizers have high water solubility and increased and leaching rate which results in ground water pollution. Similarly pesticides are used to control pests these pesticides leaches to ground water thus polluting ground water. Water soluble pesticides leach more.

Sandy soil also favours leaching .Selenium (Se) is a heavy metal that occurs naturally in soil but due to irrigation practices it accumulates in the soil. is accumulated selenium reaches to water reservoirs and is very toxic for animals and humans .



ATMOSPHERIC POLLUTANTS

It is due to small particles which are present in air which it reaches to water bodies through rain. It includes carbon dioxide which produced by burning of fossil fuels its quantity is increasing which it combines with water molecules its forms sulphuric acid. Sulphur dioxide produced from volcanoes and industries also combines with water molecules to form sulphuric acid. Sulphur dioxide is also produced by combustion of coal and petroleum products. Similarly Nitrogen dioxide also combines with water to form nitric acid. Particulates also play very important role in effecting water pollution these particulates reach to water bodies through rain.

Pathogens are the microorganisms which causes disease. Most bacteria in nature are non-pathogenic or beneficial but few are pathogenic and these pathogenic bacteria also pollute drinking water. Coliform bacteria are a bacterial indicator species used for the identification of water pollution. Disease causing bacterial species includes Cryptosporidium parvum, Burkholderia pseudomalle , Giardia lamblia, Norovirus, Salmonella and Parasitic worms like Schistosoma.

Pesticides and herbicides are used to control weeds and pests. Both of them also contribute to water pollution. Their leaching also pollutes ground water. Leaching is influenced by soil texture, pesticide properties, irrigation and rain fall. If soil is sandy and pesticide is water soluble more will

be the leaching. Similarly pesticides and herbicides also reach natural water bodies through runoff. These pesticides residues when reach to natural water bodies they disturb flora and fauna there. Pesticides which don't degrade easily or take time to degrade are more harmful.

Chemical pollutant It comes from waste of harmful chemicals factories it is a material which is left as a by-product during manufacturing process and it also plays a big role in polluting water bodies. Hazardous chemical waste may be in solid, liquid or in gaseous form. The characteristics which make material hazardous are corrosively, Ignitability, toxicity and reactivity. It started with the start of industrial revolution. Industrial waste chemicals can only be treated by using special waste treatment plants they cannot be treated by sewage treatment plants.

CONCLUSION

Water is polluted by many factors among which industrial wastes are the most important. Beside industrial wastes other factors include herbicides, pesticides and atmospheric pollutants. Pathogen in polluted water causes serious diseases in humans. The whole ecosystem of water bodies is disturbing due to water pollution.

RECOMMENDATIONS

To treat industrial wastes there should be special industrial waste treatment plants with every industry. Similarly there should also be urban runoff pounds to remove pollutants from runoff and to prevent floods. Toxic pesticides and Herbicides should be replaced with nontoxic ones or Pesticides should be replaced with biological control.