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GODSE Arts, Commers &
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Bsc-II

**Environment Project
Water Pollution**

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Abstract

The stress on our water environment as a result of increased industrialization, which aids urbanization, is becoming very high thus reducing the availability of clean water. Polluted water is of great concern to the aquatic organism, plants, humans, and climate and indeed alters the ecosystem. The preservation of our water environment, which is embedded in sustainable development, must be well driven by all sectors. While effective wastewater treatment has the tendency of salvaging the water environment, integration of environmental policies into the actor firms core objectives coupled with continuous periodical enlightenment on the present and future consequences of environmental/water pollution will greatly assist in conserving the water environment.

Introduction

Industrialization, in any society, is a major initiator of development and urbanization. Although the merits of industrialization are innumerable, it has been identified as a major threat to the environment as it releases various toxic chemicals, gases, solid wastes as well as microbes of various kinds into our immediate environment—land, air, and water. Of particular interest is water pollution, which has become a global challenge, developing nations being highly affected due to their drive for development.

Pollution of our water bodies poses a great threat to humans and the aquatic ecosystem while marked population increase catalyzes climatic changes [3]. For instance, various human activities as well as the release of greenhouse gases by industries greatly contributes to global warming, planet temperature enhancement, and lowering of atmospheric air quality.

The drive for sustainable development must bring along water pollution prevention techniques. Effective wastewater treatment before their eventual discharge is one way to driving water pollution prevention. Some remediate climate change mitigation measures against water pollution can also be explored. This chapter is aimed at critically discussing water pollution effects viz-a-viz global challenges, threat, and climatic impacts while also focusing on various possible preventive measures.

Hypothesis

1. Water Pollution is an undesirable change in physical, chemical or biological characteristics of water. Human population explosion, rapid industrialization, deforestation, unplanned urbanization, scientific and technological advancement etc. are mainly responsible for the pollution crisis on the earth.
2. Wastewater from manufacturing or chemical processes in industries contributes to water pollution. Industrial wastewater usually contains specific and readily identifiable chemical compounds.
3. During the last fifty years, the number of industries in India has grown rapidly. But water pollution is concentrated within a few sub sectors, mainly in the form of toxic wastes and organic pollutants. Out of this a large portion can be traced to the processing of industrial chemicals and to the food products industry.

4. The effects of water pollution are not only devastating to people but also to animals, fish, and birds. Polluted water is unsuitable for drinking, recreation, agriculture, and industry. It diminishes the aesthetic quality of lakes and rivers. More seriously, contaminated water destroys aquatic life and reduces its reproductive ability. Eventually, it is a hazard to human health. Nobody can escape the effects of water pollution.

5. Most major industries have treatment facilities for industrial effluents. But this is not the case with small-scale industries, which cannot afford enormous investments in pollution control equipment, as their profit margin is very slender. So the present study may be helpful for finding out methods for the treatment of effluents in batch scale that are cost effective so that small-scale industries can treat their wastes before releasing them into the environment.

Conclusion

The findings of this article reviewed that in India there is lack of clean drinking water and sanitation. The water quality problems and incidence of various water-related diseases had economic impact on weaker households in the society in India. Infact it can be said that weaker sections of the society is most vulnerable to the impact of water pollution and the diseases caused by it. The water-related diseases, which mainly affected children, were diarrhoea, malaria, cholera, skin infections, etc. The number of days spent in illness, led to a loss of school days among children and loss of workdays and the consequent loss of income among adults. It put a big economic burden on the households due to the cost for treatment. These people spend the maximum share of their earning on the diseases. The ~~low-income~~ households spend a relatively higher proportion of their income to cope with water-related diseases, which further compounded their economic stress.

This article unravels that the waste water treatment plants in India are either not adequate or they do not function well. Efforts are being made but not coping with the growing problem. Various measures taken to improve the agricultural yield and rapid industrialization is also aggravating the situation in India. Rapid development measures taken by the government is leading to the increasing water diseases. The unplanned household practices like use of excessive water in the household chores and careless drainage further engraves the situation and affects the sustainability of the water. The article suggests that a number of central and state government institutions and departments are functioning to monitor the quality of water. However, these efforts and investments in water supply and sanitation sector and measures taken by various pollution control boards still have not helped to improve health outcomes. The article suggests that there is a dire need to focus on the sustainability of water resources in the near future and also on the quality of water, as poor water quality can further affect the already dwindling water resources. An effective water policy is the need of the hour.

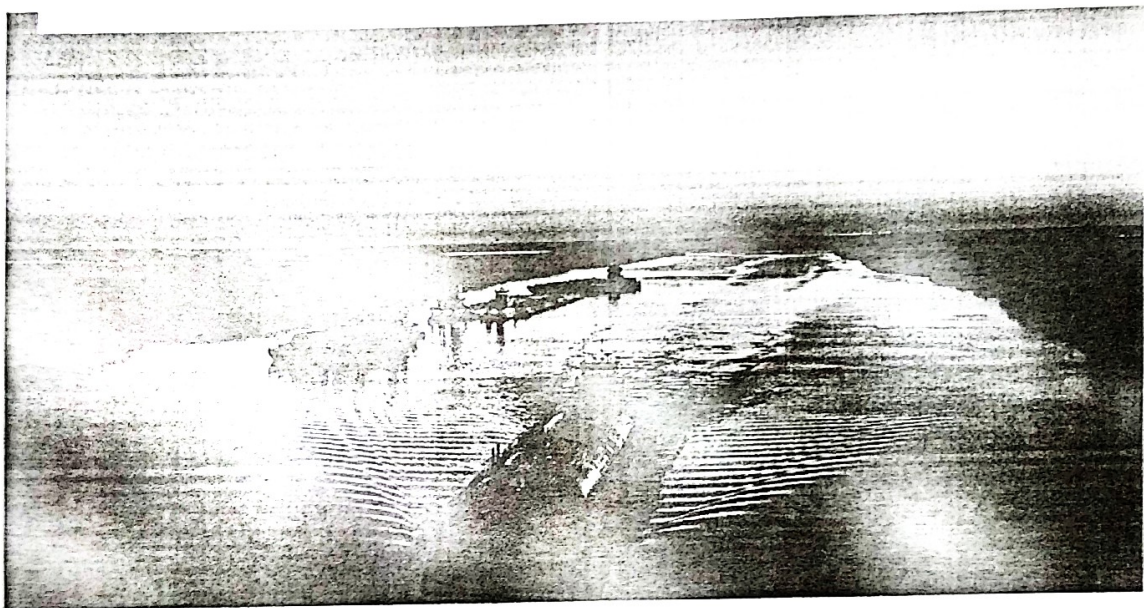
References

The Water pollution references listed below in this page are different sources that had been referred to compose different water pollution related pages of this website.

When contaminants from various sources get into any water bodies and change its physical, chemical and biological characteristics by making it harmful to any living species and unsuitable for desirable use, water pollution occurs.

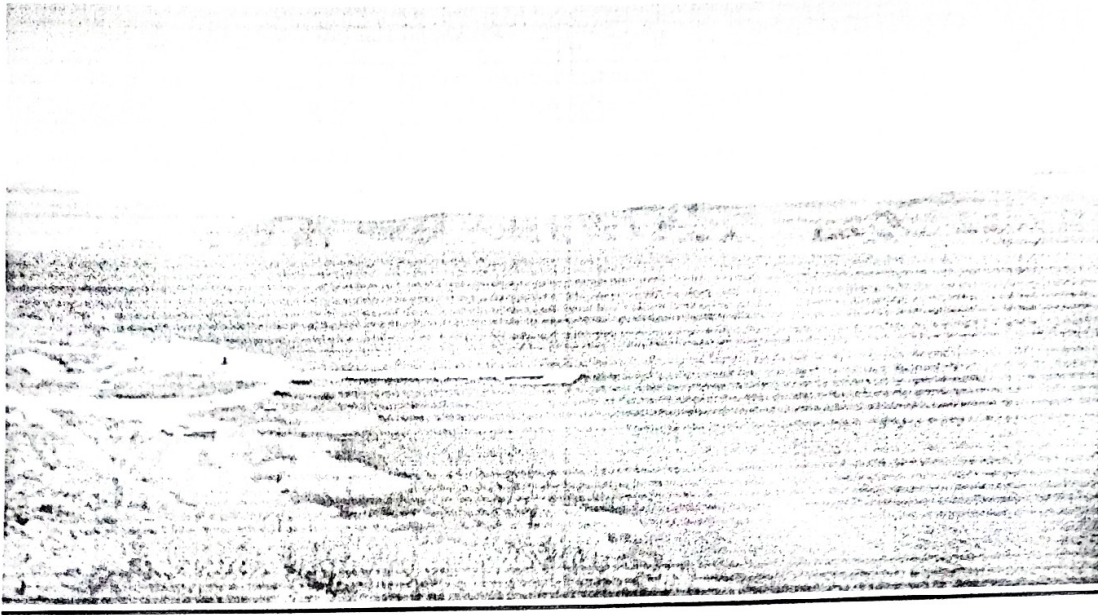
Water is an essential element for many living species and its pollution is threatening to many biological communities and ecosystems. Water pollution has different causes and different sources. But the major contributor of it is human activities due to rapid industrialization, unplanned development, massive waste generation and their unmindful dumping to the water bodies. Also lack of knowledge about the effect of water pollution and water treatment contribute significantly in polluting water bodies. The effect of water pollution is devastating as it is a leading cause of death and diseases worldwide. But not only human, other species and ecosystems also can not escape deadly impact of polluting water. The water pollution related pages of this website hopefully will help to gain a basic perspective of water

pollution. More references can be found at the resource page of this website.



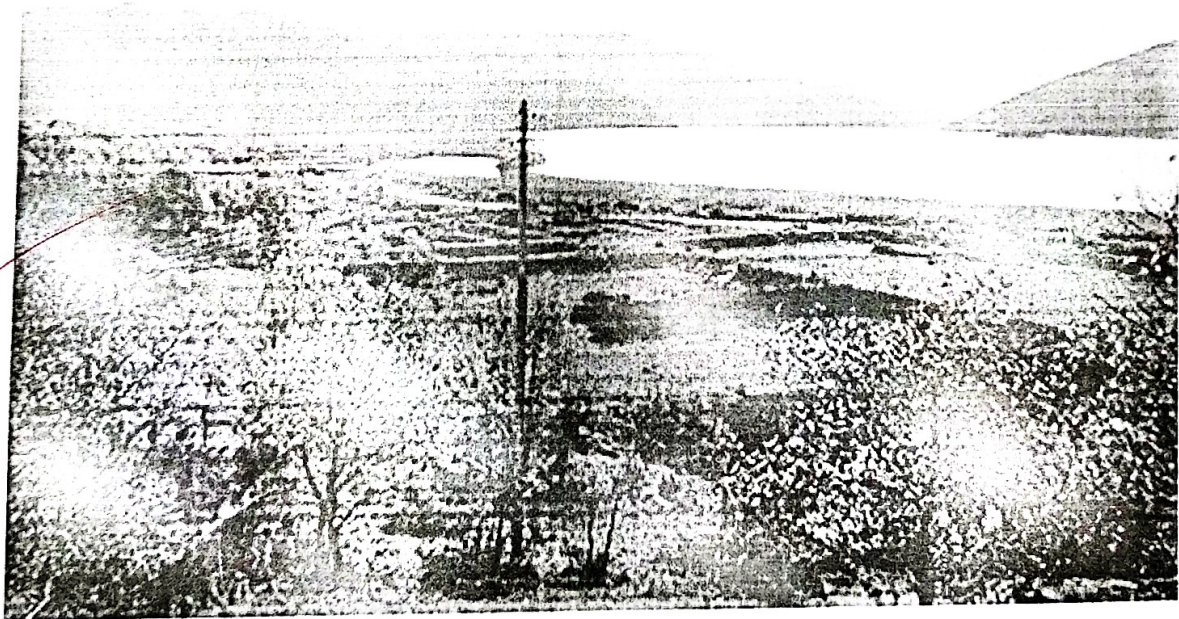
In the final report of the project which was submitted to the Hellenic Ministry of Rural Development and Food an entire chapter was devoted to the detailed description of the Methodologies including also the approaches applied for the realization of the project such as:

- The selection and description of the Stationary Sampling Sites (SSS) established for the monitoring of water chemical quality of the rivers, lakes, soil drainage canals and groundwater irrigation wells, the criteria exercised for the selection of these SSS, the total number of SSS established on each aquatic body as well the frequency of either water or sediment sampling.
- the methods and/or protocols used for the *in situ* measurements (pH, temperature, dissolved oxygen content and % oxygen saturation, Redox, conductivity, concentration of total dissolved solids and Secchi disk and depth measurements for lakes) and the analysis of anions, cations including heavy metals (total and soluble forms), ammonium salts, total phosphorus content, Boron, alkalinity, hardness, pollution indicators such as BOD₅, COD, chlorophyll content and evaluation of the ecological quality using a test based on *Vibrio fishery* and pesticide residue determinations.

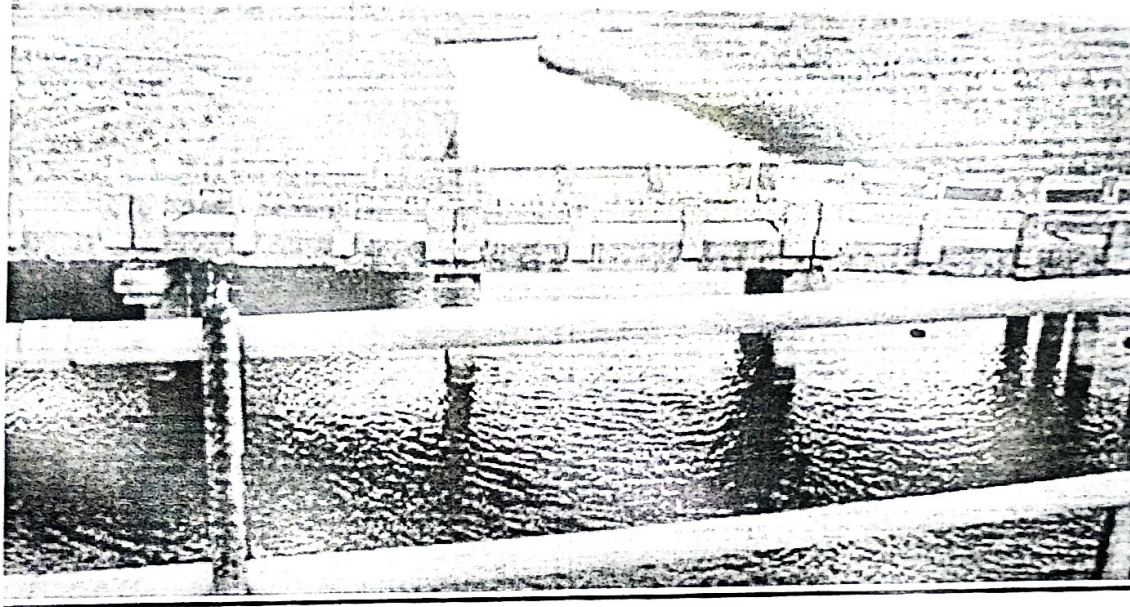


The evaluation of results, for both in situ measurements and analytical data, was based on appropriate statistical analysis of all data, comparisons with respective National and International or EU established standards, appropriate irrigation water quality characteristics, environmental dispersion mechanisms of pesticide residues, ecotoxicological criteria and use of environmental indicators such as the presence/absence of caffeine and diphenylamine in both surface and ground water bodies. The wealth of analytical data accumulated for all the parameters investigated was stored and handled by the help of an electronic data bank operated on ACCESS; the data were also presented by use of the Geographical Information System (GIS).

- Statistical analysis of pesticide residue data by use of Box and Whisker Plots was used for the estimation of the levels and concentration ranges of the inevitable and unavoidable environmental contamination occurring due to the use of pesticides in the agricultural production under the local soil and climatic conditions and agricultural practices exercised in the different basins of the Macedonia-Thrace and Thessaly. This statistical analysis also allowed for the confirmation of the existence or operation of point pollution sources and also helped in identifying and locating additional point pollution sources of aquatic systems.



The methodologies and the criteria applied for the evaluation of the analytical data used in the process of characterization of both surface and ground water bodies are described in detail in Appendix I.



Further discussion on the fate and behavior of pesticides in the environment, the occurrence of the unavoidable contamination of both surface and ground water bodies, the identification of point and dispersed pollution sites and sources,

the ecotoxicological evaluation of the levels of pesticide residues found in the different aquatic systems, the approaches applied for the identification of sources of certain pollutants (caffeine and diphenylamine) are all presented in detail in Appendix II.

Conclusion

Water pollution is an environmental problem that is of major concern to us in Nigeria and the world at large. Human contribution to water pollution is enormous by way of defecating; dumping of refuse, industrial wastes and washing of clothes etc. (Egilabor, 1998) apparently, environmental education is of immense importance to use particularly in schools and should have a place in the school curriculum. In this way they will be less inclined to pollute our waters.

Reference

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