

**UGC SPONSORED MINOR PROJECT
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**STUDY ON THE AGROECOLOGICAL AND PHYTOSOCIOLOGICAL
ASPECTS OF *ELOOR*- AN INDUSTRIAL BELT OF KERALA**

EXECUTIVE SUMMARY

The ecological status of the biosphere is becoming more and more misbalanced day by day due to the technical and industrial boom. Vast changes are taking place in the environment due to the communication between human society and environment. The population explosion has made the pollution level at its peak.

Environmental problems are so diverse and every activity of the civilization interacts with it. This delivers an interdisciplinary nature to environmental science. It involves various disciplines such as soil science, chemical science, life science, ecological aspects *etc.* The present work aims at analyzing the pollution extent of Eloor region, which is an important industrial hub of Kerala.

The study targeted at analyzing the impact of industrial pollutants on the soil properties (chemical and biological) and the normal plant diversity of the site. The site selected for the purpose was Pathalam Bund zone of Eloor. In order to study the degree of pollution of Eloor all the results obtained were compared with a control site and the site chosen for the same was Desom a village in Aluva. The sites were judiciously taken for the reason that both represent two distinct banks of river Periyar.

The main industry located near the pollution spot was Travancore cochin chemicals Ltd and they manufacture a wide range of chemicals like benzene, sodium hypochlorite, sulphurdioxide gas, sulphuric acid, phosphoric acid, liquid chlorine, ammonia *etc* among which majority of the

chemicals are potent toxins. The soil and plant samples were collected from the premises of the industrial area. Both aquatic and terrestrial soil samples were collected for soil analysis.

The chemical analysis revealed that the p^H of the polluted sample was alkaline while it was neutral in case of control sample. In addition to that the polluted soil sample carried more chemical load like sulphate, chloride, phosphate, magnesium, calcium. The percentage of organic matter was found to be less in polluted sample; this reflected the fertility criterion of soil. The microbiological analysis explained that the polluted soil was with more Gram negative colonies. The biochemical analysis of the control and polluted soil showed a greater variation in the bacterial community among the two samples.

The plant community study supported the idea that the plant diversity of the polluted zone was too weak. It was studied with the parameters like density, abundance and frequency of plants. IVI analysis helped to analyze the dominant and tolerant plant species of polluted and control sites.

The final lap of the work involved the comparison of soil and plant features of the control and polluted sites in order to study the extent of pollution. The control and the polluted sites were preferred cautiously for the reasons that the natural conditions received by both the Pathalam Bund and the Desom sites were same. But the immense variation in the soil characters and plant diversity is mainly because of the industrial pressure in the former area.

The ruthless dumping of the industrial waste into the surroundings resulted in a chain of problems. The present study is also a supporting fact for that. The toxic manufacturing waste first hampered the chemical and biological aspects of the soil followed by creating problems to the plants then to animals and moved to the rest portion of food web. Mass death of fishes in the

Periyar River near Pathalam zone is a recurrent phenomenon. The international studies had reported that the inhabitants of this area were suffering from many rare fatal ailments. These miseries can be read together and root cause of all may be the very same industrial bang. It needs strong further studies.

The present work is a small supporting proof for the anthropogenic act that destroys the purity of a serene land, Eloor. The main goal of the analysis is to create awareness among the people about the burden of industrialization. The results can be later communicated to the authorities or policy makers. So that they can make effective policies and implement them which may solve the problem else the Eloor zone slowly becomes a poisoned graveyard.

13. CONTRIBUTION TO THE SOCIETY -

Pollution is the addition to the ecosystem of something which has a detrimental effect on it. One of the most important causes of pollution is the high rate of energy usage by modern, growing populations. disposal of urban wastes. It includes visible waste and litter as well as pollution of the soil itself.

Industrial pollution is a pollution which can be directly linked with industry. It is one of the leading causes of pollution worldwide. It can make changes in the morphology, anatomy, phytochemical and pharmacognostic aspects of the plants. The recent years have witnessed an unprecedented industrial and technological advancement which though of great benefit for human welfare has brought in its wake a gigantic problem-that of effluent disposal and pollution. Pollution of air, water and soil resulting from effluents released from numerous industries is reaching an alarming and uncontrollable stage which has compelled to

harvest attention of global scientist to visualize their utilization for the welfare on the level of national necessity.

The site of the present study is Eloor. It is a suburb of Kochi and a municipality in Paravur Taluk, Ernakulam District in the Indian states of Kerala, India. It is an industrial area north of Cochin. It is an island of 14.21 km² formed between two distributaries of river Periyar and is the largest industrial belt in Kerala. As a result of its heavy industry, the town also suffers from heavy pollution, and is rated as one of the toxic hotspots of the world by Green Peace International. The results of the present study indicate that Eloor industrial zone is highly polluted. Various parameters studied provided a clear picture of the depth of pollution of the area. The results can be communicated to the residents of the area and they can be made aware of the grave problem existing in the area so that they can make some practical measures to curb pollution. The results also can be made available to the policy makers so that they also can take some solid measures to control pollution of the area