

EXECUTIVE SUMMARY OF UGC MINOR RESEARCH PROJECT

Title-Studies on the Pond Ecosystem in Yavatmal District to Know the Ecological Status of Pond

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Objectives-

1. Select ponds from fourteen talukas of Yavatmal District.
2. Examine various ecological parameters such as water, soil, weeds, invertebrates, vertebrates, planktons and others of the pond ecosystem.
3. Study the utility value of pond with relation to drinking, irrigation and industry purposes.
4. Observe the factors affecting on nature of water, soil and wetland as well as surrounding area of the pond.
5. Study the productive capacity of the pond with relation to pisciculture.
6. To make comparative analysis of all the parameters in the study so as to short list ponds which are ecologically viable?
7. Study the ecological status of ponds (dams).

Methodology-

1. Twenty-nine ponds were selected from fourteen talukas for the study.
2. The following physico-chemical parameters of water like temperature, pH, turbidity, color, alkalinity, hardness, total dissolve solids, dissolve oxygen, carbon dioxide and conductivity were examine in the laboratory by using Standard Digital water analysis Kit (VSI-Model vsi06T).
3. The soil parameters as if pH, phosphate, potassium, organic C and nitrogen were examine in the laboratory by using manual soil testing kit.
4. Planktons were examine in the laboratory by using binocular microscope, secchi disc and sedwich rafter.
5. Other study like aquatic weeds diversity, types of vertebrates and observations and records studied invertebrates, vegetations around dams, productive capacity regarding pisciculture.
6. A comparative study was carried out for the result.

- **Results and Discussion-**

Based on present investigation, the results clearly indicate that all the parameters of water and soil are within the permissible limits that are compared with standard values of APHA and WHO.

All the twenty nine pond water namely waghadi, umerda, singhandov, shivni, saikheda, pimpalkhuti, khandni, karanji, goki, manjra, ghoti, eklara, devgaon, chorkhund, antergaon, arunavati, etola, borgaon, hatola, kapra, ner, takli, zola, pus, adharpus, mudana, nignur, piranji and kumbharkinhi are used for irrigation. Some of the ponds such as waghadi, saikheda, goki, arunawati, pus, adharpus are use for drinking purposes and the pond like goki, arunawati, pus, adharpus are use for industrial purposes.

The entire ponds are available on lease basis and the fishes like Indian major carps and local fishes are mainly used for pisciculture practices. There is a satisfactory production of fishes compare with the productive capacity of pond. The crabs, lobsters and prawns production are also in good number. Economically the productive capacity is satisfactory relation to fishery. Nineteen species of aquatic weeds are recorded from the selected ponds. Some species are observed from the entire pond namely Hydrilla verticillata, Potamogeton spec., Ipomoea aquatica, Vallisneria spiralis, Najas minor and Chara zeylennica. It was noticed that the excessive growth of macrophytes in few the pond are responsible for eutrophication, transeaporation and the major impacts that they are reducing the storage and conveyance capacity of pond so it is suggested that the immediate action should be taken for stringent measures for controlling of Macrophytes. There are various anthropogenic activities are observed. These are excessive fishing, illegal use of water, cutting of bushes and shrubs around pond, excavation of fertile soil and cattle grazing that are responsible for the destruction and over exploitation compare to their contribution. However, according to results these in respect of water and soil quality data, utility value, productive capacity the same are above minimum required readings. Thus, it clearly indicates that the ecological status of ponds are not at all hazardous, on the contrary they are up to its requisite mark.

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- **Conclusion**

The results obtained, help to establish the relationship between the eco parameters (water, soil, aquatic weeds, and condition of vertebrates) and explore the present status of pond ecosystem. Comparative study has also helped the researcher to differentiate between the qualitative analyses of ponds. The report thus prepared, helps to give various suggestions for the better improvement in pond ecosystem and abide the official to take a strict action against anthropogenic activities. The results help to implement certain guidelines for utilizing the ponds for fishery, irrigation, drinking as well as other purposes for living.

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