

CONCLUSION



The present study is dealt with some aspects of ecology related to diminishing trend of land use pattern as a result for diversity of flora and fauna in some regions of East Kolkata Wetlands during the period of 2009-2011. The study also recommended the outlines of conservation strategies due to the huge socio economic valuations. This study established the role of print media that specks the violation of law and order on the existing conservation rules for East Kolkata Wetland. Some mauzas of East Kolkata Wetland were characterized by highly alkaline, hard with low transparency, dissolved oxygen deficient, high free Carbon-di-oxide, alarming chloride concentration and occurrence of high level of conductivity, biological oxygen demand, chemical oxygen demand, nitrate and phosphate content, all indicative of organic enrichment and consequent eutrophication. The heavy metals such as Cu, Zn, Fe, Pb, and the dissolved phase Cr elements are the major factors of loss species diversity in flora and fauna. The various physico-chemical characteristics varied with the sampling sites and showed temporal variations. Water quality in general deteriorated from year to year. In the present study, seasonal fluctuations in the water parameters have been monitored at different sites and these are significantly correlated with each other. On the basis of studies it has been found that the quality of water at several sites of the East Kolkata wetland are not at desired level and proper management is urgently needed.

The present observations revealed year wise changes of landuse pattern due to rapid Urbanization and Industrialization as well as development of the Eastern fringe of Kolkata. The diversity of aquatic fish fauna are evaluated as type of endangered, vulnerable, lower risk near threatened, lower risk least concerned. Relative abundance of the fish species of the sewage fed ponds of the wetlands are calculated with species wise, family wise and order wise. The low abundance of fish species was the indices of poor quality of water of East Kolkata Wetland. In the wetland ecosystem the haematological parameters of four Indian Major Carp like *Cyprinus carpio*, *Labeo bata*, *Cirrhinus mrigala* and *Oreochromis nilotica* were estimated. It was documented that fish abundance was correlated significantly with the changing of physic- chemical parameters. The values of the different haematological parameters are significantly influenced by endogenous and exogenous factors, so it is not easy to determine their physiological range.

In this study the detailed analysis and conceptualization of dynamics of livelihood perspective of the direct users of natural resources enable for a deeper insight of the issue of debate between conservation of environment, climate change, and economic development, from a narrower perspective of environmental sustainability to broader issues of livelihood perspective of the rural poor have been conducted. Loss of natural resources may be seen from environmental perspective but marginal poor depend directly on these resources for their livelihood. Diversity of flora & fauna to perceive the social and economic value of natural resources cause loss of natural resources which compel rural poor to diversify their livelihood strategies and integrate themselves into urban economy which may be dreadful in cases. Thus loss of natural resources may harm to ecological diversity in the long run but it may push rural poor people into further vulnerability, which is a more issue of concern in the short run. The Chi square (χ^2) test and step wise multiple

regression analysis were done to represent the significant relations between level of consumption and WTP (Willing to pay).

The policy makers, engage on by a vigilant civil society and ecologists, have done well to protect its wetlands - the functional kidneys of a living body. In spite of a plethora of laws for urban wetland protection, their existence and proper functioning are always threatened. Here, it is not the lack of legislation but it is the weak implementation of rules, standards and procedures. . For example discharge of effluents by tanneries is a glaring example of lack of enforcement. Violation of rules can only be identified by proper surveillance and monitoring procedures which require immediate attention by the higher authority. Another major issue is the lack of access to environmental information on EKW resulting in inadequate public awareness about the ecosystem. Absence of political will for supporting the objectives of preservation of EKW and proper enforcement of the legislation is a major impediment.

India is facing a crisis due to loss of wetlands and water bodies and deterioration in the water quality of these life sustaining systems. Apart from depletion of biodiversity and silent assault on human health due to non-point source (agro-chemical) pollution other resultant environmental risk factors include the reduction in rainwater retention capacity and the loss of livelihood support for the wetland dependent communities who are among the poorest. Welfare of the people of the State of West Bengal depends largely upon the proper functioning of the natural resource systems wherein wetlands are among the foremost which draw attention.

The challenge here is to overcome the lack of understanding among the implementers of different development sectors and service providers about the significance of wetland ecosystems in maintaining and supporting human health and welfare. The challenge becomes daunting as the section of the community suffering most from the loss of wetland resources are occasionally the poorest and their demands are not easily visible or audible. The proposed policy direction therefore will be to adopt a participatory and community-based approach to ensure conservation and wise use of wetlands and water bodies.

A participatory approach looks into the interconnectedness and interrelations between society and nature contextually. Differences in local conditions which can be occasionally striking (both social and ecological) should be carefully factored in. It also attempts to remain focused on defined landscapes or geographic units, so that it becomes easy for everyone to recognize the conservation activities. Particular care is taken to avoid exclusion of the poorer communities who tend to avoid or sometimes are purposively left out of the conservation exercises.

The crucial message that any policy document on the conservation of wetlands and water bodies must primarily carry is that no wetlands and water bodies can be filled up, degraded, drained, converted or subjected to any kind of activity which is incompatible with ecological integrity of the wetlands.

In addition to compulsory prohibition of further filling up of any wetland or water body irrespective of its size, the present wetland conservation policy has come up with two new directions. This essentially is in the context of the conditions and constraints specific to the State as well as the country. Firstly, as wetlands are the primary receptacles for agricultural discharge containing agro-chemicals, it has

brought the crisis of non-point source pollution into the forefront. Unregulated use of fertilizers and pesticides is already having telling effects on human health (especially the children and the farmers), food security and biodiversity stock. Secondly, for the purpose of conserving larger wetlands and water bodies, the concept of catchment area is considered, specifically to delineate the primary boundary for conservation activities specific to the wetlands. This is necessary because most of the larger wetlands in this sub-continent lie outside any protected area under the Forest Act. This study highlights the need to control the use and discharge of such chemicals, and propose some ways in which this might be done. The study also adds new insights to the ongoing policy debate about how best to preserve the East Calcutta Wetlands and safeguard their ecological and social benefits. Hence inclusion of wetland management strategies, their implementation at local and metropolitan level as well as enforcement of legislation should be recognized as crucial for sustainability of wetlands and be integrated with the policy making process. However, it is imperative that exploration and implementation of all future strategies mentioned earlier be carried out with the active participation of stakeholders at all levels for proper management of these threatened wetlands.