



Lake 2008: Conservation and Management of River and Lake Ecosystems

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ORGANISED BY

Energy & Wetlands Research Group, Centre for Ecological Sciences (CES),
Indian Institute of Science (IISc), Bangalore

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Recommendations of Lake 2008 Symposium

Introduction

Water, the elixir of life, is the most precious resource on the planet earth. Life originated and evolved in water before it appeared on the land. The unit of life whether on land or water is the living cell, the major bulk of which is water itself. Ultimately it is the delicate balance of chemicals within the cellular water that determines the quality of life and forms a fragile barrier between life and death itself. No wonder, water as an element and water bodies in general have been revered as holy by traditional human societies all over the world.

The elemental water is venerated as one of the *Panchabhuthas* in the scriptures of India. Water- bodies ranging from springs, streams, ponds and lakes to the mighty ocean are sacred in the Indian culture. *Tirthayatra*, literally pilgrimage to the holy waters, became an important part of Indian life through millennia to this day; and it causes major movements and congregations of humans within this country and is one of the most unifying factors of the society.

India is basically an agricultural country; bulk of the Indian population in one way or the other is connected with growing of an amazing variety of crops, domestication of animals, trading in the agricultural and dairy products, and in allied industries such as cotton textiles, sugar, soaps and oils and scores of others. Despite the tremendous technological progress the country has achieved, water and soil still form the core of the Indian life and have given the much needed resilience and strength to the Indian economy in these days of global economic crisis.

Recent times, sadly enough, have witnessed a drastic change in our attitude towards water and water-bodies, the reverence towards which is more becoming a matter of ritualism. Water is being used with gay abandon and water-bodies are being destroyed for alternative uses or have turned out to be receptacles of filth and pollutants including

of life threatening chemicals and deadly pesticides. These pollutants through the process of bio-magnification have turned out to be major threats to the very fabric of life on the planet.

The Scope:

The symposium has covered water-bodies of all kinds on the land including the estuaries, which are the places where the freshwater of the rivers mingle with the saltwater of the sea and create unique habitats of intermediate salinity and high productivity. Over 200 persons from all over the country, from scientists, hydrologists, policy makers, legal experts and NGO's to students and teachers participated in the symposium, which saw the presentation of around 100 research papers. These papers encompassed an array of topics related to the past and present status of water-bodies, biodiversity associated with them ranging from bacteria and diatoms to the endangered mighty trees in the Myristica swamps of the Western Ghats and from protozoans to fishes, birds and aquatic mammals. The value of sacred groves in watershed conservation, the importance of preparing management plans for individual estuaries, rainwater harvesting, sedimentation in water-bodies, water chemistry etc were among the notable topics discussed.

Recommendations:

Lake 2008 reviewed the Draft Notification 2008 Regulatory Framework for Wetlands Conservation (Wetland Conservation Rules) of the Ministry of Environment and Forests of the Government of India and has recommended the following:

1. **Mapping of water-bodies:** The mapping of water bodies should also include smaller wetlands, particularly hill streams, Myristica swamps of the Western Ghats, springs etc. The neglect of these hydrological systems could cause considerable impoverishment of water flow in the river systems as well as turn out to be threats to rare kinds of biodiversity. As most of the streams originate in

forest areas they come under the legal authority of the forest departments. At the same time the waters of many of these streams are being diverted for private uses. This causes diminished water flow especially in the non Himalayan Rivers during the summer months. A judicious water sharing mechanism has to be worked out at the local level taking into account also the broader national interest as well as conservation of dependent biodiversity. The mapping of these smaller water-bodies, along with their catchments needs to be conducted involving also the local Biodiversity Management Committees. The jurisdictional agreements on the water usage and watershed protection need to be arrived at on a case to case basis involving all the stakeholders.

2. **Documentation of biodiversity:** The biodiversity of every water body should form part of the People's Biodiversity Registers (PBR). The local Biodiversity Management Committees (BMC) should be given necessary financial support and scientific assistance in documentation of diversity. The presence of endemic, rare, endangered or threatened species and economically important ones should be highlighted. A locally implementable conservation plan has to be prepared for such species.
3. **Preparation of management plans for individual water bodies:** Most large water bodies have unique individual characteristics. Therefore it is necessary to prepare separate management plans for individual water bodies.
4. **Preparation of estuary based management plans:** Estuaries are ranked among the highest productive ecosystems of the world. These are dynamic ecosystems of highly variable environmental factors and therefore require preparation of management plans for individual estuary.
5. **Demarcation of the boundary of water bodies:** The existing regulations pertaining to boundary demarcations within different states need to be reviewed according to updated norms and based on geomorphology and other scientific

aspects pertaining to individual water bodies. Maximum Water Level mark should form the boundary line of the water body. In addition, a specified width, based on historical records/ survey records etc. may be considered for marking a buffer zone around the water body. In case such records are not available, the buffer zones may be marked afresh considering the flood plain level and also maximum water levels. The width of the buffer zone should be set considering the geomorphology of the water body, the original legal boundaries, etc. The buffer zone should be treated as inviolable in the long term interests of the water body and its biodiversity.

6. **Implementation of sanitation facilities:** It was noted with grave concern that the water bodies in most of India are badly polluted with sewage, coliform bacteria and various other pathogens. To preserve the purity of waters and to safeguard the biodiversity and productivity, dumping of waste has to be prohibited. In addition to this, all the settlements alongside the water body should be provided with sanitation facilities so as not to impinge in anyway the pristine quality of water.
7. **Management of polluted lakes:** This programme needs priority attention. Bioremediation method may be preferred for detoxification of polluted water bodies. The highly and irremediably polluted water bodies may be fenced off to prevent fishing, cattle grazing and washing, bathing and collection of edible or medicinal plants to prevent health hazards. Warning boards should be displayed around such water bodies. Collection of any biomaterials from such water bodies should be prohibited.
8. **Valuation of goods and services:** Goods and services provided by the individual water bodies to be documented, evaluated through participatory approach and be made part of the People Biodiversity Registers (PBR). If in any case the traditional fishing rights of the local fishermen are adversely affected by lake

conservation or by declaring it as a bird sanctuary, etc they should be adequately compensated.

9. **Regulation of boating:** Operation of motorized boats should not be permitted within lakes of less than 50 ha. In larger lakes the number of such boats should be limited to carrying capacity of the water body. In any case boating during the periods of breeding and congregations of birds should be regulated.
10. **Protection of riparian and buffer zone vegetation:** Any clearances of riparian vegetation (along side rivers) and buffer zone vegetation (around lakes) have to be prohibited.
11. **Restoration of linkages between water bodies:** The process of urbanization and neglect caused disruption of linkages between water bodies such as ancient lake systems of many cities. Wherever such disruptions have taken place alternative arrangements should be provided to establish the lost linkages.
12. **Rainwater harvesting:** Intensive and comprehensive implementation of rain water harvesting techniques can reduce taxation of water bodies and also minimize electricity requirements. The country needs in principle a holistic rainwater harvesting policy aimed at directing water literally from “roof-tops to lakes” after catering to the domestic needs.
13. **Protection of sacred grove-water body system:** Sacred groves have been integral part of traditional watershed protection systems. Ponds, lakes, springs, streams and rivers associated with the sacred groves were integral to the landscape management systems of traditional societies of especially Indian highlands. Most of these groves lost their significance due to merger of them with the state reserved forests or due to cultural changes. There still exist thousands of

sacred groves along the Indian countryside. If these groves are recognized, ecologically restored and brought under appropriate management mechanisms in collaboration with local communities, a fresh revival can happen of the water bodies associated with them.

- 14. Carrying capacity studies for all macro cities:** Unplanned concentrated urbanisation in many cities has telling impacts on local ecology and biodiversity, evident from decline of waterbodies, vegetation, enhanced pollution levels (land, water and air), traffic bottlenecks, lack of appropriate infrastructure, etc. There is a need to adopt holistic approaches in regional planning considering all components (ecology, economic, social aspects). In this regard, Lake 2008 recommends carrying capacity studies before implementing any major projects in macro cities.

These recommendations are in addition to or supplementing the Prohibited and Regulated activities given in the Rule 4 - Restriction on activities within wetlands of the Draft Notification of 2008 of Ministry of Environment and Forests, Govt. of India 'REGULATORY FRAME WORK FOR WETLAND CONSERVATION'. The wetlands considered under the symposium recommendations are also applicable to wetland categories other than A, B and C given in the Draft Notification.
