CONSERVATION PRIORITIES

Introduction

Wetlands are unique ecosystems. They perform some very useful functions in the cycle of nature. In spite of global attention currently focussed on the conservation of wetland ecosystems, there does not exist any specific and precise definitions for wetlands. "Wetlands" have been defined as swamps and other damp areas of land but in common parlance the word is used interchangeably with "Jheels" which denotes a large body of water surrounded by land (Chatrath, 1992). The internationally accepted definition as per the convention on wetlands of international importance (IUCN, 1971) is as follows: "wetlands are the areas of fen, marsh, peatland or water whether natural or artificial, permanent or temporary with water that is static or flowing, fresh, brackish or salt water, including areas of marine water the depth of which at low tide does not exceed six meters".

Wetlands occur extensively throughout the world in all climatic zones and are estimated to cover about 6% of the earth surface. Yet it is very difficult to classify wetlands into different types as they exhibit very large differences in their hydrological regimes, water quality and soils, and in nature and diversity of their biota (Gopal, 1995). The most comprehensive hierarchical system of classification has been given by Cowardin *et al.* (1979). According to this system, all wetlands have been divided into five systems:

a) Marine System

b) Lacustrine System

c) Estuarine System

d) Riverine System

e) Palustrine System

There are wide range of functions associated with wetlands in the maintenance of overall balance of nature such as flood control, water storage and purification, protection of shorelines, flora and faunal habits, gene pools, recreational besides providing outputs of commercial value and economic sustenance to the people. The association of man and wetland is ancient. The wetlands have supported mankind since historical times. There is an important link between wetlands and the health, welfare and safety of large number of people living around or dependent on these habitats (Anonymous, 1992). Wetlands being more significant for their high productivity and multiple values, are being misused and are subject to population pressures in India.

Sheikha Jheel, like many other 'closed semi- protected areas' in the country, symbolizes initiatives and efforts on part of the government to protect and conserve areas of ecological importance. Wildlife and natural habitats in India are generally conserved by declaring the area as protected. The need to protect wildlife through formation of sanctuaries and national parks was realized long ago but mere protection of the area will not ensure biodiversity conservation (Singh and Vishwakarma, 1997). Though the protected area network has increased, management of these areas has not shown proportionate improvement. Often the management of the protected area has not been properly planned, and most planning's lack economic incentives for local people. Rather, imposing of national parks on rural communities has a number of negative consequences, including restrictions of access to traditionally used resources (Croft, 1981) and the disruption of local cultures and economies by tourists (Callimanapulos, 1982). Nawabganj bird sanctuary in Unnao, on Lucknow – Kanpur

inputs and should keep the socio- economic aspects equally in view (Chatrath, 1992). This can only be done if adequate research data are available about the flora and fauna of the area and the impacts of human induced activities.

In the light of the above, the present study helps us to propose certain preliminary recommendations that can lead to effective conservation of Sheikha Jheel as well as the waterfowl species, particularly the two sympatric species of cormorants.

Conservation Action and Recommendations

Proper management of area: Sheikha Jheel should be declared as a multiple use protected area allowing access to people for recreational, economic and social reasons as they do have sentimental association with the wildlife in the Jheel. Considering their supportive views for the conservation of the Jheel, lands belonging to farmers should not be acquired. At the same time no new crops field should be allowed to come in the wetland. A tourist complex should be built little away from the Jheel. Tourism is necessary to educate the public about wildlife and to enjoy the pleasure of being in wilderness. This will be a great step for Aligarh district as it is short of natural areas where people can go for family outings. This will also generate possibilities for some employment in the area.

Tourist complex should be well equipped with basic facilities like a restaurant, small park, clean toilets, parking place and a station for forest guards. Plantation of trees like neem *Azadirachta indica,* sheesham *Delbergia sisoo,* peepal *Ficus religiosa*

and bargad *Ficus benegalensis* can be done in and around the tourist complex. These trees are preferred by various birds, specially two sympatric species of cormorants for roosting and nesting. So this plantation will provide refuge to many bird species along with the beautification of the area.

The district administration in 1991 took certain steps to beautify Sheikha Jheel. Under that agenda a road was to be constructed around the wetland. Such developments are not recommended in near future as they will have detrimental effects on the Jheel and will also make poaching much easier. Even the mounds and trail that were built under this scheme are not desirable. Plantation done on this mound has perished and siltation is taking place making the wetland shallow day by day. Moreover, Sheikha being a small wetland does not need mound as they restrict the flow of water and might give an impression of land to the migratory birds from a height. The watch tower now being built in Sheikha is a right step as it will help people to watch birds easily.

Livestock grazing should be allowed especially on the fringes during summer when some part of the Jheel dries up. This helps in removing the accumulated biomass which if not grazed will die, decompose and turn up the aquatic ecosystem into a terrestrial habitat. There are large numbers of trees on two sides of the Jheel. If more trees are planted around or inside the Jheel the wetland will be encroached by a forest, so no more tree plantation should be allowed near the Jheel.

The population of aquatic avifauna in wetlands is the useful indicators of the ecological status of wetland ecosystem (Axell, 1982). During the present study a number of problems associated with wetland birds, especially cormorants, have been

identified. The alteration of habitat is mainly caused by weed menace and human interference within the wetland habitat (Saikia & Bhattacharjee, 1993). The most widely prevalent weed, Water hyacinth *Echhornia crassipes* is found to grow and cover every puddle of water, marshes, ponds within the Sheikha Jheel, especially in Sheikha B, resulting in the shrinkage of open water and accelerating eutrophication. This in turn affects the habitat of cormorants as they preferred areas of open water. Being piscivores, the cormorants do not prefer waterbodies with lots of floating vegetation as that may hinder their diving and feeding activities (Vyas, 1993). The macrophytes, like water hyacinth, provide a restricted habitat for cormorants and shelter the fishes. Moreover, these macrophytes act as feed, shelters and oxygenator of the waterbody during the-day-by their photosynthetic activity; but by nightfall they become traps and fish kill may occur due to lack of oxygen and increasing level of corbon dioxide (Rajyalakshmi, 1995).

Thus, water hyacinth indirectly affects the cormorants by affecting their prey base. The survival of heronry depends, in addition to the availability of safe nesting sites, on the continued availability of suitable feeding conditions. Thus, at each site chosen for protection, important feeding sites where nesting birds forage need to be identified and efforts should be directed at protecting them (Subramanya, 1996). Since protection given at nesting site alone cannot ensure conservation of heronry (Venkatraman and Muthukrishnan, 1993), it is necessary to preserve the feeding habitats of these birds. Therefore, to keep the wetland system healthy the water hyacinth should be eradicated completely and should not be allowed to grow again. The Besharum (*Ipomea carnea*) growing at the banks of the Jheel is spreading fast. It

should be removed manually but only after the breeding season of resident birds is over. People from Sheikha village should be hired on daily wages by the Forest Department for removal of Ipomea. This will generate some income for the weaker sections of the locality.

Illegal fishing and poaching should be stopped: Another problem of the Sheikha Jheel is illegal fishing by local people. Illegal fishing is quite frequent in Sheikha Jheel. People use different techniques like nets, gillnets, baits to catch fish. This greatly affects the fish abundance in the wetland that has to be available for fish eating birds like the little and large cormorants. Shrimps and prawns, which are the predominant component of fisheries, are important food for waterfowls, cormorants and other predatory birds. Exploitation of these species causes disruption of food chains in the system. Some species of fish as well as other aquatic animals which depend exclusively on shrimp as feed would tend to slowly disappear. At the same time, fish being an important link in wetland food chains feed on a variety of micro- and macro-organisms and also on detritus and therefore help in preventing the accumulation of detritus in the wetland (Rajyalakshmi, 1995). To protect the prey base of the pisivore birds fishing should be minimized in this area.

In Sheikha poaching of birds by city dweller is rather a regular phenomenon. This is a serious problem in waterfowl conservation. The poaching of migratory and resident birds continues throughout the year. The high demand of wild birds has led to the increase of birds trapping. The people of Sheikha are not able to stop the poachers as they have no support of the forest department or other administrative

authorities. Villagers have resentment as certain times they had caught some poachers red-handed and had snatched their guns but when the matter was reported to police no proper step was taken against them. It is a healthy sign that the villagers intend to see the Jheel in a healthy ecological state for maintaining the water table of the area, which would help them in agriculture. For this reason they bear some loses also. Every year, when Jheel is overflooded some of the adjoining crop fields get submerged and become useless for agriculture activities. For the sake of the Jheel farmers do not stretch their cultivation area up to its fringes. The Jheel has very god potential for the cultivation of water chestnut and lotus but only a small portion of Jheel is used for this purpose. Rest of the area is left for waterbirds. When people are so eco- friendly it is a prime duty of the Administrative authorities to help people in resolving problems related to the area. Forest department will be able to understand some of these issues in right perspective by direct interaction with local communities and by understanding their requirements and expectations from the area. In Sheikha there is an urgent need of forming a van panchayat or van suraksha samiti (village protection committee). This will help the villagers to gain confidence to fight against poachers and to work for wildlife conservation issues. Local people should also be educated on bird conservation and wildlife protection act. The Forest Department should also keep a proper vigilance of the Jheel so as to check the poaching. Moreover, the Sheikha Jheel is an IBA Site, therefore, its management is a paramount issue. Since the resident waterfowl spend most of their life, including breeding, in the wetland, their conservation should have priority in the management of wetlands

(Vijayan, 1995). Although cormorants are not threatened, being wild species they should also be protected (Nettleship and Duffy, 1995).

Awareness among locals: Sheikha also has management problems arising out of the conflict between the local communities. The local Gram Samaj is not happy about the allocation of some land around the Jheel to backward classes (SC/ ST and OBC) because once the land comes under their acquisition they start clearing the grasslands and tree groves for the purpose of agriculture. Regarding this people have some resentment against the Revenue Department as this will affect the sustainability of the biodiversity of this area. Elsewhere too, vast areas of wetlands are being reclaimed for housing, agriculture and industrial estates (Swayer, 1990). As the human populations expand, their increasing demands for land and resource cause conflicts between the protected area and their surrounding human communities. As these conflicts appear to be disadvantageous to both it is useful to examine how such conflicts might be resolved or at least managed (Hough, 1988). The long- term solution to the problem of protecting wetlands lies in educating people. Unless people realize the need to safeguard the wetland ecosystems, there is little hope for the survival of these ecologically valuable habitats (Anonymous, 1992). It is important to have adequate database and information on socio- economic and other aspects for any planning exercise (Chatrath, 1992).

Conserving biodiversity and the protection of ecosystems thus requires innovative approaches, as well as the co-operation and support of local people. The local people must understand the value of protecting the area, rather than being told that it is something they ought to do. Hence, there is an urgent need to carry out

environmental awareness campaign in the area. Environmental awareness campaign will make children, men and women aware about the importance of the area. Education on the importance of wetland ecosystem should be initiated, especially for school children. Nature walks and slide shows will also be helpful in this pursuit. List of major flora and fauna of the area should be distributed among villagers.

Monitoring and Research: Information on roost site selection by a species carries immense importance for assessing its conservation needs (Trivedi and Johnsingh 1996). It also plays a pivotal role in nesting success of any species. Judicious selection of the roosting site may enhance the survival of birds. Trees around the Sheikha village act as good roosting and breeding sites for the two sympatric species of cormorants and other heronry species such as egrets and ibises. These roost sites should be adequately protected and monitored to ensure the continued use of these sites. Prolonged safety from disturbances at a given roost site appears to tempt bird to utilize the same site for nesting. In fact, several heronries have begun as roost sites. Thus, identifying large roost sites of colonial waterbirds and providing them protection may help nesting in long run (Subramanya 1996). These roost sites can also be used to gather important demographic information on cormorant populations. Continued monitoring over several years and identification of other roosting sites would help in assessing the population status and identifying any decline in numbers. It has become important to keep even the records of common birds as there was a time when white backed vultures were nesting on the trees at the bank of Sheikha Jheel in good numbers. Recently all over the country they are dying mysteriously and

have disappeared from Sheikha also. If regular monitoring would have been done they would have not met such destiny.

The cormorants have been facing some harassment at the roosts and at feeding areas. This probably influences their movements also. Human activity often frightened the birds away from roosts (Aderman & Hill 1995). Mott *et al.* (1990) also noted a decrease in the numbers of roosting Double- crested Cormorants following night time harassment activities. Though at times some negative ecological effects are noted in the environs of communal roost sites (Brough 1969, Vining and Weeks 1974, Garner 1978) and some eradicating measures have been suggested (Cummings 1979, Mott 1980) no such problem is reported in Sheikha. In general the villagers feel proud of Sheikha Jheel but as the roost sites are very close to human habitation they are facing a little problem. Although most of the villagers do not harm the birds on roost, some people try to frighten them as they feel that these birds harm the trees and making the environment unhealthy by their droppings.

Wetland and waterbird research should be encouraged in the area. Regular monitoring of species diversity in area is required. This may be conducted by Forest Department with the help of local NGO's. Various department of close by Aligarh Muslim University should initiate some long term ecological studies, especially on limnology, aquatic vegetation and picifauna at Sheikha Jheel. Though a pilot bird banding programme was started here back in 1988 (Yahya *et al.* 1990), this is a very suitable site for a permanent bird banding station. Monitoring abundance and fluctuation of resident and migratory birds is another interesting pursuit.