6. RECOMMENDATIONS

Recommendations

Site specific Conservation and Management Strategies

The recommendations and management strategies are required to manage the physical resources such as water, or their biological resources such as waterfowl, fish, wildlife and vegetation. Based on regular monitoring with respect to hydro-geochemical properties, biotic communities, and diversity during the two years of research period some of the site specific problems are identified and their suggestions are made as below which may be implemented to conserve, preserve, and protect the two wetlands.

6.1 Site Specific Suggestions

➢ Thol Bird Sanctuary

Thol Bird Sanctuary is important wetland of the western region as variety of migratory birds visit during winters. The study had identified the potential of Thol Bird Sanctuary as an internationally important wetland due to species richness and vulnerable species including endangered Sarus Crane. There are certain threats if not controlled may pose threat to the ecosystem.

Site 1:

• The foremost being the location of site 1 in the north end towards east of the wetland having the major inlet (one of the feeder canal) of the wetland. The wetland receives water from the feeder canals and run off water directly from the catchment area. Although, this site is devoid of any kind of direct human establishment but it falls under the catchment area having seven small or big areas they are, Karoli, Saij, Wamaj, Kalol, Chhatral, Indrad and Rajpur. These areas are the direct point sources of pollution. It is recommended that a thick buffer zone typically consists of a band of vegetation along the perimeter of a wetland preferably natural habitat should be created and the industries coming under this buffer zone should be identified to stop the pollution sources.
Recommendations

- There is a road passing over the feeder canal few kilometers before the wetland. This road is being used by heavy vehicles for transportation to various industries situated near the wetland. This leads to disturbance to waterbirds while they roost to this nearby site. Such routes should be diverted and or access of the road should be avoided by heavy vehicles.

- The agriculture fields being a potential source of runoff. Use of fertilizers, urea etc should be minimized or promote to use of biofertilizers in these farms near the wetland should encouraged so as to prevent inflow of nutrients into the wetland due to agricultural runoff.

- Sometimes the activities like human bathing have also been observed to this feeder canal near site 1. This becomes the major disturbance of the ecology of wetland and contributing major source of pollution. Thus, it is suggested that regular patrolling by the forest department should be done to avoid such human interferences to the wetland. Even the management committee should develop a separate area away from the wetland for bathing, washing, cattle wadding or such activities.

**Site 2:**

The site is located within the sanctuary at the south-western end of the wetland. The site is bordered by an earthen bund which continues throughout the periphery of the wetland. A tarred road is constructed over this bund to approach the wetland.

- This site is having more area of water spread and is frequently visited by most tourists during peak winters owing to enjoy the site view of migratory and other birds. A bird site view point and tourist resting shelters are made on this bund towards the far eastern end. Thus recreations point of view this site experiences high tourist pressure round the year. As being the tourist spot plastic packets and other eatables waste are thrown in the vicinity, thus polluting the aquatic environments. This is the utmost essential that the Plastic bags, edible materials and other activities should be strictly banned and penalize with fine, so as to keep the environment pollution free.

- Within the vicinity of wetland outside the bund the agricultural plots are present. These agricultural plots are situated after 500 mtrs from the bund. Within this 500 mtrs area, the trees and water are present in patches. Some of the birds are using this
area in feeding and roosting. Near this area the cemented outlet is made to this point and people draw water from this area by the means of motor pumps to irrigate fields outside the bund. Cattle bathing activities are also being observed in these supply canals. This in turn disturb the activities of birds. It is essential that these motors should be placed far from the wetland so as to minimize the disturbance for waterbirds.

- Livestock of five peripheral villages as well as those belonging to the pastoral people from Kachchh and Saurashtra visit this area for grazing in scrub lands and for drinking water. The grazing pressure was confirmed by the field visit. The livestock includes goats, sheep, cows, buffaloes and camel which causes disturbance to birds. It is essential by management committee to keep these grazing activities far from the wetland so as to keep minimum pressure in the adjoining areas of the wetland.

- Hunting and poaching by local hunters of water birds have been observed at this site. Control of poaching requires an understanding of the modus operandi, impact on species and socio-economic impacts to enable appropriate responses to be undertaken. Regular patrolling and vigilance are essential to abridge such activities. Strict legal measures should be taken against hunters to prevent the reoccurrence of such activities.

- According to the obtained hydro-geo chemical data in the present study, the eutrophication conditions prevailed in the wetland. It is essential that a regular monitoring of water at inlet and outlet points is suggested at the wetland so as to detect water quality and thus identifying any possible point or non-point sources of pollution. If more pollutants or any change in the water quality is observed in the inlet water then the flow should be diverted to another site for treatment and thereafter should be reverted back to the wetland.

The forest department should manage Thol Bird Sanctuary taking into consideration of the above recommendations or threats. Thus the present study has shown the importance of carrying out such a study on regular basis so as to monitor the changes of dynamic ecosystem due to concomitant changes in water regime at Thol Bird Sanctuary. It is being suggested to carry out movement and dispersal pattern of migratory
waterfowl by the department on regular basis. This can be extended to the neighbouring villages’ tank and water bodies.

➢ **Bhaskarpura Talaav**

Bhaskarpur wetland is a natural pond and situated near Bhaskarpur Dam (which is the part of the Sujlam Sufalam Yojana) for supply and storage of water to the nearby rivers and lakes. The wetland is recharged by the underground water also, as it falls near by the large reservoirs. This region comes under the catchment area of Nalsarovar Bird Sanctuary and so it is very essential to understand the pollution status manage of this wetland.

**Site 1:**

- This site is located closest to the village and hence maximum anthropogenic activities are being observed at this site. Regular washing and bathing activities are common at this site. The site is also frequented by villagers for excretion purposes. This represents a serious health hazard to the wetland exposed to the raw sewage. It is therefore, recommended that this aspect remains the highest priority area for attention and allocates separate areas for this away from the wetland.

- There is an urgent need to control release of discharge of domestic sewage and other domestic activities like utensils and clothes washing to restore the potability and reduce nutrient content of this water body. Separate area like Dhobi ghat should be constructed and provided for conducting daily household chores and their out lets should be diverted away from this site.
Site 2:

- The domestic garbage is being dumped to this site should be immediately shifted away from this area.
- Sometimes cattle wading are observed at this site, which will lead to organic pollution. A particular part in the wetland should be earmarked for cattle wading activities away from this site.
- Anthropogenic activities influencing the quality and quantity of water at this site are agricultural drainage. This type of inputs alters the ecology of the wetland severely and also affecting the overall biotic community of the ecosystem. The influx of nutrients from adjoining agricultural fields should be checked by constructing obstacles like check dams or side bunds.