

Danone-Evian Ramsar support to conservation challenges

The root causes of threats to wetland biodiversity conservation in Nepal revolve around inadequate technical, economic and institutional capacity, information base, and low level of awareness for wetland biodiversity conservation, planning and management decisions. This, coupled with high local community dependence on wetland resources, but low involvement in their management and low recognition of wetland values, indicates a high need for external assistance in enhancing communication, education and public awareness of wetlands and their importance.

Jagdishpur lake has a fluctuating water level according to the demand for the irrigation of cultivated land. The irrigation system is managed by the Department of Irrigation (DoI) through Kapilvastu District Office. A mechanism for an effective coordination with DoI has to be developed for maintaining water level for maximising benefit to the wildlife of Jagdishpur.

Due to lack of a proper monitoring mechanism even after the declaration as a Ramsar site, by both the Ramsar Secretariat and Government of Nepal, there is a potential threat for further deterioration of the site's value. Threats and problems to the site include hunting, disturbance, deposition of aquatic macrophytes, water pollution from agricultural chemicals (fertilizers and pesticides), and invasive alien species such as *Eichhornia*



crassipes, *Mikania micrantha* and other aquatic macrophytes (particularly of lotus, water nymph and hornwort), water hyacinth etc. Since 2007, fish farming for commercial purpose has started. Fish farming is taken by contractors who usually come from

outside the area and have no interest in the long term management of the site—other than for their own commercial interest. The effect of exotic fish to native fish fauna could be detrimental to the ecosystem of the lake. A mechanism to coordinate the fish farmers/contractors to aware and understand the life of the lake is needed.

Recent studies have shown that the lake can act as an important staging point for thousands of waterbirds on north-south migration. Unfortunately both the birds and the lake are vulnerable and mismanaged. Many birds that rest and roost at Jagdishpur lake go out to cultivated lands for feeding and other activities. In this respect there is a clear need to work with the local communities for conservation of birds, this may involve encouraging them to use organic waste rather than chemicals as fertilizer, reduction on the use of pesticides etc. More ornithological surveys and conservation awareness programmes for local communities are vital for a sustainable ecosystem of the lake.

The most secure and sustainable conservation of the wetlands will be when economic returns from the wetlands start enriching the local communities. However, currently there is



Tourism

Jagdishpur Lake can be accessed from Jitpur of the east west highway and is only 15 km. Similarly, Tilaurakot Palace (where Buddha lived for more than 20 years), Niglihawa, birth place of Kanakmuni Buddha and Lambu Sagar (where Shakyas were massacred) are 7, 5 and 2 km from the lake.

little understanding of the true values of wetlands to people living adjacent to the wetland areas, and only a poor understanding of some of the threats to sustainable livelihoods. This is preventing the appropriate enhancement of wetland resource management and any economic incentives as a result of sustainable use of the wetlands.

Support from the Ramsar Secretariat and DNPWC have enabled a better understanding of the values wetlands bring to local people, and has helped to identify activities that will help local communities use their wetland resources more wisely. The project has designed some programmes by which sustainable livelihood for people living in the vicinity are being practiced which will release the pressure on the lake. However a long term project is needed to ensure sustainable uses of the wetlands in the area for people and wildlife.

This project is sponsored by DANONE - evian group



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Jagdishpur Lake



Ramsar Site & An Important Bird Area



(Ramsar, Iran, 1971)

Background

Jagdishpur lake lies in the terai region of central Nepal, west of the famous world heritage site Lumbini, the birth place of Lord Buddha.

Jagdishpur wetlands area, comprising 225 ha, was declared as a Ramsar Site in 2003 mainly on the basis of migratory water birds and threatened mammals found in the area. It is also one of the 27 Important Bird Areas (IBAs) network of Nepal. More than 100 bird species and as many as 8 globally threatened and near-threatened bird species have been recorded from Jagdishpur lake area.

Jagdishpur is currently the largest man-made lake in the country with a surface area of 157 ha and was constructed for the purpose of irrigation. It was created over the location of Jakhira Lake and surrounding agricultural land in the early 1970s. The construction of a rock-filled dyke took place in the early 1980s. The water in the lake is fed from the nearby

Banganga River that has a catchment area in the Churia Hills. Incoming suspended silts and nutrients are deposited in the lake mouth. The water depth at the deepest point varies from a maximum of 7 metres to a minimum of 2 metres. The lake is surrounded by cultivated land and there are two smaller lakes known as Sagarhawa and Niglihawa situated within three km distance that serve as a buffer habitat for bird movements.

Although directly linked with agrarian community of the area, existing wetlands are not managed appropriately. Eutrophication is a major problem, causing wetlands change from mesotrophic to eutrophic due to accumulation of nutrients from both natural and anthropogenic sources. Several invasive non-native plant species are also having serious impacts. Uncontrolled and unsustainable methods of fish harvesting have severely depleted fishery resources depriving local communities from a more sustainable income.



The Site and People

The site is owned by the state. The surrounding areas are privately owned. Current uses of the lake by the local population include fishing, grazing, fuel wood and fodder collection, domestic use (e.g. laundry), harvesting of wetland products, recreation (e.g. picnic, bathing, boating) and supply of water for irrigation in 6,200 ha of surrounding cultivated land. The water body has a great potential for commercial stock fish production. Its surroundings are mainly used for farming.

The majority of people living in the area are from Tharu, Yadav and Muslim communities. There are also hill tribes eg Brahmins, Chhetris, Gurungs, Magars and others. Most villagers that live in the adjacent area are poor farmers who live on subsistent agrarian economy.



Flora

The vegetation is mainly in a submerged succession stage with patches of floating species and reed swamp formations. Marsh meadows and extensive mudflat fringed by marsh lies in the northern part. The terrestrial vegetation is dominated by sisoo *Dalbergia sisoo* and khair *Acacia catechu* along the dyke. The wetland vegetation consists of morning glory *Ipomea carnea* ssp. *fistulosa* and cattail *Typha angustifolia*. The aquatic vegetation is represented by extensive coverage of floating leaf species mainly lotus *Nelumbo nucifera* followed by wild rice *Hygorhiza aristata* and pondweed *Potamogeton nodosus*. The free floating species include water velvet *Azolla imbricata* and duckweed *Lemna* spp. The abundant submerged species include water nymph *Naja minor*, hydrilla *Hydrilla verticillata* and hornwort *Ceratophyllum demersum*. The site provides shelter for an assemblage of some rare conservation importance species of plants, which include threatened Serpentine *Rauvolfia serpentine*, pondweed *Potamogeton lucens*, and lotus *Nelumbo nucifera*.

Fauna

Fish

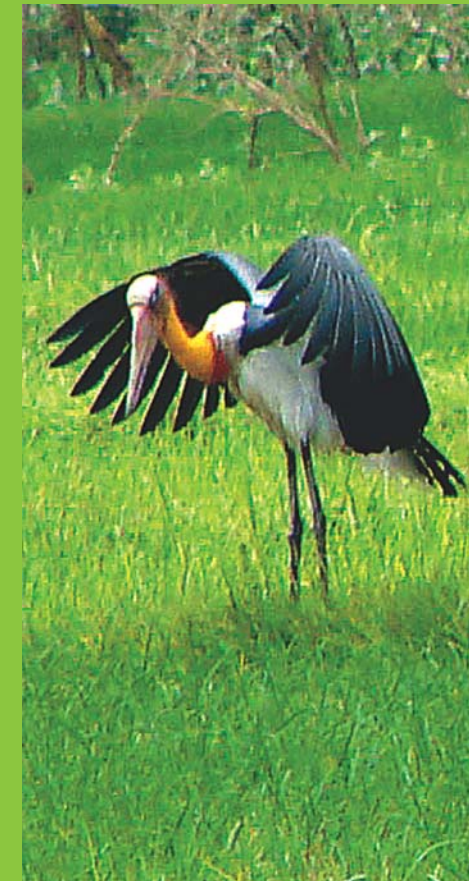
Our study has found out a total of 39 fish species from the lake. This represents 14 families and 6 orders including lowland Terai endemics e.g. *Notopterus notopterus*, *Oxygaster bacaila*, threatened *Puntius chola* and common species such as Dhawai, Piruwa, Tilwa, Sidhari, Thothana, Kauwa, Chanari, Khesti. Besides fish, two species of freshwater prawn are also recorded.



Birds

BirdLife International has identified Jagdishpur as an Important Bird Area (IBA) because of its international importance for threatened species and their habitat conservation. BCN has been carrying out bird surveys in the area for a long time. The lake is surrounded by smaller lakes (e.g. Sagarhawa and Niglihawa) serving as a buffer zone for bird movements of nearly 150 recorded species but many more species are likely to occur. The site provides an important habitat for resident, wintering and passage migrant, wetland and small passerine birds. Noteworthy are the grebes, cormorants, herons and egrets, storks, ducks and geese, terns and gulls, birds of prey, rails, coot and waterhens, jacanas, as well as cranes and kingfishers.

Eight globally threatened and near threatened bird species have been recorded including White-rumped Vulture *Gyps bengalensis*, Slender-billed Vulture *G. tenuirostris*, Egyptian Vulture *Neophron percnopterus*, Greater Spotted Eagle *Aquila clanga*, Indian Spotted Eagle *A. hastata*, Lesser Adjutant *Leptoptilos javanicus* and the tallest of all the flying birds, Sarus Crane *Grus antigone*.



Herpetofauna & Mammals

As many as 30 species of reptiles and 8 species of amphibians have been recorded in the lake area. These include Bengal *Varanus bengalensis* and Golden Monitors *V. flavescens*, Burmese Rock Python *Python molurus bivittatus*, Maskey's Burrowing Frog *Sphaerotheca maskeyi*, Ornate Rice Frog *Microhyla ornata* etc. A year round survey will yield more species in the area.

Due to its position being surrounded by cultivated land and its moderate size, it is not a suitable site for large mammal conservation. Though it supports small population of Smooth-coated Otter *Lutrogale perspicillata* and other common species such as Jungle Cat *Felis chaus*, Golden Jackal *Canis aureus*, Indian Fox *Vulpes bengalensis* etc. Otter is the only wetland dependent mammal recorded here. A dozen terrestrial mammals and some unidentified bats have been reported from here.

Project partnership



Bird Conservation Nepal (BCN) is implementing a sustainable wetland management project in close coordination with Department of National Parks and Wildlife Conservation (DNPWC) and local conservation groups. DNPWC and BCN have encouraged Department of Irrigation and Department of Forest for their involvement in management of the area.