

General Overview of Koshi Tappu Wildlife Reserve

Introduction

Koshi Tappu Wildlife Reserve extends between 26° 56' – 26° 40' N and 85° 56' – 87° 04' E in the floodplain of the Sapta Koshi River (confluence of seven rivers system) in south eastern lowland Nepal. It lies in the subtropical forest zone within Saptari, Udayapur and Sunsari districts of the Sagarmatha zone within the Eastern Development Region of the country. It was mainly established for the protection of the last remaining population of Arna (*Babulus Bubalis*) and its habitat, and to maintain the integrity of the natural environment. The Reserve was declared a Ramsar site (wetland of international importance) in December 1987. The Buffer Zone of the Reserve was declared in 2004 and covers an area of 173 sq. km stretching across 16 VDCs (one in Udayapur district; six in Sunsari district and nine in Saptari district). The purpose of the Buffer Zone is to conserve biodiversity of the reserve through an integrated core and Buffer Zone management approach.

Wetland Definition

The simple definition of wetland is the land with availability of water. The area may be wet, moist, damp, soaked, drenched etc. Therefore, wetlands are river, ponds, lakes, marshlands, paddy fields, glaciers etc. The term 'wetland' translates into *Simsar* in Nepali. *Sim* is a derivative of a Persian word meaning low-grade land not suitable for cultivation. *Sar* is a sanskrit word meaning water. Thus, *Simsar* is interpreted as land with water.

Values of Koshi Wetlands



Koshi wetlands are important to people residing in the vicinity of the Koshi Tappu Buffer Zone. These wetlands act as a major source of livelihood for thousands of people living in the area. Fish are one of the main products of Koshi wetlands on which indigenous ethnic community rely heavily. Thousands of indigenous people particularly Malaha, Jhagad, Musahar and Sardar extract substantial fish resources from Koshi wetlands. Besides fish, mat weaving from Cat-tail *Typha latifolia* is another major source of income from wetlands. Thousands of Sardar people residing in both sectors of the Koshi buffer zone earn good money from mat selling. Although wetlands are for all communities, some of the most marginalized communities of Koshi depend heavily on wetland resources for providing food day to day. Imagine the life for them in the absence of the wetlands!

Koshi people have access to a huge volume of fresh water, which has been used for various purposes including drinking and irrigation. Thousands of hectares of land would have been desert if the Koshi wetlands did not exist. Irrigation facilities in the Terai promote agriculture production. Wetland dependent

plant species such as cattail, munj and reverine species are a source of fiber and fuel from which local people get energy. Koshi wetlands are also rich in medicinal plants.

These wetlands are famous for their cultural values. Water is essential to celebrate *chhaith*, one of the major festivals of the Terai community. Water is worshipped as it is believed that this will bring success in the family. Wetland microorganisms convert gaseous elemental nitrogen in the atmosphere to nitrogen fixed in the soils that are available to plants like rice. In turn, these plants have significant capacity to store carbon and so the conservation of wetlands might help the climate change mitigation strategies too. Wetlands are also the educational center. It provides opportunities for formal and informal education and training.

Benefits from Wetlands

- Water supply directly to people, to an aquifer, or to another wetland
- Water flow regulation and flood control
- Prevention of saline intrusion to both ground and surface water
- Ability to retain sediments and nutrients
- Ability to remove toxins from effluents/polluted water
- Provision of natural wetland products
- Opportunity for water transport
- Gene bank for future commercial exploitation or maintenance of wildlife populations
- Significance for conservation of species, landscapes or habitats
- Recreation and tourism opportunity
- Socio-cultural significance
- Opportunity for research and education
- Contribution to the maintenance of existing processes and natural systems at global, regional and local levels (e.g. microclimate, carbon cycling, etc.)

Koshi Wetland Bio-diversity

Koshi wetland is rich in wetland biodiversity. The Reserve harbors the last remaining population of wild water buffaloes in Nepal. The Reserve is also the home to threatened species like Gangetic dolphin *Platanista gangetica*, two species of crocodiles (Marsh Mugger *Crocodylus palustris* and Gharial *Gavialis gangeticus*) and two endemic fish species *Barilius jalkapoorei* and *Pseudeutropius murius*. Additionally, the Reserve is by far the most important wetland staging post for migrating waders and water birds in Nepal. It supports more than 70 species of wetland birds including eight globally threatened bird species.

Problems faced by Local People

The depletion of wetland resources is the major problem in the Koshi area. This is mainly due to unsustainable management which results in overexploitation. The major concern of the poorest people is the depletion of fish stock at Koshi. It has become very hard to find large fish of 500 g or more. Fishermen struggle to catch 1-1.5 kg of fish in a day, which has serious implications for the people of Koshi who are heavily reliant on fish for their livelihood. Although the buffer zone areas are good for fish farming, opportunities are limited due to the lack of skilled knowledge and availability of resources. The availability of fishing areas in the buffer zone is severely affected by the spread of exotic plant species like water

Good fish catch is far away at Koshi

Santosh Mukhiya lives in north-east of the KTWR buffer zone. His livelihood completely depends on fishing. He has six family members including four school children. He travels a minimum of 5 km every day for fishing but he struggles to catch 1-2 kg each day. He remembers a time when it was not a problem to catch 5-7 kg of fish in a day, when he was helping to his father to fish about a decade 30 years ago. He has remember fish catches of about 5 kg in day a few years back, but more recently he has to fish in wetlands where good and preferred fish are scarce. Because of the dramatic change in fish stocks at Koshi, livelihoods of thousands of people in fishing communities has become critical.

hyacinth. It has covered most of the buffer zone wetlands, which has made fishing very difficult in unmanaged ponds. Invasion by *Karmi* is more severe in wetlands of western sectors; whilst water hyacinth coverage is a prominent issue in eastern sector wetlands.



Other problems faced by local people include the supply of grasses, fuel wood, and fodder from Koshi Tappu, which has become limited, mainly due to unsustainable harvesting. There are also occurrences of damage to people and property (including fish and fish ponds) by wild animals, which is perceived as a significant problem by Koshi people. Otters, crocodiles, and many diving water birds are blamed for destroying fish, and these incidents are regular, so that local people have to put extra resources in to prevent these incidents, such as deploying human resources at the fishponds which is an additional burden. Crop damage by wild water buffaloes, wild elephant and wild boar are also significant problems in the Koshi buffer zone. Flooding of the fish ponds, poisoning of fishing sites, lack of regular water sources at the northern sectors of the buffer zone and shortage of local fish fry are additional problems identified by local people in the Koshi Buffer Zone.

News update

Socio-economic Valuation Workshops

Socio-economic valuation workshops were conducted at six sites of Koshi Tappu Wildlife Reserve. A total of 150 user group members participated in the workshops and discussed various values and problems of Koshi wetlands. The participants were chosen by the local user committees themselves.

The valuation workshops were carried out in collaboration with Koshi Tappu Wildlife Reserve, Buffer Zone Council and the Participatory Conservation Programme (PCP). The valuation workshop was carried out using Participatory Rural Appraisal (PRA) and we applied various PRA tools to get ground information in terms of values/uses of wetlands resources, problems associated with them, sources of income, and expenditure. The PRA team acted as a facilitator and noted down all information, which were raised and discussed during the workshops.

Buffer zone unit	Workshop venue
Haripur	Haripur cooperative office
Lauki-Kusaha	Shovanpur school
Madhuban-Prakashpur	Sukrabare school
Bairawa/Barmajiya	Bairwa VDC office
Jagatpur-Badgamma-Kamalpur- Odraha	Kanchanpur School
Tapeswori	Tapeswori health post

Household surveys

A total of 60 households were visited around Koshi Tappu Wildlife Reserve, and interviews conducted by members of the Participatory Rural Appraisals team. Households were selected to represent the poorest group as identified through the wealth ranking exercise of the PRAs. These were households that were landless, or had less than 0.006 ha of land, and suffered rice shortage for 10-12 months. They also tended to have many children, and suffered from debt. Household survey results are presented in other discussion fora.

Preparation of Community Action Plan

The PRA workshops and household surveys identified various

problems and solutions for the sustainable management of the Koshi wetlands, while maximizing wetland resource-based income. Discussions were held in the light of the current scenario of wetland condition, resources base income and livelihood, threats and challenges. All information was gathered and brought into a document which was called the Community Action Plan. At the same time an Action Plan Committee was formed to monitor and evaluate the Community Action Plan.



Water Quality Monitoring

Water samples from 30 fish ponds were collected in March and November 2007. A wide range of fish ponds (community, private individual and public ponds) were sampled to assess the status of water quality. Of the 30 ponds, 14 were from the western sector and 16 were from the eastern sector of the Koshi buffer zone. Physical, Chemical and Biological parameters were analyzed. The water samples were analyzed in the ENPHO lab at Kathmandu. Results are currently being analysed, but will help see how water quality is affected by different ways of managing ponds.

Water Level Record

Local people have been measuring water levels in the different categories of fish ponds have since May 2007, when bamboo



measuring poles were provided by the Darwin project. The water level records will give us information about the degree of availability of water all year round in the fish ponds. The source of water in the fish ponds is most important for the good fish production. These data will be used for the fisheries management plan.

Visit from Rampur Campus Consultant

A team led by Dr. Madhav Shrestha visited Koshi Tappu Wildlife Reserve for five days in March 2007. The main task of the team was to assess the fisheries status at Koshi Tappu Wildlife Reserve. The team observed east and west of the Kosi buffer zone and gathered information on fisheries aspect. Interactions with local stakeholders including fish farmers, fishermen and park authority were made during the visit.

Fish pond management practices survey

A survey of fish pond management practices in buffer zone fish ponds was carried out during March-April 2007. A total of 22 fish farmers around Koshi Tappu Wildlife Reserve were interviewed, and provided information on their fish-farming practices, particularly with regard to the hydrological requirements of their fishery. The respondents had a range of experience. Some were involved in managing a community pond and had little experience, others were poor and had little or no training, whilst several had in excess of 15 years experience and some had over 30 years experience in the field. One had 35 yrs experience and had started with nothing, and was now managing seven ponds plus a nursery pond. This

information will help to identify the best ways of managing fishponds for the wetland dependent communities.

Mat Weaving Training

With aim of promoting wetland related income, intensive mat weaving training courses were conducted at different sites in the Koshi Tappu buffer zone. The mat training was mainly focused to the fishing community (e.g *malaha*) in order to reduce the fishing pressure at Koshi River. A total of 160 women from the fishing community were trained on mat weaving. The trainings were conducted at Musahari Tol-Madhuban, Bahardar Tol-Madhuban, Jamuwa chowk-West Kusaha, Bairawa- Bairawa and Barmajiya, Kamalpur at Kamalpur-Odraha and Pupri and Jagatpur.



UK Project Partners Visit

The UK project partners visited Koshi Tappu between 28th October and 6th November, 2007. The UK-based partner team has expertise in biodiversity conservation (especially related to wetlands), sustainable livelihoods (especially related to fisheries), invasive species, eco-hydrology and learning/ environmental education/wetland centre development. The team worked with colleagues from Nepali partner organizations including local universities, Bird Conservation Nepal (BCN) and the privately owned eco-camp at KTWR. The larger aims of the visit were to review progress; gather new information and data through survey, monitoring and participatory approaches, and recommend future actions.

Cattail *T. latifolia* is a source of money-you can use as you need An experience from Bishnu Sada

Bishnu Sada, resident of the Musahari tol, received mat weaving training in July. The Musahari tol was the first site where the project conducted mat weaving training as a means of skill transfer. She had made an attempt in attending such training in the past but due to the lack of a skilled trainer in her community, she could not fulfill her dream. It was a great opportunity for her when the Darwin project initiated training in her community. However she was not sure whether she would be able to get a place since the project had to limit the requested each community to send just 20 participants. Bishnu Sada's community is large with more than 30 households and it might be hard to choose 20 out of them. Finally she had got an opportunity to participate in the mat weaving training. She recognized she was lucky and did not leave any stone unturned in order to learn from the skilled trainers. She gave her full effort to learn for the six days, which was made easier because the project provided 4 kg of rice everyday during the training period, which reduced the burden of having to search for sufficient food everyday so she did not have a food shortage during this time. As she said, hunger is one of the major barriers to concentrate on things. At the end she was fully trained and able to weave mats. The project also offered weaving materials at the beginning which was a great help. Now, Bishnu Sada is weaving mat every day, and she deposits a small amount of money to the local women's group which can be used as an emergency fund.

Bird Fair to Mark the World Wetland Day- 2008



A Bird Festival has been celebrated at Koshi Tappu Wildlife Reserve since 2000 on the occasion of World Wetland Day. One of the main objectives of the festival is to raise the awareness of the importance of Koshi wetland habitats and aquatic birds. The Darwin project developed a community focus

program jointly with wetland user committees, community forest committees, village development committee and school management committee. A number of wetland-themed activities were conducted, including a musical chair game, and essay, quiz and art competitions. Hundreds of school children, teachers and local people participated in these activities. Educational materials such as dictionaries, notepads and ball pens were distributed among the winners of the competitions. Distinguished personalities including political leaders, school management committees and school headmaster were also present in the bird fair celebrating function.

Radio Program

In order to highlight the importance of Koshi Tappu and its wetlands among local people, the project has started airing the Koshi wetlands conservation radio program in collaboration with the DDC and other developmental partners which are working in Sunsari District. The DDC is the main lead organization for this radio program. Radio has been considered as an excellent means of creating awareness of the local people. The out reach of Saptakoshi FM covers 16 districts including the buffer zone of the Koshi Tappu Wildlife Reserve. The program will air every week at 7:00- 7:30 pm on Sunday. Please tune to Saptakoshi FM 100 mhz on every Sunday at 7:00 pm.

Darwin Project Information

The Darwin Initiative was announced by the UK Government at the Rio Earth Summit in 1992. The aim of the Initiative is to assist those countries which are rich in biodiversity but poor in financial resources to implement the Convention on Biological Diversity (CBD) through the funding of collaborative projects which draw on UK biodiversity expertise. The project has been supporting Bird Conservation Nepal in various disciplines of wetland conservation in and around the Koshi buffer zone.

The project is training personnel and building capacity in local organizations and community groups, developing guidelines for wetland management for sustainable livelihoods, developing a sustainable fisheries management plan and community learning plan, and establishing wetland conservation information centres. The project is working with local community groups to identify barriers to making a sustainable livelihood from buffer zone wetlands. It is training local people to enable them to pass on best-practice wetland management advice to others.

The project is helping to understand the true values of Koshi Tappu's biodiversity. The project's aim is to provide some of the expertise and resources to assist communities living around the reserve to manage buffer zone wetlands outside the reserve so that pressure on the reserve is reduced and sustainable livelihoods are achieved. The other project activities are driven largely by the needs of people living around the reserve who depend on the wetlands for their livelihood. The project is working together with the Buffer Zone Development Committee, a group of local people who represent the interests of all those living in the buffer zone.

Project summary

- Personnel trained and capacity built in local organization and community groups
- Sustainable wetland management promoted using wetland management guidelines for sustainable livelihoods
- Sustainable fisheries management plan developed and promoted
- Information centres for Wetland Management for Sustainable Livelihoods established

Some Extra News

Koshi RIS update

Mr. Jhamak Bahadur Kari, Senior Officer of DNPC has visited Koshi Tappu Wildlife Reserve to monitor the Darwin Project activities and to update the Ramsar Information Sheet of Koshi. Mr. Bhagwan Dahal, Darwin Project Officer has assisted him to update the Koshi RIS.

Meetings

Mr. Bhagwan Dahal, project officer has presented an annual work plan of the Darwin Project to the DDC planning workshop. DDC is the leading government body to monitor the project activities to avoid the duplication of the development activities. DDC has been organizing regular meetings with the partners' organization to keep track of the development activities within the Sunsari District. Mr. Dahal has also attended the Buffer zone council and IUCN/GEF meeting at Koshi Tappu.

Conference

Mr. Dahal presented a paper on using participatory socio-economic wetland valuation to address wetland management issues at Koshi Tappu, Nepal at the International Conference on Managing Wetlands for Sustainable Development. The conference was held on 9-11 January 2008 in Trang, Thailand.

For further information



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