



# himalayan *highlights*

channeling news  
from high altitude  
Himalayan wetlands

## EDITOR'S NOTE

Dear Reader,

Conservation teaches us new lessons everyday. Apart from opening our minds to novel and innovative solutions engineered to protect and conserve our ecosystems, it also humbles us by demonstrating the true, and often, immeasurable value of these ecosystems. But perhaps, one of the biggest lessons we have learnt is that conservation is not the privilege of a chosen few. It is a passion and a life skill which unites diverse groups of people, irrespective of their education, culture or nationality, resulting in productive partnerships. Such has been revealed to us through our regional efforts in conserving high altitude wetlands in the Himalayas. The 'Saving Wetlands Sky-High!' project has been a journey of discovering new conservation partners and of revelling in team-work.

Through this issue of 'Himalayan Highlights', we bring you stories of some of our new and vibrant partners. We have found them in monasteries, at polo matches, on religious pilgrimages and in research institutions. We have found them in the young and in the old, in students and in preachers, in governments and in the people. We have found them in Pakistan, India, China, Nepal and Bhutan. But most importantly, we have found them in the Himalayas.

Read on to learn how the Himalayas and its ecosystems have inspired people to work together and have motivated them to make a difference.

The Editorial Team

## INSIDE

Feature Story

Communities adopt their Wetlands

Making a Difference

Sporting Conservation

A Journey to New Learning

Gosaikunda breathes after *Janaipoornima*

Cleanliness next to Godliness

Strengthening through Science

What's new at Gokyo

Witnessing change: Glaciers in the Indian Himalayas

Spreading the message

Black-necked Crane Art Exhibition

Framed: A WWF-Canon Photo contest

Hydrological and Ecological value of

Water Towers and their role in adapting to

Climate Change - A review

Securing through policy

Conservation Solutions through

Team Work

Whet your Wetland-Knowledge

Longbaotan Lake, China

Media

Climate Change on the Tibet

Plateau: The Accounts of Tibet's Nomadic

Herders

Ladakh Field Guides

Combating Climate Change in Gokyo



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# COMMUNITIES ADOPT THEIR WETLANDS

Pakistan

The Ghizer District of Gilgit-Baltistan, in North Pakistan, is rightfully called the 'Land of Lakes' as it homes several magnificent high altitude wetlands. Noted among these are the Karambar, Shandoor, Utter, Handrap and Baha Lakes in Ishkoman, Fander and Shandoor Valleys. These lakes are more than just freshwater bodies. Their ecological, social and economic significance for the local populace, as well as, for downstream inhabitants is enormous. More than 1200 households in Ishkoman and further downstream depend upon the water from these lakes for domestic and agricultural use. Besides, the alpine and sub alpine pastures in these regions abound in aromatic herbs of high medicinal value.

biodiversity is heightened by the presence of native and exotic species of freshwater fish and endemic and endangered wildlife species like the Snow Leopard, Himalayan Brown Bear, ibex, wolf and lynx. The beauty of the landscape coupled with its community's traditional hospitality attracts several hundred tourists from around the world every year, not to forget the famous Shandoor Polo Festival which is held annually in July.

## All is not well

However, these wetlands and their biodiversity have been facing serious challenges. Until recently, these unique wetlands were threatened by degradation from anthropogenic interferences, primarily due to lack of awareness among the local people about their ecological functions and conservation values. Illegal shooting of birds, hunting and poaching of ungulates and carnivores, unwise exploitation of fish, both for subsistence and sale, and livestock herding have been common practices. But now, these practices are adding stress to the land around the lake. That apart, nutrient-rich run off from the over-grazed pastures into

An innovative community-based 'Watch and Ward' system has been put in place to train local wildlife guides and watchers to address anthropogenic threats to wildlife in the area.

### Lakes of Value

**Utter:** 107.06 ha, 3,840 m asl

**Handrap:** 24.43 ha, 2291.8 m asl

**Shandoor:** 191.73 ha, 3,810 m asl

These freshwater wetlands harbor rich diversity of wild animals, birds and plants and also provide safe and peaceful stopovers to migratory birds. Their rich

Below: Phandur Valley home to Shandoor Lake © Babar Khan



lakes is a major source of eutrophication in the water bodies. Deforestation for fuel and timber has also been accelerating erosion and siltation in the lakes.

### A stitch in time

Realising the gravity of the situation, WWF-Pakistan initiated a small community-based conservation pilot in 2004 in Ishkoman Valley, to mobilise communities to care for and conserve their lakes. Since then, efforts are being made jointly with the government departments, local active private organisations, schools and communities for the protection and management of high altitude wetlands.

Starting from July 2007, under the 'Saving Wetlands Sky-High!' project, WWF is trying to establish models and best practices on the participatory management of high altitude wetlands for sustained ecological functions and mountain livelihoods. The project intends to protect and manage the ecologically significant Utter and Handrap Wetlands in Pakistan's Shandoor Valley, and their associated biodiversity through community-based conservation methods.

### Changing trends

Thus far, after continual efforts, the local community has become more aware of the importance of these fragile wetlands and has shown interest in conservation initiatives. They are now even more vigilant about the use and misuse of natural resources. An innovative community-based 'Watch and Ward' system has been put in place to train local wildlife guides and watchers to address anthropogenic threats to wildlife in the area. Hunting, poaching, shooting and illegal fishing is strictly banned. Tourist Information Centres have been established in Ishkoman and Handrap which receive large numbers of local and foreign tourists in the summer. Fish farming has been introduced as an alternative source of income for communities and check dams have been constructed to control river bank erosion. Education, awareness, scientific research and knowledge-management are a

few ongoing activities, which have been instrumental in shaping pro nature attitudes and the science-based management of target wetlands.

Despite remoteness, harsh climatic conditions, social hindrances and limited resources, WWF aims to continue with its mission of demonstrating best practices



Above: Students participating in cleanup campaign of Handrap Lake © WWF-Pakistan



Right: Conservator of Forests inaugurating The Tourist Information Centre in Ishkoman © WWF-Pakistan

of community-based conservation and management of high altitude lakes in Pakistan. During the remaining project period, emphasis will be placed on strengthening social, technical and financial mechanisms for sustained long-term management of the Utter and Handrap-Shandoor wetlands. To ensure sustainability of the project even beyond WWF's intervention, community-based organisations both in Handrap and Ishkoman have been established. WWF is focusing on identifying the training needs for these communities and building their capacity along those very lines. WWF is also training these organisations to raise their own resources through generating endowment funds and helping develop links between communities and donor agencies.

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## SPORTING CONSERVATION

SHANDOOR, Pakistan

The Shandoor Plateau lies at the border between Chitral district of North-West Frontier Province and Gilgit-Baltistan, in North Pakistan, at an elevation of 3,810 masl, covering an area of 191.73 ha. Stretching 10 km down eastward, it connects with Langer Valley to form the magnificent Handrap-Langer-Shandoor Wetlands Complex in the region.

The plateau serves as the world's highest polo ground which draws thousands of national and international tourists for the the Polo match which is played between the teams of Gilgit, Ghizer and Chitral, as part of the famous Shandoor festival. Every year, during the first week of July, the area gets thronged by millions of people, including players, visitors, vendors, hoteliers and shop keepers. The festival attracts fame to the lakes and serves as a lucrative source of income to service providers among the local community.

But at the same time, the sudden influx of several thousand people, in the summer, is a major threat to the fragile ecosystem of the Shandoor Lakes. This is chiefly because summer is the breeding time for most of these wetland species, which use these lakes as breeding grounds, for example, trout fish, water fowl. Besides this, these lakes provide a habitat to mammals like the Himalayan Ibex and Golden Marmot in their immediate catchments. Besides this, many migratory birds such as the Northern Pintail, Common Tail and Grey Heron, stage on these lakes in spring and autumn migration seasons. Moreover, freshwater from these lakes is the only perennial source of water which meets the community's domestic and agricultural needs. A festival of this magnitude is sure to drastically impact the ecosystem in this region.

For many years, the Shandoor Polo Festival remained unnoticed for its

environmental and ecological impacts but in the year 2008, WWF-Pakistan through the 'Saving Wetlands Sky-High!' project and the Pakistan Wetlands Programme, in collaboration with government departments like the Environmental Protection Agency (EPA) for Gilgit Baltistan, and Gilgit Baltistan Forest and Wildlife Department (GBFWD), launched the 'Clean Shandoor' Campaign on the eve of the Shandoor Festival. Local communities and volunteers from the region participated in the campaign and played a vital role in ridding Shandoor of solid waste. The campaign included displaying awareness material, installing garbage bins for waste collection, marking restricted and unrestricted zones for camping, toilet ditches and wash points, and designating appropriate landfill sites away from the lakes. Approximately 4125 kg of solid waste was collected and disposed off outside the vicinity. Out of the total solid waste, almost 30 per cent was biodegradable and the remaining 70 per cent, non biodegradable.

In 2009, the Gilgit-Baltistan Environmental Protection Agency led the campaign for the Polo festival with other government departments, line agencies, non government organisations and local communities. They also established a proper mechanism for collection and safe disposal of waste from the site, which has not only helped in raising awareness among communities, visitors and other stakeholders about the ecological importance of Shandoor Lake but has also helped in keeping Shandoor clean.

WWF is developing plans to participate in the festival regularly to save the lakes. Dustbins have been installed and a landfill site has been constructed for waste management. Plans to form new partnerships are in the pipeline to help further this endeavour.

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*Right: Collected waste after the 'Clean Shandoor' Campaign © WWF Pakistan and PWP*

# A JOURNEY TO NEW LEARNING

LADAKH, India

Under the 'Saving Wetlands Sky-High!' Project, in India, WWF has initiated conservation of high altitude wetlands in two parts of the Himalayas – the Western Himalayas which include the states of Jammu and Kashmir, Himachal Pradesh and Uttarakhand, and the Eastern Himalayas which include the states of Sikkim and Arunachal Pradesh. Conservation in the Western Himalayas was initiated over a decade ago resulting in the development of field-based pilot projects on which other conservation projects are being modelled. This success can be attributed to the active involvement of the Indian Army, local communities, government agencies and other non-governmental organisations.

In order to ensure the smooth sharing of knowledge and experiences among the conservation partners and stakeholders from both parts of the Himalayas, WWF organised an exchange programme in September 2009. Here, conservationists from the Eastern Himalayan states in India travelled across to the Western Himalayan states to interact with and learn from stakeholders there. Officials from the State Forest Departments, Lamas from the Tawang Monastery in Arunachal Pradesh and representatives from the Tsomgo Pokhari Samrakshan Samiti in Sikkim (a local wetland conservation group) were part of this entourage.

As part of this exposure visit, the group from the Eastern Himalayas visited and interacted with government officials from the Wildlife Department, Government of Jammu and Kashmir, religious leaders from Buddhist Monasteries, teachers from the Central Institute of Buddhist Studies and scientists from research institutions in Ladakh. They first met with representatives from the Snow Leopard Conservancy and learnt about their education, awareness and community-

based tourism initiatives in Hemis National Park and other parts of Ladakh. This was followed by a meeting with the Wildlife Warden who highlighted efforts made by the Department of Wildlife Protection,



Group from Eastern Himalayas at Tsomoriri Lake, Ladakh © Dawa Tsering /WWF-India

Government of Jammu and Kashmir in Ladakh. He told them about how the management plans for the Tsomoriri and Tsokar Lakes were jointly developed by WWF and the Department of Wildlife Protection and accepted by the Union Ministry of Environment and Forests. He also explained the process involved in designating Tsomoriri Lake in Ladakh as a Wetland of International Importance under the Ramsar Convention.

The team visited the Defence Institute of High Altitude Research (DIHAR) and interacted with scientists working on medicinal plant cultivation and horticulture. During their visit to the Students Educational and Cultural Movement of Ladakh (SECMOL), the team learnt about eco-friendly architecture, efficient use of solar energy especially for domestic purposes and local garbage management techniques which are being practiced by the local communities in Ladakh. The

programme concluded with a field trip to Tsomoriri Lake, a high altitude wetland and pilot site for conservation in this segment of the Himalayas. Here, their learning was augmented

through nature trails, exposure to scientific documentation techniques and interactions with owners of local home stays. They also learnt of the joint conservation partnership between WWF, the Department of Wildlife Protection and local communities.

In return, the President of the Pokhari Samrakshan Samiti shared his five years of experience in conserving high altitude wetlands in the state of Sikkim. The visiting forest officers from Arunachal Pradesh and Sikkim also shared their experiences from their respective states, and so did the Lamas of Tawang Monastery who took a keen interest in all these discussions.

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# GOSAIKUNDA BREATHES AFTER JANAIPOORNIMA

GOSAIKUNDA, Nepal

The Hindu festival of *Janaipoornima* is celebrated every year in Nepal with great enthusiasm, during July/August (Shrawan/Bhadra) when the moon is full. It is also called *Rishitarpani* and sees approximately 20,000 pilgrims visiting the holy high altitude lake (and WWF conservation site), Gosaikunda for worship. During the festival, this massive inflow of people in the area, leads to the open dumping of solid waste around the lake, making the management of waste and sanitation difficult.

To address this problem, officials from Langtang National Park, along with local NGOs, eco-clubs and army personnel mobilised themselves to work towards minimising pollution, with the support of the visiting pilgrims. Inspired by this effort, the eco-club network in the area got its members to collect 200 kg of waste (both degradable and non-degradable) and to dump it separately into pits. Moreover, the members of the Community-Based Anti-poaching Operation (CBAPO) were given the responsibility to monitor the pilgrims so that they do not collect wild flowers, sticks and plants during the festival.

Instructions on what to do and what not to do were communicated to pilgrims during the festival, with the help of three microphones.

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Pilgrims bathing in Gosaikunda © Hira Bahadur Gurung/WWF Nepal



Right: Devotees gather at the lake to celebrate Janaipoornima © Hira Bahadur Gurung/WWF Nepal



Below: Waste being collected after the festival © Hira Bahadur Gurung/WWF Nepal

# CLEANLINESS NEXT TO GODLINESS

HIMACHAL PRADESH, India

Most Himalayan high altitude wetlands are sacrosanct for local communities due to religious and mythological values ascribed to them. One such wetland is Manimahesh Lake, in Himachal Pradesh. Located in the Budhil Valley, at the base of the Kailash Peak, Manimahesh lies in Chamba District at an elevation of 4,088 masl. A 14 km-long trek, starting from Harsar village to a small lake called Gauri Kund, takes one to this Lake.

Believed to be the mythical abode of Lord Shiva, this oval lake receives tourists and pilgrims every year, from April to September. They also join the Manimahesh *Yatra* (pilgrimage) in August/September, a mass Hindu pilgrimage, the highlight of which is a ritual bath in the lake accompanied by prayers to the reflection of Kailash Peak. On an average, more than 300,000 pilgrims visit Manimahesh Lake every year, though in 2009 the figures touched 700,000. In fact, the number of vehicles used reached 25,000!

The mammoth proportions of waste and degradation caused to the lake in such pilgrimages is often understated. Leftover food, plastic water bottles and food wrappers strewn all over the place, are only some of the blaring evidence of this degradation. Fruits and offerings made to the lake (usually wrapped in plastic), clothes which get washed into the lake during ritual baths, and human excreta spotting the periphery of the lake are the other visible symptoms of the massive pollution that this wetland has to suffer. The presence of tea stalls and tents near the lake, coupled with the absence of proper toilet facilities adds to the pressure. And to escalate the gravity of the situation, also dumped into the lake are the remnants and innards of sheep carcasses which are sacrificed as part of religious rituals! Diesel generators, blaring loud speakers, concrete sheds and illegal

extraction of medicinal plants are more factors on this list of perils. Evidently, the ecosystem of Manimahesh Lake is in grave danger of perishing.

Recognising the urgency to address this matter, WWF-India has taken the initiative to generate awareness among these very pilgrims to help conserve this holy wetland. The process started in 2008 with the WWF-India Field Office in Shimla organising a four-day environmental awareness campaign from Bharmour to the lake during the Manimahesh *Yatra*. Lucid posters listing out 'Dos and Don'ts for Tourists' and pamphlets highlighting the ecological importance of these wetlands were pasted and displayed in temples, food stalls and shops along the trek. These pamphlets were also distributed to pilgrims on their way to the lake and at the time of registration and amongst owners of tents, shops, tea stalls, organisers of the *langars* (open kitchens) and local communities. WWF-India also held interactions at the individual level with pilgrims, tea stall owners, taxi operators and government officials.

The campaign was well-received with pilgrims showing a keen interest in learning about ways to protect Manimahesh. Most of them have promised to make a

conscious effort to lower their footprint and adopt cleaner practices to help clean the lake and its surroundings, while others have advised on ways to expand the campaign so as to reach a wider target audience. Local communities in the area have also united with the pilgrims to help clean the lake after the *yatra*.

This year, WWF-India is planning to conduct a meeting with all stakeholders, including the local administration and communities in the month of June, on the onset of the *yatra*. Better plans and strategies to increase the effectiveness of the campaign will be discussed, as well as, inclusively sharing responsibility with all stakeholders will be practiced. WWF will generate new information and awareness material and will also request the local government department to depute supervisors to check all damage causing activities during the pilgrimage.

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Manimahesh encircled by tents © Sanjeev Sharma/ WWF-India

## WHAT'S NEW AT GOKYO

Following the progress in the research conducted by the Aquatic Ecology Centre (AEC), Kathmandu University, Nepal, reported in the last issue of *Himalayan Highlights*, more headway has been made since then. Under the leadership of Professor Subodh Sharma, in collaboration with WWF-Nepal, this research is being done in the Gokyo Wetland Series for a period of three years (July 2008 to June 2011). Results from one and half years of study in the Gokyo wetlands have shown some signs of climate change impacts on aquatic biodiversity. These are a few recent findings:

- Head capsule studies of non biting midges (chironomids) in sub fossil form showed dominance of subtribe Tanytarsina indicating two extremely cold and one warm period of short duration in past 150 years. It also

- There are signs of human interferences proved on the basis of the faecal contamination in the area with coliform bacteria, which indicates increased human presence.
- Lake sediment analysis by the measurement of  $^{210}\text{Pb}$  and  $^{137}\text{Cs}$  isotopes, using CRS model, indicated that the sedimentation rate of Gokyo Lake is 0.07 cm per annum.
- The study of macroinvertebrate compositions at inlets and outlets of the lakes with the application of Original NEPBIOS/ASPT gave water quality classes from I-III (I as Excellent and V as heavily Polluted)
- Preliminary investigations showed well developed diatoms flora in springs and air exposed habitat dominated mainly by taxa belonging to the genera *Eunotia*,

*Below: Study of macroinvertebrates on site*  
© Olivier Faber



showed a prolonged warm period in the recent years unlike past. *Pseudodiamesa* is usually associated with extremely cold waters. Absence of this genus in recent years might be most indicative of climatic change. *Rheocricotopus* and *Eukiefferiella* may be derived from inflowing streams and have become less abundant in recent years. The number of head capsules per level is rather low in the core sediments taken in May 2009. To understand clearly the cause of temperature fluctuations in the past and rise in recent years, as reflected by midge assemblages, it is important to obtain more core sediments.

*Pinnularia*, *Fragilaria s.l.*, *Achnanthes s.l.*, and *Cymbella s.l.*

- The salt tracer measurements indicated that the lakes in Gokyo wetlands are not only connected by surface flow, but the glacier probably contributes its part underground. Estimated surface inflow of Second Lake is about 400 l/s.
- The study showed that there is a water flow from the glacier towards the wetland. However, Lake Six is completely separated from the other lakes and it drains straight onto the glacier due to a collapsed side moraine.
- Temperature loggers were set in the watersheds of Gokyo wetlands to find out the presence of permafrost in the region.

## WITNESSING CHANGE: GLACIERS IN THE INDIAN HIMALAYAS

This report by WWF-India and Birla Institute of Technology (BIT), Extension Centre, Jaipur presents the analysis of an on-going research on two Himalayan glaciers - Gangotri and Kafni from 2006 to 2009. The study explores how the glaciers in the Indian Himalayas are changing, by using scientific data and empirical evidence of ground level parameters. To understand the impact of hydro-meteorological parameters, the team has installed two automated weather stations – one at Bhojwasa near Gangotri and another at Kafni.

The initial results from the field study indicate that the Himalayan glaciers are retreating, but at a reduced rate and the larger glaciers like Gangotri are unlikely to disappear in the near future, due to their large mass balance. Hence, smaller glaciers in the Himalayas are proving more vulnerable to climate change impacts.

The research also says that the impacts of glacial retreat on livelihoods, ecosystems and biodiversity have been underestimated so far. Communities living closer to Gangotri have indicated changes in snowfall levels in winter, resulting in less soil moisture, which in turn is changing cropping patterns and availability of water. The report also discusses the areas where more focus is needed, like enhancing the monitoring of smaller glaciers, addressing data challenges, development of regional climate models and engagement of communities in developing suitable adaptation responses.

## BLACK-NECKED CRANE ART EXHIBITION

WWF-India celebrated Wildlife Week with an exhibition of paintings and photographs of the Black-necked Crane, on October 6 and 7, 2009 at the WWF-India, Secretariat. The exhibition, titled 'Black-necked Cranes: Symbols of Sacredness of this Earth' represented an unconventional mixture of biological science and art, with the beauty and magnificence of the bird captured on canvas and film. The oil paintings done by artist Purnima Bakshi Kanwar depicted the endangered bird against bold hues and with a myriad interesting components adding to its marvel. The paintings represented a unique synthesis of the Western and Chinese schools of painting.



The exhibition also featured photographs of the crane by Mahesh Nair and Pankaj Chandan, in its natural habitat. However, the exhibition was not just visual. A very unique feature was the sessions of Eco-poetry – poetry recital on the theme of nature and the need for

consciousness to save our planet. The sessions, which took place on both days of the exhibition, highlighted the concept of poetry as a tool for the ecological revival of Earth.

Hence, two unusual mediums – art and poetry were employed to celebrate the migratory bird.

*Below: A visitor admiring a painting on display at the exhibition © Ragini Letitia Singh/ WWF-India*



## FRAMED: A WWF-CANON PHOTO CONTEST



*Above: First Prize, 'Mighty Sentinel' © Nimisha*

WWF-India, in partnership with Canon exhibited some of the finest photographs representing the great Himalayas, following 'Framed', the online WWF-Canon Photography Contest held on the same theme from August 20 – September 30, 2009. The unique exhibition of the winning entries was launched at the WWF-India premises in October 2009.

The photographs, shot by a varied group of nature enthusiasts were judged and scored by an expert panel of renowned judges – Nature filmmaker, Mike Pandey; Editor of Better Photography, K. Madhavan Pillai; and Wildlife Photographer, Mahesh Nair.

“Environmental conservation can operate through more ways than one, and photography is a fantastic medium to capture the admiration and concern of the masses in favour of conservation. Science cannot stay averse to culture and beauty which can go a long way in spreading awareness about the environment. Canon has been closely associated with our conservation efforts for a long time and together, we are proud to present this exhibition of stunning, award-winning pictures of the ecologically and aesthetically valuable Himalayas,” said Ravi Singh, Secretary General and Chief Executive Officer, WWF-India.

## HYDROLOGICAL AND ECOLOGICAL VALUE OF WATER TOWERS AND THEIR ROLE IN ADAPTING TO CLIMATE CHANGE - A REVIEW

A review study titled 'Hydrological and Ecological Value of Water Towers and their Role in Adapting to Climate Change' was initiated by WWF, with UNESCO-IHE as a technical partner. The objective was to examine the present state of scientific knowledge about high altitude wetlands, their ecological and hydrological functions, the possible effects of climate change on these ecosystems, and to identify critical data gaps. Two conceptual frameworks were developed for the analysis of different drivers that influence wetland development, its functions and processes, as well as, wetland goods and services, and to analyse possible influences of ecosystem disturbances. This study revealed the critical knowledge gaps in the understanding of and research on one of the most vulnerable ecosystems, as far as, climate change impacts are concerned. More detailed quantitative studies of the hydrology, biodiversity and ecosystem goods and services of high altitude wetlands are required for their sound conservation and management.

This study has been published into a report, a part of which has been published in the Mountain Research and Development (MRD) journal, an international journal published by the International Mountain Society. It can be viewed at: <http://www.bioone.org/toc/mred/30/1>

# CONSERVATION SOLUTIONS THROUGH TEAM WORK

ARUNACHAL PRADESH, India  
Bhagajang Wetland Complex in Arunachal Pradesh is located in the south-eastern corner of the Tawang District, near the international border of India and Bhutan. It is under the administrative jurisdiction of the Tawang Monastery. All the lakes in the complex, located at an elevation of 4,200-4,500 masl, are considered to be highly sacred by the indigenous Buddhist Monpa communities living here.

Every year between July and September, 10,000-15,000 Buddhist pilgrims from Tawang and West Kameng districts of India and Bhutan visit these lakes on pilgrimages. The catchment areas of the lakes are also used as grazing grounds during summer by local villagers for their yak and sheep. In addition, the complex serves as a reservoir for the Tawang Chu River along with a catchment area which supports many rare and threatened flora and fauna.

Previous rules and regulations for the conservation of the complex were framed by the Tawang Monastery, mainly to

prevent any disturbance to the lakes by limiting access points for visitors. These are now proving ineffective in addressing recent threats that have arisen due to an increase in the number of visitors because of newly built roads, and the presence of the defense personnel and labourers for road construction in the area. In addition to this, there is increased pressure on the vegetation cover (in particular, Rhododendron) for firewood and an acute problem of accumulation of non-biodegradable waste in the lakes, left behind by rubber balloons which are tied to *khadas* (offerings tied in scarves) to lend them buoyancy in water.

Though the old regulations are still being followed, yet a need for fresh rules and strong partnerships to check the degradation of the catchment area was felt, which if implemented, would ensure the conservation of the lakes.

For strengthening the traditional management system of the Bhagajang Wetland Complex, the Tawang Monastery Authorities have agreed to work jointly

with WWF-India. In a meeting held in August, 2009 at the Tawang Monastery, attended by the Head Lama and senior Lamas, officials from WWF-India highlighted various existing threats and pressures on the region and their impacts on Bhagajang. A unique partnership emerged from the meeting accompanied by a new set of defined solutions. Officials from the Tawang Monastery decided to put an immediate ban on the cutting of firewood from the area, and as an alternative, WWF-India promised to provide high-efficiency kerosene stoves to the monastery which would be used by visitors for cooking during their stay. The monastery also decided on strict regulations to ensure that visitors to the area, if carrying food packed in non-biodegradable packets would return with them or if left with bio-degradable waste should have dustbins (provided by WWF) in various places for disposal. Specific sites would be designated for camping and WWF would help construct toilets near these sites.

A group of four Lamas has been nominated to work in close coordination with the officials of WWF-India for the implementation of these regulations. The meeting also came to the conclusion that the decisions of the Tawang Monastery would be communicated among local communities through radio and local newspapers. WWF would help broadcast these new rules through sign boards at different locations, before the next tourist season commences.

For more information, write to  
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Below: WWF striking solutions with monks from Tawang Monastery © WWF-India



## LONGBAOTAN LAKE, China

Longbaotan, located at 4,200 masl, covering an area of 10,000 ha, is situated in the source region of the Yangtze River inside the Longbao National Nature Reserve in the Yushu Tibetan Autonomous Prefecture, in the southern Qinghai Province of China. Longbaotan and its surrounding pastures are important grazing sites for the livestock belonging to Tibetan herders in the area.

### Biodiversity

**Aquatic:** Planktons, fish

**Birds:** Black-necked Crane, Bar-headed Goose, Brown-headed Gull, Common Tern, Ruddy Shelduck and Goosander

**Mammals:** Sand Fox, wolf, pika, marmot, Himalayan Blue Sheep, Argali or Mountain Sheep, Brown Bear and Snow Leopard

**Flora:** *Carex, pygmaea, Kobresia, humilis, trollius, pedicularis, Maidong, Deyeuxia, Capers* and *Potentilla*

### Religious significance

The Yangtze source area is dotted with about 11,000 lakes, almost all of which remain primeval and untouched, with no source of pollution in their vicinity. Tibetans believe that high mountains are the dwellings of mountain deities and waterways the residences of *klu* (*naga*), and that wildlife, including aquatic animals are the livestock of these wrathful spirits. Therefore, Tibetans avoid activities such as mining, polluting, hunting and fishing, which they believe would annoy these spirits. Some lakes are considered holy. Each year, a large number of Tibetans walk round the lake on a pilgrimage. This belief lays the foundation for the protection of nature.

### Conservation measures

Longbaotan has been chosen as the demonstration site for the WWF conservation project, under which WWF is trying to reduce the pressure on the wetland by temporarily relocating herders and their livestock during the nesting season of the Black-necked Crane (April to June). Other measures being taken

### Threats

**Degradation** of surrounding grasslands due to over-grazing.

**Drying up of the wetland** due to drought and loss of source springs

**Disturbances to the Black-necked Cranes** during nesting season by grazing livestock and herders, including the destruction of eggs and killing of crane chicks by herders' dogs and predators

**Change in land use patterns** and increased land privatisation  
Infrastructure building

**Pollution** caused by an increasing numbers of tourists visiting the Yangtze River source area

**Settling down of nomadic herders** on the grasslands leading to added pressure on the wetland

**Climate change** (glacier melt, permafrost degradation, moisture draining from soils, wetland degradation and desertification)

under this programme include managing solid wastes, controlling grassland degradation and recovering pastures. Research on climate change is being conducted by collecting climate witness stories from local senior citizens. WWF and its main government partner, Yushu



Above: Birds in Longbaotan © WWF/China

Prefecture Forestry Bureau and its two subordinates — Longbao Nature Reserve Station and Yushu Forestry Police Bureau — are working with local herders to help implement the pilot project. Training and patrol equipment have been provided to the Forestry Bureau to increase their

work efficiency, as well as, capacity for strengthening enforcement.

In addition, WWF staff members have been visiting local communities with their partner organisations in order to understand their needs and threats to the wetland. Campaigns targeting the general public, school teachers and students have been launched to increase their awareness on conservation. Signposts have been erected along the roads and at common areas near the wetland to discourage illegal poaching, encourage good waste management practices, and to secure a peaceful habitat for the Black-necked Crane and other fauna. Skill training for alternative livelihoods will also be provided to local residents.

### Qinghai Earthquake

Recently in Yushu, the Qinghai earthquake of April 14, 2010, severely damaged buildings and killed people in Longbaotan. Longbaotan is about 70 km away from Yushu, and there is very limited information from Longbaotan about the quake. WWF and Qinghai Forestry Bureau jointly acted on relief work. The first batch of relief food was sent to Yushu and Longbaotan from Xining, capital of Qinghai Province, and WWF will organize further relief action with local partners. WWF also plans to conduct a preliminary assessment of the impacts of this earthquake on wetlands and other facets of the environment.

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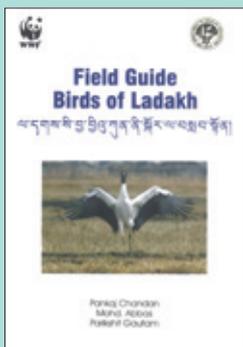
## Report

## Climate Change on the Tibetan Plateau: The Accounts of Tibet's Nomadic Herders

Located at an altitude of 4000 masl, the climate of the Tibetan plateau has been warming up at an accelerated rate of 0.16°C/decade affecting the lives and livelihoods of local populations of rural herders, shepherds and farmers. WWF China, through the Climate Witness Project, has documented stories and anecdotal evidence from local communities living in the Tibet Autonomous Region of the plateau in an effort to complement scientific records on climate change in the Tibetan Plateau and to raise awareness about the plight of a people lesser known to the rest of the world. You can order a copy of this publication by writing in to [dawa@wwfchina.org](mailto:dawa@wwfchina.org)

### Educational Material Ladakh Field Guides

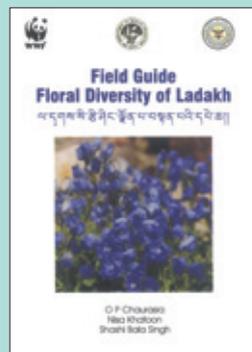
These booklets belong to a series of bilingual (English and Ladakhi) field guides developed by WWF-India, Defence Institute of High Altitude Research (DIHAR) and Department of Wildlife Protection, Government of Jammu and Kashmir. To order a copy, contact [ragini@wwfindia.net](mailto:ragini@wwfindia.net)



#### Field Guide: Birds of Ladakh

By Pankaj Chandan,  
Mohd. Abbas,  
Parikshit Gautam

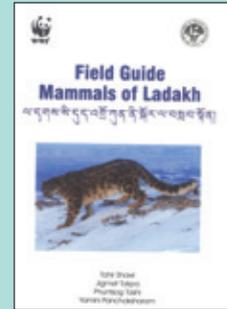
This guide is a comprehensive bank of information about various key species of birds found in Ladakh and aims to guide birdwatchers from across the world, visiting the place. The Ladakhi translation is meant to aid the local youth in knowing and understanding bird species like the endangered Black-necked Crane, Bar-headed Goose, Great-crested Grebe and many more in their own language. This effort is also aimed at reducing the anthropogenic pressure, which is being seen as one of the major threats to the survival of bird species in Ladakh.



#### Field Guide: Floral Diversity of Ladakh

By OP Chaurasia,  
Nisa Khatoon,  
Shashi Bala Singh

This guide comes from a thorough study of 69 medicinal, aromatic and other important plant specimens of ethnobotanical significance. These have been described along with brief botanical notes, habit and habitat, ethnobotanical uses and status. The guide also briefly describes high altitude vegetation categorizing it into Alpine mesophytes, Oasisitic vegetation and Desert vegetation along with describing typical plant behaviour and mechanisms which help them adapt to such altitudes. Most floral species have medicinal properties. Educational Material



#### Field Guide: Mammals of Ladakh

By Tahir shawl,  
Jigmet Takpa,  
Phuntsog  
Tashi, Yamini  
Panchaksharam

Ladakh is home to 33 species of mammals, in particular the richest wild sheep and goat community, all of them being listed under different Schedules of the Jammu and Kashmir Wildlife (Protection) Act, 1978 (Amended 2002). Apart from that, the Snow Leopard, Tibetan Antelope, pikas, Wild Yak, Himalayan Brown Bear, Royle's Mountain Vole and a numerous other species are found in Ladakh. The fauna of eastern Ladakh is influenced by the Tibetan Plateau while the central and eastern parts of this region are influenced by the Himalayan and Central Asian species.

## Film

### Combating Climate Change in Gokyo

This short documentary film, made by WWF Nepal reveals the signs and impacts of climate change on the Gokyo Lake Series in Nepal, representing the state of other freshwater ecosystems in the Himalayan region. Besides the threats that people and livelihoods face, the film talks about the solutions being sought to tackle climate change impacts. For example, the scientific research being conducted in Gokyo by the Aquatic Ecology Centre (AEC), Kathmandu University on the impacts of climate change on aquatic biodiversity and hydrological systems, and the combined efforts of the authorities for the better management of the area are also highlighted. To order a copy, contact [neera.pradhan@wwfnepal.org](mailto:neera.pradhan@wwfnepal.org)



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