

# Review of High Altitude Wetlands Initiatives in Nepal

- Jhamak B.Karki\*

## 1. Introduction:

High altitude wetlands are the freshwater storehouses of millions of people living downstream. However, Nepal has recently initiated preparation of inventories of these high altitude wetlands. Due to its physiographical situation, Nepal's wetlands are classified in 3 categories as high altitude wetlands, midhill wetlands and tarai wetlands as follows:

**1.1. Himalaya:** The mountain area was mapped by Mool et al 2002 who listed 2,323 glacial lakes above 3,500 m. This may contain numerous fresh water wetlands, as these will turn in to glacial lakes in the winter and melt during summer representing fresh water lakes. The inventory of high altitude wetlands has been initiated but the national wide survey of the wetlands incorporating the existing works of all the regions has not been attempted comprehensively in Nepal.

**1.2. Midhill:** Yet neither the mid hill sites have been listed for Ramsar site nor the specific programs focusing interventions have been implemented. The only site that received small intervention is Mai Pokhari (Ilam) from The East Foundation (TEF) who has helped district forest office and the community forest user group to prepare the Ramsar Information Sheet (RIS). RIS has to be forwarded to the Ministry of Forests and Soil Conservation for proposing any site in to Ramsar nomination. Ministry has forwarded RIS of Maipokhari wetland for Government approval to the cabinet by Ministry of Forests and Soil Conservation.

**1.3. Tarai:** The inventory of Tarai and mid hills wetlands has been initiated by IUCN resulting 163 in Tarai and 79 in mid-hills (IUCN 1996). Sporadic independent surveys and inventories have not been updated in the area which might add few more numbers. The designation of 3 additional Ramsar sites in Tarai is one of the outcomes of the inventory. The earlier program by IUCN, ongoing programs by WWF Nepal, through Tarai area landscape and fresh water program, Buffer zone Management committee of Chitwan National park, small grant program of Bird conservation Nepal are some of the interventions in these newly designated Ramsar sites.

## 2. Ongoing initiatives:

The local to global initiatives where the national Ramsar Administrative Authority, the Department of National Parks and Wildlife Conservation (DNPWC) is coordinating/involved in implementation with site Management Authorities, conservation partners, regional organizations, CBOs and civil societies are as follows:

**2.1. Global:** Every three year the Ramsar Convention holds the meeting of the Contracting Parties (CoP) where the decisions are taken and programs of the forthcoming triennium is approved. The 9th CoP was held in 2005 at Uganda where the cultural criteria of nominating Ramsar site has been debated which is gaining more support that Nepal also supported for. Nepal's most of the Himalayan and Mountains wetlands are sacred and has high cultural links.

After returning back from the CoP 9, the team leader of the Nepal's Government team Dr.Uday R.Sharma briefed to the policy makers, stakeholders and academia. Nepal is participated by 2 government and 2 NGOs representatives. This has started a system where informing to nation about the convention's output and road ahead was discussed which has helped in its implementation.

The 10th CoP is being held in Korea November 2008 and Nepal's need to work out the preparation for this including the preparation of national report.

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**2.2. Regional:** One of the major regional initiative on which Nepal is actively engaged is **Himalayan initiative**. This forum has 12 country members having Himalaya or receiving impact from the countries having Himalaya including Nepal, China, and India. Its 5<sup>th</sup> meeting has been held recently in Korea where Nepal has submitted the approval of the **framework agreement** which allows national and international government and non governmental organizations to work together for the sharing of expertise and information. Government had prepared their action plans for the year 2007 which was evaluated in the Korea meeting. This kind of meeting takes place every year and the 4<sup>th</sup> meeting was held in New Delhi 2006 where the issues of capacity building was taken up in great detail.

## 2.3 National

**2.3.1. Inventories of High Altitude Wetlands (HAW):** Realizing the gap of the Himalayan wetlands inventory, a phase wise program was initiated jointly by the Department of National Parks and Wildlife Conservation (DNPWC) with the support from WWF Nepal. By now in 3<sup>rd</sup> phase, 10 wetlands have been inventoried. All the wetlands inventoried were from the protected areas above 3,000m. Out of these inventories, four has been successfully declared as Ramsar sites.

This year inventorying outside PAs was started with the support from WWF Nepal in coordination of Department of Forest. Parbati Kunda (Rasuwa), Jatapokhari and Panchpokhari (Ramechap-Dolakha) and Timbung Pokhari (Taplejung/Panchthar). The technical support is being provided by natural history museum by providing botanist.

Inventory of few important wetlands within the Annapurna conservation area has been initiated by National trust for Nature conservation (NTNC) with the technical support of DNPWC. By now the Titi lake (lower Mustang) and Damodar Kunda (Upper Mustang) has been surveyed (Karki 2007). Tilicho Lake has been proposed by a local resident to be nominated as World Heritage Site and the study is lacking to supplement this site.

**2.3.2. Cultural studies:** In most of the sites inventoried for the biodiversity, and in more sites, cultural studies has been carried out with the support of WWF Nepal documenting the religio-cultural-spiritual values and their link with the society. Publications are Phoksundo Tal, Dolpa; Gosaikunda, Rasuwa; Parbatikunda, Rasuwa; Panchpokhari, Bung, Solukhumbu; Salpapokhari, Bhojpur under the sub-title-SANRAKCHANMA DHARMA, SANSKRITI RA PARAMPARAKO MAHATWO (Jan and June 2007).

**2.3.3. Adaptation in the Everest Region:** WWF Nepal has conducted a research to study the climate change impact on Gokyo and associated lakes and communities living downstream. Gokyo Lake is fed by Nodzumpa glacier, which is the longest and one of the most active glacier in Nepal. This research came out with various levels of impacts due to climate change on freshwater and the livelihood of people downstream. Community based adaptation strategies will be implemented to build resilience of people to cope with unpredictable impacts due to climate change.

**2.3.4. Community based catchment management and Database Community based catchment management and Database:** A two year regional project on support for the conservation of high altitude wetlands through application of the Asian Wetlands Inventory approach and stakeholder-led catchment management is being implementing by ICIMOD. Nepal is one of the beneficiaries of this project and the DNPWC is the key Government focal point. With support from DNPWC, the Asian wetland inventory approach has been tested in two wetlands sites in Nepal namely Gokyo and Koshi tappu both located within the Koshi river Basin. ICIMOD is developing a database system to provide regional platform for sharing wetlands information in the greater Himalayan region. DNPWC and ICIMOD jointly organized a one day workshop to sensitized need for integrated approach on wetlands and water management. Government is implementing programs and exploring further for its contribution to be made for its conservation and management through the concerned line agencies such as WWF Nepal and center.

**2.3.5. Knowledge sharing and documentation:** Forum for Ecosystem Management (FEM) has organized 5 workshops in series in collaboration with different organizations. The following table of contents with the title of books provides a glance of the information that is available in document form.

i) High altitude wetlands of Nepal: Views and Reviews on Conservation (Bhandari, B 2005) has following 7 papers:

- HAWs of Nepal: Basic concept and imperatives for conservation-Dr. Bhisnu B Bhandari
- HAW flora in Nepal Himalayas-Dr. Tirtha B Shrestha
- Biodiversity in HAW of Nepal- Dr. TK Shrestha
- Avian Fauna in the high altitude lakes of Nepal Himalayas – Dr. Hem Sager Baral
- The Himalayan initiative: Regional cooperation on the conservation an sustainable use of HAWs in the Himalayan region- Jacob Ferdinand
- Biodiversity resources of HAWs in Nepal: field studies of the Goasinkunda-Naukunda and Gokyo Wetlands-Jhamak B Karki, Mohan Siwakoti and Neera Shrestha Pradhan
- HAWs Conservation program: field experiences from the Dudhkunda and Salpa pokhari-Tsedar Bhutia

ii) Wetlands and Culture (Bhandari 2006)

(Articles in English)

- Wetlands the interface of nature and culture by Dr.Bishnu Bhandari
- Wetlands in Nepalese culture by Dr.Saphalya Amatya
- Wetlands and culture in Dang by D.P.Rajaure
- Historical importance of ponds in Nepal by Prof.Tek B.Shrestha
- Rivercult in Maithili culture and Chhatha by Dr.Ram Dayal Rakesh
- Wetlands in Hindu Religion and culture by Dr.Beena Poudyal
- Purity and pollution: the sighs of the sacred Bagmati river
- Bio-cultural and spiritual values of Ilams wetlands by Kamal Rai
- Religious wetland sites of the Gandaki Pradesh by Dr.Raja Ram Subedi
- Sacred high altitude wetlands of protected areas by Jhamak B.Karki

(Articles in Nepali)

- BED MA SIMSAR: SAMCHIPTA CHARCHA by Prof. Dr. Rishi Ram Pokhrel
- NEPALI CHARAHATUKO SANDARBHAMA KARNALIKA BAJ RA DAPHENIKO BAKHYAN by Ratnakar Devkota
- SAHITYA MA SIMSAR CHETRA by Yubraj Sharma Gautam
- KABI SIROMANIKA KABITAMA SIMSAR by Bom B.Thapa Jitali
- SIMSARMA MOULAYEKO SANSKRITI by Dr.Tirtha B.Shrestha
- HAMRO SANSKRITIMA SIMSAR by Satya Mohan Joshi

iii) Tilicho:

This workshop has been organized where 3 technical presentation was shared safeguarding the plants, biodiversity and bathymetric information. NTNC, Department of Hydrology and Metrology and independent researchers presented the papers. Due to its limited papers, this was not documented as publication which needs further studies to bring in to another workshop and Publication.

iv) Gosaitan-a sacred wetland in Nepal (Bhandari and Joo 2007):

In a series coordinated by Nepal wetland society, is the 4<sup>th</sup> workshop and focusing in a site as 2<sup>nd</sup> workshop, had three themes/sections with one paper in section 1 under non-material culture and in section 3 under policy suggestion by Dr.Bishnu Bhandari and 5 annexes (birds of the Langtang area, distribution of butterfly in Gosaitan, plants of the Gosaikunda wetland system, medicinal plants in the Langtang area and mushrooms species of the Langtang area). The core section 2 has 7 papers (mammals of Gosaitan by Jhamak B.Karki, Ornithological importance of the Gosaikunda area by Dr. Hem S.Baral, Butterflies of Gosaitan by Bhaiya Khanal, Floral diversity of the Gosaikunda wetland system by Dr. Mohan Siwakoti, ethnobotanical diversity by Ila Shrestha Pradhan and Keshav Shrestha, Mushrooms in the Langtang area

by Nina Pandey and Usha Budhathoki and pre-Buddhist shamanistic values of the Gosaikunda by Kirat Kamal Rai (Sampang).

v) Himalayan wetlands-risks, challenges and opportunities (Bhandari and Joo 2007):

The last in this series has 13 presentations ranging cultural, religious, folklore, biodiversity, Glacial Lake Outburst flood, wetland sites and policy analysis.

- o Himalayas and Himalayan wetlands by Dr. Bishnu Bhandari
- o Himalayan wetlands: A geological Perspective by Tara N. Bhattarai
- o Glacial Lake Flood Outburst Vulnerability Assessment by Arun B. Shrestha
- o Risk reduction in the Himalayas: A case study of the Tsho Rolpa by Kamal P. Budhathoki
- o flora of the Gokyo by Dr. Mohan Siwakoti
- o Important faunas of the Himalayas by Dr. Mukesh Chalise
- o Butterflies in and around Rara National Park by Bhairya Khanal
- o religious and cultural values of the Himalayan wetlands
- o Kirat folklore of the Salpapakhari by Kirat Kamal Sampang Rai
- o Mai Pokhari: A potential Mountain wetland for Ramsar site
- o Damodar Kunda and Titi Tal by Jhamak B. Karki
- o Legal and policy aspects of conservation of wetlands: opportunities and challenges by Narayan Belbase
- o The Asian wetlands inventory approach in the Himalayas by Sushil Pradhan and Rajendra Shilpakar.

### 2.3.6 WETLAND DAYS (DNPWC 2007: World Wetland Day Report):

i) Consortium was a need to consolidate to synergize the effect, felt in the 2005 wetland day celebration. In 2006 consortium has worked and expanded in 2007. In 2007, DNPWC's as a coordinating body by involving about 22 organizations has been effective. Consortium conducted the main national formal program including linking the other activities of the week by different organization. Issues raised in site were brought to the attention of the central policy maker from the local wetland management communities from Taudaha, Nagdaha, Ghodaghodi and Bagmati river near Kapundole. The report was brought for the first time in this 3 years consortium (WWD 2007 report) and content is as follows:

1. World Wetland Day 2007 report
2. Presentations on the theme-Fish for tomorrow
  - a. Toudaha-Menuka Karki, Local resident, Toudaha
  - b. Nagdaha-Umesh J. Pandey, member, Nagdaha Conservation development committee
  - c. Ghodaghodi tal- Daya R. Chaudhary, Coordinator, Ghodaghodi conservation and awareness forum, Kailali in support of TAL Program Nepal
  - d. Bagmati river around Kopundole-Rachita Gorkhali, Local resident, Kopundole
  - e. Discussion on regulations related to fish conservation in Nepal-Sankar P. Dahal, Senior Fish development Officer, Central Fish Laboratory, Balaju
3. Other activities of the workshop
  - a. Wetland day celebration-organized by IUCN, Nepal and American Embassy, Kathmandu
  - b. National Workshop (1 day)-Main Organizer Khowpa College, Bhaktapur
  - c. National workshop on water and wetland conservation in Nepal: sharing experiences and development of joint initiative-Main organizer Nepal River Conservation Trust
4. Miscellaneous programs
  - a. Activities organized by Bird Conservation Nepal
  - b. Activities organized by IUCN Nepal on Ghodaghodi area
  - c. Activities organized by Wildlife Conservation Nepal
  - d. Activities organized by Toudaha youth club and Karkatak Nagraja Nagrani habitat Toudaha society
  - e. Activities organized by Women Environment Conservation Committee
  - f. Activities organized by WWF Nepal through TAL program on its project site in Ghodaghodi lake area
  - g. Activities organized by YATRA

ii) Khowpa's college initiative:

As a member of the consortium and in the first day of the wetland week (1 Feb 2007), the students of KHOWPA college has organized a workshop where about 6 papers were presented (WWD 2007 report).

1. Scope of Fisheries in Wetlands Management for Livelihood Enhancement of Rural Community in Nepal by Dr. Tek B. Gurung
2. Study of Water Pollution of Hanumante River , Bhaktapur by Bhanu Bhattarai, Man K. Dhamala, Ram K. Duwal
3. Status and Potentials of Wetlands in Nepal by Jhamak B. Karki
4. Macroinvertebrates as Bio-Indicators in Lentic Environment by Ram D. Tachamo, Deep N. Shah, Hasko Neemann
5. Mapping high altitude wetlands-Lu Jhyuking, Ju Jyang Chu, and Rajendra Silpakar
6. Macro-intervention as an indicator of stagnant water environment-Ms. Ram D. Tamacho, Dip N. Sha and Hasko Nesman

iii) Popular articles and publications:

Every year Paryabaran Monthly (Nepali) publishes (ECO-Nepal) wetland related information. For example in 2006 Wetland special (Introduction of wetlands, importance and financial evaluation; Interrelationship of Conservation and sustainable livelihood; Fish for tomorrow: lively relation with wetlands; Some high and mid-hill wetlands of Nepal); Some wetlands of Nepal (KTWR, Phoksundo Lake, Ghodaghodi lake area, Birds are added in Nepal, Gokyo wetland series, Singjema wetland, Gokyo wetland series, Jagadishpur reservoir); Special information (Dolphin, WWF Nepal, DNPWC on conservation initiative) are provided along with the regular information's.

Similarly in 2007- Wetlands: SIMSAR: BISWOBYAPIKARAN RA DIGO BYABASTHAPAN, NEPALMA SIMSAR SANRAKCHANKA SAMBHAWANA TATHA CHUNOUTI' HAMRO SNASKRITI, SANSKAR RA SIMSAR, SIMSAR PRAKOPKO CHEKBAR-GRIBKO JIUNE ADHAR , RAMSAR SUCHIKARANKO PRAYASHTARPHA UCCHAHIMALI SIMSAR, GARIBI NIWARAN RA NEPALKA SIMSAR, DHARMA RA SNSKRITIMA SIMSAR, SANRAKCHAN CHETANAKO JADMA PUGDA, SIMSAR-NEPAL (KTWR, Beeshazar tal, Ghodaghodi tal, Jagadishpur reservoir, Dhoulapani/Bedkot/Satyawati tal/Jugadi tal/Chulipokhari/Mudka tal, SIMSAR-WORLD (WORLD BIG 12 AND 11 small wetlands information)(Paryabaran 2062 and 2063)

**2.3.7 Warden Seminar:** The 22<sup>nd</sup> Warden seminar held between 13-15 December 2005 had a theme "Wetlands for People: Challenges and Opportunities" where all the protected area managers have presented status on the theme. The resolutions passed related to wetland were:

- Initiation to develop Act and Regulation for the effective implementation of Wetland policy 2003
- PAs will develop factsheets of main wetlands located in their areas.
- Database of wetlands of PAs will be created and updated regularly.
- Conduct wetland resource inventory according to Ramsar criteria for Rara, MBNP, DHR, ACAP and MCA.
- Take necessary actions to build and strengthen the capacity of its staff in wetland conservation and management (DNPWC 2006).

**2.3.8 Research activities:** DNPWC provides permission to the researchers conducting their researches in protected areas. The trend of the researches in wetland/related to wetland biodiversity is almost constant in last three fiscal years with 5 out of 33 in 2059/60, 7 out of 34 in 2060/61 and 6 out of 41 in 2061/62,

**2.3.9 Declaration of Ramsar sites in High Altitude:** The report submitted by Nepal in the 9th meeting of the CoP committed to declare the 10 wetlands as Ramsar sites of which 4 have been already declared on 23<sup>rd</sup> September, 2007 from Nepal. They are Rara lake-Rrara National Park, Phoksundo lake-Shey-Phoksundo National Park, Gokyo and associated

wetlands-Sagarmatha National Park and Gosaikunda and associated lakes-Langtang National Park, the first high altitude wetlands declared as Ramsar sites in Nepal.

### 3. Future steps

#### 3.1. Translating policy in to acts and regulations:

The National wetland policy 2003 has been in implementation since its approval but effective implementation is only possible by incorporating these policies in to the Acts and regulations. Recently DNPWC has initiated consultation process to form new/amendment of the NPWC Act and this provides opportunity to include the adopted principles of the policy.

#### 3.2. Culture of synergies from national to global initiatives:

Strengthening Nepal National Committee of IUCN members and coordinating/communication while linking with local communities, preparation of national reports for CoP 10 and planning national level macro mapping of wetlands needs integrated work. The preparation of CoP has to be initiated at least 1 year in advance to act effectively for the benefit of country from Ramsar convention.

**3.3. Focus on high altitude:** As our wetlands of high altitude areas are store house of fresh water and termed as water towers, needed to implement activities shown in the report of RIS submitted to Ramsar Bureau.

**3.4 Inventory on mid hills:** If the regional level of work has to be initiated then the mid-hills are the areas where focus has to be given to inventory and mitigation of the adverse effects.

**3.5 Research and training in academia:** Most of the universities and colleges lack appropriate courses that help to understand the Nepal's wetlands, Rivers and glaciers. Manpower should be developed with long term research and sharing outcomes to concerned institutions and individuals through training and technology transfers. The impact of climate change on wetlands and biodiversity-livelihood is very much crucial. Students need to be used for such trainings and research.

The capacity enhancement, awareness and advocacy are cross sectoral need from Government to grass root users.

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