

General Survey on Restoration of Budho Holi Wetland Ecosystem for Biodiversity Conservation at Sanischare-9, Jhapa

- K.R. Rai

Introduction:

A wetland, locally called Budho Holi is located about 6 km north from Birtamode, Jhapa. It is included in Sanischare VDC ward No 9; Goldhap. As it was observed on Dec 5, 2004; found surrounded with sal (*Shorea robusta*) dominated forests. Now it is included in "Sukhani Shahid Smriti Pratisthan, Nepal" occupying an area of 22.4 hectares. Previously this forested area was under the domain of "Namuna Samudaik Ban Samuh" having an area of 100 hectares. Presently, HMG has provided this sector of forested land extracting from the community forest group declared to establish "Sahid Smarak Park". As observed all sides of the wetland, its north side Bhimsen ghat, lying on the way to Sanischare- Charali road. East, Salbari road, south cultivated land with small village, and west forest cum cultivated paddy land respectively. Besides it, a concreted walled proposed square park is located at the narrowing middle part of the wetland. Regarding its origination, it was identified an old course of Aduwa river. First it was dammed a few Km north and the main stream was diverted to west side for irrigation. The seeping from the dam and old course again drained formed a small flow continues to southwards but again it was dammed at Upreti's house. So it was also called Upreti Khola. This Khola also dammed at the mouth of the Budho Holi and channeled to irrigate the paddy field. Due to such human exploitation of the small stream at several segments, the old course of the river became drained and has been form a big depression having about 3 meter depth at the center. So now the Budho Holi seems marshy and wetting with seeping water all the year.

Objectives

The objectives of the study may cover the existence of different kinds of animals and plants, which make a balanced environment, are:

1. To study the biodiversity around the Budho Holi (wetland)

2. To proceed preliminary EIA so as to recommend for damming inlet and outlet of Budho Holi
3. To rehabilitate the pond ecosystem for nature conservation
4. To utilize the pond for breeding purpose of wildlife (endangered species) in in-situ condition after restoration of wetland ecosystem: such as turtles, gharials, crocodiles etc.
5. To protect local indigenous timbers and medicinal plants around the wetland.

Research site

Wetland formed by the old course of Aduwa River presently called Budho Holi, within the premises of "Sukhani Shaheed Smarak Park".

Methodology

Survey methods with several field trips for observation and collection of specimens for recording the biodiversity of plants and animals. At least 6 months data is necessary to analyze the preliminary environmental impacts report.

In the adhoc method, the assessor relies on initiative approach and makes a broad based qualitative assessment. In certain circumstances, an adhoc assessment may be the only one but it may also serve as a preliminary assessment which helps in identifying more important areas.

Present Situation:

Presently, it is a big depression east-south side having narrowing middle part near proposed park and smaller depression to the north-west portion with small dammed feeding source. In both depression, covered with aquatic weeds (Bryophyte, Pterydophytes etc.) forming marshy land. Seeping water from the small dam built between Aduwa and its mouth, has made wetland for the whole year. It is completely surrounded with Sal forest and little scrubs and grasses are growing within the canopy of the trees. Many aquatic macro-invertebrates, local fishes, amphibians, reptiles, birds and mammals are present at the moment, which are listed as follows:

- Climatic data: temperature, humidity, rainfall etc.

- Lab. tests: soil test, water test etc.
- Air quality: oxides, chemicals, odours, gases, particulate matters etc.
- Recreation: scenery, structures etc.
- Biological condition: wildlife (invertebrates, vertebrates), trees, shrubs, grasses (herbs, cryptogams) etc.

Expected Results

After preliminary investigation on Budho Holi, the results may occur as follows:

- i. Listing of existence of biodiversity (plants and animals)
- ii. Could be adopted the aquatic wild animals for conservation (Amphibians: *Microhyla rubra*, *Rana nigrovittata*, *Limnonectes pierrei*, *Polypedates teaniatus* etc & Reptiles: *Aspideretes hurum*, *A. gangeticus*, *Lissemys punctata*, *Pangshura flaviventer*, *Cyclemys oldhamii*, *Melanochelys tricarinata*, *Indotestudo elongata*, *Gavialis gangeticus*, *Crocodylus palustris*, *Varanus flaviscens*, *Gekko geckos* etc)
- iii. Could be adopted the endangered timbers and medicinal plants within the rehabilitated wetland ecosystem. (Such as: *Shorea robusta*/Sal, *Accacia catechu* / Sissou, *Cyathea spinulosa* / Rukh uniu, *Dioscorea deltoidea*/ Ban tarul; *Cycas pectinata* / Thakal; *Dalbergia latifolia*/ Sati sal; *Pterocarpus marsupium*/Bijaya sal; *Asparagus recemuous*/Kurilo; *Raulfia serpentine* / Chand maruwa; *Piper longun* / Pipla; *Acoramus calamus* / Bojho etc.)
- iv. Could be prepared a preliminary report of EIA for further programming.
- v. Could be utilized the main pond for scientific research purposes
- vi. Could be used for recreation purposes: such as revenue collection from visitors.

Master Work plan

As the whole the Project on the Restoration of Budho Holi Wetland Ecosystem should be divided in the following phases:

A. 1st phase: Survey on Biodiversity and preliminary report on EIA to prepare DPR:

This first phase will be conducted by monthly data collection from the research site up to 6 months with break down as following headings:

- First 2 months: Sampling of plants and animals
- Second 2 months: Data analysis
- Third 2 months: Report writing and Presentation

B. 2nd phase: Construction of Dams so as to rehabilitate pond ecosystem

C. 3rd phase: Recreational managements

D. 4th phase: Arrangement of conservation program for wildlife

Scientific Collaborative Arrangements

This project will be run collaborating with ARCO-Nepal and ECS-Nepal. The research site is under the ownership of Sukhani Sahid Smarak Committee. Therefore, both organizations should extend scientific collaborative arrangement to Sukhani Saheed Smarak Park Committee for permission and understanding mutually.

Collaboration for Budgeting

1. **1st phase:** Preliminary survey: First of all, the required budgeting for preliminary survey will be requested to District Development Committee, Jhapa (HMG, Ministry of Local Development) under the permission of Sukhani Saheed Smarak Pratisthan, Jhapa with a reliable proposal. The budget should cover for 6 months' preliminary survey work plus report writing.
2. **In 2nd phase:** Construction of dams: after preparation of detailed project report, ARCO-Nepal will be requested to invest budgeting to dam the outlet and inlet of Budho Holi for restoration of wetland ecosystem (fig. 1) to conserve the turtle fauna (budget estimation will be prepared after DPR).
3. **3rd phase:** Budget for recreational arrangements: other interested NGOs/INGOs should be requested according to the planning of

Sukhani Saheed Smriti Pratisthan, Jhapa so far (budgeting will be later on).

4. **4th phase:** Turtle Conservation Program: ARCO-Nepal will establish a MOU with Sukhani Saheed Smriti Pratisthan and Namuna Community Forest Group to continue turtle conservation project for certain period (such as 5 years, 10 years, or 15 years with technical and financial support)

Investigators:

Principal Investigator:

1. K.R. Rai (Eco-heretology)

Co-investigators:

2. Pushpalal Humagain (Industrial Chemistry)
3. Krishna Prasad Bhattarai (Botany)
4. Prem Kumar Shrestha (Inorganic Chemistry)
5. Ganga Adhikari (Journalism/Nepali)
6. Gita Shrestha (Biology)
7. Omkant Koirala (Physics)
8. Laxmi Prasad Mainali (Legal advisor)
9. Deo Narayan Majhi (Math/Statistics)

(with bio-data)

Other information:

Memorandum of Understanding (MOU) could be developed with:

1. ARCO-Nepal: Amphibians and Retiles Conservation, Nepal; University of Munich, Kaulabach Stre, Germany
2. ECS-Nepal: Environment Conservation Society, Nepal; Bhadrapur-5, Jhapa, Nepal.
3. Sukhani Saheed Smarak Park Project: Sukhani Saheed Smriti Pratisthan, Jhapa Nepal.
4. Other NGOs & INGOS: RONAST, KMTNC, IUCN, WWF etc.

During the survey and data collection other experts in this field are requested to visit in the research site to render their suggestions and experiences. For this purpose, the following experts team will be available for the whole period of the study of Budho Holi Wetland Ecosystem Restoration Project.

Name of Experts:

1. Management: Dr. Nil Prasad Timsina, Mechi Campus, Bhadrapur
2. Botany: Dr. Mohan Sivakoti, Natural History Museum, T.U., Kathmandu.
3. Ecology: Dr. Madan Koirala, Environmental Science, Kirtipur, Kathmandu
4. Nepali/culture: Dr. Drona Kumar Upadhyaya, Mechi Campus Bhadrapur, Jhapa

Advisory Board:

1. Prof. Dr. Umakant Ray Yadav; CDZ, T.U., Kirtipur, Kathmandu
2. Prof. Dr. Hermann Schleich; Guest Prof. of T.U.; Munich University, Germany
3. Prof. Dr. Ram Bahadur Thapa, PG Campus, T.U.; Biratnagar
4. Dr. Bharat Raj Subba, Chairman, Zoology Department, PG Campus, T.U.
5. Dr. Minraj Dhakal, Chairman, Botany Department PG Campus, Biratnagar
6. The Campus Chief: Mechi Multiple Campus, Bhadrapur, Jhapa

Conclusion

After rehabilitation of the Budho Holi pond ecosystem, the following will be the main output:

- i. When the ponds are established, the environment will be changed drastically into more humid up to 1 km periphery.
- ii. In such newly established pond ecosystem, several humid loving plants and animals may come migrating from far and near so as to create rich biodiversity.

With references to the above consequences, we would like to conduct the scientific research work for bionomic products under certain term and conditions. First we would like to request for permission to run such project within the premises of Sukhani Saheed Smriti Park Pratisthan (Academy) and Namuna Community Forest Group, Salbari. We

expect the preliminary budget from DCC, Jhapa, as mentioned above. Thereafter, we would request to ARCO-Nepal for budgeting and technical support to build damming at three places as shown in fig 1. When the damming will be completed, the new pond ecosystem will take to stabilize a few months for introduction the turtles and other possible endangered plants and animals. The remaining phases of master plan will be run accordingly.

Map of Proposed Research Area:

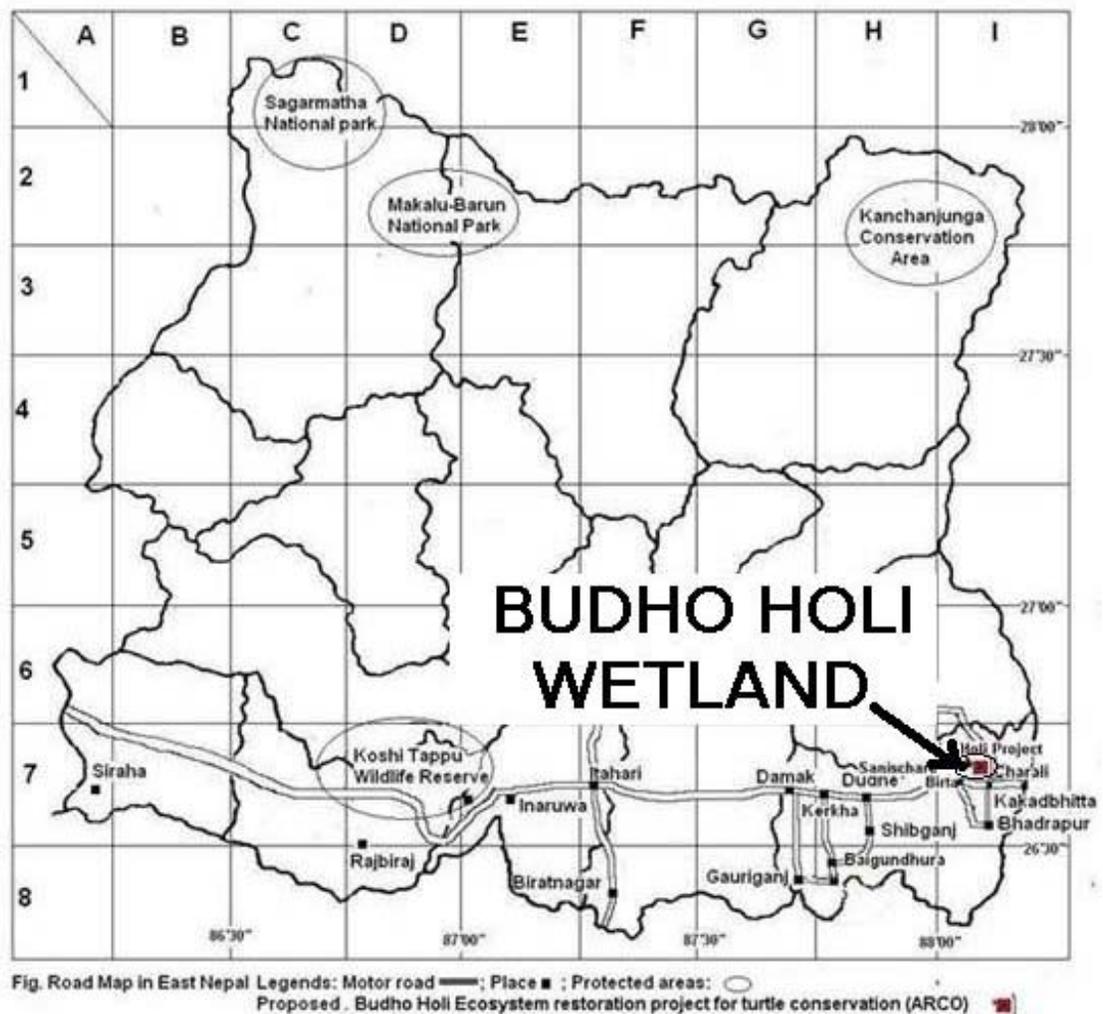


Fig 1: Showing the location of Budho Holi Wetland in the map of EDR of Nepal (Rai, 2003)

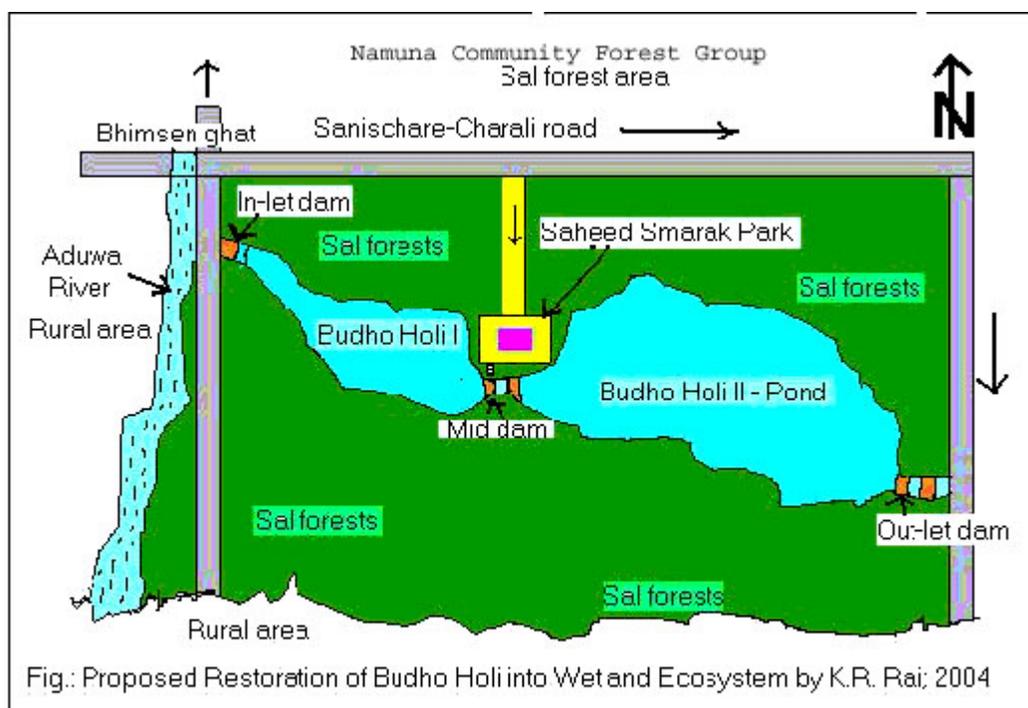


Fig. 2: Location of Proposed Project Area; Sanischare-9, Jhapa, Nepal (map non-scaled)

Application:

This proposal has applied to DDC (District Development Committee), Jhapa for implementation as a preliminary scientific research survey to conserve the biodiversity by rehabilitating the wetland ecosystem.

Proposal Prepared by

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And

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