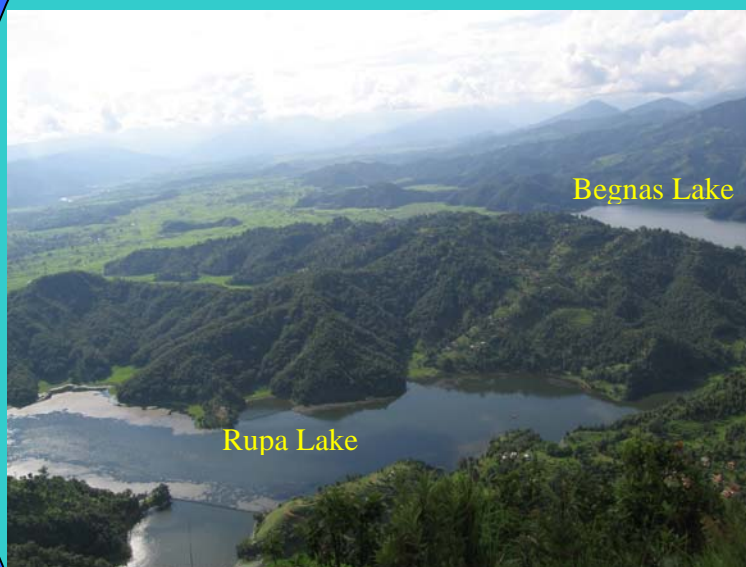


STRENGTHENING COMMUNITY BASED CONSERVATION APPROACH FOR SUSTAINABLE MANAGEMENT OF RUPA LAKE ECOSYSTEM

**Final Project Report
RSG 35.07.06, Dec 2007**

**Submitted to
The Rufford Small Grants
Foundation, UK**



**Submitted by
Erica Udas and Team**

ACRONYMS:

BCN- Bird Conservation Nepal

BICORF- Biodiversity Conservation and Research Forum

CBO- Community Based Organization

CONFORM- Community Forest Management Project

DED/Nepal- German Development Service Nepal/ Deutscher Entwicklungsdienst

DEO/Kaski- District Education Office, Kaski

DSCO/Kaski- District Soil Conservation Office, Kaski

FGD- Focus Group Discussion

HRDC- Himalaya Research and Development Center

I/NGOs- International/Non-Governmental Offices

IPM- Integrated Pest Management

LI-BIRD- Local Initiatives for Biodiversity Research and Development

NARC- Nepal Agriculture Research Council

RLRFC- Rupa Lake Restoration and Fisheries Cooperative

SALT- Sloping Agriculture Land Technology

SHEAC, IOF- Self Help Environmental Awareness Campaign, Institute of Forestry

VDCs- Village Development Committees

Table of contents

Acronyms

Table of Contents

Acknowledgements

1. Introduction

2. Project site

3. Target groups

4. Objectives

5. Project implementation cycle/Methods

6. Complete project activities

7. Coordination and networking with partners

8. Evaluation and indicators of outputs

10. Lesson learnt

11. Future prospects

12. Final Financial Report (Nov 2006 to Dec 2007)

13. Some glimpses of the project activities

List of Boxes

Box 1 Facts of Rupa lake

Box 2 Notion about mushroom

Box 3. Letter: The Samrakcchan radio program really helped me in my exams

List of Tables

Table 1. List of project groups identified for program implementation

Table 2. List of seeds in the Diversity Kit distributed to farmers

Table 3. List of species planted in Rupa lake and its watershed areas

Table 4. List of women groups participating in folk song tour

Table 5. List of ornamental plants planted in Lekhnath Municipality

Table 6. Winners list of biodiversity and wetland song competition

Table 7. List of participants in inter school painting competition (Primary level)

Table 8. List of participants and others in inter school essay competition (Primary level)

Table 9. List of schools participating in inter school quiz competition (Secondary level)

Table 10. List of networking and collaboration partners of project

ANNEXES

Annex I. Program schedule for mushroom cultivation training

Annex II. Detail program schedule for nursery management and composting training

Annex III. Program schedule for bird identification and bird watching training

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Project team
(Erica Udas, Project coordinator)
(Megh Dhoj Adhikari and Niraj Adhikari, Project officers)

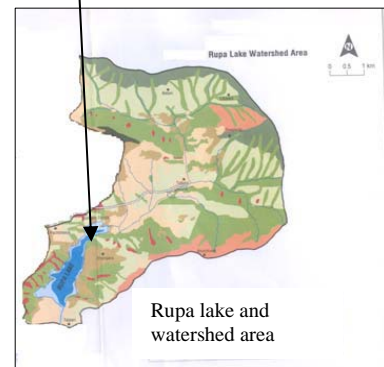
1. Introduction

1.1 Background

Nepal is a mountainous country with a total area 141,787 square kilometers. The country is second rich in its water resources and has many fresh water rivers, lakes and gorges. There are altogether 8 lakes in Pokhara Valley along with other small ponds.



However, the seven lakes of the valley lies in Lekhanth municipality viz. Begnas, Rupa, Dipang, Khaste, Maudi, Gunde and Neureni. Rupa lake is the third biggest lake in Pokhara Valley of Nepal covering 115 hectare area with an average water depth 3 m. It is situated 6 km east from the valley at an elevation about 600 m asl. The lake is elongated north to south and is fed by perennial streams.



The main inflow of water is from *Talbesi* stream, whereas *Dhovan khola* is the feeder stream with its outlet *Tal khola* at *Sistani ghat*. The lake has a maximum water capacity of 32.5×10^5 cu m. According to wetland classification, Rupa lake is classified as a shallow, advancing eutrophic lake with marshes and rice fields along the shore.

The watershed area encompasses 60 km² areas at Rupakot, Majhthana, Hansapur VDCs and Lekhnath municipality. The mean annual temperature and annual rainfall are 20.9°C and 3979 mm respectively (Rai and Bista, 2000). The watershed area to the east of the lake is covered with mixed forest of *Schima wallichii* and *Castanopsis indica* and hill slope to the west is covered partially with vegetation and partially by cultivated land. The northern slopes are privately owned terraced land for growing agriculture crops and some floating aquatic vegetation, triaging grasses and rice fields are found in the shoreline.

The lake not just rich in biodiversity but also has religious, social and economic value. It is a habitat of endangered and threatened biodiversity such as- white lotus, wild rice, *Narkat*, Otter and many water ducks. The lake harbors 1 endangered mammal, 4 threatened plants, 40 fishes, 33 birds and 4 amphibians (Oli, 2000). Some ethnic groups like Majhi, Jalahari and other pro-poor are totally dependant on wetland resources for their livelihood.

1.3 Conservation Issues in Rupa Lake

In recent scenario, the Rupa lake ecosystem is vulnerable and in the verge of extinction due to continuous sedimentation and landslide from watershed area. The elderly local people living in vicinity of lake opines that in year 1964 the lake area

Box 1. Facts of Rupa Lake

Location:	Lekhnath municipality, Pokahara, Nepal
Area:	115 hectare
Avg depth:	3 meter
Altitude:	616 m asl
Trophic level:	Eutrophic

was 215 hac but current data in year 2000 shows that it has reduced to 115 hac. Similarly, ecological environment of Rupa lake is also deteriorating gradually due to increased anthropogenic activities within watershed area like- lake area encroachment, unregulated infrastructure development and rural road construction without environmental studies, inefficient farming practices even in slopes more than 45°, use of chemical fertilizers and pesticides, electro-fishing and poisoning, commercial fish farming and lack of awareness. These activities accelerate soil erosion enhancing sedimentation (physical threat) and increase water fertility leading eutrophication in lake (limnological threat) thereby increasing unnecessary aquatic weeds growth declining indigenous species and habitat loss of important biodiversity (biological threat).

Therefore, strengthening community action plans and awareness were realized in lake and watershed areas of Rupa lake. So, this project aimed to support community based

conservation activities for sustainable management of lake ecosystem through capacity building, conservation activities and awareness programs.

2. Project sites

The surrounding peripheral areas in the lake vicinity of Rupa lake and its catchments were the project command areas. Lekhnath municipality 10, 11, 14; Rupakot VDC 3, 6; Majhthana VDC 4, 5 and Hansapur VDC 7, 9 were identified as the major pocket areas for the project program and its implementation.

3. Target groups

Women: Women groups formed at community level are not only responsible for many kind of social and development activities but are also engaged in day to day household works. Their activities include cleaning and feeding livestock, fuel and firewood collection and grasses and forage collection. This makes them the primary users of the natural resources. Therefore, increasing awareness on biodiversity and access to resources for these groups can help promote conservation of wetland ecosystem. The project aims to mobilize women groups for sustainable management of lake biodiversity and to aware local people on lake ecosystem services.

Youths: Youngsters of today are the planners, researchers, and development workers of tomorrow. Therefore, youths need to get acquainted with social, political, economic, and environmental scenarios of the country for its development. Since youths can be both creators and destructors; it is envisioned that mobilizing local youth groups in conservation and management of Rupa Lake ecosystem will minimize illegal hunting and poaching of wild life and birds; over fishing and poisoning; and over harvesting of grasses and fodder.

School children: In Nepalese context, academic curricula of school level (primary and secondary) are still conventional type with little focus on environmental problems and less priority in practical classes. The school children are basically laden with theoretical subjects whilst environmental and biodiversity education is limited. It is essential for students to have knowledge about their surrounding environment and ecosystems to realize the importance of all lives and their contribution to human beings. The Rufford granted project target these groups to molding brains of school children towards conservation of wetland and biodiversity as a whole through various awareness programs.

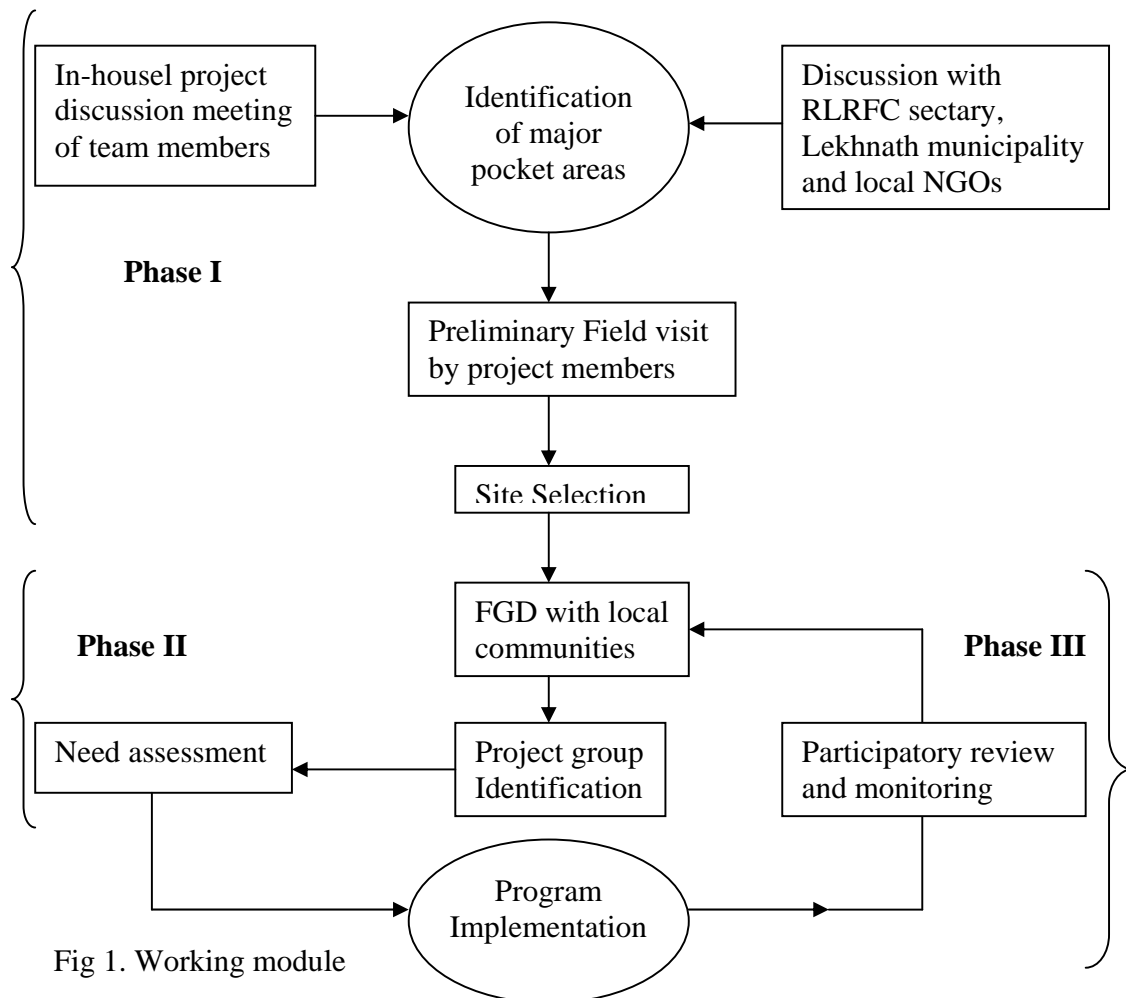
Farmers and farmers' group: Nepal is a mountainous country and almost 90% of Nepalese people are farmers and their livelihood depends on agriculture. Farmers practice traditional subsistence based farming systems and limit technical know how due to which tones of top-soil loss occur from the sloping lands every year. The intensive agricultural practices in the lake vicinity and at watershed areas had deteriorated Rupa lake day by day with deposition of soil and debris along its side which are carried out by the feeder streams. Therefore, farmers and farmers' group at upstream and lake periphery are targeted in this program to strengthen their capacity for sustainable land use management ultimately, targeting for conservation of Rupa lake. The project also targets to aware them on impact of their farming practices on lake deterioration and helps minimize it through plantation and demonstrating Sloping Agriculture Land Technology (SALT).

4. Objectives

The project has following objectives-

- a. To strengthen community capacity and promote community based wetland resource management for conservation and sustainable use
- b. To create awareness amongst target group about the importance of wetland biodiversity management for sustainable livelihoods

5. Project implementation Framework/Methods



5.1 Site selection and group identification phase

The project team visited Rupa lake Restoration and Fisheries Cooperative (RLRFC) to explore major pocket areas in lake and watershed areas that attribute in deteriorating ecology of Rupa lake. Informal meetings were organized with officials of Lekhnath municipality and a local NGO, LI-BIRD working in the area to assess potential project sites for program intervention. A preliminary field visit was done by the project team in lake



and watershed area before finalizing project sites. As a result of consultation with local people, local line agencies and field observation, 5 pocket areas in Majhthana VDC, and Hansapur VDC, Lekhath municipality (Jyamire, Betyani, Kaure, Kholabensi and Ditha Gaun) at watershed area and 4 pocket areas in Lekhnath municipality and Rupakot VDC (Sundari Danda, Sisteni, Bhangara and Jamankuna) at lake areas were identified. Altogether 7 CBOs, 3 women groups and 3 youth clubs were identified for project intervention in initial stage (table 1).

Table 1. List of project groups identified for program implementation

SN	Names of groups	Address
Watershed areas		
1	Jyamire CBO	Majhthana VDC-5
2	Betyani CBO	Majhthana VDC-4
3	Kaure CBO	Hansapur VDC-9
4	Ditha Gaun CBO	Hansapur VDC-7
5	Kholabesi CBO	LM-10
6	Sri Trishana Youth Club	Majhthana VDC-5
Lake areas		
7	Sundari Danda Women group	LM-11
8	Bimirekuna Fish Enclosure group	”
9	Unatisil Women group	LM-14
10	Jamankuna Women group	Rupakot VDC-6
11	Janasakti Youth Club	”
12	Rupa Sprinkle CBO	Rupakot VDC-6
13	Sahansil Youth Club	”

5.2 Project orientation and farmers' need assessment phase

At watershed areas

The identified groups at watershed areas of the project sites were oriented about the project objectives and activities during initial visits by team members. Farmer's need

assessment was done in a series of FGD for an effective implementation of the project activities and to address and incorporate their requirements.

The output of farmers need assessment are listed below-

- a) Farm manure management and compost making
- b) Technical backstopping in sustainable farming practices
- c) Training on insect pest management (IPM)
- d) Training on bio-fertilizer and pesticide making
- e) Seasonal vegetable seeds, fodders and grasses demand
- f) Adult education program



At lake areas

The identified groups at lake areas of the project sites were also briefed about the project objectives. The groups at the vicinity of the lake areas are key actors for lake management and their roles to conservation are most important. Their view to Rupa lake for its long term conservation is dam construction. But, this requires detail illustrative study and huge budget. Recent alternative for this is to minimize siltation in lake through plantation and gabion boxes at small streams and gullies. The Rufford project limit budget for gabion boxes so more focus will be done in plantation activities as planned in the work schedule. The output of farmers need assessment are listed below-

- a) Supply of adequate fodder and grass to livestock
- b) Identification of important wetland resources
- c) Seasonal vegetable seeds and awareness programs on wetland
- d) Dam construction in Rupa lake to raise water level

The in-house meeting of the project team decided to incorporate some of the activities and make certain adjustments in planed activities that had been submitted to Rufford small grant program before the project inception period. These new activities are- farm

manure management and compost making, bio-fertilizer and pesticide making, training on IPM and seasonal diversity kit (vegetable seeds) distribution.

5.3 Feedback collection, Planning and Group Reformation phase

The project team conducted a planning meeting to collect feedback from the communities involved in the project and also to make a solution on the conflict situation that the program faced during the project time due to LI-BIRD officials. The team visited community groups at lake and watershed areas to know about community interest on the Rufford project activities and their commitment to carry out the programs. Most of the local community view that Rufford funded project activities is essential and they said that all conservation oriented development workers can implement programs in Rupa lake. They perceived that those organizations which have good motive on environmental conservation concerns are always welcome to show their positive impacts to the community and strengthen them with resource and knowledge. Hence, the members of almost all groups in the project area were supportive and willing to accomplish programs in stated time duration. Only, Sundari danda women group of Lekhnath municipality-11 dropped out from the program (may be due to LI-BIRD Site office is situated in that place) and instead another group very keen in conservation of Rupa lake were included ie Bharpola Mahila Samuha, Rupakot-3 from the watershed area. This decision was done in mutual agreement and it did not impact to the planned project activities. Hence, the target communities were changed and reformed after the mid of the project period. However, there were altogether 13 groups (Farmer's CBOs, women groups and youth clubs) as it was the beginning of the project.

6. Complete Project activities

Activities of objective 1: To strengthen community capacity and promote community based wetland resource management for conservation and sustainable use

6.1 Strengthening community based wetland resource management

Unnatisil women group, Bimirekuna fish enclosure group and Janasakti youth club were identified for habitat conservation of bird diversity, white lotus and wild rice respectively as they were involved in such activities in past too. Hence, these groups were strengthened in managing the wetland resources of Rupa lake. Unnatisil women group allocated area about 1.5 hectare at *Kande ghat ko jalo* for bird habitat conservation and management. The members restrict harvesting of grasses at this place during peak breeding season of birds to provide suitable habitat for residential as well as migratory birds. They are also conserving white lotus plants growing in the area and plan to make its business plan in a small scale production and marketing (flower, seeds, stolen). The Unnatisil group was also provided with **Conservation Fund** of NRs 5000 for management of birds habitat. Similarly, Bimirekuna Fish enclosure group is also involved in white lotus diversity conservation at the inlet marshes of the Rupa lake. Wider dissemination of medical importance of White lotus in Rupa lake had increased opportunities to explore in local market business. Likewise, an agreement was done with Janasakti youth club for bio-fencing maintenance that surrounds wild rice conservation area (approximately 0.45 hectare) according to which species like- *Sajiwan*, *Asuro*, *Simali* etc were planted as live fences. There are two types of wild rice found in Rupa lake *Oryza rufipogon* and *Leersia hexandra*. The bio-fence is used for protection of wild rice conservation area from external influences (human activities, livestock etc).

6.2 Strengthening community capacity in habitat management

One day training on habitat management was conducted a community level where birds' habitat management and conservation was focused the most. The training was conducted in collaboration of Birds Conservation Nepal, Pokhara branch. Altogether 39 participants from 3 women



groups and 2 youth clubs participated in the training. There were 24 female and 15 male participants. Mr. Manfred Mausolf, referee of the project attended the training as a chief guest and the community heartily welcomed him with bouquet of flowers. The major zest of the training was on bird identification and bird watching so as to aware local people on different ecological habitats of birds and their unique behavior in the ecosystem. The training was divided into three sessions viz Knowledge imparting presentation session, Bird documentary show session and Field visit for bird watching and identification.

Two documentaries show viz Vulture conservation produced by BCN was shown in nepali version and Wild Mundi- Birds, executive producer William Mac Abian was shown in English version during the training for mass as a means of visual mass awareness. Similarly, coordination with other Rufford grantees was done during the



training program to elaborate on other conservational issues of wild animals. Mr Bishnuhari Wagle, Crocodile conservation awareness program and Mr. Suman Bhattarai, Partnership for Rhino conservation provided 30 pieces of conservation copy for distribution to participants in the training. The detail program schedule of the training is given in annex I.

Resources used in training

1. PowerPoint display in a Computer
2. Multimedia display (LCD)
3. Documentary films
4. Bird's posters
5. Binocular
6. Nepal Bird Identification Book
7. Stationary (conservation copy and pen)

6.3 Promoting Organic farming and alternative income generation activities

a. Training on Organic farming and composting

Organic farming and compost making training was conducted at field level to reduce the impacts of chemical fertilizer used in watershed areas and making farmers self resilient to use local resources as organic manure so that this contribute in minimizing algal bloom and eutrophication of Rupa lake. The training



was organized in coordination with BICORF-Kaski. Altogether there were 17 participants from 4 groups, viz. Bharpola Mahila samuha from Rupakot-3, Betyani group from Majhthana-5, Mishrit women group from Dithagaun Hansapur-9 and KIDEKI from Lekhnath-10. The majority of participants were from Bharpola Mahila Samuha (women group). This women group was newly formed and was dedicated to organic production of agricultural crops. None of the members have participated in any kind of trainings before and almost all members belong to poor and have little access to knowledge and resources. Hence, they were provided major opportunities to participate in the training.

Mr Bishnu Shrestha from BICORF was a resource person facilitating in nursery management and organic farming for a day while Mr Yagyamurti Khanal also a resource person from BICORF facilitated the training entitled Compost making and integrated pest management (IPM) the other time. Similarly, the training facilitators also supervised farmers in the field and provided technical assistance in a community block owned by Bharpola Mahila Samuha. The Bharpola women group was provided with plastic sheets, watering can and diversity kit of vegetable seeds prior to nursery



preparation for commercial vegetable production. The training was very effective to acquaint farmers about the use of local bio-resources as green fertilizer as well as organic insecticide/pesticides. The details of the training are given in annex II.

Resources used in training

1. Brown paper, marker
2. Flip chart
3. Pictures
4. Handouts of organic farming and composting
5. Stationary (copy, pen)

b. Training on Mushroom production

Two days theoretical and practical mushroom production training was conducted at Kholabensi, Lekhnath-10 to enhance the livelihood of local community through alternative income generating options so that their dependency on agricultural land at steep slopes in watershed

area decreases and they perform minimum tillage to reduce soil loss. Altogether 27 participants, 7 male and 20 female from 5 community groups viz Kholabensi, Jyamire, Betyani, Kaure and Ditha gaun at watershed area of Rupa lake participated in the training. It was noteworthy that number of female participants in the training was

encouraging. They were very interested also, since most of them do not know about mushroom cultivation. The detail of training schedule is given in annex III



A regular monitoring was done after the training till mushroom harvesting period. A total of more than 24 Kg mushroom was produced in a series of three to four times harvest. The produced mushroom was distributed to each participant's households to taste. In coming season, the participants have committed that they will produce mushroom not only to eat but also to sell in market too.

Box 2 Notion about Mushroom to local people

Among the total 27 participants present in mushroom production training, only 3 participants who were Ex-Army of India had taste of mushroom while others have not tasted yet! During the query about this, it revealed that the local people do not know about commercial mushroom cultivation and also about its market in the town.

On the other hand they also said that they do not consume wild mushroom found in the forest areas since they have heard from different media that in some parts of the country, whole family members have died due to consumption of wild mushrooms which are poisonous. The participants were unknown to differentiate edible mushrooms with the poisonous one. So this training had helped them explore many new findings and method of its cultivation for family nutrition as well as the opportunity in local market for income generation.

Resources used in training

1. Brown papers, markers, Flip charts
2. Mushroom spores
3. Spirit/Alcohol as an astringent for sanitation
4. Paddy straw
5. Plastic sheets and plastic bags
6. Sickle, Knife, Rope, Firewood, Drum etc
7. Bamboo stands for storing mushroom balls

C. Diversity Kit distribution

The distributions of diversity kit (vegetable seeds) were included in the program during the need assessment with farmers in lake and watershed areas of Rupa lake. Since, most of the people are dependent in subsistence type of farming system it is assumed that the

distribution of vegetable seeds with diverse choices will help them motivate to commercialization of their products at local markets.

Seeds of various vegetables for rainy season planting were provided to individual farmer groups of the project sites during August. Each group was encouraged to develop a **Community nursery** management for production of seedlings. The community nursery was established for vegetable seeds like- Cauliflower, Cabbage, Tomato and Broccoli. But due to heavy rainfall, only 40-45% of the seeds germinated and transplanted in field. The list of vegetable seeds provided in a diversity kit to the farmer groups is illustrated in table 2.

Table 2. List of seeds in the Diversity kit distributed to farmers

SN	Vegetable seeds	Remarks
1	Red Raddish (<i>Pyuthane Rato Mula</i>)	The italic words in parenthesis denote the vernacular names of vegetables in Nepali.
2	Carrot (<i>Gajar</i>)	
3	Cauliflower (<i>Phulgobi</i>)	
4	Cabbage (<i>Banda</i>)	
5	Broccoli (<i>Brocauli</i>)	
6	Tomato (<i>Gol-bheda</i>)	
7	Coriander (<i>Dhania</i>)	

6.4 Organizing plantation activities at open and degraded lands

Prior to the plantation activities a series of group discussions were done at community level for their need assessment and to avoid any duplication in the area. Most of the community demand fodder tree species, grasses, fruits, ornamental species and bamboos. These seedlings were ordered in different private nurseries at Kaski, Tanahaun and Chitwan districts before the plantation. Similarly, fodder species were also ordered in a nursery owned by the District Soil Conservation Office (DSCO), Kaski.

The plantation was carried out within the lake periphery areas and watershed areas in open lands and degraded slopes. Likewise, some fodders and ornamental plants were planted in homestead farms, school province of Shanti Rupa Primary School, Barathok, Rupakot-7 and along the rural roadsides to increase aesthetic value and reduce soil erosion and landslides. The details of plants species is listed in table 3. It is assumed that the plantation activities carried out in the area increase soil stabilization and minimize soil loss. This will also help increase the aesthetic value and scenic beauty of the area and improve micro environment conditions.



Table 3. Lists of species planted in Rupa lake and its watershed areas

SN	English names	Scientific names	Vernacular names
A	<i>Fodder species</i>		
1	-	<i>Artocarpus lakoocha</i>	<i>Badahar</i>
2	-	<i>Ficus semicordata</i>	<i>Rai Kahnayu</i>
3	Persian bead tree	<i>Melia azedarach</i>	<i>Bakaino</i>
4	-	<i>Litsea monopetala</i>	<i>Kutmiro</i>
5	-	<i>Ficus nimoralis</i>	<i>Nimaro</i>
B	<i>Ornamental species</i>		
6	Gulmohar	<i>Delonix regia</i>	<i>Gulmohar</i>
7	Bottle brush	<i>Callistemon viminalis</i>	<i>Kalki phul</i>
8	-	<i>Albezzia species</i>	<i>Siris</i>
9	Camphor	<i>Cinnamomum camphora</i>	<i>Kapoor</i>
10	Cinnamomum	<i>Cinnamomum tamala</i>	<i>Tejpat</i>
11	Pine	<i>Pinus roxburghii</i>	<i>Khote salla</i>

C	Grasses		
12	Bamboo	-	<i>Bans</i>
13	Broom grass	<i>Thysanolaena maxima</i>	<i>Amriso</i>
D	Fruit species		
14	-	<i>Choerospondias axillaries</i>	<i>Lapsi</i>
15	Guava	<i>Psidium guajava</i>	<i>Amba</i>

6.5 Sloping land management at watershed area

Deposition of soil and debris in Rupa lake estuaries due to siltation from watershed areas and its periphery agriculture land is a serious problem that had been identified in many studies done previously. The land use pattern in the watershed area is intensive where farmer practice agriculture in slopes more than 45°, though there are a terracing systems, bunds and boundaries as traditional methods of sloping land management, a scientific method is lacking. Hence, demonstration of sloping agriculture land technology (SALT) in watershed area was felt necessary as a control measure to reduce siltation from the areas.

The SALT was demonstrated in a private sloping land of Mr Chabi Prasad Subedi, a farmer at Kholabensi, Lekhnath-10 in an area of approximately 1 *Ropani*. An orientation about SALT was given to local farmers of the area prior to demonstrating at field. They were acquainted about impact of siltation from watershed areas to the



lake downstream, about making A-frame, about scaling and leveling of the A-frame, designing contour lines and method of planting perennial crops and grasses in contours and in between those contours. After the orientation, farmers were mobilized in the field to demonstrate SALT so that they get more acquainted while learning practically. Multi

purpose grass species like broom grass were planted in the contours while coffee plantation was done in between the contours.

Activities of objective 2: To create awareness amongst target group about the importance of wetland biodiversity management for sustainable livelihoods

6.6 Celebrated world wetland day 2007

On the occasion of World Wetland Day 2nd February 2007, an awareness program for school children and teachers was organized in NARC fisheries Office, Lekhnath municipality. The students from five government school of class 6 to 9 and respective school teachers were invited in the program, but only 3 representative schools



participated in the program. During the formal program, topics related to wetland management, causes for its deterioration and conservation measures were dealt along with highlights on the World Wetland Day 2007 slogan “**Fish for Tomorrow**”. The students were also briefed on Bird diversity and Bird watching. The program was a grand success lead by Wetland friends of Nepal and collaborators RUFFORD, BICORF CONFORM and LI-BIRD. The Rufford project was represented by a member of BICORF to conduct the program. The project team assisted in making play cards related to wetlands and wetland conservation. The students displayed the play card and banners all the way to Begnas lake and vicinity areas in a rally to aware local people and stakeholders for wetland conservation and its sustainable management.

A leaflet was also published in both Nepali and English version to widely distribute it at grass-root as well as to the top level officials respectively. The glance of the awareness

program on Wetland Day 2007 can be viewed in http://www.ramsar.org/wwd/7/wwd2007_rpts_nepal_friends.htm.

6.7 Conservation boards

Conservation boards were placed in various places at the project sites to aware people on *Sahar* fish diversity,



community plantation protection and sloping land management. The potential areas for the placement of boards were identified in a participatory way so that more people get to know about the message content in the conservation boards, and a contrasting color was used in it to make it attractive and see even from a distant view.

Three conservation boards of *Sahar* fish were placed at different places in watershed areas to aware people for the conservation of spawning area while they migrate upstream for breeding and spawning; two conservation boards were placed at Lekhnath municipality-10 and one at Majhathana VDC-5. Since, the local communities kill *Sahar* fish using electric current and poisons while they migrate upstream it is assumed that these conservation boards will aware and caution those people not to use electric current and poisons in water body and conserve wetland biodiversity (both flora and fauna). Similarly, community friendly boards were also placed in a pictorial form to manage sloping land



using SALT method and boards were also placed in community plantation areas with message on soil conservation to reduce impacts of sedimentation in Rupa lake.

6.8 Radio programs

A series of radio conservation programs were broadcasted from a local radio FM station named Annapurna FM in a weekly basis on each Saturday starting from March. The program started at 5:40 pm Nepali time with program title “*Samrakcchan*” meaning conservation. Mr Sarad, anchor of the FM station host the program while the project team facilitated him in providing and arranging related information and visits for interview.

The radio program targets to aware large mass of people and disseminate local, regional national and global topics relating to biodiversity and environment conservation. Similarly, live discussion and debate with local people, resource managers and administrators working in conservation sector were also integrated in the program to make it more lively and effective. Many responses and feedback have been received from listeners in the form of letters, who are mostly nature loving youngsters and campus students.



The radio program disseminates knowledge and information regarding natural resources, ecosystem role, wetlands and wetland biodiversity, soil conservation, alarming problem of glacier melt, Climate change, Wild animals, National parks and reserves, National and international policies related to biodiversity conservation etc. In beginning, major focus was given to Rupa lake ecosystem and biodiversity, its importance, threats and

opportunities. The representatives of local youth clubs viz Sahansil youth club and Janasakti youth club were invited in radio program for interview where they open up the roles and responsibilities of club members on Rupa lake conservation. Rufford grantees in Nepal Mr Rajesh Rajchal, Mr Bishnuhari Wagle and Mr Suman Bhattarai were also invited in the radio program to brief about their project and its objectives. Similarly, discussion and debate was done with Mr Rammani Adhikari, Legal officer of Lekhnath municipality and Mr Khagaraj Adhikari, President of National Lake Conservation Committee regarding their roles and participation in conservation of lakes and biodiversity as well as future planning for management and development of these wetland sites.

Box 3. Letter: The Samrakcchan Radio Program really helped me in my exam

Dear Sharad dai
Greetings

I always hear the weekly radio program *Samrakcchan* broadcasted from your FM station each Saturday. I really like the program and the information it gives relating to biodiversity and environmental conservations. I am a Bachelor degree student studying Science (zoology) at Prithwi Narayan Campus, Bagar.

The series of radio broadcasts on National parks and conservation areas of Nepal in the Samrakcchan program last time was very beneficial to me during my exams. I am very grateful for the information you provided and I hope I will score good marks too. It was so easy to remember and recall what I hear in the program and express them in words to answer the question during my exam. I am really thankful to you and the whole team. Such programs will surely help students and conservationist to motivate in conservation activities.

Dai, I also like your way of presenting and your stiff voice that can be heard clearly to understand the information you give. I wish every success to the program and for its continuity.

Good Luck !

Nabin Pandey
Parsyang, Pokhara

(Note: Translated version from original letter)

Initially, due to resource constraints, an agreement for radio program was done to broadcast 15 minutes program every week for 3 months only. But, later since the impact

and feedback from the listeners were encouraging the project team decided to further extend the program for a month. Currently, the radio program is still being broadcasted by Annapurna FM every week on Saturday 5:40 pm with the same title in its own resources however, technical assistance and material supply is done by the project team. The director of the FM station, Mr Deependra Shrestha was influenced by the positive impact of *Samrakcchan* program and prioritized it so that it can create constructive changes in society and in people's attitude towards nature and natural resources. The team is seeking fund and developing proposals to give continuity to this radio program.

6.9 World Environment Day celebration

The alarming problems of environmental degradation (air, water, land, wetland, forest, agriculture) in 21st century have altered the world to change its face from its natural beauty. Hence, efforts on environmental awareness programs at community level can contribute to sustainable management and development. Envisioning this, World Environment Day 2007 was celebrated for a week with the year slogan "Melting ice- a hot topic?" The slogan theme was to give emphasis on effect of climate change in high Himalayas; which had huge impact in high mountain diversity and also increase vulnerability to people's livelihoods living downstream.

Various awareness and conservation programs (like- plantation, lake cleaning, awareness folk song tour, poster publication and pamphlet distribution etc) were carried out to aware



students, general public and local communities on role and importance of biodiversity and natural resources for human development and harmony with ecosystem. By such activities general public and local community become aware on changing environmental conditions, impact levels at different ecosystem, importance of water lives, water sanitation and Climate change and its mitigation measures. These programs were implemented in coordination with different I/NGOs and social organizations like- HRDC, BICORF, World vision-Kaski and SHEAC-IOF. For wider dissemination of the program a farmer friendly flyer and banner like poster showing biodiversity of 7 lakes in Lekhnath municipality was designed and published. The programs of world environment day at watershed and lake areas in project sites are summarized as below-

a) Program at watershed areas: Awareness through Folk song tour

The folk song tour is one of an effective medium of awareness that include larger coverage area and audience for disseminating conservation information through folk songs in a local flavor. The volunteers from SHEAC, HRDC and BICORF were orientated and mobilized in the community groups to facilitate women groups in composing lyrics and tunes as well as preparing play cards for display.

Altogether 7 women groups from Rupakot VDC, Majhthana VDC and Hansapur VDC participated in a folk song tour (Table 4). These groups roamed from their respective villages singing songs related to environment, biodiversity of Rupa lake and its importance on human life and also displayed the play cards during the folk song tour. The women groups reached upto Tallo Talbesi and a formal gathering was done at Mathillo Talbeshi, Lekhnath-10.



Each group had their individual song and own folk tune with local musical instruments. Since, the program was conducted solely for the purpose of awareness raising on biodiversity and environment conservation, there was no feeling of competition among the groups. All the participating groups were awarded with NRs 1500 in words Fifteen hundred only, as an incentive to respective groups which were supposed to be used as a **Revolving fund** within the group members in minimum interest rate for small scale income generation activities. This fund also ensures and encourages women groups to participate and organize such awareness programs by their own through the interest gained in coming days.



Table 4. List of women groups participating in folk song tour

SN	Names of women groups	Address
1	Bharpola Mahila Samuha	Rupakot-3
2	Mishrit Ama Samuha A and Mishrit Ama Samuha B	Hansapur-7
3	Sakriya Ama Samuha	Lekhnath-10
4	Jyamire Ama Samuha	Majhthana-5
5	Betyani Ama Samuha	Majhthana-4
6	Kaure Ama Samuha	Hansapur-9

b) Program at lake areas: Lake cleaning and plantation

The members of the local youth groups from Janasakti youth club, Jamankuna Rupakot-6 and Sahansil youth club, Bhangara Rupakot-6 organized the world environment day 2007 celebration program in lake areas for cleaning unwanted weeds in Rupa lake surroundings. Volunteers from SHEAC-IOF also supported in the cleaning program. Pine plantation was done in an open degraded slope land at Jamankuna areas and a rally was also carried out with playing cards as well as the flyers



were distributed to local people. Finally, in a formal program the chairman of SHEAC, BICORF and Rufford project coordinator spoke on the environment day 2007 topic.

Similarly, plantation was also carried out in Lekhnath municipality office compound where the members of the municipality, co-workers and volunteers of SHEAC planted different ornamental trees. The Executive officer of the municipality, Mr Pashupati Puri inaugurated the world environment day 2007 poster. Representatives of BICORF, HRDC, World vision-International, Kaski were invited to participate in the plantation program. The following species were planted during the program-

Table 5. List of ornamental plants planted in Lekhnath municipality

SN	English names	Scientific names	Vernacular names
1	Gulmohar	<i>Delonix regia</i>	<i>Gulmohar</i>
2	Bottle brush	<i>Callistemon viminalis</i>	<i>Kalki phul</i>
3	Eucalyptus	<i>Eucalyptus sps</i>	<i>Masala</i>
4	Camphor	<i>Cinnamomum camphora</i>	<i>Kapoor</i>
5	Cinnamomum	<i>Cinnamomum tamala</i>	<i>Tejpat</i>
6	Pine	<i>Pinus roxburghii</i>	<i>Khote salla</i>
7	-	<i>Ashoka indica</i>	<i>Ashoka</i>

6.10 Biodiversity and wetland song competition

An open song competition was organized on 14th September in the occasion of *Teej*, (a Hindu women festival) to aware people on biodiversity conservation and liaising in anti corruption activities. Janasakti youth club and Rupatal Asal Sasan youth club organized the program in collaboration of Rupa lake project (RSG) and Pro-Public, Kaski branch. Wider advertisements of the program were done through local FM station and pamphlet distribution so that more people know about the program and many groups participate in the open song competition program.

The program was organized in an open area aside of Rupa lake at Jamankuna, Rupakot-6. Altogether there were 10 contestant groups and Mrs Sakuntala Gyawali, a senior nepali folk song singer was a special guest.

Mrs Gyawali also honored during the program for her continuous dedication to nepali folk songs. Similarly, campus chief of Laxmi Adarsha Multiple campus was the chief guest of the program. The coordinator of Rupa lake project gave a welcome speech while Mr Brihaspati Adhikari, Secretary of Janasakti club presented the program. Representatives from Lekhnath literature council and Mrs Gyawali were the judges of the song competition. Many guests were invited in the program; representatives from following organizations and CBOs were invited viz-

1. Biodiversity Conservation and Research Forum, BICORF/Kaski, Nepal
2. Rupa Lake Restoration and Fisheries Cooperative, Rupakot-6, Kaski
3. Community Education board council, Rupatal
4. Lekhnath Literature Council
5. Women groups (Jamankuna women group, Unnatisil Women group)



6. Teachers and students of schools, Social Workers, Representative of Different political parties etc.

The participants in a group were given 10 minutes time each to sing the song and criteria for judging was according to the weightage of marks each participants score in independent heads and then summing up of all. The scoring was rated in following heads-

- a) Way of introducing the group -20 marks,
- b) Dress up of participants – 10 marks,
- c) Lyrics of the song -50 marks and
- d) Song composing and tuning – 20 marks.

The winners list of biodiversity and wetland song competition is given in table 6. The winners were provided with cash prize 1st -NRs 2000, 2nd -NRs 1500, 3rd -NRs1000 and Consolation- NRs 500 and certificates were given to all participants.

Table 6. Winners list of biodiversity and wetland song competition

Prizes	Winners	Address
First	Kamal Primary School	Rupakot VDC -6, Bhangara
Second	Srijana Club	Lekhnath-14, Sajha Bazzar
Third	Pritwi Rupa Lower Secondary School	Rupakot -8, Khola ko Chew
Consolation	Didi Bahini Women Group	RupakotVDC-6, Jamankuna

6.11 Awareness to School children through various competitions (painting, essay, quiz)

The project also target to aware school students on biodiversity, wetland and watershed areas for protecting their habitats and ecosystem. Different programs like painting, quiz, essay competitions were organized at primary, lower secondary and secondary level schools from lake and watershed areas of the project sites. Prior to organizing school level programs permission was taken from the District Education Office (DEO), Kaski so as to make easy facilitation of such programs and to make realize the importance of those programs to upper level officials of the District Education office and school teachers too.

a) Inter-school Painting Competition

On the occasion of Children’s day, 20 August 2007 an inter school painting competition (primary school level) was carried out at Kholabensi, Lekhnath-10 in collaboration with BICORF-Kaski. All the schools at upstream watershed areas of the Rupa lake were invited to send students from their respective schools in the painting competition. Though 7 primary schools at watershed were invited, only 4 schools participated in the competition due to inconveniences in transportation and in some cases due to starting of terminal exams. The respective teachers of the school were oriented about the theme of the painting ie “*Sustainable management of lake and watershed areas*” so that the students can practice painting before the competition. Representatives from different community groups and social workers were invited in the program. President of School management committee, Nawa Jyoti School, Mr Balaram Subedi was the chief guest. The paintings were participatorily judged by the invited representatives of the community groups and the project team members. The list of the participants and winners lists are given below-



Table 7. List of participants in Inter School Painting Competition (Primary level)

SN	Participants	Winners	School
1	Bikram Gurung, Class 5	1 st	Shiva Sakti Praimary School, Lapsi danda
2	Sarita Dahal, Class 3	2 nd	Nawa Jyoti Praimary School, Kholabesi, LM-10
3	Bil Bahadur Thapa, Class 5	3 rd	Shiva Sakti Praimary School, Lapsi danda
4	Pradip Subedi, Class 4	4 th	Gyan Jyoti Praimary School, Kaure, Hansapur-9

5	Surya Pandey, Class 5	-	Shree Biswa Jyoti, Praimary School
6	Akash Pandey, Class 5	-	Shree Biswa Jyoti, Praimary School
7	Sanjaya Subedi, Class 3	-	Nawa Jyoti Praimary School, Kholabesi, LM-10
8	Deepak Subedi, Class 4	-	Gyan Jyoti Praimary School, Kaure, Hansapur-9

b) Inter school Essay competition

An inter school essay competition was held on 1st September with primary level schools at downstream watershed areas of Rupa lake and lake periphery areas. The title for essay writing was ***“Role of Students on biodiversity conservation of Rupa lake”***. The participating students in the competition from 6 different schools were asked to write a short essay since the project assumed that these students are the residents living near to Rupa lake area and have seen the wetland biodiversity however, they may not be aware about its importance. So, the program aimed to enhance the knowledge of students through essay writing skills and also make realize their roles in conserving these biodiversity and natural resources.



The participants were given two hours time to freely write their perceptions on the essay topic and then they read the same material they wrote so that the observers in the program can also learn about biodiversity of Rupa lake. The teachers of the respective participating school and the project members judged the excellent essay in a participatory way. The following criteria were used for judging: a) essay



writing skill- 20 marks, b) incorporating the subject matter- 40 marks, c) introducing own self- 10 marks and d) presentation- 30 marks. The winners were provided with prizes and certificates while certificates of participation were given to other participants. The participants in the program is given below-

Table 8. List of participants and others in Inter School Essay Competition (Primary level)

SN	Name of participants	Name of Schools	Address
1	Aavash Joshi	Rupa Sishu Niketan School	Lekhnath-14
2	Kamal Mizzar	Rupa Sishu Niketan School	Lekhnath-14
3	Drishti Tiwari	Raja Chautara Private English School	Lekhnath-13
4	Anita Tiwari	Raja Chautara Private English School	Lekhnath-13
5	Durga Bdr Gurung	Shri Kamal Primary School	Rupakot-6,Bhangara
6	Bishal Ale	Shri Kamal Primary School	Rupakot-6,Bhangara
7	Pragya Subedi	Shanti Batika English School	Lekhnath-14, Saatmuhane
8	Rajan Paudel	Shanti Batika English School	Lekhnath-14, Saatmuhane
9	Navaraj Ghimire	Shri Prithvi Rupa Primary School	Rupakot-8
10	Anshu Gurung	Shri Prithvi Rupa Primary School	Rupakot-8
11		Rupa Jyoti Primary school	Sundari danda, LM-11
12		Rupa Jyoti Primary school	Sundari danda, LM-11
Other Participants			
13	Ram Prasad Adhikari	Rupa Sishu Niketan School	
14	Shanta Lamichhane	Rupa Sishu Niketan School	
15	Sujata Tiwari	Raja Chautara Pvt. English School	
16	Mandip Tiwari	Raja Chautara Pvt. English School	
17	Muskan Sahi	Raja Chautara Pvt. English School	
18	Gopi Raj Tiwari	Raja Chautara Pvt. English School	
19	Rabi Raj Ghimire	Raja Chautara Pvt. English School	
20	Chhaya Thapa	Shri Prithvi Rupa Primary School	
21	Bipana Karki	Shri Prithvi Rupa Primary School	
22	Sashi Acharya	Shri Prithvi Rupa Primary School	
23	Rekha Sunar	Shri Prithvi Rupa Primary School	
24	Bhimshen Shuyal	Shri Prithvi Rupa Primary School	
25	Barma Sunar	Shri Prithvi Rupa Primary School	
26	Man Bahadur Gurung	Shri Prithvi Rupa Primary School	
27	Bina Gurung	Shri Prithvi Rupa Primary School	
28	Sujan Adhikari	Shri Prithvi Rupa Primary School	
29	Manoj Thapa	Shri Prithvi Rupa Primary School	
30	Sunita Adhikari	Shri Kamal Primary School	
31	Kushalta Subedi	Shri Kamal Primary School	
32	Uttam Gurung	Shri Kamal Primary School	

33	Bijay Gurung	Shri Kamal Primary School	
34	Narayan Gurung	Shri Kamal Primary School	
35	Pradip K.C.	Shri Kamal Primary School	
36	Reena Lama	Shri Kamal Primary School	
37	Kusum Gurung	Shri Kamal Primary School	
38	Ashmita Subedi	Shri Kamal Primary School	

c) Inter-school Quiz Contest

A secondary school level quiz contest was organized on 5th of November in collaboration with BICORF, Kaski and German Development Service/ Deutscher Entwicklungsdienst (DED-Nepal). The program venue was at Shree Amar Shiddha Namuna Secondary School, Pachabhaiya, Lekhnath-11. Altogether 7 secondary schools participated in the quiz (table 9) and in each team there was 3 students. Mr Manfred Mausolf, Representative of German Development Service/ Deutscher Entwicklungsdienst (DED-Nepal) (also a project referee) was a special guest, Mr Chiranjibi Adhikari, Representative of Shree Amar Shiddha Namuna Secondary School, Pachabhaiya, LM-11 was the Chief Guest and Mr Bishnu Prasad Shrestha, Chairman of Biodiversity Conservation and Research Forum (BICORF), Kaski chaired the program.



Table 9. List of school participating in Inter School Quiz Contest (Secondary level)

SN	Name of schools	Address
1	Shree Laxmi Adarsha Higher Secondary School	Sishuwa, Kaski,
2	Shree Amar Shiddha Namuna Secondary School	Pachabhaiya, LM-11
3	Shree Ananda Jyoti Secondary School	Begnas, Kaski
4	Shree Brahama Rupa Higher Secondary School	Bhirchowk, Rupakot-3
5	Shree Chandra Prabha Secondary School	Bhirchowk, Rupakot-3
6	Shree Tribhuvan Higher Secondary School	Dhungepatan, Lekhnath-12
7	Rupa Jyoti Lower Secondary School	Talbesi, Rupakot-1

The quiz contest was divided into 4 rounds viz- 1st the general round where questions on history and general knowledge were asked; 2nd was the science, technology and health round; 3rd was Bio-diversity round and 4th was the Audio visual round. Each round have score of 40, 40, 60, 40 marks respectively. The project team felt that the audio visual round was most effective and the students were curious to see pictures in a screen and hear the questions in audio player. The winner schools and students were provided prizes and certificates while certificates of participation were given to others. The winners in the quiz contest were-



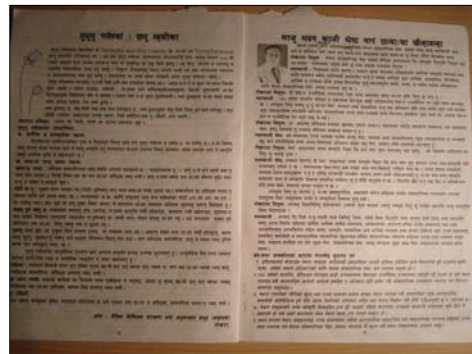
- 1st prize- Shree Ananda Jyoti Secondary School
- 2nd prize- Shree Laxmi Adarsha Higher Secondary School
- 3rd prize- Shree Brahma Rupa Higher Secondary School

6.12 Awareness through Publications

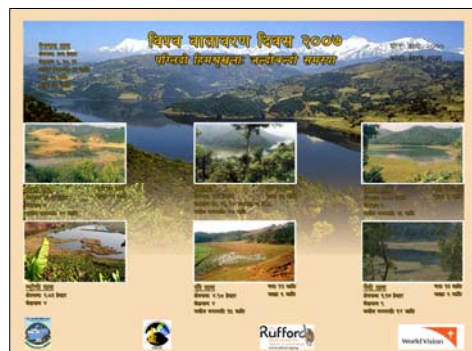
A community friendly brochure on “Introduction and importance of white lotus” was published to disseminate information related to white lotus targeting local community, government and non-government sectors, private entrepreneurs and school children. The local community residing in the vicinity of the lake perceives enormous knowledge on white lotus as a medicinal and religious plant. So, the brochure was developed through information gathering from literature review and informal discussion with Bimirekuna fish enclosure group members at Sundari Danda, Lekhnath



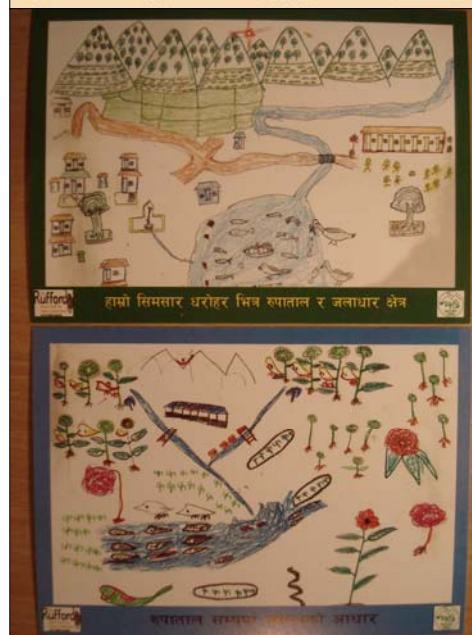
municipality-11, RLRFC and Jamankuna women group at Rupakot VDC-6. This brochure provides a quick insight about general description on White lotus; importance of lotus parts as religious and medicinal value perceived by local communities and as described in literatures related to Ayurveda. The copies of brochure have been sent to number of organizations working in natural resource management sectors and development sectors. The contents of the brochure was also translated to *Newari* language (language of Newar ethnic group) and published in a quaterly *Newari* magazine “*Pokharaya Bhintuna*” in its June 2007 issue by the editor Mr UdayaBahadu Amatya.



Similarly, flyers were designed and printed on world wetland day with theme “Fish for tomorrow” and likewise, on world environment day with theme Melting Ice- a hot topic”. A poster was also developed for the world environment day illustrating the total number of species found in 7 lakes of Lekhnath municipality at Pokhara valley to aware people on conservation of important wetland biodiversity.



The first and second prize winning painting in the inter school painting competition was also printed as a postcard to distribute it in schools and I/NGOs working in environmental awareness specially the wetlands. All the publications of the Rupa lake project were printed in Nepali version so that even the marginal grass root people can easily understand and read the message.



7. Coordination and networking with partners

Majority of the Rupa lake project was implemented in participation of local communities and also in coordination and networking with diverse partners from social, government and non-government organizations. The project activities described above illustrates the details of the programs that were implemented in a collaborative approach with these partners. Networking was also done with Rufford grantees Mr Suman Bhattarai who is implementing a project on “Awareness creating and knowledge imparting project for the conservation of internationally valued, nationally endangered and globally threatened species ‘*Rhinoceros unicornis*’; Mr Bishnuhari Wagle implementing project on “Crocodile Conservation Awareness Project” and Mr Rajesh Rajchal implementing project on “Seabuckthorn (*Hippophae salicifolia*) Management for the Upliftment of Local Livelihood in Mustang District”. Collaboration was done with Mr Suman Bhattari in implementing environmental awareness education program targeting to women groups at the bufferzone areas of Chitwan National Park. For more detail visit <http://www.rhinonepal.org/pdf/2.pdf> Similarly, an education booklet is also in a preparatory phase to be published from the project. The major lists of project partners are listed below-

Table 10. List of networking and collaborating partners of the project

SN	Organization names
1	Biodiversity conservation and research forum, Kaski
2	Himalaya Research and Development center
3	World vision international-Kaski
4	Lekhnath Municipality
5	Self Help Environment Awareness Campaign, Institute of Forestry, SHEAC-IOF
6	Pro public, Kaski
7	District soil Conservation Office, Kaski
8	District Education Office, Kaski
9	German Development Service/ Deutscher Entwicklungsdienst (DED-Nepal)
10	Annapurna Radio FM Station, Pokhara, Kaski
11	Rufford Grantees

8. Evaluation and Indicators of Project outputs

A monitoring and evaluation was done at the end of the project period to assess the achievements of the project and to know the extent to which the team was successful for meeting the purposed objectives. The major objective of Rupa lake project was to strengthen local community groups in conservation activities specially the wetland biodiversity conservation and management of lake and watershed areas. The project also focuses on awareness raising and strengthening local groups and youth groups in organizing such awareness programs in coming days too. It was difficult for the project team to measure the level of abstract values like changes in local people's capacity and awareness level due to short project period. However, some indicators were developed for the evaluation of the project activities. The outputs and indicators of its evaluation are discussed according to the purposed objectives of the project which are discussed below in more detail-

Output Evaluation and its Indicators for Objective 1: to strengthen community capacity and promote community based wetland resource management for conservation and sustainable use

SN	Outputs	Indicators
1	Women group established habitat management block of birds 1.5 hectare at <i>Kande ghat ko jalo</i>	Agreement letter, Conservation fund established, Regulation of women groups for restricting grass cutting at peak breeding season of birds.
2	Bimirekuna Group who are managing white lotus conservation blocks at inlet marshes of Rupa lake from past were strengthened for management of lotus diversity	Documentation of white lotus diversity and brochure publication
3	Local youth groups mobilized for live fence maintenance for	Agreement letter, Live fence, photos, list of species planted in live fence

	conserving wild rice diversity in Rupa lake	
4	Capacity of women groups strengthened on habitat management of birds	Training on bird habitat management, Identification of birds in field trip, Handling and Using of binoculars, Photos, Movie clips, List of participants in training
5	Organic farming at watershed area promoted	Training on organic farming and compost making, Photos, Movie clips, List of participants in training, Field demonstration
6	Encouraged local people for alternative income generation activities	Training on Mushroom production, Quantity of mushroom production, Photos, Movie clips, Participant lists, Diversity kit of vegetables seed distribution, Number of species in diversity kit, Community nursery management, Provision of nursery materials, Revolving fund established
7	Siltation on lake minimized and aesthetic value around lake and watershed areas increased	Plantation at degraded slopes, roadsides, school province, Total number of plant species planted, Names of Species type, Conservation board, Photos, Movie clips
8	SALT demonstrated to minimize soil loss and scaling up in other similar potential areas	About 1 <i>ropani</i> private land allocated for demonstration of SALT, Photos, List of species planted in contour lines and in between it, Conservation board

Output Evaluation and its Indicators for Objective 2: to create awareness amongst target group about the importance of wetland biodiversity management for sustainable livelihoods

SN	Outputs	Indicators
1	All the students and teachers participating in World wetland day awareness program were aware on the program theme and 65 % of local people around Begnas area were aware from rallies and leaflets	Name list of participants, Awareness rally, Community friendly leaflets, Photos
2	About 75% of people in Pokhara valley were aware through radio program broadcast	Agreement with FM station, CDs of the weekly program series, Letters and responses from program listeners, Photos
3	Almost 60% of the people in watershed areas aware through conservation boards	Number of conservation boards placed, Photos
4	More than 1200 people from different VDCs and pocket areas of Lekhnath municipality were aware in biodiversity conservation and environmental issues and its wise management.	Number of women groups participation from different VDCs, Banners, Flyers, Biodiversity song, Song tour, Photos, Movie clips, Invitation letter
5	About 1000 people were aware on biodiversity and wetland conservation through song competition	Advertisement from radio and pamphlets, Biodiversity song, Number of group participants, Invitation list of guests, Photos
6	90% of school children in primary and secondary level school at lake and watershed areas were aware on wetland biodiversity and environment conservation	Number of schools, Number of participants from respective schools, Essays, Arts, Photos, Movie clips, Confirmation letters from schools, Letter from DEO, Kaski

7	Wider dissemination of project publications (Brochure, Postcards, Poster)	Translation of white lotus brochure into <i>Newari</i> language, Photo of translation in the magazine, List of organizations and education institute having project publications
8	Networking and collaboration of with partners of similar interest strengthened	Name list of networking and collaborating organizations, Photos, website of rhinonepal.org

Note: the percentage of people awareness which is given in the table is an assumed number by the project team with regard to the target group in the local area and the method which has been used during the awareness programs.

9. Lesson learnt

The project was focused to strengthening the capacity of local communities, women groups, youth groups in managing the biodiversity of Rupa lake ecosystem in a sustainable way. It also aimed to raise awareness among students, local people and women groups for sustainable management of resources. So, while implementing these programs the working teams have some lesson learnt gained over the project duration. These are-

- a) It was easier to deal with women groups while implementing conservation and management programs when female leader coordinates the programs. The members of women groups were more open to discuss and share plans on management of biodiversity and more participation was observed during the entire program.
- b) The youth groups and students can be mobilized in an effective way to create bigger impact during different awareness programs.
- c) Publications of project materials were more effective due to using of farmer friendly language

- d) There should be clear understanding between project objectives and local communities' interest for success of any conservation programs.
- e) Participation of local communities and transparency can create bigger impact during conflicting situations in project periods

10. Future prospects

According to the experience of project teams while implementing the programs and with familiarization of project sites there are many scopes of research and development in wetlands sites situated in mid-hills of Nepal. Some of the future prospects in this area are listed below-

- a) A scientific research on comparison of shallow lake limnology can be carried out in seven lakes of Lekhnath municipality to identify its impact on habitat of important wetland biodiversity and emerging alien species.
- b) Dependency pattern on wetland resources and access and benefit sharing among lake and watershed communities can be explored.
- c) Mobilization of local communities in awareness programs and creating a feeling of ownership through providing options and opportunities on sustainable harvesting and utilization of resources create better impact on sustainable conservation of resources. So marketing and market linkage of wetland resources is important to reduce poverty of wetland dependant communities.

11. Final Financial Report (Nov 2006 to Dec 2007)

SN	Description	Total Requested Budget (NRs)	Expenses of 1st half (NRs)	Expenses of 2nd half (NRs)	Total Expenses (NRs)	Remaining Budget (NRs)
1	Site selection	5000	5000		5000	0
2	IGA Training programs					
	Diversity kit distribution including nursery materials	14000		12572	12572	1428
	Mushroom Training	6000	6000		6000	0
	Organic farming and compost making training	10000		10671	10671	-671
	Material cost (drum, sprayer, plastic etc)	3500	3150		3150	350
3	Awareness programs					
	Organize wetland related quiz, folk song competition, painting competition, essay competition through school children and farmer groups	20000	6000	15094	21094	-1094
	Brochures/ pamphlets/ posters	30000	8250	21587	29837	163
	Radio Program	30000	21500	14333	35833	-5833
4	Conservation actions					
	Lake cleaning (unwanted weeds)	25000		17420	17420	7580
	Plantation at watershed area	25000	15000	11217	26217	-1217
	Demonstrate SALT technology	12000	5000	7000	12000	0
	Conservation boards	15000	13000	1950	14950	50
	Habitat conservation of white lotus, wild rice and bird diversity	12000	8500	3500	12000	0
5	Office cost					
	Office and training stationary	90000	55000	35000	90000	0
	Communication	45000	26821	18179	45000	0
	Report publication and project CD making	15000		15000	15000	0

6	Transportation cost & travel expense					
	Vehicle hire	120000	50000	65895	115895	4105
	DSA@500 for 154 days	77000	40000	37000	77000	0
7	Refreshment in meetings/trainings	20000	11485	8610	20095	-95
8	Equipment -Digital camera and accessories purchase	25000	25000		25000	0
	Total	599500	299706	295028	594734	4766

Total budget Requested in Streling 4796
Total expense in Streling 4757.87
The remaining budget in Streling 38.13

Exchange rate 1 Sterling @ NRs 125

Note: The half of the total budget allocated in lake cleaning has been readjusted in awareness programs and site selection purpose.

Financial Report Prepared by: Meghdhoj Adhikari and Niraj Adhikari (Project Officers)

Checked by: Erica Udas (Project Coordinator)



Name: Meghdhoj Adhikari
Master Student in Human
and natural resource
management,
Kathmandu University
Kathmandu



Name: Niraj Adhikari
Bachelor Graduate in
Forestry from Kumaon
University, India

12. Some Glimpses of Project Activities



Ready for the Field ? Go ahead



Volunteers: We are here to help



Team: Valueing Conservation at work



We are tired and sleepy !!



Thank you for appraising ME !



Monitoring and backstopping

Annex I. Detail program schedule for Bird identification and bird watching training

Organizer: Rufford Lang Maurice Foundation, UK; Bird Conservation Nepal, Pokhara Branch office and BICORF

Facilitators: Ms. Erica Udas and Mr Som Bohara

Chief Guest: Mr. Manfred, Refree of the Rufford project

Venue: Sistheni, Lekhnath Municipality-14

<i>Programme</i>	<i>Time</i>	<i>Lead</i>	<i>Support</i>
Registration	10:00-10:30		
Welcome and Introduction	10:30- 10:45	EU	All
Expectation collection	10:45-11:00	EU	Participants
Brief overview about the training programme	11:00-11:05	EU	
Presentation 1 (Introductory)	11:05-11:25	EU	
Discussion	11:25-11:30		All
Presentation 2 (Birds)	11:30-12:15	Som	
Discussion	12:15-12:20		All
Documentary show (Vulture-BCN)	12:20-1:00	Som	EU
Discussion	1:00-1:05		All
Break	1:05-1:30		
Documentary show (Birds Habitat)	1:30-2:30	Som	EU
Discussion	2:30-2:35		All
Feedback from participants	2:35-2:40	EU	
Field visit for bird watching	2:40-4:50	Som	EU
Closing and vote of thanks	4:50-5:00	EU	

Annex II. Detail program schedule for nursery management and composting training

Organizer: Rufford Lang Maurice Foundation, UK; Biodiversity conservation and Research Forum (BICORF)

Facilitators: Mr Bishnu Prasad Shrestha and Mr Yagyamurti Khanal

Venue: Community Building of Bharpola Mahila Samuha, Rupakot-3

A. Details program schedule for nursery management training

SN	Program Schedule
1	Welcome speech and introduction by all
2	Collection of interest from the participants
3	Introduction to nursery and its management
4	Types of nursery
5	How to make nursery in winter season <ul style="list-style-type: none">• Plastic tunnel or Gumose• Hot bed nursery
6	How to make nursery in summer/rainy season <ul style="list-style-type: none">• Raised bed• Plastic tunnel
6	Advantages and disadvantages of nursery making
7	Feedback collection

B. Detail program schedule for organic farming, compost making and IPM training

SN	Program Schedule
1	Collection of interest from the participants
2	Introduction on organic farming
3	Types of fertilizers used in Nepal by farmers (organic and chemical)
4	Effect of chemical fertilizers in soil and human health
5	Methods of compost making <ul style="list-style-type: none">• Pit composting• Bin composting• Composting in layers
6	Methods of insecticides/pesticides making from local resources
7	Farm yard manure management
8	Integrated pest management
9	Feedback collection

Annex III. Detail program schedule for mushroom cultivation training

Organizer: Rufford Lang Maurice Foundation, UK

Facilitators: Erica Udas, Meghdhoj Adhikari, Usha and Sri Pd Subedi

Venue: Kholabesi, Lekhnath municipality 10

1st Day

SN	Program Schedule
1	Welcome and introduction by all
2	Interest collection from participants
3	Theory class on Introduction to Mushroom, Types of mushroom, its importance and market opportunities
4	Theory class on necessary equipments and materials for mushroom production, and major things to be taken into consideration (Temperature, Humidity, Sanitation)
5	Theory class on detail process for mushroom (<i>Pleurotus oestratus</i>) cultivation <ul style="list-style-type: none">• Straw selection and alternatives of straw• Chopping straw in specified size• Straw washing and drainage of excess water• Sterilization of straw through steaming
6	Practical class on straw selection, cutting, washing and drainage of excess water content

2nd Day

SN	Program Schedule
1	Practical class on steaming straw for sterilization
2	Theory class on detail process for mushroom cultivation (continue..) <ul style="list-style-type: none">• Sanitation (individual and mushroom storeroom)• Cooling of steamed straw• Tying plastic bags• Steps for mushroom ball preparation• Making holes in mushroom ball and its importance• Storage of mushroom ball
3	Theory class on insect, diseases attack and its control measures
4	Practical class on mushroom ball making
5	Practical class on room selection and its sanitation for mushroom ball storage
6	Practical class on bamboo stack making for mushroom balls storage for commercial purpose