

Darwin Initiative Annual Report

Darwin Project Information

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Project Title	Managing wetlands for sustainable livelihoods at Koshi Tappu, Nepal
Country(ies)	Nepal
UK Contract Holder Institution	Wildfowl & Wetlands Trust
UK Partner Institution(s)	Institute of Fisheries, University of Stirling; CABI Bioscience
Host country Partner Institution(s)	Bird Conservation Nepal; Tribhuvan University; Koshi Camp
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Project Leader Name	Seb Buckton
Project website	N/A
Author(s), date	Seb Buckton, Bhagwan Dahal, Ishana Thapa, Hem Sagar Baral; 28 th April 2008

1. Project Background

Koshi Tappu Wildlife Reserve (KTWR) lies in the lowlands of eastern Nepal (Figure 1). The reserve comprises 175 km², and was gazetted in 1976 to conserve the last remaining wild Nepalese population of the globally threatened Asiatic Water Buffalo. It was declared a Ramsar Site in 1987, and is the most important wetland for migratory waterbirds in Nepal, and one of the most important in Asia. The site is surrounded by a buffer zone of 173 km², in which over 80,000 people live, most of whom are dependent on the natural resource base for their livelihoods.

Current resource use in and around Koshi Tappu Wildlife Reserve is unsustainable. Pressures on people's livelihoods mean that existing patterns of resource use bring people into conflict with the reserve because people perceive that the conservation of the site results in reduced benefits for them. These impacts include reduced access to resources as well as increased risk from human-wildlife conflict. As a result, the reserve is viewed negatively by many and as a result there is non-compliance with reserve laws leading to unsustainable exploitation of resources within the reserve and associated disturbance.

For the long term viability of the KTWR, people living adjacent to the site who depend on wetland resources for their livelihoods must be able to obtain a sustainable livelihood – i.e. a livelihood which is resistant to environmental shocks and does not result in the unsustainable exploitation of those resources. This project aims to assist local communities around KTWR in managing buffer zone wetlands for sustainable livelihoods, whilst enhancing wetland biodiversity, thus reducing the pressure on resources within KTWR.

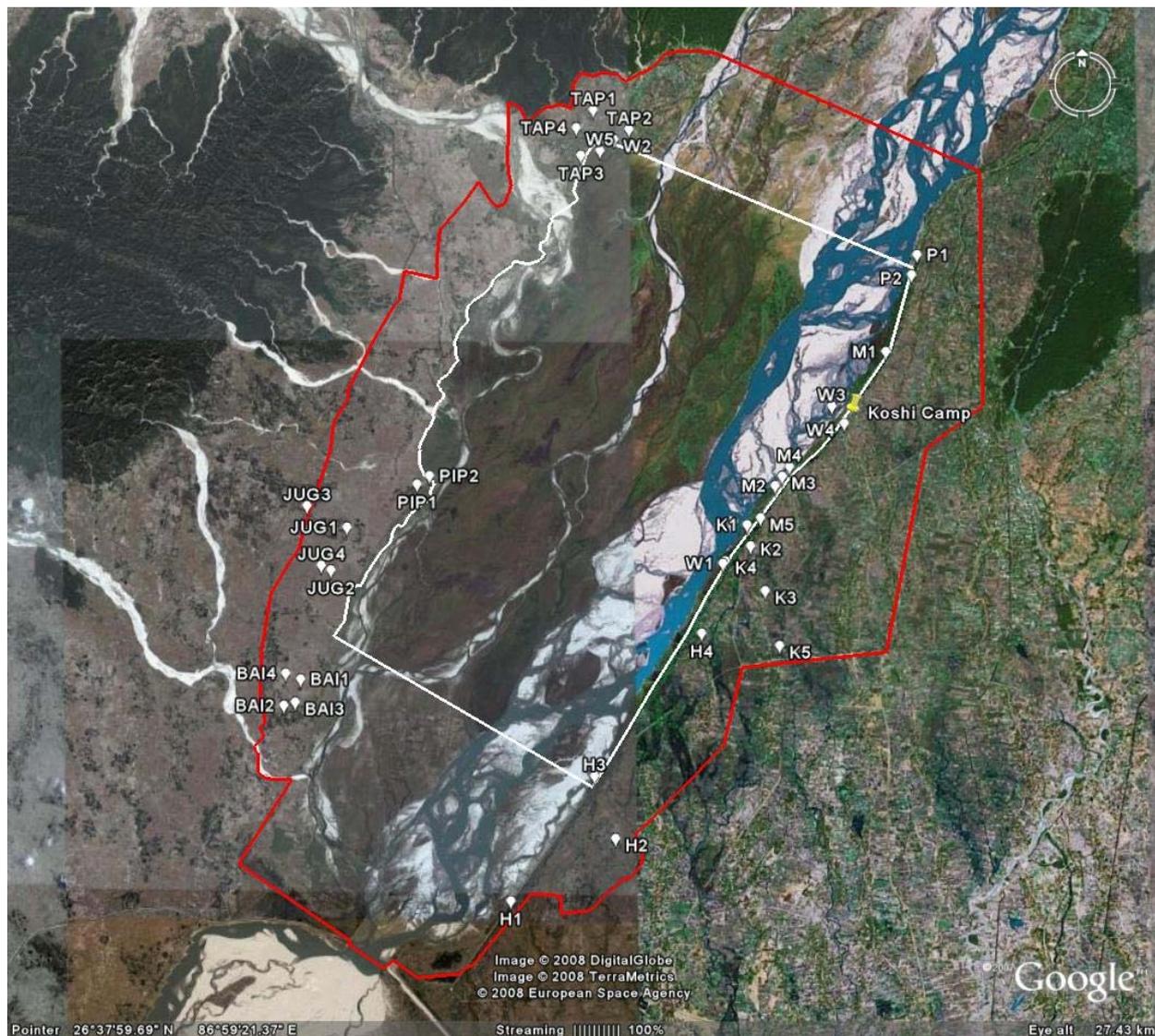


Figure 1. Koshi Tappu Wildlife Reserve. Reserve boundary shown in white, buffer zone boundary (approximate) in red. Location points refer to study ponds where eco-hydrological surveys have been carried out.

2. Project Partnerships

Project partnerships:

Bird Conservation Nepal (BCN) is the primary host country partner. The partnership has developed well over the last 12 months. Bhagwan Dahal, the Darwin Project Officer (DPO), a post supported by the Darwin grant, has been based at Koshi for much of the year, only visiting Kathmandu when specific tasks required this. The support of the Darwin grant has allowed him to establish a small office in a village in the buffer zone, which has improved the status of the project locally – previously he worked out of Koshi Camp, an eco-tourism resort adjacent to the reserve, but locating here was a barrier to engagement with local communities.

Bhagwan worked in isolation for much of 2007/08, due to the difficulties of travel and communication within Nepal. He received support from local project assistants, who were employed on a casual basis to assist with specific tasks, and made good progress during this time. However, it became evident as the project has progressed that to deliver the project outputs, further full-time support is necessary to take forward individual elements of the project. As a result, further capacity has been built within BCN during the year, through the appointment of three additional staff. Ravi Shankar Pandit has been appointed as Education Officer, full time for the remainder of the project. He will take forward many of the awareness-raising and learning activities under the project and be responsible for implementing the learning plan,

specifically developing wetland information centres, learning materials, and eco- and cultural tourism initiatives. Dibesh Kumar Chaudhary has been appointed as Participatory Biodiversity Monitoring Officer, employed for 9 months full time. He will be responsible for progressing participatory biodiversity monitoring activities, including a participatory biodiversity assessment, and developing a monitoring programme, assessing training needs etc. Ram Balak has been appointed as full time Assistant Project Officer, to support the project officer in other elements of the project. The DPO manages all three staff, and is also responsible for progressing the livelihoods elements of the project.

The DPO has benefited from a number of training and capacity building opportunities over the year. He has worked closely with UK project partners on diverse aspects of the project, including fisheries, learning, biodiversity, invasive species and eco-hydrology. He attended a conference on Managing Wetlands for Sustainable Development in Thailand in January 2008, and presented a paper at the conference on results from the project. The three newly appointed staff have also worked with UK staff on invasive species surveys. All Nepali project staff have also worked closely with Nepali fisheries experts. Capacity within BCN has therefore been built both in terms of supporting staff but also in the development of those staff.

This capacity will help BCN support the Government of Nepal in meeting its CBD commitments, by supporting government institutions such as the Department of National Parks and Wildlife Conservation, both at KTWR, but at other protected areas where BCN works. The project has also enhanced BCN's ability to raise awareness of the benefits of conservation to people, contributing to Nepal's progress in sustainable use of components of biodiversity and public education and awareness.

Relationships with other host country partners have become more focused as the project has progressed. As reported in the 1st Annual Report, the partnership with IUCN-Nepal and with the PCP became defunct for various reasons beyond the control of the project team. The partnership with Tribhuvan University (TU) has developed well. A TU Masters student studying the role of fisheries and aquaculture in livelihoods in the Koshi Tappu Buffer Zone is being supported partly by the Darwin project, and a Darwin Scholarship has been awarded via Stirling University to support another TU Masters student to carry out studies associated with the project. Both will inform the delivery of the fisheries management plan (Output 3). Madhav Shrestha has been involved in providing advice and training on fishpond management for our target groups, and hosted a recent exposure visit to Chitwan for trainee fish farmers.

The partnership with Koshi Camp has not developed as initially planned for a number of reasons. The Camp was planned to be the location for the Darwin Centre for Wetland Management for Sustainable Livelihoods, but for various reasons this is not appropriate (see below for more details). Furthermore, the political instability in Nepal generally but in the Terai specifically has impacted on the business of the Camp and has raised questions over its long term sustainability (which in fact highlights a question over the sustainability of eco-tourism as a livelihood). Thus although relationships remain strong, the camp has mainly been used as a base to host members of the project team when visiting, and as a venue for workshops

UK partners primarily act as consultants to the project, although the strategic objectives of the respective organisations are being progressed by the project: invasive species are a major theme under the CABI mission and this project is an important component of CABI's strategy for this theme in Asia, particularly in relation to developing partnerships in the UK and in Nepal. The project builds on Stirling University Institute of Aquaculture's previous experience in wetland environments. Stirling has an Asia-Link (EU) project with IAAS and their inclusion in this project further strengthens this linkage. The Darwin Fellowship awarded for Chudamani Pandey is both strengthening this relationship and building capacity, that would not have happened without the Koshi project partnership. The Koshi project is also helping Stirling to improve understanding of fisheries issues on a regional scale. Stirling has worked with CABI before on compendium developments and other areas. Working with WWT on the conservation public awareness agenda is providing Stirling with valuable learning and partnership opportunities.

Sean Murphy (CABI) and Anton Immink (Stirling University) have provided input to the development of project work over the year. Both also took part in the visit to Koshi in

October/November 2007, and led on their respective work areas (invasive plants and fisheries), working with and training Nepali project staff and other partners to carry out surveys, use the information to develop plans and suggest methods of implementation of plans. Sean subsequently visited Koshi in March 2008 to establish a monitoring programme to assess distribution of invasive plants in the wildlife reserve and buffer zone. Training in methods was undertaken as part of this trip.

The capacity of the UK lead institution as an effective project partner has also been improved during the year. The project leader attended a workshop on participatory conservation organised at WWT Slimbridge, which was also attended by other WWT staff members. Other training has been undertaken in a range of management skills that has enhanced the project leaders ability to manage the project but also has enhanced the quality of training and capacity building provided to host organisations.

Other Collaboration:

We have been collaborating with two other projects that have been, or expect to soon be operating at Koshi.

The UNDP-GEF funded project 'Conservation and Sustainable Use of Wetlands in Nepal' has now appointed a National Programme Manager – Mr. Top Bahadur Khatri. We have a good working relationship with Top due to his previous role as manager of the UNDP-funded Participatory Conservation Programme (PCP). PCP was a partner on the project until its activities ceased at the end of 2006. Implementation of their project is still only at the planning stage, but good links are in place to maximise mutual benefits of our respective projects.

In 2007/08, the project established links with CARE-Nepal, who have been working with small local NGOs around Koshi to support local livelihoods. We had some common ground in providing alternative income generation opportunities to Special Target Groups (STGs). CARE-Nepal has now ceased its project around KTWR - due to the security situation, but exacerbated by their failure to work with the Buffer Zone Management Committee.

More generally, we have been closely sharing project outputs and information in various workshops organised by WWF Nepal and the Water and Energy Commission of Nepal Government, for the Koshi River Basin Management Project.

The project does not have a direct link with the CBD focal point (the Environment Division of Ministry of Forest and Soil Conservation) but it does have a close link with the Ministry's Department of National Parks and Wildlife Conservation. Meetings are organised both at central and field level to brief the DNPWC on project activities. Some important issues, such as revising the permit system to allow harvesting of *Typha* within the Reserve have also been discussed. This project has also supported the DNPWC in updating the Ramsar Information Sheet for Koshi Tappu Ramsar site.

3. Project progress

Our project aims to address the issues of unsustainable exploitation at KTWR by moving from a situation of unsustainable use to sustainable use, and by increasing the benefits resulting from the conservation and use of the biodiversity of the reserve and its buffer zone. We are taking a 'learning cycle' approach to project delivery. The stages of this cycle are:

1. Researching how people use wetland resources in and around Koshi Tappu, and relating this resource use to social and environmental conditions
2. Evaluating this information to identify:
 - potential impacts of wetland resource use on KTWR and buffer zone biodiversity;
 - the appropriate target groups of people for our project;
 - the barriers to local people obtaining sustainable livelihoods from wetland resources.

3. Production of plans to set out actions required to overcome these barriers

4. Implementation of these plans

As the plans are implemented, monitoring and evaluation enable us to better understand resource use and the impacts of this use, and refine the plans accordingly.

The project is now at the half way stage. This report concerns progress in the second half of year 1 and the first half of year 2 of the project.

3.1 Progress in carrying out project activities

In implementing the plans developed through the project, we develop the tools necessary to implement them, demonstrate these through individual actions, and disseminate the results of this work through communication, education and public awareness (CEPA).

This approach results in the production of four main outputs from the project:

1. Trained people and built capacity: involving personnel from organisations trained in various survey, evaluation and monitoring practices, and members of local community groups trained in a range of livelihood and associated management practices
2. Guidance on managing wetlands for sustainable livelihoods based on the information gathered under the project
3. A specific plan on managing fisheries in Koshi Tappu, recognising the key role that fisheries play in people's livelihoods
4. Dissemination facilities through which information can be conveyed concerning these guidelines and awareness of wetland values can be raised

Output 1. Personnel trained and capacity built in local organisations and community groups

A participatory wetland socio-economic valuation (**Activity 1.1**) and the formation of a Committee to oversee the Community Action Plan (CAP) (**Activity 1.2**) were reported on in the 1st Annual Report. These provided the initial information and structures required to assess and assist in the delivery of training. The learning needs assessment (**Activity 1.3**) has drawn on this information to assess the learning aims of the project, identify the audiences for learning (which includes training), and propose some of the main opportunities for communicating with these audiences. This was completed following a visit by UK project staff in October/November 2007 (see Annex 3.1). As a result, the learning aims of the project were identified as:

- To demonstrate and disseminate information about the values of the KTWR wetlands and associated habitats.
- To link the above with livelihoods associated with the KTWR and buffer zone natural capital.
- To reveal benefits associated with sustainable livelihood options.
- To demonstrate, through skills transfer training, sustainable livelihood options, both in terms of using the buffer zone directly, and developing sustainable technologies around villages and cultivated land.
- To disseminate project findings, outputs and outcomes to wider, targeted audiences.

The audiences for learning were identified as local people, local school children, Nepali tourists, and overseas tourists. In tandem with the above, the project (findings, outputs and outcomes) will be communicated to: local government officers, village and community leaders, politicians, donors, project professionals and national/international colleagues.

The main opportunities for communicating were proposed as:

- 'Drop in' centres where local people chat in an informal situation, learn about and buy, hire or repair equipment, receive training through skills transfer, and have opportunities to earn income from seasonal visits from tourists
- Teacher and pupil support materials that deliver the environmental sciences curriculum, as well as other parts of the curriculum, using illustrative examples from the Koshi Tappu area.
- A Koshi Tappu fair, linked to the annual Bird Fair co-organised by Bird Conservation Nepal, with talks, stalls, craft areas, food outlets, and family/child oriented games and activities, underpinned with environmental/sustainability messages.
- Cultural tourism initiatives for tourists, for instance craft days, guided village tours and home-stays.

The Community Action Plan outlined the main training activities required to implement the CAP, and these activities are currently being undertaken (**Activity 1.4**). The following training has been completed or initiated in 2007/08:

Mat weaving training – the participatory wetland socio-economic valuation (undertaken as Participatory Rural Appraisals-PRAs) identified mat weaving (using *Typha latifolia* stems) as a major income-generating activity using wetland resources around Koshi Tappu. Although *malaha* people are the key wetland resource users around Koshi Tappu; they are not traditionally involved in mat-weaving. Six training events, each of one week duration, were held to enable *malaha* and other people from wetland-dependent communities to learn mat weaving skills and thus diversify their sources of wetland-related income. A total of 123 women received training. Evaluation suggested that the training succeeded in its aims. A full report on the training is attached (Annex 3.1).

Fish farming training – the PRAs, and resulting CAP identified improving the access of landless, poor, wetland-dependent people to fish as one of the key requirements for sustainable wetland resource management. A fundamental element of this is providing training in fish farming techniques, in association with provision of enhanced access to fishponds. A number of fishponds have been leased (see under Activity 2.7 below) to provide access to 40 people from the project target groups. These same people will receive training in fishpond management, divided into two or three stages over the next 6-9 months to be timed to co-incide with different stages in the production cycle of fish. The first part of the training was a 3 day exposure visit for 23 *malaha* fishermen to fishponds being managed at Chitwan, under the guidance of Madhav Shrestha of the Institute of Agriculture and Animal Science (IAAS – part of Tribhuvan University based at Chitwan). See Annex 3.3. An intensive pre-stocking fish farming training has also recently been carried out, for 4 days. Training was focused on those fish farmers who are involved in management of the ponds leased by the project. A total of 20 farmers were trained. Experts from the Fisheries Research Centre were invited as trainers. A training report will be produced in due course.

Participatory biodiversity monitoring training has been carried out at a recent workshop – see under Output 2 for more details.

Training in survey methods was undertaken as part of the visit made by UK staff in October/November 2007. Mohan Siwakoti from the Natural History Museum of Tribhuvan University received training in invasive plant survey techniques by Sean Murphy from CAB International. Rosha Raut, of the Environment and Public Health Organisation in Kathmandu received training in eco-hydrological survey techniques by Matt Simpson of WWF.

A local fisheries officer, Pramod Kumar Rijal, is receiving training as part of his Masters studies in the Department of Aquaculture of the IAAS at Tribhuvan University under the supervision of Madhav Shrestha and Seb Buckton. Pramod is studying the role of fisheries and aquaculture in livelihoods in the Koshi Tappu Buffer Zone. His studies are partly supported by the Darwin project.

Bhagwan Dahal, the Darwin Project Officer has received informal in-job training throughout the year in a variety of areas: project management, financial management, presentation skills, community participation and learning cycles, ecohydrological surveys, invasive species surveys, and participatory biodiversity assessment and monitoring.

An output of the community learning workshop (**Activity 1.5**) to be held within the next 6 months, will be a community learning plan (**Activity 1.6**) These activities both relate to further implementation of the learning needs assessment. The recently appointed Education Officer will oversee the implementation of these activities with input from the UK project team. Further detail can be found under Output 4.

Output 2. Sustainable wetland management promoted using wetland management guidelines for sustainable livelihoods

The PRAs (**Activity 2.1**) provided the initial research to identify some of the key issues in managing wetlands for sustainable livelihoods around Koshi. The subsequent CAP (**Activity 2.2**) has now been finalised and approved by the Action Plan Committee. It describes much of the action required to promote sustainable livelihoods. The CAP together with a progress report on its implementation is presented in Annex 3.4. Wetland tenure surveys (**Activity 2.3**) were carried out in April and May 2007. This identified 270 ponds in the buffer zone, the vast majority (231) found on the eastern side of KTWR, and just 39 on the western side. Ownership was ascertained – the majority are privately owned, some are ‘community owned’, which often means publicly owned.

An initial suite of 30 field sites (ponds) were established in April 2007 (**Activity 2.4**). Data collection from these ponds (**Activity 2.5**) has been carried out as follows: basic water level measuring instruments (graduated bamboo poles) were installed at 20 ponds and fishpond owners recorded water levels at weekly intervals since May 2007; water samples were taken from 30 study ponds in March and April 2007, with a second set of samples taken in November 2007 and analysed at labs in Kathmandu; eco-hydrological surveys of waterbodies within the buffer and core zones of the Wildlife Reserve were undertaken in 2007. In combination, these data will describe waterbody hydrological, habitat, ecological and livelihood characteristics to inform the following:

- Identification of physical waterbody characteristics that are potential barriers to local natural resource users obtaining sustainable livelihoods from buffer zone wetlands;
- Wetland management for sustainable livelihood guidelines; and
- Sustainable fisheries management plan.

This is being achieved by completing the following objectives:

- Development of a classification of waterbody type based on habitat, hydrogeomorphology and land ownership;
- Statistical analysis to determine typical physical characteristics for each waterbody type;
- Statistical analysis to determine livelihood diversity and importance for each waterbody type;
- Statistical analysis to determine biodiversity importance for each waterbody type; and
- Development of different waterbody models to illustrate different overall management goals such as productive fish ponds; ponds management for multiple livelihoods; ponds managed for biodiversity etc.
- Sustainable livelihood, biodiversity management and sustainable fisheries management advice on a waterbody type basis.

Initial analysis is being carried out at the time of writing and will be reported on in due course.

This survey work together with the PRAs have provided information that will inform the establishment of participatory biodiversity surveys and monitoring (**Activity 2.6**). An initial participatory biodiversity monitoring workshop has recently been held during which 20 wetland user group members game scouts and the Ranger of the KTWR carried out a participatory biodiversity assessment, and received training in participatory biodiversity monitoring, resulting

in the identification of biodiversity monitoring indicators. A workshop report will be produced in due course. The objectives of the workshop were to understand the perceptions of local people about the benefits of and barriers to a participatory biodiversity monitoring program, to develop methods for data collection and dissemination, and to raise awareness of the value of biodiversity to their livelihoods. Expected outputs are a better understanding of the values of biodiversity to people's livelihoods and the need for monitoring; a preliminary plan for a participatory monitoring programme, and staff trained in methods of monitoring biodiversity locally

Further work is now required to devise an appropriate programme for monitoring and this will be the subject of further workshops over the next few months.

A key element of biodiversity that has significant livelihood implications at Koshi are invasive alien weeds (IAW). Several species are found at Koshi and have been mentioned in PRAs and fisheries surveys as problem plants. Gaining a better understanding of their distribution is key to assessing the impacts and devise solutions. Surveys were undertaken in October 2007/08 and a recent visit by Sean Murphy has established a sampling strategy. Simple methods were developed with the Nepali project staff to understand the more general distribution and incidence of IAW at Koshi Tappu. The primary aim is to gain a better understanding of the issue in the buffer zone and the reserve, but the methods could be used to set up a monitoring scheme for the longer term if the reserve authorities require this. Overall, the method is based on ranking the incidence of invasive plants using a simple visual score. The methods were tested during the visit by the Darwin Nepali project team and found to be suitable. A first survey will be conducted pre-monsoon, in April 2008 and a second, post-monsoon, in about October/November. The data collected will be displayed on a map of Koshi Tappu. This will show any trends geographically in the IAW incidence. to record invasive. A full report is provided as Annex 3.5.

The above activities under this output will inform management actions to be taken to improve and demonstrate livelihood options and enhance wetland biodiversity (**Activity 2.7**). The first stage of this has been to acquire management control over a number of fishponds where our target group are involved in developing appropriate management of these ponds. Five fishponds have been leased (leases have a three year term), and training is being provided in fishpond management. Support has also been provided to purchase fertiliser and fish fry to stock the ponds. These are key elements identified within the CAP (see Annex 3.4). These sites together with other ponds identified from the previous activities will enable us to develop best-practice management that enhances our target groups ability to obtain livelihoods that are sustainable and do not compromise ecological integrity. These actions will result in the production and dissemination of wetland management guidelines in Year 3 (**Activity 2.8**).

Output 3. Sustainable Fisheries Management Plan developed and promoted

The PRAs and other surveys have highlighted the crucial role that fisheries play in the lives of people living around Koshi Tappu. Fish are also a key component of wetland biodiversity. There is a need therefore for a specific output of the project that addresses the issues relating to the fishery of KTWR.

Fisheries management surveys have been continuing throughout the period reported on here (**Activity 3.1**). These have been carried out partly under other activities (e.g. PRAs, data collection from field sites, etc.), and partly by targeted survey work undertaken by staff and students from IAAS of Tribhuvan University, Chitwan. A survey of fish pond management practices in buffer zone fish ponds was carried out during March-April 2007. A total of 22 fish farmers around Koshi Tappu Wildlife Reserve were interviewed, and provided information on their fish-farming practices, particularly with regard to the hydrological requirements of their fishery (see Annex 3.6). A number of ponds were visited in October/November by the full project team and informal discussions held with fish farmers about their practices. These are helping in the development of the plan (**Activity 3.2**) which is on-going. A draft Fisheries Plan (**Activity 3.3**) will be produced later this year, and aims to maximise livelihood benefits for all living around the KTWR, without compromising ecological integrity.

Objectives-based management within the fisheries plan will address the value various stakeholders place on the fishery; with stakeholders, jointly set objectives for the fishery to achieve that value; base the management of the fishery on those jointly set objectives; and make fisheries management more transparent. The fisheries plan will develop clear links between the strategies and services proposed specifically for fishery and the objectives of the wider Community Action Plans. Fisheries stakeholders will devise the best way to maximise the value of fisheries and aquaculture, whilst taking environmental and social limits into account.

This plan will be developed further later this year, leading to the production of the final plan in year 3 (**Activity 3.4**)

Output 4. Darwin Centre for Wetland Management for Sustainable Livelihoods established

Although none of the activities under this output were timetabled to have been completed by this stage, other project activities have resulted in progress being made in terms of determining the appropriate purpose and form of the centre (**Activity 4.2**). During the learning needs assessment it was noted that fishermen often use community 'drop in' centres when visiting local markets. Such places (often a simple room) offer opportunities to engage fishers in learning activities. These include as places to socialise and 'chew the fat' in an informal situation; as places to learn about and buy or hire equipment, and repair existing equipment; as venues for skills transfer training; as venues that could offer seasonal visits to tourists with income generating opportunities (from crafts, say or wetland food products). Linking such a centre to an existing business (such as a tea-shop) would enhance sustainability, whilst decentralising the location would make such centres accessible to a far wider number of people.

Content for these centres will be developed over the next 6-12 months (**Activity 4.4**), drawing on findings from the research activities undertaken under output 2. A poster has already been produced highlighting the values wetlands bring to people around Koshi Tappu (see Annex 3.7).

A centre development workshop (**Activity 4.1**) will then comprise a community learning element, during which ideas will be further developed and content discussed with local stakeholders, and a centre operation element, where locations will be decided and content added, deleted or modified as appropriate. The facilities will then be developed/enhanced as appropriate (**Activity 4.3**) and opened in year 3 (**Activity 4.5**).

3.2 Progress towards Project Outputs

Output 1. Personnel trained and capacity built in local organisations and community groups.

Progress has been good in training personnel and building capacity. The target of 25 trained personnel in the original project logframe have already been exceeded. This is because the nature of the expected training has broadened to encompass a greater element of livelihoods training. Such training events are relatively simple to organise and inexpensive, as they draw on locally available knowledge and use community buildings, at minimal cost. They are proving a productive way of engaging with a relatively large number of people and are being used as a way also of raising awareness of the relationship between livelihood provision and sustainable wetland management.

To date, technical training has been undertaken only informally, as in-job training by UK staff. Opportunities for external provision of training are continually being assessed. The Project Officer gained from attending a conference on Managing Wetlands for Sustainable Development in Trang, Thailand in January 2008, and presented material from the project. Such opportunities help build capacity in partner organisations. As reported in the half-year report, the training due to be carried out in the UK involving the Darwin Project Officer was delayed and the costs carried forward into the 2008/09 Financial Year. Plans for this visit are

being developed now with the intention that the Project Officer visits the UK or elsewhere in Europe to receive training in 2008.

Technical training of staff from local organisations will expand as the other outputs of the project continue to be delivered. For example, the participatory biodiversity monitoring workshops will involve training of local reserve staff in monitoring techniques. Invasive species and eco-hydrological surveys will continue to involve training of local staff. The newly appointed education officer will receive training in community learning as the project progresses, and will then deliver training to others; it is intended that this will include local school teachers.

Where training has been formal, evaluation has been undertaken through the completion of evaluation forms. Levels of literacy mean that some training evaluation has had to be carried out by interview. Generally training has been effective at meeting its objectives.

Output 2. Sustainable wetland management promoted using wetland management guidelines for sustainable livelihoods

Progress toward the promotion of sustainable wetland management is dependent on the production of wetland management guidelines and the development of the means of dissemination. Although the guidelines are not due to be produced until year 3, interim findings have enabled progress to be made in developing the networks through which awareness of the need for sustainable wetland management is being raised. For example, a newsletter has been produced (see Annex 3.8 for English language version) and 4,000 copies printed for circulation amongst buffer zone communities. The newsletter includes information about the project but primarily aims to highlight the reliance of people on wetland resources and the need for their sustainable management. A second newsletter will be produced in year 3, and will provide the opportunity to convey information about specific wetland management issues and practices.

Literacy levels, particularly amongst our target group, is quite low. Thus a more effective means of communication is through radio. We now have a regular slot on a local radio programme broadcast every week. This has been through partnership with the District Development Committee for Sunsari District, in which most of the project area falls. More details are presented in the dissemination section 8 below.

However, sustainable wetland management will not be achieved purely by raising awareness of values – management practices that result in benefits accruing to our target group also need to be developed, demonstrated and this information disseminated. The leasing of fishponds will allow us to develop techniques at real sites involving members of our target group. These actions aim to improve the wetland related income of 20 households of our target group. So far, ponds have been leased that can support a total of 40 people (representing 40 households) so we are in a strong position to be able to meet this target.

Many of the sustainable wetland management actions to help achieve sustainable livelihoods are set out in the Community Action Plan (CAP). This plan provides a tool for monitoring and evaluating progress, and a first progress report is provided (Annex 3.4). Ideally, monitoring and evaluation of the CAP should be undertaken by members of the Action Plan Committee, but so far there has been limited oversight by the APC since the CAP was produced. This situation will be remedied by the recent translation of the CAP and progress report into Nepali, but additional effort is required to build capacity in the APC to oversee monitoring and evaluation of the plan. This will be addressed through discussion between project partners in Nepal and the Buffer Zone Management Committee.

Output 3. Sustainable Fisheries Management Plan developed and promoted

The sustainable fisheries management plan will form part of the guidelines for sustainable wetland management. Considerable effort is being made to research current fisheries management, which is managed primarily by the KTWR office through a permit system. This permit system provides community fishers with a controlled opportunity to fish, although the permits are transferable within a community group, therefore fishing pressure remains fairly constant through most of the drier periods of the year. Fishing activity is reduced during flood periods. There is a noticeable lack of larger fish being caught and this will have knock-on effects on biodiversity in relation to large piscivorous birds. However, the current permitted fishing pressure is probably having a lesser impact on fish populations than the main Koshi Barrage blocking migratory paths for larger fish species, despite the inclusion of a fish pass.

A framework for the Fisheries Management Plan is being developed. Major topics to be covered include: current status of fisheries at Koshi; review of fisheries management approaches in reserve areas; impact of water control infrastructures on fishery populations; current fisheries management at Koshi; proposed improvements to fisheries management; potential impacts of improvements.

A key element in the fisheries plan is the provision of fish-rearing facilities. Two options exist: provision of a local nursery to allow locals to rear fish for selling; and/or developing small-scale decentralised hatcheries. See Annex 3.4 for more details. These options will be assessed in discussion with local stakeholders and progressed in years 2-3.

Output 4. Darwin Centre for Wetland Management for Sustainable Livelihoods established

The original intention was to establish a 'Darwin Centre' within the grounds of Koshi Camp, an eco-tourism centre adjacent to the reserve. An existing education building was to be enhanced to become the Darwin Centre. The suitability of this location for a centre however, is uncertain. Although some work was undertaken to improve the education building in 2006/07, flooding during the 2007 monsoon severely damaged the facility, and it has become impractical to maintain. There have also been some issues regarding the suitability of the location – although overseas visitors would be able to visit, and visits by school children could be arranged, it may not have been possible to allow public access to the site. As such, this facility would largely have been a visitor centre for overseas visitors, with some education work involving local school children. What is required however, is an information resource for local people that helps them to obtain sustainable livelihoods from wetland resources. Without good access, providing this at Koshi Camp would be impractical. As a result, the output level assumption (that information reaches local communities and schools) would probably not hold true.

The findings of the project so far (see activities under Output 3) indicate that a single 'Wetland Centre' approach is unlikely to deliver a facility of high utility to local people. Although a wetland centre can be an excellent way of engaging with visitors and raising awareness of conservation issues, in the context of Koshi the need for such a centre would be limited. Koshi does not currently attract a great many overseas visitors, and there is only limited interest in 'visitor attraction' type facilities amongst local people, partly due to the lack of time and resources to participate in such activities.

As any sort of visitor centre is likely to have significant running costs, there would need to be considerable income potential to justify the substantial effort and investment required to establish such a centre. As the primary audience for the management advice we are developing are people living in the buffer zone, who are spread over a wide area, with poor transport infrastructure (particularly on the western side of the reserve), a more suitable approach is to establish a small number of 'drop-in' centres spread throughout the buffer zone. These would be established as part of existing businesses (e.g. tea-shops, fishing equipment shops), to enhance their sustainability. Linking them to locations where local people already go will enhance their impact. Most importantly, they need to be viewed as resource centres – where there is information and advice that is of use to people to enable them to manage their livelihoods more sustainably.

As a result, the nature of this output has changed quite radically, and the indicators by which success can be measured have been altered to reflect this change. Nonetheless, the activities required remain, and the budget earmarked for Darwin Centre establishment will be used to develop and establish these drop-in centres, including some investment for capital improvements where necessary. The means of verification also remain valid, as each centre will require an operation plan and will be required to record the levels of its use.

3.3 Standard Measures

Table 1 Project Standard Output Measures

Code No.	Description	Year 1 Total	Year 2 Total	Total to date	Total planned from application
5	Project staff in-job training	1 Nepali staff	1 Nepali staff; 1 student	2 staff	1 staff for three years
6A	Number of people trained	0	171	171	44
6B	Number of weeks of training provided	0	10 weeks	10 weeks	6 weeks
7	Number of training materials	0	1	1	2
8	Project visits	2 UK staff weeks	12 UK staff weeks	14	19
9	Management and other plans	0	0	0	3
11A	Papers published	0	0	0	1
11B	Papers submitted	0	0	0	1
14A	Seminars organised	0	1	1	1
14B	Conferences attended	0	2	2	2
15A	Press release in Nepal	1	1	2	1
15B	Local press releases	0	1	1	4
15C	Press release and articles	2	3	5	4
16A	Newsletters produced	0	1	1	2
16B	Circulation	0	3000	3000	4000
17B	Dissemination networks improved	0	0	0	3
18A	Host country TV items	0	0	0	2
19A	National radio item	2	3	5	2

	in Nepal				
19C	Local radio item in Nepal	2	3	5	4
20	Physical assets value	5,674.59	743.22	6,417.81	17,700
21	Permanent training / educational facilities	0	0	0	1
22	Number of permanent field plots	18	16	34	20
23	In-kind contributions	3,727.13	9,934.25	13,661.38	35,728.76
New Project specific measures	N/A				

Table 2 Publications

Type *	Detail (title, author, year)	Publishers (name, city)	Available from (eg. contact address, website)	Cost £
Poster*	<i>Wetlands for Life!</i> Bhagwan Dahal, Seb Buckton, 2008	Bird Conservation Nepal, Kathmandu	BCN, PO Box 12465, Kathmandu, Nepal	0
Newsletter*	<i>Koshi Tappu Buffer Zone Newsletter.</i> Bhagwan Dahal, Seb Buckton, 2008	Bird Conservation Nepal, Kathmandu	BCN, PO Box 12465, Kathmandu, Nepal	0
Paper in conference proceedings*	<i>Using participatory socio-economic wetland valuation to address wetland management issues at Koshi Tappu, Nepal.</i> Bhagwan Dahal and Seb Buckton, 2007	Faculty of Environmental Management, Prince of Songkla University, Thailand	Seb Buckton, WWT Slimbridge, UK, GL2 7BT	0

3.4 Progress towards the project purpose and outcomes

Progress has been made towards the project purpose against the measurable indicators as follows: 1) Income from wetland resources has been promoted for buffer zone communities through a series of training events held for wetland dependent communities. 2) The development of participatory biodiversity monitoring activities will allow an assessment of the impacts of alternative livelihood promotion on wetland ecological integrity; and 3) livelihood related project activities have improved understanding of wetland values which will reduce current encroachment and illegal use of KTWR.

The means of verification of these indicators include KTWR reports, BZMC reports and DDC reports. However, to date, the availability of these reports and their veracity and utility in assessing progress are somewhat uncertain. We are discussing with the relevant authorities exactly what is available. In the potential absence of these reports, however, we have also identified other ways of verifying progress. Household surveys were carried out in 2006 which provided baseline data on income sources and resource use of 60 households. Repeating these surveys will provide a means of measuring progress. Monitoring of the CAP should

involve members of the BZMC, and thus reports on this should enable an assessment of progress, but as noted in section 3.2 above, capacity needs to be built in the ACP and BZMC to facilitate this.

We will also use the Most Significant Change (MSC) technique, which is increasingly used in social sciences as a means of measuring project impact. MSC is a form of participatory monitoring and evaluation. Essentially, the process involves the collection of significant change stories emanating from the field level, and the systematic selection of the most significant of these stories by panels of designated stakeholders or staff. The designated staff and stakeholders are initially involved by 'searching' for project impact. Once changes have been captured, various people sit down together, read the stories aloud and have regular and often in-depth discussions about the value of these reported changes. When the technique is implemented successfully, whole teams of people begin to focus their attention on program impact.

3.5 Progress towards impact on biodiversity, sustainable use or equitable sharing of biodiversity benefits

The overall goal of the project focuses on moving from a situation of unsustainable to sustainable use, and to increase the benefits to local people stemming from the conservation of biodiversity at KTWR.

Although measuring progress towards this goal is likely to be required beyond the term of the project to demonstrate an impact, we will be establishing monitoring indicators of buffer zone wetlands and methods of measuring socio-economic change that can be utilised beyond the term of the project. Capacity is being built in relevant organisations to ensure that this monitoring can take place.

The major benefits of the project in terms of impact on biodiversity are raising awareness of the benefits of biodiversity conservation to people's livelihoods, and the provision of management advice that enable people to realise these benefits in a sustainable way. These positive impacts will arise from a) a more positive attitude of buffer zone inhabitants to the existence of the reserve and respect for its rules and regulations b) livelihoods that are more diverse and therefore resilient to change, resulting in a reduced need to exploit resources unsustainably in times of need; and c) management and resource use practices that aim to enhance the status of the biodiversity that people's livelihoods depend on.

4. Monitoring, evaluation and lessons

As outlined in section 3.2, the primary means of reviewing progress internally is the CAP. Monitoring and evaluation of this to date has been overseen by the project team, but this needs to involve members of the APC, or the Buffer Zone Management Committee. As already mentioned, the CAP progress report has now been translated into Nepali with a view to greater input from APC.

5. Actions taken in response to previous reviews (if applicable)

A number of issues were raised by the reviewer of the 1st Annual Review, and these were addressed in a response to the review provided in June 2007. The issues raised have been discussed with partners and efforts made in this report to provide additional information where necessary.

One recommendation made by the reviewer was to establish better working relationship with local government (DDC and VDCs). Although the project has had a good relationship with these bodies, networking has been strengthened further this year, particularly through partnering with the DDC in broadcasting a weekly radio programme. However, the political situation in Nepal has meant that local politics has been in turmoil and devising an appropriate

strategy has been challenging. This is on-going and will be re-visited once the dust has settled on the recent Constituent Assembly elections.

6. Other comments on progress not covered elsewhere

The design of the project has been significantly enhanced over the last year, partly as a result of comments made in the 1st Annual Review, but also in light of the findings of the first 18 months of the project. The project logframe has been revised and approved, to better represent the project as it has evolved. The main change has been in determining the best way of delivering wetland management guidelines and training events.

As reported in the 1st Annual Report, the political situation in Nepal and specifically in the area around the site (known as the Terai, or Madesh) has again hindered some of the project activities. The western side of Koshi Tappu in particular has been a hotbed of activism, with potential threats to safety of project staff working on the western side. We have attempted to overcome these threats by a strong relationship with the Buffer Zone Management Committee, and by working with local people, who have helped deliver activities that have been carried out on the western side. This is a particularly important issue, because people living on the western side have historically been excluded from many project activities carried out at Koshi, and have not realised the benefits of projects or benefits from the existence of the reserve. This has been mainly due to the better transportation links and the presence of the reserve HQ and army post on the eastern side. The reserve authorities and army have very little presence on the western side and incursion into the reserve is common here. Many animals are illegally grazed on the western side as a result. Therefore any project activities that we can implement in the western zone are particularly valuable.

The other main impact of local political upheaval has been difficulties in travelling. Frequent sudden transport strikes have been called in the Terai throughout most of the year, as part of protests by local groups regarding the election process, in the run up to Constituent Assembly elections held on April 10th 2008. These elections were originally planned for November 2007 but were postponed due to the security situation. The protests culminated in an indefinite general strike being called by a coalition of agitating Madeshi groups on February 10th. This strike was called off earlier in March, after most of the local groups reached an agreement with the government, but they made implementation of many project activities, and involvement of UK staff in project activities on the ground challenging. Substantial delays were caused to the implementation of project activities as local project staff were not able to arrange meetings and workshops that had been planned for 2007/08. It also precluded a visit by UK based staff that was originally planned for February/March 2008, partly due to the uncertainties regarding the ability to travel in Nepal, but also because food and fuel were becoming increasingly scarce in Kathmandu, which relies heavily on import of goods and petrol by road from India that have to travel through the Terai. Despite this, most project activities have now been delivered as planned, and the project is largely on course, but this has only been possible due to the strenuous efforts and diligence of local project staff.

The elections on April 10th passed off largely peacefully. The expectation is that much of the conflict in Nepal will be resolved as a result of these elections being held, although there are uncertain times in the immediate future as the dust settles on the election results. We are keeping a watching brief on the situation and its impact on our project delivery.

7. Sustainability

As the project is focused on capacity building of wetland dependent communities, it has been well received by conservation organisations within Nepal, including government departments such as DNPWC. Field visits by UK partners and direct interactions with local communities, through radio programmes, awareness-raising materials etc. has been effective in promoting the project. Nationally, the project has supported the DNPWC in updating the Ramsar Information Sheet for Koshi Tappu.

The project works in coordination with DNPWC centrally and locally, and with local government authorities such as the DDC, KTWR, BZMC, District Agricultural Development Office (DADO), and local Community-based Organisations (CBOs). CBOs (wetland user groups) are the main beneficiaries at a local level. These stakeholders have been involved from the beginning of project implementation. We are building capacity in local CBOs so that they can continue activities after the project finishes.

The project has involved local CBOs in implementing the CAP. These CBOs are legally and technically matured and are linked with the KTWR, BZMC and DADO. The benefits from the project are closely associated with livelihoods of local people which suggest that outputs, outcomes and impacts should be sustained.

The host country partner BCN (the BirdLife Affiliate in Nepal) has identified KTWR as an Important Bird Area (IBA). This project has created an opportunity for BCN to work with local communities to enhance Site Support Groups (SSGs) for safeguarding the future of the IBA.

The philosophy of the exit strategy is that involvement of local people enhances their ownership of the project, and therefore the sustainability of the project outputs. Participation of local people in project activities (e.g. training, awareness-raising activities) has been good. We have found that locals are keen to be involved in these activities, which indicates increasing recognition for the connection between human well-being and the sustainable use of wetland resources. The formation of an Action Plan Committee to oversee implementation of the Community Action Plan is indicative of this participation. In promoting enhanced well-being, e.g. through increased economic benefit from sustainable use of wetland resources, long term impact should be possible. Following some of the training events held, community groups have started to deposit small amounts of money as a basket fund which will help support small scale activities after the project finishes.

Wherever necessary we are pursuing opportunities to maximise the sustainability of the project outputs, and adapting the project as we proceed with this in mind – see for example the reasons behind re-assessing the appropriate form and location for the Darwin Centre under section 3.2 above.

8. Dissemination

Promoting sustainable wetland management involves a range of awareness-raising activities, which are informed by the project results. The Learning Plan describes the target audiences and a number of opportunities for dissemination. Based on this plan, various activities to raise awareness have been carried out.

The Bird Festival celebrated at KTWR on World Wetlands Day 2008 was used to raise awareness of the importance of Koshi wetland habitats. We developed a community focus program jointly with wetland user committees, community forest committees, village development committees and school management committees. A number of wetland-themed activities were conducted, including a musical chairs game, and essay, quiz and art competitions. Over a hundred school children, teachers and local people participated in these activities.

A wetland product demonstration has recently been held during a local market day, to demonstrate the range of wetland products used by people around Koshi. Twenty local fish-dependent people were invited to participate and were able to sell example of there products at the market.

The project has produced 4000 posters (3000 in Nepali and 1000 in English) and has distributed these in the project area. Schools, government bodies, CBOs and local conservation NGOs are the main targets of distribution. We have also produced a newsletter (3000 Nepali and 1000 English) and circulation will be completed by the end of April.

Dissemination of project activities and outputs has also been carried out through various local media. In order to highlight the importance of Koshi Tappu and its wetlands among local

people, the project has started airing the 'Koshi wetlands conservation radio programme' on the local 'Saptakoshi FM' in collaboration with the DDC and other development partners working in Sunsari District. The DDC is the main lead organization for this radio programme. Radio is considered an excellent means of raising awareness amongst local people. The outreach of Saptakoshi FM is 16 districts including the KTWR buffer zone. The programme airs every week at 7:00-7:30 pm on Sunday.

Bird Conservation Nepal also manages a radio programme with the national 'Image FM' station. This station has coverage in 44 districts of Nepal including the project site. This programme is aired twice a month on Saturday from 7:45 to 8:00 am. Through this radio programme, we have been able to conduct seven episodes with a focus on the Koshi project.

A news article covering major project achievements by Bhagawan Raj Dahal, Project Officer has appeared in the BCN Nepali language newsletter *Munal*. A total of 1500 copies are printed and this newsletter has a large circulation in Nepal. A feature article in the BCN English language newsletter *Danphe* was published in the 25th Anniversary special issue. *Danphe* is circulated to all English-speaking members of BCN both within Nepal and overseas.

The Project Officer met with journalists to brief about the socio-economic status of fishing communities especially *malaha* people. A local newspaper subsequently published an item about the *malaha* community and fishing techniques.

Dissemination of the guidelines for wetland management will be carried out through the wetland information centres to be established under Output 4. The exact form of these centres will be determined to maximise the long term sustainability of the centre. For example, a model we will look at is a 'one-stop-shop', that has been developed in Bangladesh, where an existing local business (such as a tea shop or fisheries equipment provider) is enhanced to provide opportunities for dissemination. The link with a local business is likely to enhance the sustainability of the dissemination resource.

Additionally, since the project has established good links with KTWR, DADO, BZMC and DDC, these organizations can continue to support dissemination activities through their existing dissemination networks.

9. Project Expenditure

Table 3 Project expenditure during the reporting period (Defra Financial Year 01 April to 31 March)

Item	Budget	Expenditure	Balance
Rent, rates, heating, overheads etc			
Office costs (eg postage, telephone, stationery)			
Travel and subsistence			
Printing			
Conferences, seminars, etc			
Capital items/equipment			
Others			
Participatory Biodiversity Monitoring Training			
Wetland Management Training			
Water quality sampling			
Translation costs			
Audit costs			
Salaries Total			

Seb Buckton – Project Leader Matt Simpson – WWT Technical advisor Malcolm Whitehead – WWT Community Learning Emma Alesworth – WWT Centre Development Rob McInnes – WWT Technical advisor Anton Immink – Stirling Fisheries advisor Sean Murphy – CABI Invasive species advisor Bhagwan Dahal – BCN Darwin Project Officer Ishana Thapa – BCN Project Co-ordinator Dibesh Chaudhary – BCN Education Officer Ravi Pandit – BCN Participatory Monitoring Officer Ram Balak – BCN Assistant Project Officer Madhav Shrestha – TU-IAAS Fisheries advisor IUCN Project advisor Manoj Kumar Sah – KTWR warden project advisor DNPWC project advisor Gopi Yadav – casual assistant/facilitator Rishi Yadav – casual assistant/facilitator Kalpana Yadav – casual assistant/facilitator Ganesh Madal - casual assistant/facilitator			
TOTAL			

Agreed changes to budget

An underspend of about £3,350 arose in 2007/08 and was approved by DEFRA. This represents £1,150 (out of a total of £4,000) earmarked for Wetland Management Training activities and £2,200 (out of a total of £3,200) earmarked for participatory biodiversity monitoring workshops that had been due to be completed by March 2008. This underspend arose because it has not been possible to complete some elements of the project planned for 2007/08 (see Section 6 for details).

A participatory biodiversity monitoring and assessment workshop was recently undertaken but only covered part of the site – additional assessments will be required elsewhere. Similarly, a series of training activities in mat-weaving (a sustainable livelihood option utilizing wetland resources) have been carried out and a programme of fisheries management training has begun, but other wetland management training, focusing specifically on providing livelihoods and biodiversity benefits has not been possible. There have also been delays in locating fishponds (due to transport difficulties) that we can use to carry out pilot studies of fishpond management for sustainable livelihoods. Although these have now been located (and the budget for them spent), there were knock-on delays in delivery of the some of the training associated with this.

All these remaining activities will be carried out between April and the end of 2008, assisted by visits by various UK-based project staff in July and November/December 2008. These activities will be implemented alongside the other activities planned for 2008/09, so there should be minimal knock-on impacts on project delivery

Audit fees were higher this year than previous. Due to the project underspend this increased amount was approved by DEFRA.

WWT staff changes

Changes in the nature of the project and changes in WWT staff resulted in changes in allocation of staff time at WWT. Malcolm Whitehead, who was responsible for the Community Learning elements of the project has left WWT. Prior to him leaving he had fulfilled a major part of his role in developing a learning plan for the project (this will be submitted with the Annual Report). Emma Alesworth was responsible for Developing the Darwin Centre. Her experience lies in designing and developing wetland visitor centres. However this element of the project has evolved, because it has become apparent that a single 'centre' is not the most appropriate way of disseminating information amongst local stakeholders. Instead we are exploring options for establishing a number of 'one-stop shops' around Koshi that provide information on wetland management together with opportunities to meet other local wetland resource users, and also purchase related equipment. As such, Emma's role has been somewhat redundant in 2007/08. Seb Buckton picked up on most areas of this work, overseeing the implementation of the learning plan that Malcolm developed and overseeing the development of the one-stop shops. This resulted in an increased allocation for Seb. Rob McInnes at WWT has also picked up on some of the technical elements of the project to help with the workload, specifically advising on the implementation of eco-hydrological surveys and water quality surveys. His allocation for the last quarter has been 5 days (2.5%).

BCN staff changes

Following the visit of UK staff in October/November 2007 that helped clarify the actions required to deliver the project outputs, it was clear that a number of different strands were emerging from the project, and that it would be unreasonable to expect a single project officer to take all these elements forward, especially during this period of political instability in Nepal. It had always been likely that to deliver the project outputs we would need to have additional staff support for the project officer, but the nature of the support required has changed somewhat. During further project meetings in Nepal in January 2008, we identified three posts that were needed to support project activities – a project assistant and education officer (both full time until the project ends) and a participatory biodiversity assistant (full time for 9 months). Following approval from Darwin, these posts were advertised in Nepal and interviews held in February. The posts were taken up from the beginning of March 2008.

Funding for these posts for 2008/09 will be reallocated from the casual project assistants budget, and the budget to support salary of an advisor from IUCN Nepal (which was available for reasons provided in the 1st Annual report). Funding has also come from the budgeted support for salary of a DNPWC project advisor – although project team members have liaised with DNPWC over several aspects of the project, this has not yet required financial support in terms of salary. Additional resources have been required however to support the involvement of the KTWR warden.

The additional staff at BCN resulted in slightly raised capital costs due to providing IT and other office equipment for the additional staff based at Koshi.

10. OPTIONAL: Outstanding achievements of your project during the reporting period (300-400 words maximum). This section may be used for publicity purposes

[I agree for ECTF and the Darwin Secretariat to publish the content of this section](#)

Locally available wetland resources can provide a significant source of income if sustainable methods of utilization are known. However due to a lack of awareness of existing indigenous knowledge of wetland resource use to support livelihoods, these resources are often either neglected or underestimated. This can lead to their destruction through unsustainable use or poor management. Increased awareness of the potential benefits is likely to result in the sustainable resource management, and a wider appreciation of the economic values wetlands provide. In Nepal, one such resource use is the weaving of mats (called *gundri/patuwa* in Nepali) from cat-tail *Typha latifolia*, a wetland plant common through much of lowland Nepal.

Mats are used for various purposes: sleeping on, sitting on during meetings, storing crops, etc. As part of the Darwin Initiative-funded project at Koshi Tappu Wildlife Reserve in the lowlands of Nepal, Participatory Rural Appraisals (PRAs) were carried out that identified mat weaving as one of the main income-generating activities utilizing wetland resources around Koshi Tappu. The *malaha* people are the key wetland resource users around Koshi; PRAs identified that their livelihoods are mainly based on fishing in the Koshi River and surrounding wetlands. They are also the most disadvantaged, and often suffer rice shortages due to the unpredictability of their primary source of income (fish). However, *malaha* people are not traditionally involved in mat-weaving. To broaden the scope of livelihood opportunities available to the most wetland-dependent communities around Koshi, the project facilitated mat-weaving training events in the buffer zone around Koshi Tappu Wildlife Reserve. A total of six such events were held at different sites in the Koshi Buffer Zone in which a total of 123 local women were trained. Now these women are regularly weaving mats, and are able to contribute more to the household income. The desired outcome was to provide an alternative livelihood option for households from the poorest and most wetland-dependent people around Koshi, so that their dependence on other less sustainable wetland resources could be reduced. Many local people perceive the protected area as a barrier to obtaining a livelihood. This training has raised awareness of the value of wetland resources and their conservation, and will enhance local perceptions of the protected area.

Annex 1 Report of progress and achievements against Logical Framework for Financial Year: 2007/08

Project summary	Measurable Indicators	Progress and Achievements April 2007 - March 2008	Actions required/planned for next period
<p>Goal: <i>To draw on expertise relevant to biodiversity from within the United Kingdom to work with local partners in countries rich in biodiversity but constrained in resources to achieve</i></p> <p><i>The conservation of biological diversity,</i></p> <p><i>The sustainable use of its components, and</i></p> <p><i>The fair and equitable sharing of the benefits arising out of the utilisation of genetic resources</i></p>		<p><i>Various project activities have raised awareness of values of wetland biodiversity to livelihoods</i></p> <p><i>Management advice being developed to enable people to benefit from use of wetland resources in a sustainable way</i></p>	<p><i>(do not fill not applicable)</i></p>
<p><i>Purpose</i> Local communities around Koshi Tappu Wildlife Reserve (KTWR) manage buffer zone wetlands sustainably, obtaining sufficient livelihood without compromising ecological integrity of buffer zone and KTWR</p>	<p>Increased wetland-related income and employment opportunities in the buffer zone</p> <p>Reduced encroachment and illegal use of KTWR</p>	<p>Income from wetland resources promoted through training events</p> <p>Participatory biodiversity monitoring activities developed to enable assessment of impacts of alternative livelihoods on ecological integrity</p> <p>Awareness of wetland values raised and provision of benefits to people encourages wise use and reduces encroachment and illegal use</p>	<p>Alternative livelihood opportunities to be pursued</p> <p>Sustainable fisheries management plan to be developed and subsequently promoted</p> <p>Wetland management guidelines to be developed and subsequently promoted</p> <p>Awareness raised through combination of activities and provision of dissemination centres</p>
<p>Output 1. Personnel trained and</p>	<p>A minimum of 105 people (5 from 2</p>	<p>173 people have received training, including 146 in livelihoods training, 15</p>	

capacity built in local organisations and community groups	partner institutions, 100 from local communities) trained by end Yr 2 in alternative livelihoods, participatory biodiversity surveys, sustainable wetland management, and community learning and education	in participatory biodiversity surveys, and 10 in ecological survey techniques. Two staff from two partner institutions have received in-job training. More people have been trained than anticipated, and more will receive training
Activity 1.1 Participatory wetland socio-economic valuation		Completed
Activity 1.2 Formation of Action Plan Committees for eastern and western sectors of KTWR buffer zone etc		Completed
Activity 1.3 Learning needs assessment in collaboration with local schools and community groups completed		Completed – Annex 3.1
Activity 1.4 Training activities from CAP to improve livelihood options and enhance wetland biodiversity		Six mat-weaving training events held – 123 women trained. Annex 3.2 Exposure visit to Chitwan – 23 people trained in fishpond management. Annex 3.3 Participatory biodiversity monitoring training – initial workshops undertaken in March/April 2007 for 20 people Further fishpond management training to be completed by end March 2009 Additional participatory monitoring training to be completed by end September 2008
Activity 1.5 Community learning workshop		To be held by end September 2008
Activity 1.6 Community learning plan to provide basis for awareness raising activities Yr 2.		An output of Activity 1.5
Output 2. Sustainable wetland management promoted using wetland management guidelines for	Through local NGOs and BZUCs awareness raised of 2000 families in wetland values and sustainable	Findings of survey work have informed provisional concepts of guidelines. Dissemination networks have been developed through which awareness

sustainable livelihoods	wetland management practices Actions to improve wetland related income of 20 households of target group	will be raised. Newsletter produced to outline issues and distributed to 3000 locations Mat weaving training has provided skills in diversifying and increasing wetland related income. More opportunities will arise in the next 6-12 months
Activity 2.1. Participatory wetland socio-economic valuation		Completed
Activity 2.2. Community Action Plan (CAP)		Completed, and progress report completed – Annex 3.4
Activity 2.3 Wetland tenure surveys		Completed
Activity 2.4 Establishment of field sites		Field sites established April 2007
Activity 2.5 Data collection from field sites to inform management actions		Water level measurements since May 2007; water samples taken in April/May and October/November 2007; eco-hydrological surveys of 35 waterbodies in October/November 2007.
Activity 2.6 Participatory biodiversity surveys		See under Activity 1.4
Activity 2.7 Management actions from CAP to improve and demonstrate livelihood options and enhanced wetland biodiversity		Lease secured over five fishponds to trial management strategies to benefit target groups Management strategies to be developed and assessed over next 12 months
Activity 2.8 Wetland management guidelines for sustainable livelihoods produced and disseminated		Activity 7 will result in production of guidelines in year 3.
Output 3. Sustainable fisheries management plan developed and promoted	Management plan peer reviewed, published, disseminated and interpreted for local use; 1000	Current fisheries management research on-going and due for completion in next 6 months.

	copies produced and distributed by Yr 3; fish hatchery/nursery operating Yr	Framework for plan being developed Options for local nursery/decentralised hatcheries to be assessed in next 6 months and delivered in year 3
Activity 3.1 Fisheries management surveys		Fishpond management practices surveys completed in March/April 2007 TU Masters research Fisheries data collection from study ponds and from informal discussions with local fisherment in October/November 2007
Activity 3.2 Develop plan to manage fishery sustainably whilst providing sufficient livelihood to local people		Plan is being developed using information from Activity 3.1.
Activity 3.3 Draft plan		Draft plan will be produced in the next 6 months
Activity 3.4 Final versions produced		Final plan will be produced in year 3.
Output 4. Darwin Centre for Wetland Management for Sustainable Livelihoods established	Training and education facilities providing information and advice on wetland management, and interpretation for local and non-local visitors designed with local people and project partner advice, opened Yr 3	Appropriate form evolving – one-stop-shop linked to existing or new business most likely to be sustainable
Activity 4.1. Centre development workshop		A workshop will be held within the next 6 months and will combine community learning needs with centre operation requirements
Activity 4.2 Determine appropriate purpose and form of Centre		Initial assessment made using information gathered as part of other activities; the final purpose and form will be determined following activity 4.1
Activity 4.3 Improve existing facilities/develop new facilities		Facilities will be improved or enhanced following activity 4.2 in the next 6-12

	months
Activity 4.4 Develop interpretative material using information from surveys and workshops	Content will be developed over the next 6-12 months
Activity 4.5 Opening of facilities	Facilities will open in year 3.

Annex 2 Project's full current logframe

The revised format and the changes from the original logframe (indicated in bold) were approved by DEFRA in March 2008.

Project summary	Measurable Indicators	Means of verification	Important Assumptions
<p>Goal:</p> <p>To draw on expertise relevant to biodiversity from within the United Kingdom to work with local partners in countries rich in biodiversity but poor in resources to achieve</p> <ul style="list-style-type: none"> • the conservation of biological diversity, • the sustainable use of its components, and • the fair and equitable sharing of benefits arising out of the utilisation of genetic resources 			
<p>Project sub-goal</p> <p>Wetlands around Koshi Tappu Wildlife Reserve managed sustainably to increase benefits for local people from wise use of wetland resources, with resultant positive impacts on wetland biodiversity</p>	<p>Wetland biodiversity indicators of buffer zone wetlands</p> <p>Socio-economic indicators</p>	<p>Participatory biodiversity monitoring data</p> <p>KTWR reports</p> <p>Socio-economic surveys</p>	
<p>Purpose</p> <p>Local communities around Koshi Tappu Wildlife Reserve (KTWR) manage buffer zone wetlands sustainably, obtaining sufficient livelihood without compromising ecological integrity of buffer zone and KTWR</p>	<p>Increased wetland-related income and employment opportunities in the buffer zone</p> <p>Reduced encroachment and illegal use of KTWR</p>	<p>KTWR reports</p> <p>Buffer Zone Management Committee reports</p> <p>District Development Committee (DDC) reports</p> <p>Household surveys</p> <p>Most Significant Change surveys</p>	<p>Local communities remain involved in and supportive of the project</p> <p>Partner NGOs remain committed and viable</p>

Outputs			
1. Personnel trained and capacity built in local organisations and community groups	A minimum of 105 people (5 from 2 partner institutions, 100 from local communities) trained by end Yr 2 in alternative livelihoods, participatory biodiversity surveys, sustainable wetland management, and community learning and education	Attendance records Training assessment forms	Trained staff remain in institutions or local communities and use skills provided
2. Sustainable wetland management promoted using wetland management guidelines for sustainable livelihoods	Through local NGOs and BZUCs awareness raised of 2000 families in wetland values and sustainable wetland management practices Actions to improve wetland related income of 20 households of target group	Field survey reports Desk survey reports Reviews/feedback on guidelines Community Action Plan monitoring and evaluation	Local stakeholders willing to participate in development process
3. Sustainable fisheries management plan developed and promoted	Management plan peer reviewed, published, disseminated and interpreted for local use; 1000 copies produced and distributed by Yr 3; fish hatchery/nursery operating Yr 3.	KTWR reserve reports BZMC reports Reviews/feedback on manual	Management authority remains supportive
4. Darwin Centre for Wetland Management for Sustainable Livelihoods established	Training and education facilitates providing information and advice on wetland management, and interpretation for local and non-local visitors designed with local people and project partner advice, opened Yr 3	Operation plan for 5 years Visitor records	Information reaches local communities and schools, and has a positive impact

Activities
<p>Output 1. Personnel trained and capacity built in local organisations and community groups</p> <p>1.1 Participatory wetland socio-economic valuation Yr 1</p> <p>1.2 Formation of Action Plan Committees for eastern and western sectors of KTWR buffer zone Yr 1</p> <p>1.3 Learning needs assessment in collaboration with local schools and community groups completed Yr 2</p> <p>1.4 Training activities from CAP to improve livelihood options and enhance wetland biodiversity Yr 2-3</p> <p>1.5 Community learning workshop Yr 2</p> <p>1.6 Community learning plan to provide basis for awareness raising activities Yr 2</p>
<p>Output 2. Sustainable wetland management promoted using wetland management guidelines for sustainable livelihoods</p> <p>2.1 Participatory wetland socio-economic valuation Yr 1</p> <p>2.2 Community Action Plan (CAP) Yr 1</p> <p>2.3 Wetland tenure surveys Yr 1</p> <p>2.4 Establishment of field sites Yr 1</p> <p>2.5 Data collection from field sites to inform management actions Yr 1-2</p> <p>2.6 Participatory biodiversity surveys Yr 2</p> <p>2.7 Management actions from CAP to improve and demonstrate livelihood options and enhanced wetland biodiversity Yr 2-3</p> <p>2.8 Wetland management guidelines for sustainable livelihoods produced and disseminated Yr 3</p>
<p>Output 3. Sustainable fisheries management plan developed and promoted</p> <p>3.1 Fisheries management surveys Yr 1-2</p> <p>3.2 Develop plan to manage fishery sustainably whilst providing sufficient livelihood to local people Yr 2</p> <p>3.3 Draft plan Yr 2</p> <p>3.4 Final versions produced Yr 3</p>
<p>Output 4. Darwin Centre for Wetland Management for Sustainable Livelihoods established</p> <p>4.1. Centre development workshop Yr 2</p> <p>4.2 Determine appropriate purpose and form of Centre Yr 2</p> <p>4.3 Improve existing facilities/develop new facilities Yr 2-3</p> <p>4.4 Develop interpretative material using information from surveys and workshops Yr 2-3</p> <p>4.5 Opening of facilities Yr 3</p>

Dissemination and publicity

Radio broadcasts Yr 1, 2 and 3

Information provided to Wetland Link International web-site (Yr 3)

2 newsletters for local communities Yrs 2 and 3

Posters, info sheets Yr 2-3

WWT magazine articles Yrs 1, 2 and 3

2 peer-reviewed papers Yr 3

Monitoring activities

Collection of baseline data for monitoring indicators Yr 1-2

Develop ability to monitor purpose and output level indicators Yr 1

Develop indicators for project activities in consultation with APC Yr 1

Project evaluation workshop Yr 3

