SIGNATURE PAGE

Country: Nepal

Expected Outcome(s)/Indicator(s): Clear recognition and incorporation of environmental dimension into pro-poor policies

Outcome Indicator: Sectoral policies and plans address the linkage between the poverty and environment

MYFF Goal 3: Energy and environment for sustainable development
S.I. 3.1: Frameworks and Strategies for Sustainable Development

Expected outputs:
1) Wetland biodiversity conservation values integrated into national policy and planning framework;
2) Institutional capacity for wetland conservation and sustainable use strengthened;
3) Collaborative management of wetland resources for conservation and sustainable livelihood enhanced

Government Coordinating Agency: Ministry of Finance / FACD
Implementing Partner: Ministry of Forest and Soil Conservation (MoFSC) of Government of Nepal (GoN)

Other Partners: The World Conservation Union (IUCN) Nepal, Department of National Parks and Wildlife Conservation (DNPWC), Department of Forests (DoF), District Development Committees (DDCs) and Village Development Committees (VDCs)

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<tr>
<td>Project ID:</td>
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<td>ACC Sector/ Sub-sector:</td>
<td>20 Environment/10 Environment Policies Planning and Legislation</td>
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Project budget summary (US $)

| Total budget: | 4,061,969 |
| GEF | 1,964,895 |

Co-financing:
- UNDP | 533,562 |
- IUCN (Cash in kind) | 423,583 |
- GoN (in kind) | 1,135,350 |

Sub-total co-financing | 2,097,674 |

Agreed by (Government): [Signature]
Coordinating agency

Agreed by (Implementing agency): [Signature]

Agreed by (UNDP): [Signature]
Government of Nepal (GON)  
United Nations Development Programme  
Global Environment Facility (GEF)  

Other Partners:  
Ministry of Forest and Soil Conservation (MFSC)  
The World Conservation (IUCN) Nepal  
Department of National Parks and Wildlife Conservation  
Department of Forests  
District Development Committees and Village Development Committees  

Conservation and Sustainable Use of Wetlands in Nepal (CSUWN)  

Brief description  
The project will build capacity, and legal and policy frameworks (related both to conservation and development) for an ecosystem approach to wetland conservation and sustainable use. The project will ensure that national policies and planning frameworks identify and protect wetlands of global biodiversity significance and protect globally threatened species, including migratory species and improve transboundary cooperation. Awareness on and capacity of Nepal to engage in and to promote international policies and collaborative efforts for wetland conservation will be strengthened. It has been designed to influence two cycles of national and local development plans and to allow adequate time to achieve visible results and proper stakeholder takeover of project activities. Partnerships and capacity will be developed at both national and local levels to effect long-term changes to the perception, value, and sustainable management of wetlands in Nepal to ensure sustainability and replication of project initiated actions even after project end. The project will produce three Outcomes. These include Outcome 1 “Wetland biodiversity conservation values integrated into national policy and planning framework”, Outcome 2 “Strengthened national institutional, technical and economic capacity and awareness for wetland biodiversity conservation and sustainable use” and Outcome 3 “Enhanced collaborative management of wetland resources for conservation and sustainable livelihoods”.

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Acronyms

AGRBS Access to Genetic Resources and Benefit Sharing (draft Bill)
APP Agriculture Perspective Plan
BRCC Biodiversity Registration Co-ordination Committee
BS Bikram Sambai (Nepali calendar)
BZ Buffer Zone
BZDC Buffer Zone Development Committee
CNA Capacity Needs Assessment
CBD Convention on Biological Diversity
CBO Community based organization
CECI Canadian Centre for International Studies
CHDP Churia Forestry Development Project
CFUG Community Forest User Group
CITES Convention on International Trade in Endangered Species of Wild Fauna and Flora
CNA Capacity Needs Assessment
COP Conference of Parties
CTA Chief Technical Advisor
DDC District Development Committee
DFO District Forest Officer
DDG Deputy Director General
DDT Dichlorodiphenyltrichloroethane
DG Director General
DIO District Irrigation Office
DNFPC Department of National Parks and Wildlife Conservation
DoA Department of Agriculture
DoF Department of Forests
DoI Department of Irrigation
DSCWM Department of Soil Conservation and Watershed Management
ED Environment Division
EIA Environmental Impact Assessment
EUS Epizootic Ulcerative Syndrome
FAC Field Advisory Committee
FACD Foreign Aid Coordination Division
FMC Field Management Committee
FPMU Field Project Management Unit
GDI Gender-sensitive Development Index
GDP Gross Domestic Product
GEF Global Environment Facility
GGLC Ghodaghodi Lake Complex
GIS Geographic Information System
GTZ Deutsche Gesellschaft für Technische Zusammenarbeit, GmbH
Ha hectare
HDI Human Development Index
HH Households
GoN Government of Nepal
IAS Invasive Alien Species
ICIMOD International Centre for Integrated Mountain Development
INGO International Non-governmental organization
IPM Integrated Pest Management
IPRSP Interim Poverty Reduction Strategy Paper
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<td>IUCN</td>
<td>The World Conservation Union</td>
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<tr>
<td>KCA</td>
<td>Kanchanjunga Conservation Area</td>
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<td>Km</td>
<td>Kilometers</td>
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<td>KMTNC</td>
<td>King Mahendra Trust for Nature Conservation</td>
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<td>MP</td>
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<td>Master Plan for Forestry Sectors</td>
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<td>Mega Watt</td>
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PPP  Parks and People Program
PRA  Participatory Rural Appraisal
PSC  Programme Steering Committee
RTC  Regional Training Center
RUG  Resource User Groups
SCDP  Sustainable Community Development Programme
SNV  Netherlands Development Organization
Spp.  Species
TAL  Terai Arc Landscape
TAR  Tibet Autonomous Region
TCC  Technical Coordination Committee
TK  Technical Knowledge
UG  Users Group
UN  United Nations
UNDP  United Nations Development Programme
UNEP  United Nations Environment Programme
UNESCO  United Nations Educational, Scientific and Cultural Organization
UNFCCC  United Nations Framework Convention on Climate Change
VDC  Village Development Committee
WTLC  Western Terai Landscape Complex
WWF  World Wildlife Fund
Yr.  Year
1. Situation Analysis

*Context and global significance*

1. Nepal hosts great wetland diversity, including floodplains of snow-melt fed “cold” Himalayan rivers, and “warm” rivers originating in the lower hills; high altitude glacial lakes; marshes; hot springs; ponds; oxbow lakes; seasonally flooded forests and grasslands; rice fields and swamps. They also harbour 42 globally threatened species (IUCN Red List 2002). Of the 859 bird species found in Nepal, 193 (22.5 percent) are wetland dependent, including several migratory and globally threatened species. Of the 30 endemic vertebrate animals found in Nepal, 17 are wetland-dependent including nine species of herpetofauna and eight fish species. It is believed that 25 percent of Nepal’s estimated 7,000 species of vascular plants are wetland dependent, and 26 of 246 endemic flowering plant species are so dependent. Nepal’s wetlands also hold several species of wild cultivars and wild relatives of cultivated crops, including five species of wild rice and two wild relatives of rice.

2. Whilst wetlands benefit all Nepali people, they contribute significantly to at least 20 wetland-dependent indigenous ethnic and caste groups; who traditionally lived off fishing, the sale of fish and crafts produced from wetland resources and by providing river transportation services. They constitute more than 11% of the country’s population. They are some of Nepal’s poorest communities.

3. Despite being important for both ecosystem condition and human well being, wetlands continue to be lost and degraded. The threats to wetlands and their root causes are summarised in Figure 1.

4. This Project will address the root causes of wetland degradation and loss in Nepal by strengthening national policy and capacity on wetland conservation and by linking national actions with work at two wetland demonstration sites of global importance: the Koshi Tappu Wildlife Reserve and its buffer zone and the Ghodagodi Lake Complex (outside the protected area system), both of which are wetlands of global importance (Ramsar sites). Activities are also planned to influence policy and plans of the four districts, to integrate wetland conservation values, where the two demonstration sites are located. The Project has also explicitly built in activities to test the relevance of its approaches and tools in other wetlands in Nepal—particularly in the mid-hills and high mountains—through partnerships with institutions and projects working in those areas.

*Threats, root causes and barriers analysis*

5. Major threats to wetland biodiversity in Nepal can be categorised as a) habitat destruction and degradation; b) loss of ecosystem integrity; and c) depletion of species abundance and diversity. These threats are described below, their causes are summarized in Figure 1, and both are described in detail in Annex 1. Details of the threats faced at each of the demonstration sites are given in Annex 2.

*Destruction and degradation of wetland habitats*

6. Geographic inaccessibility, paucity of resources and, more recently, armed insurgency, has hindered economic development in Nepal, particularly in the mountain areas and the mid-western parts of the country. This, coupled with a high population growth rate, and large-scale in-country migration from the hills to the lowland Terai, have radically increased the pressure on the country’s wetland systems and associated biodiversity. At the same time, a range of policy incentives have been provided to stimulate production in the agricultural sector, including subsidies and support to credit, inputs, marketing, research
and development. As a result there exist strong financial and price inducements to convert wetlands to other uses. Wetlands are still regarded as a wasteland by much of the population and are often drained or reclaimed for agriculture, industrial and urban use, particularly in the more developed central region of the country. Of the 163 wetland sites inventoried by IUCN (1998), 43 percent had suffered some degree of damage. With more than 25 million people in the country, and with 81 percent of the population engaged in agriculture, there is huge pressure for the modification of land-use, particularly within the lowland Terai where substantial settlements of migrants from the upland areas has pushed population growth rates up to 3.93 percent in some areas (e.g., in Kailali district). Much of this agricultural development produces a trade-off with the values of the wetlands for fish, wetland products, and the more generalized benefits of wetlands. In addition, inappropriate wetland management often results from wetlands being managed according to single sectoral objectives, e.g., water extraction for dry-season crop irrigation, or pumping wetlands dry to extract fish.

7. This increasing pressure on wetlands and forests has led to increased fragmentation of wetlands and associated forests, which has the effect of reducing previously extensive populations, especially of mammals and large reptiles, into genetically isolated sub-populations, many of which now risk falling below the threshold of population viability.

Loss of wetland ecosystem integrity

8. Alteration of the hydrological regime: Many wetland areas of Nepal depend upon the annual inundation by wet season water flows and their productivity is dependent on the level and duration of inundation. Changes to flood height and duration can result in some seasonal wetlands not filling up, or in previously permanent wetlands drying out. A number of existing and proposed developments may result in reduced peak flows and/or increases in dry season flow in rivers. The cumulative effects of these developments on biodiversity are unknown, but experience suggests they are detrimental. These include hydropower projects across major rivers in Nepal (including on the Mahakali, Karnali, Gandaki and Sapt Koshi) and a number of smaller ones; and a number of low-gated dams or barrages being built, with several more planned for irrigation and flood management (also across the border in India). Nepal has identified a total of 114 potential significant hydro-power projects and, these will pose major threats to wetland biodiversity by inundating important habitats; reducing downstream water flows, altering suspended load sediments, bed load transport, oxygenation, and nutrient dynamics; acting as barriers to migration; leading to associated development; displacing people into new ecologically-sensitive habitats; and changing local temperature regimes and microclimates. These threats will be even more sever if these are badly constructed and managed. They can isolate wildlife populations leaving them particularly vulnerable to the impacts of human development, catastrophic environmental events, demographic changes, and reduced genetic transfer and associated in-breeding.
FIGURE 1: A SUMMARY OF THREATS TO NEPAL'S WETLAND BIODIVERSITY, THEIR ROOT CAUSES AND PROPOSED INTERVENTIONS

**IMPACTS**

**LOSS OF STRUCTURE**
Destruction and Degradation of Wetland Habitats

- Drainage and reclamations for other uses
- Modification of land use
- Inappropriate wetland management
- Fragmentation

**LOSS OF FUNCTION**
Loss of Wetland Ecosystem Integrity

- Alteration of the hydrological regime: (river engineering, including dams and barrages, ground water extraction)
- Pollution (industrial waste, pesticides and herbicides, fertilisers, domestic sewage, sedimentation)

**LOSS OF COMPOSITION**
Depletion of Species Abundance and Diversity

- Over-harvesting of plant and animal produce (firewood and timber, fishing, grazing, poaching)
- Destructive harvesting practices (fish bombing, electro-fishing, poisoning, use of small-mesh nets, draining gravel and driftwood collection)
- Change in indigenous species composition
- Spread of existing alien invasive species

**KEY THREATS**

**ROOT CAUSES**

- Poor integration of wetland biodiversity values into economic and sectoral, legal and policy frameworks and poorly coordinated implementation of plans between sectors
- Inadequate technical, economic and institutional capacity, information base, and awareness for wetland biodiversity conservation planning and management decisions
- High local community dependence on wetland resources but low involvement in their management and low recognition of wetland values

**PROPOSED OUTCOMES**

**OUTCOME 1:**
Wetland biodiversity conservation values integrated into national policy and planning framework

**OUTCOME 2:**
Strengthened national institutional, technical and economic capacity and awareness for wetland biodiversity conservation and sustainable use

**OUTCOME 3:**
Enhanced collaborative management of wetland resources for conservation and sustainable livelihoods
9. Growing human population and increasingly polluted surface water make groundwater the main source of potable water and irrigation in many parts of Nepal, particularly in the Terai. But the lack of institutional control over usage to ensure adequate recharge, and lack of monitoring, has resulted in haphazard drilling for commercial and domestic use, which has produced considerable stress on the finite groundwater potentials e.g. Katmandu’s deep aquifer has dropped from 9m to 68m below the surface within past few years. Such reduction in groundwater levels inevitably affects surface wetlands.

10. As in the case of agricultural production, a range of fiscal and market instruments have been used in support of water-based development, often at the cost of downstream wetlands. Another critical factor is that development planning, investment appraisal and product pricing structures have paid little attention to the fact that natural ecosystems form an economic part of water infrastructure. While there has been a move in recent years towards full-cost recovery in pricing and investment in the water and energy sectors, both the allocation of investment funds and the calculation of market prices still focus only on the direct costs of establishing and maintaining physical infrastructure. They do not see the costs of ecosystem management as a necessary target for investment or as a component of price calculations. Yet, because wetlands provide both economic uses of water and economic components of the water supply chain, there is an appreciable cost to failing to factor them into investment and pricing decisions, to channel sufficient funds into their management as part of water infrastructure, or to invest in measures to avoid or mitigate downstream ecosystem impacts.

11. Agriculture intensification in Nepal is leading to an increase in the pollution load in its rivers and wetlands, which in the absence of government measures will continue to increase (it is estimated that about 2.699 tonnes of pesticides and about 1.15 million tonnes of chemical fertilizers are dumped annually into the Ganges River system in Nepal and India). IUCN’s inventory of Terai wetlands indicates that of the 163 wetlands surveyed, 31 percent were highly affected by pollution. Pollution sources also include untreated industrial effluent and domestic sewage and waste (e.g. 38 million litres of untreated wastewater are discharged daily into the wetlands of the Katmandu Valley alone, and more than 100 kg of soap and detergents daily into Phewa Lake, Pokhara) leading to gross wetland contamination. Such pollution has led to eutrophication and excessive growth of weeds (particularly alien species such as water hyacinth), and contributed to disease (e.g. a virulent fungal disease of fish called Epizootic Ulcerative Syndrome), thereby resulting in decreased numbers, and loss of species diversity and function, e.g. potable water supply. Elsewhere, inappropriate land use activities around wetlands (such as deforestation, over grazing) have exacerbated the problems of already high natural levels of soil erosion and sedimentation. All of Nepal’s rivers flow into River Ganges and contribute significantly to its sediment yield; with the Koshi River of Nepal alone contributing an estimated 170 million tons (40 percent) annually. All these threats cause loss of ecosystem function. Again, there has been little recognition of the economic costs to wetlands, and few attempts to factor wetland values into calculations of economic trade-offs or measures of profitability.

Depletion of species abundance and diversity

12. Most Nepali communities remain highly dependent on natural resources for their livelihood and over-harvesting of plant and animal products is commonplace. This has led to the steady depletion of resources to fulfill basic needs, in particular food, firewood, fodder, and construction material. This is particularly true for wetlands where unclear tenure arrangements, increasing population and the lack of alternatives are causing over harvesting. The survival of wetlands is also closely associated with forests but these are also under pressure from increasing human populations and their relentless demand for timber and associated products. Felling of Sal (Shorea robusta) and riverine forests for trade and domestic uses in the Terai, unsustainable collection of biomass such as leaf litter, fodder, and collection of medicinal and aromatic plants, have led to the depletion of forest cover and availability of resources.
13. The removal of driftwood and associated debris from riverbeds and banks for firewood, and unregulated mining of gravel and rock for road-building, decreases river productivity, alters the hydraulics and substrate composition, and eliminates essential habitat for several fish species during all or part of their life cycle, thereby endangering fish populations already under pressure from unregulated catches. Such habitat disturbance also has adverse impacts on other fauna— including birds, crocodiles, Gharial, otters and turtles. Traditional socio-cultural and agricultural practices in the Terai favour a high cattle population, which has exacerbated grazing pressure on grasslands and forests. Grasslands in the Terai are subject to heavy grazing pressure, which degrades and changes species composition resulting in scarcity of food for ungulates and leads to disturbance and destruction of bird habitat. Poaching is widespread in Nepal, often for subsistence purposes to supplement meagre diets but also for quick cash benefits due to inadequate alternative livelihood opportunities. Ineffective law enforcement and insufficient conservation awareness are contributory factors. The situation is exacerbated by the widespread use of destructive harvesting practices that destroy non-target species. These practices include fish bombing (use of explosives to collect all the fish from a specific area); electro-fishing (use of an electric charge to kill all aquatic organisms within a selected range); poisoning (causing mass-killing and polluting water bodies) use of small-mesh nets (thereby taking immature stock); and draining (removing breeding and feeding sites). Loss of ecosystem composition is further heightened by change in indigenous species composition caused by the introduction and spread of alien invasive species such as Water Hyacinth (Eichhornia crassipes), and farming of exotic fish species in natural ponds and lakes. Although significant profits and economic benefits can be gained from such unsustainable resource use levels and harvesting techniques, currently there are still few possibilities to gain in financial and economic terms from sustainable use of wetlands. This also means that there is a high local economic opportunity cost to limiting or curtailing existing unsustainable land and resource use practices. In the absence of alternatives, and in the face of widespread poverty and livelihood insecurity, these are currently costs that wetland-adjacent populations feel themselves to be unwilling, and in many cases economically unable to bear.

**Root Causes**

14. Although the direct threats to wetland biodiversity conservation in Nepal are habitat destruction and degradation, loss of wetland ecosystem integrity, and depletion of species abundance and diversity through unsustainable resource use, their root causes are:

- Poor integration of wetland biodiversity conservation values into sectoral, legal and policy frameworks, and poorly co-ordinated implementation of plans between sectors. There is no integrated approach to planning at the national and district levels, and a coherent, co-ordinated institutional framework for wetland management is lacking. Government agencies, organized along single sectoral lines, have overlapping jurisdiction over wetlands, leading to contradiction and conflict in their management. There is little awareness of wetland values and functions and hence these tend to be ignored in development plans leading directly to the loss of wetlands and the biodiversity they sustain. When developments are planned, economic trade-offs balanced, or project profitability assessed there is perceived to be little economic benefit to wetland conservation, and few economic costs to their degradation and loss. Macroeconomic and sectoral policies continue to favour wetland-degrading sectors, and to employ fiscal and market instruments that encourage activities and land and resource uses that lead to wetland modification and conversion. Because markets and prices remain distorted against wetland conservation there are few financial or economic disincentives for wetlands-degrading sectors to modify their activities. Investment in wetland management continues to be seen as an uneconomic use of land, funds and other resources. Until very recently, wetlands did not even receive any attention in conservation planning.

- Inadequate technical, economic and institutional capacity, information base, and awareness for wetland biodiversity conservation, planning and management decisions. Human and institutional
resources are extremely low in the biodiversity and natural resource protection and management sectors, particularly for wetland conservation. There are very few professionals in Nepal with technical or practical skills in wetland conservation and no mechanisms for these professionals to share their skills. A strong information base on wetlands, their values and functions, is also absent. There is a lack of basic information on most wetland biodiversity issues, with data holdings often fragmentary and limited in their coverage of issues, of varying quality, out-dated, unavailable or under-used. Few decision-makers are cognizant of the economic, ecological and hydrological processes that make wetlands so important for mankind, and of the principles of wise-use of natural resources. The under-valuation of wetland goods and services has acted as a pervasive force in hastening their degradation and loss. As well as influencing development and economic sectors, this has meant that conservation efforts have often been based on unsound economic and financial principles. They have largely failed either to set in place the incentive systems that are essential for their economic viability and acceptability, or to secure the funding base that is required for their long-term sustainability.

- **High local community dependence on wetland resources but low involvement in their management and low recognition of wetland values.** Many local communities, particularly wetland-dependent indigenous communities, have weak, un-diversified, and insecure local livelihoods based on the direct exploitation of natural resources. Lack of access and ownership over the resources, and a lack of opportunities to develop sustainable management practices, means that even though these communities recognize the implications of their unsustainable use, over-harvesting of plant and animal products remains commonplace simply because there are no supportive actions for their involvement in management and their capacity to seek alternatives is low. Due to a poor appreciation and understanding of wetland values, few market mechanisms exist either to capture these benefits as tangible cash values or to price them according to their true scarcity and value—for the environmental agencies that are responsible for formal conservation activities or for local communities who live around and use wetlands.

15. A detailed root cause analysis is presented in Annex 1.

**Sector Issues, Opportunities and Barriers**

16. The key issue for wetland biodiversity is the continuing and increasing rate of loss, leading to alteration of ecosystem structure, functions and composition. In Nepal, as elsewhere, the problem has been allowed to grow because national and local government agencies have attached little importance to wetlands, have ignored or underestimated the economic value of their goods and services, and because biodiversity conservation has been considered a sectoral issue,confined to protected areas, and a luxury that Nepal cannot afford at a larger scale. Even where efforts have been made in wetland conservation, the rights of poor and disadvantaged communities have not received adequate attention.

17. The sectoral approach in policy-making and planning has been particularly detrimental to wetland conservation given the co-ordinated multi-stakeholder approach that is required. Under the opportunities afforded by the recently approved Nepal Biodiversity Strategy (2002) and the National Wetland Policy (2003), it is anticipated that the Project will be able to bring key national government agencies to a forum to co-ordinate wetland management as well as integrate biodiversity considerations into their policies and plans. The main barrier initially will be to convince macroeconomic planners and sectoral line ministries of the benefits of promoting wetland biodiversity conservation. Therefore the Project intends to undertake work on valuation of wetlands to demonstrate that they are not wastelands, and to identify opportunities for capturing these values in support of conservation (through market-based instruments, local economic incentives, and sustainable financing mechanisms).
18. It will also support capacity building and awareness raising of policy makers and practitioners on the international and national commitments already made by the Government. The Local Self Governance Act offers an opportunity to demonstrate inter-sectoral planning and management at the District level (and integrate market-based instruments), and provide the basis to encourage national policy to further decentralize responsibilities to District authorities.

19. Regarding the perception of biodiversity conservation being a luxury that Nepal cannot afford, the project intends to demonstrate that local livelihoods and biodiversity conservation are inextricably linked, and will attempt to change the commonly-held belief of many sectoral line ministries that "conservation" equates solely with "protection" by demonstrating sustainable use. A key opportunity here is that some of the world's most successful examples of natural resources management have been the community forestry and the buffer zone management programmes in Nepal. These have demonstrated that successful local natural resources management is possible provided that supportive policies, capacity building actions, and long-term tenure securities exist, complemented by proper stakeholder identification and negotiated resource management planning at the local level. The Project will build on such successful examples by promoting collaborative approach to wetland conservation and by demonstrating community development based on sustainable utilisation of wetland biodiversity and natural resource conservation. This will be demonstrated at two project sites with complementary integration into national and local policy and planning frameworks and actions for replication across other wetland sites in Nepal. The focus will be on bringing communities directly into the management planning process, together with public authorities, identifying practical and sustainable alternatives for harvesting and collecting wetland resources and forest products, helping to influence local development policies, developing incentives for community-based conservation activities, and promoting the sustainable use of resources. At the same time, the project will work in key sectors (particularly agriculture and water resources) to identify and develop market-based instruments to price key wetland goods and services according to their full economic value, and to make sure that these values are factored into both development and conservation decisions.

20. The Project also highlights the livelihoods, cultural, spiritual and heritage aspects of wetlands. Such values are mostly ignored, since the focus is often on the production aspects of ecosystems. Though several "specialised" wetland dependent indigenous communities exist in Nepal (such as fisher folk) policies and actions have tended not to distinguish key stakeholders or "special interest groups" from general stakeholders. Thus, the Project's focused activity on documenting wetland dependent indigenous communities' knowledge and linkages with wetlands, and actions to empower them through capacity and coalition building and through understanding and addressing land tenure issues is an attempt to strengthen their access to and control over natural resources for sustainable livelihoods. There are opportunities to learn about community empowerment for natural resources management, particularly from the highly successful examples of community based forest management in Nepal, and to replicate such approaches for wetland conservation.

21. A key barrier for wetland conservation, as for other conservation activities, is the enforcement of existing legal provisions to their full intent, and in particular the EIA. While strengthening national capacity in EIA is beyond the scope of this project, the project will collaborate with existing relevant initiatives. Furthermore, whilst knowledge and capacity can contribute to better enforcement, there needs to be associated incentives for enforcement. At the local level, the Project strategy for strengthening enforcement is to replicate existing successful community enforcement mechanisms in Nepal such as anti-poaching units around protected areas and community based forest management. At the national level, there is a strong emphasis on awareness and capacity building for the judiciary as well as the development of financing strategies.
22. The Project recognises that the vulnerability of local people to natural disasters, poverty, poor overall development infrastructure, poor governance structures and political insecurity form some overarching barriers and that these lie beyond its scope. However, the Project has been designed with an understanding of these complexities and influences.

Institutional, sectoral and policy context

23. Whilst the Department of National Parks and Wildlife Conservation are the government’s designated focal institution for Ramsar Convention, they have no jurisdiction on the management of wetlands outside protected areas. Therefore, there is no effective institutional mechanism for wetland management in Nepal. Under the Local Self Governance Act 1999, locally elected institutions at the Village, Municipal, Metropolitan or District levels are also responsible for the conservation and sustainable use of natural resources. Though some of these bodies have taken up some actions for wetland conservation, their roles in wetland conservation overall has been extremely limited.

24. Nepal’s Biodiversity Strategy (NBS) (2002) identifies wetlands as one of the key ecosystems for Nepal. It stresses on the need to clarify institutional arrangements to facilitate wetland wise-use and conservation, to promote collaborative management, and to implement awareness raising programmes. Nepal became party to the Convention on Wetlands (Ramsar) in 1987 and a National Wetland Policy (2003) has been formulated. This Policy outlines the need for a co-ordinated approach to wetland management and stresses the need to conserve, manage and promote the wise-use of national wetlands, particularly through the collaboration of communities in the management and decision-making process. Nepal’s Water Resources Strategy (2002) also promotes aquatic ecosystem conservation through integrated water resources management.

25. The National Parks and Wildlife Conservation Act (1973) outlined the establishment of protected areas and wildlife protection in the country. Sixteen protected areas have been created, and they include several wetland sites. The Act also provides legal protection to several wetlands species. The Aquatic Life Conservation Act (1961, recently revised in 2002) also has provisions to protect several fish and other aquatic species. These do not, however, protect all globally threatened species found in Nepal and penalties are minimal and have little deterrence value.

26. The Forest Act (1993) provides a basis for collaborative wetland management inside national forest areas, particularly under community forests. The National Environment Protection Act (1996) and the Environmental Conservation Rules (1997) have provisions for Environment Impact Assessment and pollution control, and thus are also important for wetland conservation. Despite the existence of the The EIA processes and procedures envisaged under the Environmental Protection Act (1996) give inadequate consideration for biodiversity conservation. Pesticide Act (1991) and Pesticide Regulations (1993), the use and resulting spread of pesticides, particularly in the aquatic environment, is neither regulated nor monitored.

27. Although the sustainable environment and biodiversity management are emphasised in Nepal’s tenth Five Year National Development Plan, actual macroeconomic and sectoral policies are not supportive of wetland conservation. At the same time wetlands have been further discriminated against because they have not been subject to the support or prioritisation that these other sectors enjoy. Wetlands have long suffered from weak levels of investment, low budget allocations and a chronic shortage of longer-term or more sustainable funding sources.

Stakeholder analysis
Key wetlands stakeholders include traditionally wetland dependent communities, farmers, local government agencies, non-governmental organizations, research agencies and government agencies.

The key government agency for wetland conservation is the Ministry of Forests and Soil Conservation (MFSC) discharges its responsibilities for wetland conservation mainly under four separate departments, namely the Environment Division as the local unit for the Convention on Biological Diversity (CBD); the Department of National Parks and Wildlife Conservation (DNPWC), responsible for management of wetlands within protected areas and their buffer zones, responsible for some of the key programmes in the captive-breeding and reintroduction of aquatic fauna and the local unit with respect to the Ramsar Convention and CITES implementation; the Department of Forests (DoF), responsible for wetlands that fall within the national forest areas, some of which have been handed over for community management as community forests; and, the Department of Soil Conservation and Watershed Management (DSCWM), whose role is to support land-use planning (including watershed and sub-watershed management planning and technical service for land use development), land productivity conservation and infrastructure protection, and natural hazard prevention. One of the key responsibilities of the Ministry of Science, Technology and Environment (MoSTE) is on promoting effective FIA, pollution control, and enforcement and monitoring of environmental standards. Its responsibilities also include acting as the national agency for international treaties on the environment, including preparing strategies to implement the provisions of such treaties and taking a lead role in co-operation with other ministries to fulfil such international obligations (yet cf. Ramsar above), to study existing laws on various aspects of environmental conservation, amend and establish the legislative framework as necessary by amending existing policies and action plans and formulating national policy and action plans on the main aspects of environmental conservation, and to develop an umbrella law on environmental conservation and formulate rules, regulations and by-laws. The Ministry of Water Resources (MoWR) is responsible for hydropower, irrigation (including groundwater), and water-induced disaster prevention, while the Ministry of Agriculture and Cooperatives (MOAC) is responsible for agriculture development, including rice cultivation and aquaculture in the country. The Ministry also has a unit on agro-biodiversity, which is promoting conservation of wild varieties and wild relatives of the rice plant. The Ministry of Physical Planning and Works is responsible for drinking water supply in urban areas and the Department of Local Infrastructure Development and Agricultural Roads of the Ministry of Local Development is responsible for rural drinking water supply. At the local level, under the Ministry of Local Development, locally elected administrative bodies represented by District Development Committees (DDCs), and Village Development Committees (VDCs), or Municipal or Metropolitan Authorities have growing influence over conservation and sustainable development through a systematic shift towards decentralization of power under the Local Self Governance Act (1999) (LSGA). They are responsible for promoting local socio-economic development and natural resource management. In the process, they are required to draw upon the technical expertise and support of the various government agencies. Also at the local level are Chief District Officers, under the jurisdiction of the Home Ministry, whose duties include among others the enforcement of the Aquatic Life Conservation Act (1961), under the provisions made in its amendment in 1999. The National Planning Commission and the Ministry of Finance formulate economic policies and allocate budgets. The Poverty Reduction Strategy Paper (PRSP) provides the overarching framework for the country’s development, and the Five Year Plans articulate priorities and allocate indicative budgets for this period. These plans are formulated based on the priorities submitted by line agencies. Ministry of Finance allocates budget on an annual basis based on requests by line Ministries. With the introduction of the Local Self-Governance Act (LSGA), District Development Committees (DDCs) now have responsibility for many activities in their districts. Clarifying the institutional overlaps between the responsibilities of the line Ministries and the local development authorities (such as DDCs) for natural resources management remains a key challenge.

1 Sections 6 & 8 of the Aquatic Life Conservation Act, 1961
Baseline analysis

30. GoN and non-governmental organizations are currently carrying out a number of activities that relate to wetlands and sustainable development activities at the national level and in and around the Koshi Tappu and Ghodaghodi sites. Foreign donors support many of these baseline activities. There is approximately US$ fifteen million worth of baseline work relevant to wetland conservation in Nepal for the period 2003-2008. However, baseline work is largely aimed at securing domestic benefits, not global benefits. They are also largely aimed at the use of water and wetland resources for agriculture and fish production, as well as for energy production (hydroelectricity), and on general sustainable development and environmental protection activities at project sites. The primary focus is on economic growth, income generation and employment. With increased political instability caused by the insurgency, development spending has been reduced in recent years and resources for biodiversity conservation, already under-funded, have also declined. Despite the apparently favourable macro policy environment, baseline activities (or realities on the ground) largely ignore or give low priority to wetlands and aquatic biodiversity conservation.

31. Given the inadequate attention to and resources for biodiversity conservation in sectoral development plans, including global biodiversity conservation (and specifically, less attention to wetland conservation), it is certain that wetlands will continue to be degraded and converted to other land use, and global biodiversity values will continue to be lost unless significant and targeted actions are taken to supplement or modify this baseline. In particular, the following likely effects and impacts of the baseline on wetland biodiversity of global significance should be noted.

- Wetland conservation and wise use remain low priority in national policy and planning frameworks and budgets

32. Under the baseline, it is highly probable that plans and policies of institutions that manage, utilize and otherwise impact on wetland biodiversity will continue to remain uncoordinated, discriminating against biodiversity conservation, and often providing conflicting guidelines for wetland management. It is likely that weak and uninformed policies, planning and development decisions, both within and outside the sector, will continue. Sectoral policies, particularly those related to agriculture, fisheries, water resources, energy and industries will continue to be driven by development imperatives and goals that do not pay adequate attention to biodiversity conservation or to wetland values. Lack of consideration of wetland values is reflected in a range of economic policy disincentives and market distortions and failures that encourage wetland degradation and loss. The Water Resources Act (1992), for example, does not list conservation of wetlands nor has aquatic biodiversity among its many priorities and the Ministry of Agriculture and Cooperatives have been promoting exotic fish farming in natural lakes and ponds, leading to depletion of biodiversity. At the extreme, such unsupportive policy and economic instruments may even continue to contribute to wetland ecosystem and biodiversity losses.

33. It is also likely that environmental sector and biodiversity conservation policy and planning frameworks will accord inadequate priority for wetland conservation, particularly in achieving global conservation benefits. Until very recently, wetlands did not even receive any attention in conservation planning, e.g. the National Conservation Strategy (1989) did not include any provisions for wetland ecosystem conservation or sustainable use. The Nepal Biodiversity Strategy (2002) identifies wetland conservation as a priority but is likely to remain weak and ineffective because of the lack of political will, weak financial base and low support from all concerned sectors. The Strategy will need to be implemented. While the Wetland Policy (2003) advocates collaborative management of wetland resources, there is inadequate institutional structure and intersectoral support for its implementation.
34. Weak inter-sectoral support to sustainable wetland management is also caused by a poor understanding of wetland issues among senior decision-makers and the lack of mechanisms for inter-sectoral co-ordination to bring policy makers, practitioners and community stakeholders to common platforms to discuss issues, share knowledge and undertake joint planning and implementation. Under the baseline, no mechanisms exist for significant inter-sectoral coordination efforts for wetland conservation.

- Weak institutional, technical and financial capacity for wetland biodiversity conservation and sustainable use

35. The current poor knowledge, technical skills and tools for wetland conservation planning, particularly on globally important wetlands, are likely to continue. The lack of policy-relevant information and tools, such as poor policy awareness for the legal protection of globally threatened species, low capacity for using economic tools for wetland management planning, and low recognition and value of indigenous knowledge on sustainable wetland management, will continue to hamper wetland biodiversity conservation. Current information and lessons on wetland issues will remain fragmented, and largely inaccessible to planners, managers and decision-makers due to the lack of dedicated institutional mechanisms and resources for collecting, collating, generating, and disseminating wetland conservation information from Nepal and elsewhere. There is currently very little research on wetland biodiversity issues and under the baseline this is likely to continue. There is little understanding of wetland values and functions, the principles or practical applications of wise use and the global importance of wetland biodiversity at all levels. This lack of information is contributed by the generally poor awareness among planners, managers and policy-makers of the importance of wetland biodiversity issues and this has led directly to the overall poor public awareness of wetland issues and low support for wetland conservation.

36. Under the baseline, low technical and human resource capacity will persist, resulting in ineffective wetland biodiversity conservation. Despite significant budgetary allocation for general training and capacity-building at local and national levels, continued low investment in developing wetland biodiversity management related training resources and programmes will mean that human resources will remain underdeveloped, and government and non-government authorities will continue to lack the expertise to incorporate wetland biodiversity in their planning processes.

37. Funding to wetland conservation is likely to remain weak or non-existent, both at central and local levels. At the central level, there is unlikely to be funding targeted or earmarked for wetland biodiversity conservation or for institutions mandated to carry out such work. The bulk of wetland-related government and donor budgets will focus more on wetland development and exploitation than on their sustainable use and conservation. At the local level, District budgets will continue to omit considerations of wetland biodiversity conservation, and allocations for the management of wetland Protected Areas and critical habitats will remain low or non-existent and will depend almost wholly on limited government funding sources. Little or no financial resources will flow to local communities to support wetland conservation-related activities.

- There will remain few economic or financial incentives for wetland biodiversity conservation, disincentives and perverse incentives will continue to exist at macroeconomic and sectoral policy levels, and market and price distortions will continue to discriminate against wetlands.

38. Under the baseline, there will be few positive economic, policy or legal incentives for wetland biodiversity conservation, and significant disincentives and perverse incentives that encourage wetland loss. Both the private sector and local communities will continue to degrade wetlands in the course of their economic activity, because it is perceived to be more profitable to do so because social and
environmental costs have been externalised and are passed on to others. It is also the case that governance and social issues such as access and equity issues will also continue to be ignored.

39. Under the baseline, it is likely that economic policies, planning and development decisions will continue to under-emphasise wetland values. Development planning, project analysis and investment appraisal procedures will continue to pay little attention to the fact that wetland ecosystems form an economic part of water infrastructure, and will perceive few economic benefits from wetland conservation, and few economic costs to their degradation and loss. Macroeconomic and sectoral policies will continue to favour wetland-degrading sectors, and to employ fiscal and market instruments that encourage the activities, land and resource uses that lead to wetland modification and conversion such as (implicit or explicit) subsidies and support to credit, inputs, investment, marketing, research and development in the sectors that impact on wetlands. Because price markets and prices will remain distorted against wetland conservation they will send signals to individual producers and consumers that are in conflict with the real scarcity and social value of wetland goods and services. There will be few financial or economic disincentives for wetlands-degrading sectors to modify their activities, and investment in wetland management will continue to be seen as an uneconomic use of land, funds and other resources.

40. Due to this poor appreciation and understanding of wetland values, few market mechanisms will be developed either to capture these benefits as tangible cash values or to price them according to their true scarcity and value. This will impact on both the environmental agencies who are responsible for formal conservation activities and on local communities who live around and use wetlands. Conservation plans will continue to be founded on weak economic and financial principles. They will largely fail either to set in place the incentive systems that are essential for their economic viability and acceptability, or to secure the funding base that is required for their long-term sustainability. Local communities will continue to find that it is possible to reap significant profits and economic benefits from unsustainable resource use levels and harvesting techniques, while still facing few possibilities to gain in financial and economic terms from wetland sustainable use. There will continue to be a high local economic opportunity cost to limiting or curtailting existing unsustainable land and resource use practices. In the absence of alternatives, and in the face of widespread poverty and livelihood insecurity, these will remain costs that wetland-adjacent populations feel themselves to be unwilling – and in many cases economically unable – to bear.

- Lack of replicable models of collaborative wetland management linked to local and national capacity and policy strengthening

41. Under the baseline, "on- the-ground" field testing of policies and linking this with refinement of policies and practices at sub-national and national level is unlikely to occur. The demonstration of how mechanisms for better institutional collaboration can result in better wetland conservation, while not compromising community and national benefits, but achieving additional global benefits, is also unlikely to take place. Hence, wetland biodiversity conservation is likely to remain a low priority in district and local development plans. Little attempt will be made to identify and develop viable alternatives to unsustainable wetland resources utilization practices.

42. Due to overall priority and need for increased food production, employment and income generation in Nepal, little emphasis will be given to sustainable natural resources utilisation or conservation. In fact such priorities are often the reasons for conversion of wetlands into agricultural lands, irrational allocation of water for irrigation or development of natural and biodiverse wetlands into exotic fish farms. Due to the overall marginalisation of indigenous wetland dependent communities (such as those dependent on fish, and other wetland resource based enterprise – such as wetland plant based handicraft producers like Sardar communities), the potential for biodiversity as a tool to enhance
livelihoods will continue to be ignored. In the absence of alternative, sustainable, livelihood options, such
local land and resource use activities will continue to pose a severe, and growing, threat to wetland
biodiversity.
2. **Strategy**

**Project Rationale and Policy Conformity**

43. The Project promotes an ecosystem approach to wetland management in Nepal, with appropriate capacity building, legal and policy strengthening, which is consistent with the GEF Operational Programme 2 on Coastal, Marine, and Freshwater Ecosystems. The Project’s focus on conservation and sustainable use of environmentally vulnerable areas, as well as emphasis on development of replicable models of wetland management and their replication is in total conformity with the Operational Programme. With reference to the GEF’s newly established Strategic Priorities, the project design is consistent with the objective of Strategic Priority II, i.e. Mainstreaming Biodiversity in Production Landscapes and Sectors. About 85% of the project budget is allocated to activities supporting this Strategic Priority, of which 28% is directly relevant to capacity building activities. The project is in line with SP2 given its overall objective of integrating biodiversity conservation within the management of wetlands, where wetlands are accorded a high priority (as per National Wetlands Policy 2003) and are seen to function as ‘production’ systems providing a range of resources, values and services. The project is especially relevant to the sub-objective of SP2 on mainstreaming of biodiversity within production systems, as project outcomes focus on integrating biodiversity conservation within national development and conservation planning frameworks, strengthening institutional capacity and increasing awareness, as well as developing appropriate partnerships between agencies and with local communities and private enterprises to support improved management and sustainable use of wetlands products and services.

44. The project supports key objectives under SP2, as follows:

- **Facilitating the mainstreaming of biodiversity within production systems:** The project will support systemic change and institutional capacity building and will create multi-sector, multi-stakeholder coordination bodies aimed at improving planning for wetlands at both national and local levels. This will, in particular, include environment, water resources, agriculture and local development sectors. The project will support review of key policies and implementation plans of these sectors to ensure their harmonisation. Conservation of wetlands will be integrated into land-use planning at national and local levels through improved understanding of wetland values and clarification of tenure of “government” wetlands.

- **Developing market incentive measures:** The project puts strong emphasis on improving understanding on wetland values and to develop incentives nationally and locally through market based measures (please see Financial Sustainability and Economic Sustainability sections below for more details).

- **Demonstration:** The project will demonstrate wetland conservation and wise use at two Ramsar sites, one including a protected area and its proposed buffer zone (production sector) and another outside protected area situation to ensure replicable lessons. In addition, the sister sites will be developed for this project demonstration sites and a project component is devoted to joint learning and catalysing replication.

45. The project is in line with UNDP Nepal’s Country Coordination Framework (CCF) and directly contributes to UNDP Nepal’s Immediate Objective “Assist Nepal in conserving and regenerating its environmental assets, enabling the poor to utilize those assets in order to enhance their income and well-being.” The project aims at harmonizing sectoral policies and plans to favor wetland management in such a way that the values of wetlands are factored into development planning process at various levels to give due attention to wetland conservation, which is in line with UNDP’s Nepal Country Programme Outcome “Clear recognition and incorporation of environmental dimensions into pro-poor policies”.

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46. The project complements other completed and current UNDP/GEF Projects in Nepal. It builds on the Nepal Biodiversity Strategy 2002, which was supported by UNDP-GEF, and which has identified wetland conservation as a priority issue for Nepal. Its implementation structure is complementary to the implementation structure envisaged by the NBS. It complements current landscape level UNDP-GEF biodiversity projects in Nepal such as Landscape Scale Conservation Of Endangered Tiger And Rhinoceros Population In And Around Royal Chitwan National Park (Nep/00/005, Nep/00/G35) and Upper Mustang Biodiversity Conservation Project (Nep/99/021, Nep/99/G35). The proposed Project will work very closely with the King Mahendra Trust for Nature Conservation, the executing agency for both the medium sized projects, to ensure that lessons from these projects are used in the implementation of the proposed Project, and the relevance of project ideas tested in these sites (Activity 3C2.2).

47. Furthermore the proposed Project also complements the GEF Full Size Western Terai Landscape Complex Programme (WTLC) (Nep/00/G41, Nep/99/030). WTLC and the proposed Project have a geographic link at the Ghodaghodi Lake Complex, which falls within the overall geographic working area of the Western Terai Landscape Complex, but not fully under the targeted areas of work within the Complex. There are therefore great opportunities to undertake joint planning and action, particularly on capacity building of key stakeholders in Kalikot district.

48. The project will also coordinate with, learn from and share lessons with other UNDP-GEF projects such as the Tourism for Rural Poverty Alleviation Programme (TRPAP) (Nep/99/013), Decentralized Local Governance Support Programme (DILGSP) (Nep/04/002), the Participatory District Development Programme (PDDP) (Nep/95/008) and the various initiatives supported under the GEF Small Grants Programme (SGP) Nep/98/G52.

49. The Project directly contributes to achieve at least two of the Millennium Development Goals - Goal 1: Reducing Poverty and Goal 7: Environmental Sustainability. The Project intends to provide tangible benefits to the wetland dependent communities through secured tenure rights for using wetlands and targeted activities to enhance the local livelihood options. Assessment of income generating opportunities for the poor men and women, and for different ethnic groups will be undertaken and supported by the Project. These actions will be targeted to addressing both sustainable livelihood and poverty alleviation issues - that are fundamental root causes of wetland degradation and loss, as well as important elements of the National Five Year Development Plan. In addition, the Project will promote an ecosystem approach of wetland management at the landscape scale to reduce grazing and poaching activities and promote sustainable harvest of fish, plant materials and timber, thereby ensuring conservation of forest, wetland and rangeland biodiversity in the two pilot sites.

50. The Project has made sufficient provisions and allocated substantial amount of funds for capacity building at all levels and policy as well as institutional strengthening to address the coherent issues related to wetland management, which are generally cross sectoral. The Project will demonstrate successful wetland management models for replication into other areas by creating positive incentives for the local people to protect the wetlands and enhancing institutional capacity to co-ordinate and jointly implement wetland management as well as development activities. The project does not envision direct investments at the local level for community development or poverty alleviation as such; instead, it will support soft activities such as awareness creation and capacity building for wise use of wetland resources to support the livelihood and institutionalizing market based instruments for sustainable wetland management. The activities planned under various components are based on intricate linkage of one component to another.

Project Goal, Objective, Outcomes and Outputs/activities
51. The Project goal is to ensure the maintenance and enhancement of wetland biodiversity and environmental goods and services for improved local livelihoods in Nepal. The immediate objective is to strengthen national and local capacity in ecosystem management and sustainable use of wetland biodiversity in Nepal. Over the five years of the Project, it will influence two cycles of national and local five-year development plans. Multi-sectoral partnerships will be developed at national and local levels to effect long-term changes to institutional arrangements and actions for sustainable wetland management. The Project will influence sectoral reform through emphasis on applying full cost pricing of the values of wetlands (through development and piloting of market-based instruments) to offset perverse incentives and create positive incentives for their conservation and sustainable use. At the demonstration sites, the Project will build upon Nepal’s rich experience in community-based resource management to demonstrate means of achieving sustainable wetland management both within and outside Protected Areas. Methods and approaches tested at the demonstration sites will be replicated in selected mid-hills and mountains wetlands through partnerships with NGOs and government agencies during the project implementation in a unique joint learning and capacity building partnership.

Project Demonstration Sites

52. As well as building policy and capacity at the national level, the project will demonstrate wetland wise use and conservation at two Ramsar sites and their surroundings: the Koshi Tappu Wildlife Reserve and its buffer zone (referred to in rest of the Pro Doc and Brief as “Koshi Tappu Area”), and the Ghodaghodi Lake Complex. These two were selected as demonstration sites from among the four wetland sites identified by the PDF B document of the project as possible demonstration sites, after approval by the Project Steering Committee. The detailed criteria for their selection are in Annex 2. The key demonstration values of the sites include:

- **Global biodiversity value:** These demonstration sites support a significant range of globally threatened species. The Koshi Tappu Wildlife Reserve is a Ramsar site and a part of Ghodaghodi Lake Complex is a Ramsar site (see Annex 3 for the Ramsar site in the context of the whole Complex). The key global biodiversity values for the sites are summarised in Table 2 (see Annex 2 for details).
- **Different tenure:** Since most natural wetlands in Nepal fall either under protected area or national “forest” area, the demonstration sites were selected to reflect situations under both types of tenure. The Koshi Tappu Area includes a protected area and its buffer zone, and the Ghodaghodi Lake Complex falls under a national forest area.
- **Different types of wetlands:** Koshi Tappu Area is on the floodplain of the Koshi River (riverine wetland) and the Ghodaghodi Lake Complex represents a lacustrine wetland type.
- **Strategic geographical location:** Koshi Tappu Area is situated in Eastern Nepal and Ghodaghodi Lake Complex in the Far West, and can be used for demonstration purposes in different parts of the country. Nepal’s Far West region has the most number of natural lakes.
- **Differences in ethnic diversity:** The Koshi Tappu Area has a more diverse ethnic composition (and more wetland dependent groups) than the Ghodaghodi Lake Complex.
- **Opportunities for strategic partnership:** The Ghodaghodi Lake Complex demonstration site adjoins a critical site under another UNDP-GEF project entitled “Landscape Level Biodiversity Conservation in Nepal’s Western Terai Complex” (WILCP). This project will not overlap with the other GEF Project either in theme or geographic location. The connectivity between the project site and the other GEF project will be essential to maintain populations of larger mammals such as tigers. At the inception of the Project implementation at the site, a joint workshop will be organized to clarify activities of both projects (WILCP) and the Wetland Project at the project site to enhance synergies between both projects. The Koshi Tappu area offers opportunities to promote discussions on better river basin management for the whole Koshi River basin.
The key common threats to both the demonstration sites include unsustainable use of wetland and other resources by local communities (over fishing, poaching of wild animals, high grazing pressure, unsustainable water extraction from lakes and swamps for irrigation), invasive alien species proliferation (for example, water hyacinth), construction of a river engineering structures ( barrage in Koshi, small dam in Ghodaghodi) and encroachment of protected area and government forest areas for farming and settlements. There are also a number of site-specific threats, such as the focus on water buffalo management in Koshi Tappu Wildlife Reserve, which has meant less attention is paid to management of other wetland species, and in Ghodaghodi Lake Complex, pollution of the lake from waste disposal is a key problem. Key threats to the demonstration sites are detailed in Annex 2. Activities are planned to address these threats and also planned to influence the district level policy and plans of the four districts where these two sites are located, especially on integrating wetland conservation into such plans.

The Project has also explicitly built in activities to test the relevance of its approaches and tools in other wetlands in Nepal—particularly in the mid-hills and high mountains—through partnerships with institutions and projects working in those areas. There is inadequate information on mid-hill and mountain wetlands to select one or more demonstration sites in these areas.

The two demonstration sites have a range of problems affecting both protected and non-protected areas. The human populations of the 16 Village Development Committees falling in the buffer zone of the Koshi Tappu Area number about 106,000, while that of the five Village Development Committees comprising the Ghodaghodi Complex site number about 74,510.

The biodiversity, socio-economics, and the threats present at each of the two sites, are given in Annex 2 and maps of the sites in Annex 3.

**Project Outcomes**

In order to achieve its immediate objective, the Project will undertake activities to produce three project outcomes:

1. Wetland biodiversity conservation values integrated into national policy and planning framework.
2. Strengthened national institutional, technical and economic capacity and awareness for wetland biodiversity conservation and sustainable use.
3. Enhanced collaborative management of wetlands resources for conservation and sustainable livelihoods.

**Outcome 1:** Wetland biodiversity conservation values integrated into national policy and planning framework.

The lack of a coherent integrated approach to wetland management planning will be overcome by establishing a National Wetlands Committee (NWC). The NWC will include key Government agencies that depend upon, or which heavily impact, wetlands and their biodiversity to ensure adequate provision for wetland biodiversity issues in their actions. Chaired by the Minister of Forest and Soil Conservation (MFSC), or his/her delegate, it will comprise the Secretaries of the major ministries and other members co-opted as required. The NWC will serve as the policy body, and will create Technical Advisory Committees of professionals from a range of sectoral Ministries. These Technical Advisory Committees will be the entry point for all wetland issues and will provide policy recommendations to the NWC for endorsement and action. The Technical Advisory Committees will be formulated on a needs-basis and are envisioned to address issues such as hydropower plans, agriculture, management of Ramsar sites within and outside of Protected Areas, integration of wetland issues into environmental impact assessment etc.
In addition to reviewing specific sector-based policies and plans, the teams will be instrumental in guiding the development of sector-based guidelines and regulations, in order to enhance policy implementation. The Environment Division of the MFSC will act as the secretariat of the NWC. Two national networks—the Wetland Specialist Network and the Wetland Indigenous Communities Network—will be established to identify and promulgate successful approaches to the management of all aspects of wetlands within the country. The Wetland Specialist Network, composed primarily of technical officers, scientists, and practitioners, will work to strengthen their capacity to empower wetland-dependent communities for their betterment and to promote wetland conservation and sustainable use. The National Networks will be linked to the Technical Advisory Committees of the NWC in order to channel site-specific experience into policy recommendations and national priorities. The two networks are also expected to strongly collaborate on issues such as indigenous knowledge on sites and species use and management. These networks will also play a critical role in serving the needs and interests of practitioners such as peer-to-peer learning, influencing local policy and practice, and development and implementation of site- or species-specific action plans. Additionally, the Project Steering Committee with support from the Project Management Unit will be a key forum for discussing project progress in the field sites and at national level and identifying means to feed national policy into the district actions and to feed site experience into national programming and policy making.

The UNDP-GEF intervention will direct the creation of a supportive legal framework and enabling national policy environment for wetland biodiversity conservation and sustainable use by increasing the knowledge, and producing the tools, necessary for decision-makers to incorporate wetland issues into policies and plans; and by strengthening the institutional and technical capacity to implement wetland issues into a more coherent set of frameworks. The National Wetland Policy (2003), the central plank of the Government’s approach to wetland biodiversity conservation, will be clarified to facilitate its implementation. The project will have a two pronged strategy to influence national legal framework: it will work directly on some key legislation and will work to influence other sectors. It will directly work on strengthening implementation of the Local Self Governance Act (1999) in relation to wetland management, refinement of protected area and buffer zone related legislation to update protected species list to include globally threatened wetland species and wetland sensitive demarcation and management, and clarify the scope and implementation of the Aquatic Life Protection Act. The Project will promote wetland sensitive river engineering, agricultural and water resources planning through discussions and increased understanding. Key areas of project interventions to strengthen the regulatory frameworks are presented in Annex 4. Since the national policy framework begets most of the planning initiatives that affect wetland biodiversity conservation, support for, and an understanding of, wetland biodiversity conservation will be built among senior-level policymakers from all sectors that depend, or impact heavily, on wetland species and systems through a range of high-profile, targeted awareness-raising and education methods. The Project will make use of an international network of environmental lawyers to review and make recommendations to the NWC to strengthen the existing legal framework on biodiversity by integrating wetland issues into it, and then by incorporating wetland issues into the sectoral frameworks. This will include both national and local (District) level policies and plans. Compilation of best practice guidelines on how to integrate wetland issues into agriculture, forestry, industry, river engineering and tourism management in order to increase the skill levels of practitioners and land-managers will be done to promote wetland sensitive development planning and work.

The project will make significant efforts to ensure that wetland concerns are factored into economic policy and planning. Awareness raising activities will be targeted specifically at macroeconomic and sectoral economic decision-makers, with the aim of promoting reconsideration of wetland biodiversity principles, and making an economic case for respecting the ecological needs of wetlands.
62. A national-level analysis of existing economic policy disincentives and perverse incentives to wetland conservation will be undertaken for at least three key wetland impacting or related sectors, and will include some quantification of both the economic costs of wetland degradation and the economic benefits of wetland management. This will be used for awareness and advocacy, particularly on policy reforms and positive economic instruments to be integrated into sectoral and cross-sectoral strategies and plans (such as the PRSP). It is envisaged that economic policy proposals will focus on economic, fiscal and market-based instruments such as payment for environmental services, user charges and damage fees which can simultaneously meet the objectives of correcting existing price and market distortions, internalise current externalities relating to wetland conservation benefits and degradation costs, and generate finance and incentives for wetland sustainable use and conservation. At the same time, guidelines will be produced for the integration of wetland economic assessment into sectoral project analysis and investment appraisal procedures, and will be used in training and awareness activities.

Outcome 2: Strengthened national institutional, technical and economic capacity and awareness for wetland biodiversity conservation and sustainable use.

63. Poor knowledge base is a key problem blighting wetland conservation planning in Nepal, especially for the mid-hill and mountain regions. The Project will develop wetland biodiversity overlays for these regions to identify sites of global importance. Threats to these sites, status, and priority for conservation, and on-going and planned local and national actions at these sites will be assessed. This information will be used for national and district conservation and development planning. As invasive alien species pose a serious and increasing threat to Nepal's wetlands, a review of the species involved, extent of their spread and their impacts will be reviewed, and guidelines and action plans will be developed to minimize their spread and to stop any introduction of additional invasive alien species. Mechanisms will be established to ensure that globally important wetland species are legally protected under relevant Acts (e.g. the Aquatic Life Conservation Act 1961 and the National Parks and Wildlife Conservation Act 1973) through their regular updating and capacity will be built for their use in conservation actions. Guidelines for wetland management in Protected Areas and Buffer Zones will be developed. Traditional knowledge of wetland-dependent indigenous communities in Nepal on values and uses of wetland resources and their sustainable use will be documented and used for developing sustainable management techniques.

64. The Project will strengthen national capacity to incorporate economic and financial concerns in wetland management. Training on wetland valuation techniques and applications will be carried out, including the development of a toolkit detailing methodologies and best practices. Such capacity building will include the practical application of valuation techniques in at least four sites (including the Project demonstration sites), and the results used to identify practical economic and financial instruments to be integrated into site conservation plans and District development plans. Instruments will focus on generating finance and incentives for wetland management, and on using price and market mechanisms to influence wetland degrading land and resource uses. Recognizing that financial sustainability is key to the implementation of wetland policy, a proposal for the development of a national-level financing mechanism for wetland management will be developed. It is anticipated that this will act as an extra-budgetary source of funding for wetland management activities, and will be based on a combination of international and domestic sources. These may include fiscal sources such as user fees and damage charges, market sources such as payment for environmental services, bonds and deposits, and innovative international mechanisms such as debt-for-nature swaps, payment for global public goods, offsets and other market and voluntary sources. It is intended that private financial flows, from both international and national sources, will also make an important contribution to the mechanism. The development of sustainable financing strategies for Project demonstration sites (see below) will be linked to this national
mechanism, and will provide a means of demonstrating how sustainable financing principles and innovative funding sources can be identified, raised and allocated to specific wetland sites.

65. Following an assessment of awareness needs of key stakeholders, wetland issues will be mainstreamed through an extensive awareness raising programme. Additional to a wide range of general multi-media materials, targeted materials will be developed for teachers, policymakers, and others. Incorporation of wetland issues into the school and university curricula will be encouraged. Opportunities to update university and forestry college lecturers on current thinking and approaches to various wetland issues will be sought. A Wetland Information Centre will be established to house the National Wetland Database, including all the results from the wetland inventory, materials produced by the Project, and all wetland materials gathering from throughout the country and from international sources. It will act as the information hub for disseminating materials to the networks and all other interested parties. A comprehensive capacity needs analysis (CNA) will be undertaken in the early stages of Project implementation and a national resource base will be developed through the compilation of wetland training and capacity building materials from global, regional, and national sources, augmented by those produced specifically to address gaps identified by the CNA. Capacity building activities will be implemented as required.

Outcome 3: Enhanced collaborative management of wetlands resources for conservation and sustainable livelihoods

66. The Project will demonstrate collaborative wetlands resources management at two Ramsar sites. The two sites include a protected area and its buffer zone (the Koshi Tappu Area in Eastern Nepal) and a non-protected area (the Ghodaghodi Lake Complex- GGLC) in Far Western Nepal. Here, capacity strengthening activities of existing (Koshi Tappu Area) or possible new management institutions (Ghadaghodi Lake Complex) will be supported, including better links with other district and community institutions, including Government line agencies, District Development Committees, and Village Development Committees, to resolve conflicts and undertake effective resource management. The roles, rights and responsibilities of stakeholders will be clarified. The institutional needs of key stakeholder groups will be assessed to identify weaknesses in functional and coordination mechanisms, and in human and technical capacity. The Project will provide for awareness raising, training and other support to ensure that the groups can fulfil their assigned roles efficiently and effectively. Training will be given in best practices on collaborative management. Mechanisms for reviewing and amending management plans will be established to ensure adequate integration of biodiversity conservation and wetland-dependent livelihood issues. Tenure issues will be analyzed and customary practices and rights will be compared to other laws to identify issues and conflicts and propose mechanisms for their resolution. An assessment of the linkages between resource access rights, livelihood security, environmental condition and conflict will be undertaken in the Koshi Tappu Area. Stakeholders’ forums will be created to share information and demonstration site technical committees will facilitate multi-stakeholder decision-making. Although the Project focus will be to work with existing community groups, such as forest user groups and buffer zone user groups, other resource-user groups (RUGs) will be established, as needed, based on the type of wetland resources that they depend on for their livelihood (e.g. fish, or plant based products); the networking of these groups will also be facilitated. Capacity building of these networks as well as associated Community Based Organizations (CBOs) and Non Government Organizations (NGOs) will be undertaken. This will include rights training, participatory planning, organization and group function, conflict identification and resolution over resource use conflicts. The project will facilitate increased participation and representation of resource-user groups on decision-making bodies.

67. The Project will pilot targeted local-level economic incentives for wetland conservation and sustainable use, based on the need to generate tangible economic and financial returns for communities, need to find viable alternatives to wetland-degrading activities, and to adequately cover the local
opportunity costs of wetland conservation. These may include activities to enhance local livelihood options by supporting marketing of local wetland and non-wetland products and by promoting eco-tourism opportunities. Participatory assessment of income generating opportunities for local men and women, and for different ethnic groups will be undertaken and supported through local small-scale rotating credit and through mobilization of other government and non-government agencies' support services as well. It should be noted that these actions are also targeted to addressing both sustainable livelihood and poverty alleviation issues - that are fundamental root causes of wetland degradation and loss, as well as important elements of the National Five Year Development Plan.

68. Knowledge and technical capacity will be imparted through a comprehensive training programme on the ecosystem approach to wetland management. Capacity needs assessment of key stakeholders will be undertaken by the resource persons trained under the national training programme. They will also develop and deliver appropriate training. Dialogue with India will be facilitated to explore trans-boundary wetland management issues, especially those at the Koshi Tappu Area.

*Project Indicators, Risks and Assumptions*

69. At the level of the project Objective, ten years after the Project has started the following indicators will have been achieved:

- Rate of loss in population size of globally threatened wetland species reversed (such as Asian wild buffalo)
- All globally significant wetlands are conserved and no longer face degradation
- Wetland-dependent communities maintain access rights to wetland resources and have increased income by 20% through their sustainable use

**OUTCOME 1: Wetland biodiversity conservation values integrated into national policy and planning framework**

- Wetland policy framework is reviewed and revised based on project recommendations and field experience
- Aquatic Conservation Act and National Parks and Wildlife Act and Buffer Zone guidelines revised to integrate wetlands
- Sectoral policies and plans (water resources and agriculture) amended to favour wetland biodiversity (amendments identified & agreed to by year 2, completed by year 5)
- Inconsistencies between Local Self-Governance Act and sectoral policies and laws identified (year 4) and resolutions accepted (year 5)
- Wetlands are integrated into national 11th Five Year Plan and demo site district development plans
- National Wetland Committee is used to discuss and resolve inter-sectoral issues impacting wetlands
- Wetland network members believe decision making of the NWC reflects interests and ideas of stakeholders 75% of the time
- 60% of legal cases impacting wetlands are resolved in favour of wetland conservation and sustainable use
- 5 national level staff of Ministry of Forests and Soil Conservation have wetland conservation related responsibility explicitly in their TOR by year 4.
OUTCOME 2: Strengthened national institutional, technical and economic capacity and awareness for wetland biodiversity conservation and sustainable use

- Environment division of MFSC has adequate trained staff and budgets allocated to aquatic ecosystem management (budget agreed to by year 3 and in place in year 5)
- Inventory, assessments, economic valuation and guidelines used to develop and implement national biodiversity, sectoral and development strategies & plans
- 60% of trainees apply their training & capacity building on wetland conservation & sustainable use
- Increased coverage of wetlands issues in media

OUTCOME 3: Enhanced collaborative management of wetland resources for conservation and sustainable livelihoods:

- Commitments by relevant government agencies to prevent any actions that would negatively impact demonstration site wetlands (by end of year 1)
- Multistakeholder fora used for local decision-making regarding wetland management (incl. women & indigenous groups)
- 50% reduction in the number of recorded conflicts over wetland resource use
- Increased community support for wetlands (incl. women & indigenous groups)
- Critical wetlands identified (year 2), restored and protected through collaborative approaches (year 5)
- Adequate qualified government staff at demonstration sites (DNPWC & DoF) by year 4
- Increased budget available to line departments and community groups from piloting of demo site financing strategies (agreed to by year 4 and in place by year 5)
- 50% reduction in number of buffalo and cattle inside KIWR
- 20% reduction of water hyacinth at demo sites
- Strategies for income generation based on sustainable use of wetland resources implemented in demo sites
- 20% increase in income for 15% of wetland-dependent livelihoods generated through community action & eco-tourism plans
- 15% of wetland-dependent livelihoods have stopped unsustainable resource use practices
- 20% of demo site communities adopt integrated pest management and organic farming
- 2 sister sites with collaborative mechanisms in place

70. See the project logical framework for more details.

Main assumptions

71. The main assumptions are:
- Wetlands and aquatic biodiversity remain a priority of GoN and required funds are forthcoming after the project’s completion as identified in the financing strategy
- Macro-economic and sectoral planners are open to developing pro-wetland economic and development policies and instruments
- National Financial Strategy is feasible and identifies diverse options for financing of wetlands conservation
- GoN remains open to the participation of civil society in wetland management
- Sectoral departments adopt the guidelines and ensure their use
- GoN counterpart funding and staff are provided in a timely manner
- Environment division (or another appropriate department in MFSC) maintains responsibility for biodiversity
- Field activities are not unduly hampered by the political situation
Incentives (social & economic) demonstrated in the two project sites are replicable to other sites and sufficient to cause changes in resource use practices within life of the project.

**Risks:**

72. Project risks are low to high and depend on how robust the assumptions in the log frame prove to be. Assumptions regarding the willingness of others to cooperate with and support Project objectives, and to assimilate and apply lessons from the Project, are also considered robust based on consultations during the PDF-B and significant co-financing and participation envisioned during the Full Project.

73. Despite the difficult political situation in Nepal, experience of other projects and organizations shows that projects such as the one proposed can be implemented as long as they have strong community support, demonstrate real benefits, and operate in a transparent, participatory and equitable way. Keeping in mind the present conflict situations in the country, Project implementation arrangements have been modified to ensure access within the project field sites and deliver in a safe and efficient manner.

**Expected global, national and local benefits**

74. Nepal's wetlands support a wide range of fragile ecosystems and globally significant biodiversity. Four of these (the Koshi Tappu Wildlife Reserve, Ghodaghodi Lake Area, Besahazari and Associated Lakes and the Inagadishput Reservoir) are recognized as sites of International Importance and is listed under the Ramsar Convention. The project's two demonstration sites both include Ramsar sites. The global environmental benefits will be secured through developing a sustainable ecosystem approach and support to management of wetlands of global importance, as well as globally important species (including migratory species). The global community will benefit significantly from the protection of direct and indirect use values associated with biological diversity in wetlands and from increased carbon storage as well. The Project provides a vehicle for managing biodiversity at the ecosystem scale (including protected and unprotected areas) and translating integrated ecosystem management into action. It also seeks to promote transboundary wetland management, and the lessons learnt are expected to be of interest and relevance globally.

75. National benefits will include:

- Improved intersectoral coordination and strengthened policy for wetland conservation. Policy makers are more aware of wetland values and are more supportive towards wetland conservation.
- Awareness of, information about, and capacity on wetland conservation improved, and integrated into both development and conservation planning. Long-term institutional, policy and financing mechanisms for wetland management in Nepal in place and functioning.
- Loss of direct and indirect benefits curbed, on- and off-site wetland values maintained or improved. Economic development opportunities from sustainable land and water-based development.

76. At the local level, these global and national benefits will be reflected in improved ecological sustainability for economic development, resulting in improved socio-economic conditions for local stakeholders.

77. See the Incremental Cost Analysis in Section II for more details.

*Country Ownership: Country Eligibility and Country Drivenness*
Nepal ratified the Convention on Biological Diversity (CBD) in August 1994 and is eligible for UNDP's technical assistance. The Project builds on and supports Nepal's key national and sectoral development plans, policies, and strategies as outlined below in Table 1. These plans, policies, and strategies also inform UNDP's Country Cooperation Agreement (CCA), thus ensuring integration of the project into UNDP's own programme in Nepal. Specifically, the Participatory Conservation Programme, supported by UNDP, is supporting the GoN and communities living in the buffer zones or proposed buffer zones of selected protected areas for community development and better collaboration between key stakeholders, including in Koshi Tappu Area. Also, UNDP's Sustainable Community Development Programme has assisted the government of Nepal in building capacities of local communities and local government, and in adopting the local and national policies necessary to ensure sustainable community development, which integrates effective, gender sensitive poverty alleviation strategies with sound watershed management.

Table 1: Linkages between the Project and National/Sectoral Plans, Policies and Strategies

<table>
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<tr>
<th>Specific National/Sectoral Development Plan, Policy, or Strategy</th>
<th>Consistency of Project with National/Sectoral Development Plan, Policy, or Strategy</th>
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<td><strong>The Nepal Biodiversity Strategy (2002)</strong> guides conservation and wise-use of biological diversity and resources, the maintenance of ecological processes and systems, and the equitable sharing of costs and benefits, thereby fulfilling the country's obligations under the Convention on Biological Diversity (CBD). Its main strategies include landscape level planning; integrating local participation; institutional strengthening; in situ conservation; increasing awareness, knowledge and capacity on biodiversity and indigenous knowledge; fostering cross-sectoral coordination and implementation of policies; promoting environmental impact assessment and other tools for biodiversity conservation; and promoting sustainable financing for biodiversity conservation.</td>
<td>The Nepal Biodiversity Strategy (NBS) has identified wetlands as key ecosystems in Nepal in need of significant conservation efforts. The Project is designed to fully support the implementation of the NBS recommendations on wetland ecosystems, including identification and protection of critical wetland habitats; clarification of institutional responsibilities for resolving land-use conflicts and co-ordination of wetland wise-use and conservation; adoption of a bio-regional approach to wetland habitat and resource management; promoting the participation of user groups and community-based organisations in collaborative management of resources; conducting demonstration projects to promote the wise use of wetlands; and raising awareness on wetland conservation.</td>
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<td><strong>The National Wetland Policy (2003)</strong> outlines the following key objectives: identification and classification of key wetland sites; documentation and utilisation of indigenous and scientific knowledge, skill, practices and innovations; participation of women and implementation of international commitments and obligations. It identifies different modalities for community wetland management approaches and threats to wetlands and their minimization. Special emphasis has been placed on awareness raising and capacity building.</td>
<td>The National Wetland Policy is at the heart of the Project's design since it promotes collaborative management of wetlands and wise-use of wetland resources through meaningful participation of local people, and supports identification or clarification of appropriate institutional arrangement for wetland management, and capacity development.</td>
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Nepal's Tenth Five Year Plan (2001-2007) lays down the overall national development goal as: significant, positive, and sustainable improvement in the living standard of Nepali citizens. The plan's overall objective is to significantly and sustainably reduce the poverty of Nepali citizens (men and women). The Plan identifies ten focal activities, of which three have most direct relevance to the proposed Project:

- Agricultural development, sustainable management of natural resources and biodiversity;
- Programmes focused on disadvantaged communities; and
- Environmental protection.

The Local Self-Governance Act (1999) invests local government bodies—including District Development Committees, Village Development Committees, Municipalities and Metropolitan Authorities—with responsibilities for local development and natural resource management.

The Water Resources Strategy, Nepal (2002) guides water sector activities towards sustainable use of the resources through 5-year, 15-year and 25-year strategies under which Management of Watershed and Aquatic Ecosystems is one of the key strategy outputs.

The project explicitly links improved wetland management to promoting sustainable local livelihoods of some of the most disadvantaged groups in Nepal—the wetland dependent ethnic groups. In addition, better wetland management will benefit all communities through provision of clean water, water recharge and a host of other direct and indirect benefits such as tourism and recreation. The project's activities will contribute significantly to long term environmental protection, better access to benefits by wetland dependent communities and others as well as to overall sustainable management of natural resources—including agriculture.

The Project supports the Act's provisions relating to water resource use and environmental protection. It encourages participation of local NGOs in administering or carrying out local developmental projects including provision or conservation of the environment, and provides opportunities for co-ordinated wetland management at the district and community levels. The project has built in actions to work with and support local development authorities to promote wetland management as to their wider district and village development plans, particularly at the demonstration sites.

One of the Project objectives is demonstration of wetlands resources management for conservation and sustainable livelihoods under which activities for collaborative management of lake and wetland areas, proper management of private and communal wetlands, restoration and management of wetland protected areas, and control of invasive alien species, will be executed. These are in line with the Water Resources Strategy of Nepal.

**Sustainability**

**Institutional Sustainability:**

79. Institutional capacity building and clarifying institutional roles for wetlands is a major project objective. Due attention will be given to ensure institutional sustainability right from project inception. The emphasis is to build on existing institutions as far as possible by strengthening them. Where new structures are envisaged, these are within the existing plans of the government. For example, work at the national level will be carried out under the overall involvement of the Ministry of Forests and Soil Conservation, and its field offices at the demonstration sites (the District Forest Office in Ghodaghodi Lake Complex and the Department of National Parks and Wildlife Conservation in Koshi Tappu area). The National Wetland Committee builds on an informal committee in existence, and is within the overall plans of the Nepal Biodiversity Strategy (2002) and the National Wetland Policy (2003). As such, the committee will function largely from government co-finance and has a mandate for continued operation.

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beyond the life of the project. The Technical Advisory Committees formulated by the National Wetland Committee to address specific needs related to wetland conservation and sustainable use, are expected to continue to be formed as needed beyond the life of the project, and will be funded by government. The two new national networks (Specialists Network and Indigenous Communities Network), formed in response to requests from national and local consultations during PDF B of the Project, are designed to be operated on low cost to avoid their dependence on Project funds beyond the life of the project. Additionally, these networks will be supported to develop financing strategies, including contributions from members, to secure long term funds for their ongoing work (for example to implement species action plans).

80. The Environment Division of the Ministry of Forests and Soil Conservation, which is the focal division for the implementation of the CBD in Nepal, will be the main national government body for the Project. The Project will strengthen its capacity for wetland biodiversity planning and for providing capacity building and information services. As per its mandate accorded by the Biodiversity Conservation Strategy, this Division will continue to lead inter-sectoral coordination and promote wetland conservation after the completion of this project.

81. In the demonstration sites, the Project will work with buffer zone committee and groups supported by the Department of National Parks and Wildlife Conservation, and build strong partnerships with the local District Development Committees and the Village Development Committees. It will support community-based user groups to strengthen community livelihood activities, such as Community Forest Users Groups in the Ghodaghodi Lake Complex (which is supported by the Department of Forest). As the continued existence of these user groups is fully dependent on their financial viability, the project also focuses on economically viable income generation activities that require limited capital by the Project. The piloting of market-based incentives will further strengthen the economic viability of actions related to conservation and sustainable use of wetlands.

82. The emphasis on human capacity building at all levels of project operation also contributes significantly to institutional sustainability. The Project will provide the necessary training, ongoing coaching and support for existing institutions. In addition to technical capacity building, this will include inter alia support to participatory and collaborative management approaches, conflict resolution and integration of gender equity in actions. Local NGOs and CBOs will also receive skills building in proposal writing so that they can independently seek additional funds to support their work. In addition to working in close collaboration with local and national institutions on planning, decision-making and problem solving throughout the project phase, the Project will develop and implement an exit strategy to gradually transfer responsibility to national and local institutions.

83. It will further develop a replication strategy, based on the demonstration experience and feedback from examining the relevance of the project tools and approaches in various sites.

Financial sustainability:

84. As a demonstration and capacity building project, it is likely that one-off costs will be incurred in testing ideas, undertaking training and developing tools and strategies. The focus on working with existing institutions, as described above, is one strategy to reduce the scale of recurring costs to finance wetland conservation and sustainable use activities. Overall the recurring costs are expected to be relatively low, as the project does not increase costs to government. Of the new structures being proposed, the National Wetland Committee, is not expected to be costly (mostly government staff time) and the two national networks being proposed are also expected to be institutionally viable and able to generate their own funds by the end of project.
85. Efforts will be made at both the national and local levels to ensure financial sustainability. This will be achieved through a number of actions. Firstly, it is expected that there will be increased allocation of government funds for wetland conservation due to improved understanding among planners and finance decision-makers of the value of wetlands and the economic benefits of their inclusion in national budgets, as well as the design of a national-level financing mechanism for wetland management (Activity 2.1.4). A project milestone has been incorporated to allocate more funds from the government for wetland conservation and sustainable use by year 3 of the project (see Section 2, Part II: Logframe). The Project is also supporting the development of sustainable financing strategies for both national and local levels (Activities 3A.2.4 and 3B.2.4). Recognizing the significant challenge of securing finances for conservation, the Project will build from global experience in developing and implementing financial strategies for and outside of Protected Areas. The strategy will ensure that sufficient, diverse and sustainable financial resources are made available both to cover the direct costs of ecosystem management (staff, equipment, and infrastructure) and also to offset opportunity costs for local communities (including unsustainable land and resource uses and developments foregone). This activity will focus on increasing and diversifying the financial base of conservation operations, and on designing and putting in place a financial mechanism that is sustainable and promotes financial self-sufficiency over the long-term. It will analyse current and future financial status, funding needs and opportunities; make recommendations for improved fund-raising and financial allocation mechanisms; and, develop a site-specific sustainable financing strategy for the medium (five-year) and long (ten-year) terms. The strategy will identify and initiate new opportunities for raising and allocating funds, for improving financial and cost efficiency in the protected area and Buffer Zone operations, and for ensuring that funding is targeted at the full range of socio-economic groups that bear the costs associated with conservation and sustainable use. A key concern will also be to identify pro-poor financing mechanisms that target the most vulnerable sections of the local population, and focus on covering the wide range of indirect costs and opportunity costs associated with ecosystem conservation. Training and capacity building of national counterpart institutions in sustainable financing will also form a key element of this activity.

86. The national and local financing strategies will build on existing studies (such as the GEF managed study to “Improve Financial Arrangements for the Sustainability of Biodiversity Resources” and particularly from the Nepal case study on the UNDP-GEF “Landscape-scale Conservation of Endangered Tiger and Rhinoceros Populations in and around Chitwan National Park”) and collaborate with ongoing assessments, programmes and strategies, such as the UNDP-GEF funded Landscape Level Biodiversity Conservation in Nepal’s Western Terai Complex and contribute to the Terai Arc Landscape Strategy.

87. It is also expected that with increased benefits from improved wetland management, most of the community-based wetland management activities will become self-sustaining.

**Economic sustainability:**

88. The Project strategy for local-level economic sustainability involves the creation of wetland conservation and sustainable use activities that are economically appealing. Unless conservation is seen to generate tangible economic and financial benefits, which can at least compete with those from unsustainable land and resource uses, project activities will stand little chance of long-term success. The conservation of wetlands needs to be well integrated into local livelihood systems to serve as an incentive for communities to be wetland conservation stewards.

89. This will be achieved by: strengthening existing local institutions (especially resource user groups, community-based organizations and non-governmental organizations) so they have the institutional, technical, management and economic capacities to conserve, sustainably use and monitor wetland resources. The emphasis on supporting community action plans is the main mechanism for linking sustainable livelihoods and conservation. The income generating activities and changes to
resource use (such as conservation farming, grazing and fuelwood use) will be based on low-cost interventions in order to ensure they will be used and can be replicated without significant external intervention. Building on the past and ongoing UNDP supported projects – the Participatory Conservation Programme (and its predecessor the Parks and People Programme) in the Koshi Tappu area and the Sustainable Community Development Programme in Kailali, the Project will assess and support the use of locally managed savings and credit programmes as a means to provide accessible capital for community income generation and conservation activities.

90. The existing mechanisms will be assessed and strengthened as necessary to ensure equitable access to both the savings and credit, and to the technology and knowledge for income generation and sustainable livelihoods opportunities.

91. At the economic policy level, the project is making substantial efforts to ensure sustainability through influencing the way in which macro and sectoral strategies are formulated, projects and economic trade-offs analysed, and investments appraised, and by identifying and promoting a range of economic and market instruments targeted at key wetland-impacting sectors. These aim to affect the economic policy framework which currently discriminates against wetlands and wetland conservation, and to effect long-term changes in the price and market signal that influence the economic activities and sectors that impact on wetlands. It should be emphasised that the concept of sustainability is inherent to using such instruments and market-based approaches, because their basic aim is to internalise wetland values into private and public decision-making, trade-offs and economic choices.

Social sustainability:

92. The Project has been designed to meet government and community interests. It responds to direct government requests as per the Nepal Biodiversity Strategy (2002) and the National Wetland Policy (2003). Furthermore it has been designed using participatory approaches to ensure that local interests and needs are reflected. This involved frequent consultations in the Project sites with a wide range of stakeholders including local government authorities, community-based and non-governmental organizations, and communities. These consultations were structured to gather information and learn of priorities at the outset, and to seek feedback on the emerging design.

93. Recognizing the heterogeneity within communities and the variable power dynamics, the Project organized consultations with women and disadvantaged groups to specifically seek their ideas. The project design reflects targeted activities geared to further identify and overcome existing inequities. This participatory approach will be further built into the project execution through: the design of multi-stakeholder mechanisms, from central to local levels, to ensure ongoing stakeholder involvement in decision making over project interventions; and direct involvement of stakeholders in project activities (see section 2e for further details on stakeholder participation). Effective communication mechanisms will also be developed to ensure regular information dissemination and feedback channels between stakeholder representatives in project-related structures and their broader stakeholder communities. At the local level, the Project will focus on nurturing user groups and working with them as the main entry points for conservation and compatible development activities.

94. In terms of sustaining capacity built under the project after project end, it is expected that capacity will remain, indeed, improve through the use in their work/lives. This is because capacity building will focus on issues of direct use to the stakeholders in their work or lives. The Community Based User Groups, once strengthened and incorporated into wetlands management, will be fundamental to sustained activities at the site level. The National Wetlands Committee will be important to sustain interest and policy support reform at the national level beyond the end of project. In addition, in order to ensure that capacity built will be retained, special efforts will be made to ensure that the TORs of
government or non-government staff, whose capacity is being built, will make it explicit that they are to be assigned to those specific tasks for the duration of the project. In addition, the project will develop partnership and strengthen training and communication.

Replicability

95. The Project has incorporated numerous means for replicating best practices from international, national and local sources. It will facilitate replicability of its ecosystem approach to biodiversity management through various initiatives to create a supportive legal framework and enabling policy environment for wetland planning, and through strengthened institutions and institutional mechanisms for integrated and inter-sectoral planning in Nepal. Its focus on community-to-community sharing and learning through networks at local and national levels is also designed to facilitate replication of Project lessons, guidelines and approaches. It also incorporates activities designed especially to promote the replicability of its approaches, methodologies and actions at district and national levels through a specific output to test the applicability of Project lessons and policy recommendations by fostering close working relationships with other projects and organizations firstly in other wetlands, secondly in the mid-hills and mountains wetlands, and thirdly in Terai wetland protected areas that share similar ecological zones and socio-economic status in India.

3. STRATEGIC RESULTS FRAMEWORK AND GEF INCREMENT

3.1 Incremental Cost Analysis

A. Project Background

96. This project has been developed in line with Nepal’s commitments to CBD to conserve and sustainably use wetland biodiversity, in order to achieve both national goals and to international benefits. Please see Project Document above for more details.

B. Incremental Cost Assessment

Baseline

97. Government of Nepal and several national and international non-governmental organizations are currently carrying out a number of activities that relate to wetlands and sustainable development activities at the national level and in and around the Koshi Tappu and Ghodaghodi sites (the two project demonstration sites). There is approximately US$ fifteen million worth of baseline work relevant to wetland conservation in Nepal for the period 2003-2008. However, baseline work is largely aimed at securing domestic benefits, not global benefits. They are also largely aimed at the use of water and wetland resources for agriculture and fish production, as well as for energy production (hydroelectricity), and on general sustainable development and environmental protection activities at project sites. The primary focus is on economic growth, income generation and employment. With increased political instability caused by the insurgency, development spending has been reduced in recent years and resources for biodiversity conservation, already under funded, have also declined. Despite the apparently favourable macro policy environment, baseline activities (or realities on the ground) largely ignore or give low priority to wetlands and aquatic biodiversity conservation

98. Given the inadequate attention to and resources for biodiversity conservation in sectoral development plans, including global biodiversity conservation (and specifically, less attention to wetland conservation), it is certain that wetlands will continue to be degraded and converted to other land use, and
global biodiversity values will continue to be lost unless significant and targeted actions are taken to supplement or modify this baseline. In particular, the following likely effects and impacts of the baseline on wetland biodiversity of global significance should be noted.

99. Under the baseline, it is highly probable that plans and policies of institutions that manage, utilize and otherwise impact on wetland biodiversity will continue to remain uncoordinated, discriminating against biodiversity conservation, and often providing conflicting guidelines for wetland management. It is likely that weak and uninformed policies, planning and development decisions, both within and outside environment and natural resources sectors, will continue. Sectoral policies, particularly those related to agriculture, fisheries, water resources, energy and industries will continue to be driven by development imperatives and goals that do not pay adequate attention to biodiversity conservation or to wetland values. Lack of consideration of wetland values is reflected in a range of economic policy disincentives and market distortions and failures that encourage wetland degradation and loss. The Water Resources Act (1992), for example, does not list conservation of wetlands nor has aquatic biodiversity among its many priorities and the Ministry of Agriculture and Cooperatives been promoting exotic fish farming in natural lakes and ponds, leading to depletion of biodiversity. At the extreme, such supportive policy and economic instruments may even continue to contribute to wetland ecosystem and biodiversity losses.

100. It is also likely that environmental sector and biodiversity conservation policy and planning frameworks will accord inadequate priority for wetland conservation, particularly in achieving global conservation benefits. Until very recently, wetlands did not even receive any attention in conservation planning, e.g. the National Conservation Strategy (1989) did not include any provisions for wetland ecosystem conservation or sustainable use. The Nepal Biodiversity Strategy (2002) identifies wetland conservation as a priority but is likely to remain weak and ineffective because of the lack of political will, weak financial base and low support from all concerned sectors. The Strategy will need to be implemented. While the Wetland Policy (2003) advocates collaborative management of wetland resources, there is inadequate institutional structure and intersectoral support for its implementation.

101. Weak inter-sectoral support to sustainable wetland management is also caused by a poor understanding of wetland issues among senior decision-makers and the lack of mechanisms for intersectoral co-ordination to bring policy makers, practitioners and community stakeholders to common platforms to discuss issues, share knowledge and undertake joint planning and implementation. Under the baseline, no mechanisms will exist for significant inter-sectoral coordination efforts for wetland conservation.

102. The current poor knowledge, technical skills and tools for wetland conservation planning, particularly on globally important wetlands, are likely to continue. The lack of policy-relevant information and tools, such as poor policy awareness for the legal protection of globally threatened species, low capacity for using economic tools for wetland management planning, and low recognition and value of indigenous knowledge on sustainable wetland management, will continue to hamper wetland biodiversity conservation. Current information and lessons on wetland issues will remain fragmented, and largely inaccessible to planners, managers and decision-makers due to the lack of dedicated institutional mechanisms and resources for collecting, collating, generating, and disseminating wetland conservation information from Nepal and elsewhere. There is currently very little research on wetland biodiversity issues and under the baseline this is likely to continue. There is little understanding of wetland values and functions, the principles or practical applications of wise use and the global importance of wetland biodiversity at all levels. This lack of information is contributed by the generally poor awareness among planners, managers and policy-makers of the importance of wetland biodiversity issues and this has led directly to the overall poor public awareness of wetland issues and low support for wetland conservation.
Under the baseline, low technical and human resource capacity will persist, resulting in ineffective wetland biodiversity conservation. Despite significant budgetary allocation for general training and capacity building at local and national levels, continued low investment in developing wetland biodiversity management-related training resources and programmes will mean that human resources will remain underdeveloped, and government and non-government authorities will continue to lack the expertise to incorporate wetland biodiversity in their planning processes.

Funding to wetland conservation is likely to remain weak or non-existent, both at central and local levels. At the central level, there is unlikely to be funding targeted or earmarked for wetland biodiversity conservation or for institutions mandated to carry out such work. The bulk of wetland-related government and donor budgets will focus more on wetland development and exploitation than on their sustainable use and conservation. At the local level, District budgets will continue to omit considerations of wetland biodiversity conservation, and allocations for the management of wetland Protected Areas and critical habitats will remain low or non-existent and will depend almost wholly on limited government funding sources. Little or no financial resources will flow to local communities to support wetland conservation-related activities.

Under the baseline, there will be few positive economic, policy or legal incentives for wetland biodiversity conservation, and significant disincentives and perverse incentives that encourage wetland loss. Both the private sector and local communities will continue to degrade wetlands in the course of their economic activities, because it is perceived to be more profitable to do so because social and environmental costs have been externalised and are passed on to others. It is also the case that governance and social issues such as access and equity issues will also continue to be ignored.

Under the baseline, it is likely that economic policies, planning and development decisions will continue to under-emphasise wetland values. Development planning, project analysis and investment appraisal procedures will continue to pay little attention to the fact that wetland ecosystems form an economic part of water infrastructure, and will perceive few economic benefits from wetland conservation, and few economic costs to their degradation and loss. Macroeconomic and sectoral policies will continue to favour wetland-degrading sectors, and to employ fiscal and market instruments that encourage the activities, land and resource uses that lead to wetland modification and conversion such as (implicit or explicit) subsidies and support to credit, inputs, investment, marketing, research and development in the sectors that impact on wetlands. Because price markets and prices will remain distorted against wetland conservation they will send signals to individual producers and consumers that are in conflict with the real scarcity and social value of wetland goods and services. There will be few financial or economic disincentives for wetlands-degrading sectors to modify their activities, and investment in wetland management will continue to be seen as an uneconomic use of land, funds and other resources.

Due to this poor appreciation and understanding of wetland values, few market mechanisms will be developed either to capture these benefits as tangible cash values or to price them according to their true scarcity and value. This will impact on both the environmental agencies who are responsible for formal conservation activities and on local communities who live around and use wetlands. Conservation plans will continue to be founded on weak economic and financial principles. They will largely fail either to set in place the incentive systems that are essential for their economic viability and acceptability, or to secure the funding base that is required for their long-term sustainability. Local communities will continue to find that it is possible to reap significant profits and economic benefits from unsustainable resource use levels and harvesting techniques, while still facing few possibilities to gain in financial and economic terms from wetland sustainable use. There will continue to be a high local economic opportunity cost to limiting or curtailing existing unsustainable land and resource use practices. In the absence of alternatives, and in the face of widespread poverty and livelihood insecurity, these will remain
costs that wetland-adjacent populations feel themselves to be unwilling — and in many cases economically unable — to bear.

108. Under the baseline, "on-the-ground" field testing of policies and linking this with refinement of policies and practices at sub-national and national level is unlikely to occur. The demonstration of how mechanisms for better institutional collaboration can result in better wetland conservation, while not compromising community and national benefits, but achieving additional global benefits, is also unlikely to take place. Hence, wetland biodiversity conservation is likely to remain a low priority in district and local development plans. Little attempt will be made to identify and develop viable alternatives to unsustainable wetland resources utilization practices.

109. Due to overall priority and need for increased food production, employment and income generation in Nepal, little emphasis will be given to sustainable natural resources utilization or conservation. In fact such priorities are often the reasons for conversion of wetlands into agricultural lands, irrational allocation of water for irrigation or development of natural and biodiverse wetlands into exotic fish farms. Due to the overall marginalisation of indigenous wetland dependent communities (such as those dependent on fish, and other wetland resource based enterprise — such as wetland plant based handicraft producers like Sardar communities), the potential for biodiversity as a tool to enhance livelihoods will continue to be ignored. In the absence of alternative, sustainable, livelihood options, such local land and resource use activities will continue to pose a severe, and growing, threat to wetland biodiversity.

Global Environmental Objective

110. If existing baseline activities are not modified or supplemented, it is clear that Nepal’s wetland biodiversity of global significance will continue to be degraded or lost. Global costs of such a scenario include the loss of values accruing from global resource use, in the values yielded by globally-important ecosystem functions, in the use options of these ecosystems and resources for future global economic gains, and in the global existence values associated with the biodiversity of wetlands in Nepal.

111. In line with GEF’s Operational Programme 2: Marine, Coastal and Freshwaters, the global environmental objective of the proposed Project is to ensure maintenance and enhancement of wetland biodiversity, environmental goods and services for improved local livelihoods in Nepal. The Project has as its immediate objectives to strengthen national and local capacity on ecosystem management of wetland biodiversity in Nepal. The activities of the proposed project aim to complement and build on existing national and global activities to address the underlying causes of wetland loss and degradation arising from an unmodified baseline course of action. Key globally threatened, endangered and endemic wetland species and habitats will be conserved and improved, and global wetland values, including the share of functional benefits accruing to the global community, will be maintained. The risks of extinction of globally threatened, endangered and endemic species and habitats will be reduced and ecosystem integrity, yielding global services protected. Global options to sustainably utilise and benefit from wetland species will exist and lessons of wider international relevance will be identified and disseminated to influence actions globally.

Alternative

112. Three possible courses of action that could be applied to conserve globally significant wetland biodiversity in Nepal have been considered. The first is to take no additional action to the baseline, the second is to take a direct and strict protection approach funded by GEF, and the third is to undertake activities proposed by the Project that promote and support policies, awareness, capacity and practices for conservation and sustainable management of globally significant wetland ecosystems.
113. Under the first alternative, without additional action on the existing baseline activities, it is likely that some wetlands of global value, particularly small wetland sites in protected areas may be conserved. This would not require additional financing, and would meet national development goals. However, this option is not considered sufficient for the conservation of the full global biodiversity and ecosystem functions in Nepal. In fact, under the baseline’s national, social, institutional, policy and economic conditions and actions, globally significant wetland biodiversity in Nepal will continue to be degraded and lost.

114. A second option is to designate and fund directly by GEF wetland protected areas to afford protection to globally significant wetlands in Nepal and to secure significant global biodiversity benefits. This is considered neither desirable nor feasible. As well as being costly and difficult to implement, it is unlikely to be sustainable after the end of the project given existing financial, human and institutional capacity, or even in socio-economic terms. It has the potential to conflict with national economic development and social equity goals. The high opportunity costs associated with the strict protection of wetland biodiversity, including high budgetary costs, losses to local livelihoods and to national economic development, are untenable in practice.

115. The third strategy, as laid out in the proposed Project, is to build on and modify the baseline, with an emphasis on building national support, mechanisms, capacity and awareness, (including improving policy and economic frameworks, price and market signals) and demonstrating replicable actions on-the-ground at select sites to promote wetland conservation and wise use. This alternative is considered to be the most desirable and effective option, in social, economic, financial, development and conservation terms. As well as securing long-term global benefits, it can also simultaneously meet long-term development goals of Nepal. The Project has also been designed to ensure that, by strengthening capacity and building on existing institutional arrangements and activities, it will be both financially and institutionally sustainable over the long-term. It does not seek to replace baseline activities, technologies or institutions, or to diminish any existing economic benefits, but rather to strengthen and consolidate them, and to improve and diversify their scope and operation to include consideration of wetland biodiversity of global significance. This will be done by producing thirteen Outputs under three Outcomes. These are described below in some detail.

**Systems Boundary**

116. The scope of analysis is defined by the project’s immediate objective: to strengthen national and local capacity in ecosystem management and sustainable use of wetland biodiversity in Nepal. The major focus of the Project, therefore, is on the geographical and political units, social and economic structures and institutions that manage, use and influence the status of wetland biodiversity in Nepal. The system boundary of the Project is taken to include:

- **Geography and ecology**: The Project covers wetlands in Nepal. It includes consideration of flowing water (lotic) and still water (lentic) habitats in the lowland Terai, the mid-hills and the high mountains, and associated habitats such as riverine forests and wet grasslands. It will focus its effort immediately in the Terai. Two demonstration sites have been chosen because of their importance in global biodiversity terms, recognised by being designated Ramsar sites—Koshi Tappu Wildlife Reserve in the eastern Terai, and Ghodaghodi Lake Complex in the western Terai, respectively. It is anticipated that the project will result in improved plant and animal biodiversity conservation and maintenance of ecosystem integrity within this geographical and ecological system boundary.

- **Political and administrative boundaries**: The Project falls within the recognised international boundaries of the Kingdom of Nepal. The demonstration sites will include Koshi Tappu Wildlife Reserve and its proposed buffer zone, which fall under three administrative districts - Sunsari,
Sapatar and Udaypur Districts in Eastern Nepal; and Darakh, Joshpur, Bauniya, Khilad, and Kota Tulsipur Village Development Committees of Kailali District at the Ghodagodi Lake Complex. It is anticipated that it will result in improved wetland biodiversity conservation within these administrative and political boundaries. Actions are also built into the project to have influence over other wetland sites in the country, as secondary. It is also hoped that in addition, the project will have impacts in transboundary learning, replication, and cooperation for wetland conservation. Actions are also built into the project to have influence over other wetland sites in the country, as secondary rather than primary focus.

- **Socio-economy:** the Project's main stakeholders and beneficiary groups will be the primary users and managers of wetland biodiversity, particularly local leaders, community members, and user groups, NGOs and national and local government line agency personnel. Particular attention will be given to targeting the more vulnerable and marginal sections of the rural population, such as women, indigenous wetland-dependent communities, and the poor. Additional target beneficiaries are members of the global community who benefit from the wetland biodiversity of Nepal. It is anticipated that this will result in significant gains in knowledge, information, awareness, income, and non-monetary economic benefits within this socio-economic system boundary. Private sector commercial and industrial interests whose economic activities use or impact on wetland biodiversity lie outside the main socio-economic system boundary of the Project and, therefore, are considered to form secondary beneficiaries. However, it is likely that project activities will also result in gains for these groups in terms of enhancing the supply of wetland biodiversity goods and services which are key to their production processes and economic output.

- **Institutions:** the Project is focused on formal and informal community groups who manage and use wetlands, and on the national and local institutions—government and non-government—that are mandated with the management of wetland biodiversity in Nepal, including national environment and wildlife agencies, and national committees and institutions concerned with coordinating the implementation of the policy and planning framework. It is anticipated that the Project will result in a considerably strengthened institutional and human resource capacity, awareness, and information base from which these institutions are able to manage and use wetland biodiversity sustainably. National and local institutions which are concerned primarily with the use and development of wetland areas and biodiversity for water, industry, agriculture, and infrastructure lie mostly outside the system boundary of the project, because they are not primary wetland biodiversity users and managers, although they are included where their actions impact biodiversity. As such, it is intended that project activities will result in increased awareness and capacity in wetland biodiversity issues in these sectors and institutions, and improve the environmental sustainability of their activities.

- **Threats and root causes:** the Project is focused on overcoming threats to wetland biodiversity relating to unsupportive legal, economic, and policy frameworks, a weak funding base and poor co-ordination of plans between sectors; insufficient capacity, knowledge, and awareness for wetland management planning; and high local community dependence on but low involvement in their wetland resources management. An additional set of root causes relating to wetland biodiversity degradation—those relating to the socio-political context (for example civil unrest, poor infrastructure, widespread poverty, corruption), lie outside the system boundary of this project, because they do not relate to its primary institutions and target beneficiaries. Additionally, overcoming socio-political threats to wetland biodiversity requires action at political and programmatic levels, not at a single project level. However, it is anticipated that the Project will produce a number of positive knock-on effects on both ecosystem integrity and functions, because it will influence economic activities which impact on wetland hydrology and ecological integrity, and on socio-political status, because it will simultaneously improve government institutional capacity and diversify and strengthen rural livelihoods in wetland areas.
Summary of Costs

117. The cost of baseline activities is approximately US$ 15.19 million for the full project period, 2006-2009.

118. Total project costs are estimated at US$ 4.96 million (excluding project development and support costs). Of this amount, GEF is requested to contribute US$ 1.96 million (48 percent) for activities that will provide global environmental benefits. In addition to the costs associated with carrying out these activities, GEF has already provided PDF Block B grants of US$ 0.25 million for the preparation of this project. The remainder of the Project incremental costs, US$ 1.14 million will be met through co-financing from His Majesty’s Government of Nepal (28 percent) and other donors US$ 0.96 million (24 percent).
### Incremental Cost Matrix

<table>
<thead>
<tr>
<th>Cost/Benefit</th>
<th>Baseline (B)</th>
<th>Alternative (A)</th>
<th>Increment (A-B)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Domestic Benefits</strong></td>
<td>Globally significant wetland biodiversity of Nepal remain unidentified, their values not understood, policies remain unsupportive of wetland conservation and consequently threatened by bad land use planning, resource over-harvesting, insufficient protection, increase in alien invasive species and threats to migratory species. Wetland management remains uncoordinated at the national level, national institutions continue to lack wetland biodiversity focus and capacity. Weak mechanisms to share wetland technical and management learning between specialists, little or no communication between local communities and national technical experts. Knowledge on wetlands remains weak, and there is little capacity to apply wetland assessment for conservation planning. Economic values of wetlands remain unknown, and the use of economic tools for wetland management, remains unincorporated into development or conservation planning. National-level financing to wetland management remains inadequate. Roles of government agencies, Buffer Zone Council and district and community stakeholders in wetland management continue to be unclear and difficult to fulfill. There are few incentives for communities to conserve biodiversity, and biodiversity conservation remains unattractive at the local level. Insufficient financial resources are available for continued conservation and sustainable use, funding mechanisms remain weak and do not target all the groups involved in wetland management.</td>
<td>Mechanism for networking, joint planning and consideration of wetland issues established and includes wetland-managing and wetland-impacting sectors. Improved communication, and joint planning between different wetland stakeholders, managers and specialists leading to better synergies and the development of support groups for wetland management. National policy on wetlands is reviewed, harmonized with other sectoral legislation and policy, and can be implemented effectively in line with both national and global conservation priorities. Wetlands policy - including conservation and community issues - integrated into, and reflected in, the provisions and guidance given by the policies of both conservation and development sectors. Economic policy reforms and market-based instruments developed to address wetland concerns. Wetlands and wetland biodiversity of national importance are better understood and managed better. Wetland dependent indigenous communities are empowered and are involved in better wetland management. Knowledge base on wetlands conservation planning established and wetlands assessments carried out, leading to identification of critical habitats and threats, and better information for management planning. Awareness of, information about, and capacity to undertake wetland economic valuation improved, and integrated into both development and conservation planning, national funding mechanisms established.</td>
<td>Maintenance of global wetland values, including the share of functional benefits that accruing to the global community. Reduced risks of extinction of globally threatened, endangered and endemic species and habitats. Protection of ecosystem integrity, yielding global services. Global options to sustainably utilize and benefit from wetland species and areas kept open. Continued global existence values. Lessons of wider international relevance identified and disseminated.</td>
</tr>
<tr>
<td><strong>Global Benefits</strong></td>
<td>National policy omits consideration of global biodiversity priorities and conservation requirements.</td>
<td>Policies and practice for conservation and sustainable management of globally significant</td>
<td>Loss of direct and indirect benefits curbed, maintenance or</td>
</tr>
</tbody>
</table>

44
<table>
<thead>
<tr>
<th>Cost/Benefit</th>
<th>Baseline (B)</th>
<th>Alternative (A)</th>
<th>Increment (A-B)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>and is difficult to implement. Wetlands and wetland biodiversity of national importance continue to be lost, degraded and misutilised. Knowledge and importance of these and institutional set up for their management continue to be uncoordinated. Wetland dependent indigenous communities remain marginalized and are not involved in better wetland management. There are no formal mechanisms for transboundary dialogue on wetland management issues, and there is little exchange of information or knowledge between Nepal and other countries.</td>
<td>wetland ecosystems and their biodiversity prioritised for conservation and are sustainably managed, leading to the maintenance and improvement of global biodiversity, ecosystem services and existence values. Key globally threatened, endangered and endemic wetland species and habitats are conserved and improved. Tools, materials or approaches are developed, or available for sharing nationally or internationally.</td>
<td>improvement of on and off-site wetland values. Enhanced sustainable income, subsistence and employment opportunities for wetland residents, and the national economy. Sustainable economic development opportunities from land and water-based developments.</td>
</tr>
<tr>
<td>Costs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Outcome 1: Wetland biodiversity conservation values integrated into national policy and planning framework</td>
<td>1,047,567</td>
<td>1,886,412</td>
<td>838,845</td>
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<tr>
<td>Outcome 2: Strengthened national institutional, technical and economic capacity and awareness for wetland biodiversity conservation and sustainable use</td>
<td>3,665,449</td>
<td>4,446,799</td>
<td>781,350</td>
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<tr>
<td>Outcome 3: Enhanced collaborative management of wetland resources for conservation and sustainable livelihoods</td>
<td>10,476,764</td>
<td>12,918,798</td>
<td>2,442,034</td>
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<tr>
<td>Cost Totals</td>
<td>15,189,780</td>
<td>19,252,009</td>
<td>4,062,229</td>
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</tbody>
</table>
4. Total Budget and Workplan

119. Outputs and activities will be verified and confirmed during inception and yearly meetings/workshops, and a workplan prepared on that basis.

Programme Budgets and Inputs

120. Total Project costs are estimated at US$ 4.06 million (excluding Project development and support costs). Of this amount, GEF is requested to contribute US$ 1.96 million (48 percent) for activities that will provide global environmental benefits. In addition to the costs associated with carrying out these activities, GEF has already provided a PDF Block B grant of US$0.25 million for the preparation of this Project. The remainder of the Project incremental costs will be met through co-financing from His Majesty’s Government of Nepal (US$1.14 million, 28 percent) and other donors (US$ 0.96 million, 24 percent).

Table 1: Co-financing sources and amounts committed:

<table>
<thead>
<tr>
<th>Name of Co-financier (source)</th>
<th>Classification</th>
<th>Type</th>
<th>Amount (US$)</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government of Nepal</td>
<td>FA</td>
<td>In kind</td>
<td>1,139,550</td>
<td>See letters of commitment</td>
</tr>
<tr>
<td>United Nations Development Programme Nepal</td>
<td>UN Organization</td>
<td>Cash</td>
<td>533,562</td>
<td></td>
</tr>
<tr>
<td>IUCN Nepal</td>
<td>International Organization</td>
<td>Cash/In kind</td>
<td>423,962</td>
<td></td>
</tr>
<tr>
<td>Sub-Total Co-financing</td>
<td></td>
<td></td>
<td>2,097,074</td>
<td></td>
</tr>
</tbody>
</table>

121. This Project has been designed to be cost-effective in the following ways:

- Institutional capacity building activities have been designed to clarify and strengthen existing institutional structures and mechanisms rather than establish new institutions. Its strong focus on multi-sectoral partnership is expected to avoid duplication of work as well as implementation of contradictory activities that can undermine Project activities.

- Interventions will adopt tried-and-tested models, including: social mobilization and support to self-governing people’s organizations for socio-economic development and conservation; strengthening women’s ability and confidence to participate more actively in the management of natural resources and securing benefits from natural resource use; and linking awareness raising, income generation and conservation interventions.

- Project activities will be planned, where possible, in collaboration with other projects and programmes (e.g. for training programmes, assessments and monitoring).

- Activities designed to encourage replication of Project approaches in sites beyond the demonstration sites will reduce the costs associated with trying to replicate the Project’s lessons.

- The Project’s focus on using economic and financial instruments to promote wetland conservation is informed by a strong consideration of cost-effectiveness. The economic, fiscal and market-based instruments that are to be developed involve generating budgetary revenues and raising sufficient funds to cover their own costs of operation. It is widely acknowledged that economic instruments potentially present one of the most cost-effective ways to influence people’s behaviour because (in contrast to command and control approaches) they work through influencing price signals and private profits rather than relying on costly enforcement and monitoring mechanisms. Overcoming existing policy distortions and perverse incentives (such as
subsidies) that currently discriminate against wetlands also has the potential to save public expenditures. The development of national and site level financing mechanisms for wetland management is also cost-effective, as it will bring in additional funding as well as saving on government expenditures over the long-term.

**Inputs from the Partners**

122. GON will provide the services of National Programme Director, who will lead the programme. The contribution in kind and logistic support from the government for programme implementation will be provided by GON through NPD. The working time of line agency staff both at central and district level (particularly Koshi Tappa Warden Office and Ghodaghodi District Forest Office) and local government staff who will implement the programme is calculated as part of the government co-funding. The time of government staff at the central level for participating in the project meetings, workshops and visits as well as their time spent in co-ordination and monitoring is also considered as in-kind contribution from the government.

123. The MFSC will provide full-fledged office space to the exclusive use to the programme staff in Kathmandu for the duration of the programme.

124. Financial inputs from IUCN will be provided through materials, professional inputs from the Nepal country office as well as IUCN’s regional and global expertise. Out of total commitments from IUCN to the project, which is US $ 423,963, almost 27% of contributions have been incurred through two completed IUCN projects - the Community Incentives Project (funded by the World Bank) and the Traditional Knowledge Project (funded by Ford Foundation, British Embassy and IDRC). Because of delay in GEF Project inception, the former projects have now been completed. Products from these projects will be used by the GEF Project. Financial resources to cover the remaining inputs will be provided through new and ongoing IUCN projects such as programme support (by SDC), Conservation Financing (DFID), South Asia Network on Development and Environmental Economics (various donors) and support from IUCN’s global and regional programmes (such as Water and Law).

125. IUCN’s contributions will be primarily provided through technical inputs and knowledge. Knowledge from global network of IUCN will provide inputs to develop and provide feedback on project interventions and to share the lessons learnt from the project. Technical inputs, methodologies and knowledge from IUCN are expected in the following areas: valuation of wetland resources, economics, law, water, NTFPs, invasive species, traditional knowledge documentation, monitoring of poverty, gender and social inclusion, communications, GIS and a range of natural resource management and wetland policy issues (for policy-practice links). IUCN will also provide financial and administration services for IUCN’s portion.

126. IUCN will also contribute books and reports as well as communication and information materials for the resource centre.

**Breakdowns of budget**

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**Project ID:** 000498598  
**Project title:** PIMS 1822 BD FSP: Conservation and Sustainable Use of Wetlands in Nepal  
**Implementing Partner:** The World Conservation Union (IUCN) Nepal

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5. Management Arrangements

127) The Project will be implemented under National Implementation Modality (NIM) as per the UNDP's Results Management Guide (RMG).

128) Chairperson: Representative, National Planning Commission
   Secretary, MFSC
   Members: Representative, Ministry of Environment, Science and Technology
   Representative, Ministry of Finance
   Representative, Ministry of Water Resources
   Representative, Ministry of Agriculture and Cooperatives
   Representative, Ministry of Local Development
   Representative, Department of Forest
   Representative, Department of National Park and Wildlife Conservation
   Representative, Association of DDC of Nepal
   Deputy Resident Representative (Programme), UNDP, Nepal
   Representative, IUCN
   Representative, KMTNC
   Representative of NGOs and CSOs
   Member Secretary: National Project Director, Joint Secretary, MFSC

The OB will meet twice a year concerning this project or as needed as well as undertake field monitoring from time to time.

129) Project Executive Group: A Project Executive Group (PEG) will be formed at the centre in order to help make necessary executive decisions required for the implementation of project activities. The PEG will be the key body to closely monitor and review project activities, take decision on any change proposed by the National Project Manager (NPM). The PEG will also regularly bring to the notice of OB of all the matters concerning any change that needs to be made in the project.

The composition of the PEG and their roles will be as follows:

<table>
<thead>
<tr>
<th>S.N.</th>
<th>Agency/Community Representative</th>
<th>Designations</th>
<th>Roles</th>
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<tbody>
<tr>
<td>1</td>
<td>MFSC</td>
<td>National Project Director/Joint Secretary</td>
<td>Executive</td>
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<tr>
<td>2</td>
<td>UNDP</td>
<td>Asst Resident Representative</td>
<td>Senior Supplier</td>
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<tr>
<td>3</td>
<td>DNPWC/DoF/IUCN</td>
<td>Representatives</td>
<td>Beneficiaries</td>
</tr>
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</table>

130) Implementing partner: The MFSC is the designated implementing partner for the implementation of the project. The NPD on behalf of MFSC will have the prime responsibility to ensure project objectives and outputs are achieved and activities are implemented in accordance with the agreement stipulated in this project document. Major components of the programme will be implemented by The World Conservation Union (IUCN) Nepal, which will be responsible to MFSC, for programme implementation and achieving outputs and outcomes. The programme implementation will be guided by a Programme Partnership Agreement (Project MOU) between GoN/MFSC and IUCN as well as a Programme Cooperation Agreement between IUCN and UNDP. A Project Management Unit (PMU) will be constituted at the centre by recruiting necessary staff members to support implementing partner (list of staff is provided under the heading Project Support below).
All other partners will be brought on board during the time of implementation as and when necessary by the MFSC as per the agreement made in the PEG.

131. Project Assurance: UNDP Programme Officer responsible for bio-diversity sector will be the Assurance Officer who will conduct independent regular oversight and monitoring activities and provide report to the PEG on the achievement of the key milestones and implementation challenges experienced.

132. Project Support: In order to smoothly implement the project activities the following staff will be recruited for the PMU and field level offices of the project. The National Programme Manager, Admin and Finance Associate and Driver at the PMU will be recruited by UNDP while the Chief Technical Advisor, Wetland Biodiversity Specialist, Indigenous Community and Gender Specialist, Field Manager, Admin and Finance Assistant and the Drivers for the field offices will be recruited by IUCN. All the staff will be recruited as National Staff.

1) National Project Manager (NPM) - 1
2) Technical Advisors/Specialists - 3
3) Field Managers -2 (One for Koshi Tappu and one for Ghodaghodi Lake)
4) Admin Finance Staff - 3 (1 Centre, 1 Koshi Tappu, and 1 Ghodaghodi)
5) Drivers - 3 (1 Centre, 1 Koshi Tappu, and 1 Ghodaghodi)
133. The PMU will be established in Kathmandu, at a premises designated as part of its’ in-kind contribution under the guidance of the National Programme Director. The PMU will also house the IUCN Technical Team, under the supervision of a national Chief Technical Advisor. MPSC and IUCN will collaborate closely to ensure coherence of Programme activities and achievement of results and to promote learning from and sharing across the country, including to and from sister sites.

134. Field Units will be established at Ghodaghodi (GG) and Koshi Tappu (KT) areas to undertake the field demonstration work and promote replication in other sites. Field activities will be guided by a multi-stakeholder advisory committee and managed by a Field Management Committee, chaired by the Warden (KT) and the DFO
Programme activities in the field sites will be facilitated and technically supported by IUCN and implemented by local partners (government and non-government) under output-based contracts.

135. The Programme will foster a strong "learning-by-doing" culture. A system for monitoring, reflection and revision will be established and learning will be captured and disseminated locally, nationally and internationally.

Field Advisory Committees (FACs):

136. The Field Advisory Committees will be established at the two field sites - Koshi Tappu and Ghodaghodi. They will serve as the local advisory body in order to provide policy guidance to the field programme activities, promote coordination among all relevant stakeholders and encourage use of site findings to influence local policy and practice. Their role will be instrumental to integrate the project's work into larger district level conservation and development initiatives, to influence work beyond Programme sites, to obtain additional support and partnerships and to avoid duplication of efforts.

Field Management Committee (FMC)

137. Field Management Committees (FMC) will be established at each field site and will consist of key field site implementing partners. The FMC is responsible for the implementation of the field site activities as per the Programme agreements and the guidance of the PMU. In Ghodaghodi it will be chaired by the DFO and members will initially include the Field Programme Manager and Forest User Groups (FUGS). In Koshi Tappu, it will be chaired by the Warden and members will initially include the Field Programme Manager and a representative from the Buffer Zone Management Council (BZMC). Additional implementation partners will be added once local implementation is finalized. The National Programme Manager (NPM) and Chief Technical Advisor (CTA) will attend at least one meeting per year at each site. The FMC will meet quarterly.

138. The roles of the various committees are reflected in the Terms of Reference, included in Part IV of this document. The staff management structure is given in the diagram below.
KEY ROLES AND RESPONSIBILITIES - KEY PARTNERS

Roles and Responsibilities of MFSC:

a. Retain overall responsibility for the execution of the Programme by coordinating it through the Programme Steering Committee (PSC);

b. Develop and sign an MOU with IUCN that designates IUCN as the Programme implementing agent responsible for implementation and management of specific components of the Programme as per the Programme Document and according to annual work plans and budgets approved by the Programme Steering Committee (PSC);

c. Coordinate closely with UNDP and IUCN and other GoN’s line Ministries and Departments and other partners and stakeholders for effective Programme implementation;

d. Chair the Programme Steering Committee and coordinate the inputs of other government ministries and departments;

e. Designate a National Programme Director (NPD) as the focal point to liaise with UNDP and IUCN. The NPD will be responsible for oversight of the Programme on behalf of the government and coordination with other government line agencies. The NPD will also participate in staff and consultant recruitment processes;

f. Assign additional appropriate government technical staff (nationally and locally) and ensure their timely availability to support Programme implementation as part of government co-fund;

g. Coordinate the securing of GoN contribution (co-fund) to the total Programme as per the Programme document;

h. Represent GoN on transboundary discussions on wetland conservation issues relevant to the project;

i. Allow disbursement of funds and refund of expenses by UNDP directly to IUCN following joint review of Programme financial reports by MFSC and UNDP and within the limits set out in the Programme Document;

j. Provide GON with regular updates on the progress of the project;

k. Facilitate the translation of Programme experience into national policies, strategies and practices within government and through mechanisms such as donor coordination and sectoral working groups; as well as in other “sister” sites;

l. Implement specific components and produce outputs of the Programme under direct responsibility of GoN/ MFSC.

Roles and Responsibilities of IUCN

m. Provide co-fund as envisaged in the Programme Document;

n. Prepare and sign an MOU with GoN that designates IUCN as the Programme implementing agent responsible for implementation and management of specific components of the Programme as per the Programme Document and according to annual work plans and budgets approved by the Programme Steering Committee (PSC);

o. Sign a Programme Cooperation Agreement with UNDP;

p. Coordinate closely with the National Programme Director, other staff of GoN’s line Ministries and Departments and other partners and stakeholders for effective Programme implementation;

q. Bring relevant global learning to support conservation and sustainable use of wetlands in Nepal and also promote sharing of learning from Nepal to rest of the world;
1. Prepare the TORs and identify and hire staff such as the Chief Technical Advisor, technical staff and field staff as per IUCN rules and regulations in consultation with the MFSC and UNDP CO;

2. Provide technical support to PMU;

3. Implement specific components of the Programme under direct responsibility of IUCN.

139. In order to accord proper acknowledgement to GEF for providing funding, a GEF logo should appear on all relevant GEF project publications, including among others, project hardware and vehicles purchased with GEF funds. Any citation on publications regarding projects funded by GEF should also accord proper acknowledgment to GEF. The UNDP logo should be more prominent -- and separated from the GEF logo if possible, as UN visibility is important for security purposes.

6. Monitoring and Evaluation Plan

Work plan

140. Annual Work Plan: The NPD shall be required to produce an inception report with an annual work plan and budget included in the programme document within 45 days from the start of the programme. This may include the budget revision if necessary, to reflect the activities to be undertaken as per the work plan. This, as well as the subsequent annual workplans and budgets will be developed with full participation from all Project Management Committee members. During the preparation of AWP and budgets, any budgetary adjustments within the outcomes based on the project performance in the previous year, can be made as required. The Field Management Committee will draft an annual plan and budget for the respective site. Those drafts will be first discussed at the field advisory committees and then forwarded to the PMC for finalisation.

Quarterly Work Plans:

141. The Programme manager/CTA will prepare a breakdown of the annual work plan into quarterly work plans and quarterly budgets for submission to UNDP and other partners as appropriate. Quarterly work plans shall form the basis for quarterly releases of funds to the respective project accounts and also the preparation of quarterly progress reports.

142. Project monitoring and evaluation will be conducted in accordance with established UNDP and GEF procedures and will be provided by the project team and the UNDP Country Office (UNDP-CO) with support from UNDP/GEF. The Logical Framework Matrix in Section 2, Part II provides performance and impact indicators for project implementation along with their corresponding means of verification. These will form the basis on which the project’s Monitoring and Evaluation system will be built.

143. The following sections outline the principle components of the Monitoring and Evaluation Plan and indicative cost estimates related to M&E activities. The project’s Monitoring and Evaluation Plan will be presented and finalized at the Project’s Inception Report following a collective fine-tuning of indicators, means of verification, and the full definition of project staff M&E responsibilities.

Monitoring and Reporting

Project Inception Phase

144. A Project Inception Workshop will be conducted with the full project team, relevant government counterparts, co-financing partners, the UNDP-CO and representation from the UNDP-GEF Regional Coordinating Unit, as well as UNDP-GEF (HQs) as appropriate.
145. A fundamental objective of this Inception Workshop will be to assist the project team to understand and take ownership of the project’s goals and objectives, as well as finalize preparation of the project’s first annual work plan on the basis of the project’s logframe matrix. This will include reviewing the logframe (indicators, means of verification, assumptions), imparting additional detail as needed, and on the basis of this exercise finalize the Annual Work Plan (AWP) with precise and measurable performance indicators, and in a manner consistent with the expected outcomes for the project.

146. Additionally, the purpose and objective of the Inception Workshop (IW) will be to: (i) introduce project staff with the UNDP-GEF expanded team which will support the project during its implementation, namely the CO and responsible Regional Coordinating Unit staff; (ii) detail the roles, support services, and complementary responsibilities of UNDP-CO and R CU staff vis-à-vis the project team; (iii) provide a detailed overview of UNDP-GEF reporting and monitoring and evaluation (M&E) requirements, with particular emphasis on the Annual Project Implementation Reviews (PIRs) and related documentation, the Annual Project Report (APR), Tripartite Review Meetings, as well as mid-term and final evaluations. Equally, the Inception Workshop will provide an opportunity to inform the project team on UNDP project-related budgetary planning, budget reviews, and mandatory budget rephasing.

147. The Inception Workshop will also provide an opportunity for all parties to understand their roles, functions, and responsibilities within the project’s decision-making structures, including reporting and communication lines, and conflict resolution mechanisms. The Terms of Reference for project staff and decision-making structures will be discussed again, as needed, in order to clarify for all, each party’s responsibilities during the project’s implementation phase.

**Monitoring responsibilities and events**

148. A detailed schedule of project reviews meetings will be developed by the project management, in consultation with project implementation partners and stakeholder representatives and incorporated in the Project Inception Report. Such a schedule will include: (i) tentative time frames for Tripartite Reviews, Steering Committee Meetings, (or relevant advisory and/or coordination mechanisms) and (ii) project-related Monitoring and Evaluation activities.

149. *Day to day monitoring of implementation progress* will be the responsibility of the National Programme Manager or CTA based on the project’s Annual Work Plan and its indicators. The Project Team will inform the UNDP-CO of any delays or difficulties faced during implementation so that the appropriate support or corrective measures can be adopted in a timely and remedial fashion.

150. The National Programme Manager and the CTA will fine-tune/finalise the progress and performance/impact indicators of the project in consultation with the full project team at the Inception Workshop with support from UNDP-CO and assisted by the UNDP-GEF Regional Coordinating Unit. Specific targets for the first year implementation progress indicators together with their means of verification will be developed at this Workshop. These will be used to assess whether implementation is proceeding at the intended pace and in the right direction and will form part of the Annual Work Plan. The local implementing agencies will also take part in the Inception Workshop in which a common vision of overall project goals will be established. Targets and indicators for subsequent years would be defined annually as part of the internal evaluation and planning processes undertaken by the project team.

151. Measurement of impact indicators related to global benefits will occur according to the schedules defined in the Inception Workshop and tentatively outlined in the indicative Impact Measurement Template at the end of this section. The measurement of these will be undertaken through subcontracts or retainers with relevant institutions (e.g. vegetation cover via analysis of satellite imagery, or populations of key species through inventories) or through specific studies that are to form part of the projects activities (e.g. measurement carbon
benefits from improved efficiency of ovens or through surveys for capacity building efforts) or periodic sampling such as with sedimentation.

152. **Periodic monitoring of implementation progress** will be undertaken by the UNDP-CO through quarterly meetings with the project proponent, or more frequently as deemed necessary. This will allow parties to take stock and to troubleshoot any problems pertaining to the project in a timely fashion to ensure smooth implementation of project activities.

153. **Quarterly review**: The quarterly review will be held at programme implementation level. For this the PMC will meet regularly at quarterly basis for well co-ordinated programme implementation.

154. UNDP Country Offices and UNDP-GEF RCUs as appropriate, will conduct yearly visits to projects that have field sites, or more often based on an agreed upon schedule to be detailed in the project’s Inception Report / Annual Work Plan to assess first hand project progress. Any other member of the Steering Committee can also accompany, as decided by the SC. A Field Visit Report will be prepared by the CO and circulated no less than one month after the visit to the project team, all SC members, and UNDP-GEF.

155. **Annual Monitoring** will occur through the Tripartite Review (TPR). This is the highest policy-level meeting of the parties directly involved in the implementation of a project. The project will be subject to Tripartite Review (TPR) at least once every year. The first such meeting will be held within the first twelve months of the start of full implementation. The project proponent will prepare an Annual Project Report (APR) and submit it to UNDP-CO and the UNDP-GEF regional office at least two weeks prior to the TPR for review and comments.

156. The APR will be used as one of the basic documents for discussions in the TPR meeting. The project proponent will present the APR to the TPR, highlighting policy issues and recommendations for the decision of the TPR participants. The project proponent also informs the participants of any agreement reached by stakeholders during the APR preparation on how to resolve operational issues. Separate reviews of each project component may also be conducted if necessary.

157. The TPR has the authority to suspend disbursement if project performance benchmarks are not met. Benchmarks will be developed at the Inception Workshop, based on delivery rates, and qualitative assessments of achievements of outputs. In the absence of a TPR requirement, the programme will be subject to annual review to be performed by the SC. The NPD will be responsible to prepare and submit, before the TPR/Annual Review meeting, an APR.

**Terminal Tripartite Review (TTR)**

158. The terminal tripartite review is held in the last month of project operations. The project proponent is responsible for preparing the Terminal Report and submitting it to UNDP-CO and LAC-GEF’s Regional Coordinating Unit. It shall be prepared in draft at least two months in advance of the TTR in order to allow review, and will serve as the basis for discussions in the TTR. The terminal tripartite review considers the implementation of the project as a whole, paying particular attention to whether the project has achieved its stated objectives and contributed to the broader environmental objective. It decides whether any actions are still necessary, particularly in relation to sustainability of project results, and acts as a vehicle through which lessons learnt can be captured to feed into other projects under implementation of formulation.

**Project Monitoring Reporting**

159. The National Programme Manager in conjunction with the UNDP-GEF extended team will be responsible for the preparation and submission of the following reports that form part of the monitoring process. Items (a)
through (f) are mandatory and strictly related to monitoring, while (g) through (h) have a broader function and the frequency and nature is project specific to be defined throughout implementation.

(a) Inception Report (IR)

160. A Project Inception Report will be prepared immediately following the Inception Workshop. It will include a detailed First Year/Annual Work Plan divided in quarterly time-frames detailing the activities and progress indicators that will guide implementation during the first year of the project. This Work Plan would include the dates of specific field visits, support missions from the UNDP-RCO or the Regional Coordinating Unit (RCU) or consultants, as well as time-frames for meetings of the project’s decision making structures. The Report will also include the detailed project budget for the first full year of implementation, prepared on the basis of the Annual Work Plan, and including any monitoring and evaluation requirements to effectively measure project performance during the targeted 12 months time-frame.

161. The Inception Report will include a more detailed narrative on the institutional roles, responsibilities, coordinating actions and feedback mechanisms of project related partners. In addition, a section will be included on progress to date on project establishment and start-up activities and an update of any changed external conditions that may affect project implementation.

162. When finalized the report will be circulated to project counterparts who will be given a period of one calendar month in which to respond with comments or queries. Prior to circulation of the IR, the UNDP Country Office and UNDP-GEF’s Regional Coordinating Unit will review the document.

(b) Annual Project Report (APR)

163. The APR is a UNDP requirement and part of UNDP’s Country Office central oversight, monitoring and project management. It is a self-assessment report by project management to the CO and provides input to the UNDP’s Country Office reporting process and the ROAR, as well as forming a key input to the Tripartite Project Review. An APR will be prepared on an annual basis prior to the Tripartite Project Review, to reflect progress achieved in meeting the project’s Annual Work Plan and assess performance of the project in contributing to intended outcomes through outputs and partnership work.

164. The format of the APR is flexible but should include the following:
  - An analysis of project performance over the reporting period, including outputs produced and, where possible, information on the status of the outcome
  - The constraints experienced in the progress towards results and the reasons for these
  - The three (at most) major constraints to achievement of results
  - AWP, CAE and other expenditure reports (ERP generated)
  - Lessons learned
  - Clear recommendations for future orientation in addressing key problems in lack of progress

(c) Project Implementation Review (PIR)

165. The PIR is an annual monitoring process mandated by the GEF. It has become an essential management and monitoring tool for project managers and offers the main vehicle for extracting lessons from ongoing project. Once the project has been under implementation for a year, a Project Implementation Report must be completed by the CO together with the project. The PIR can be prepared any time during the year (July-June) and ideally prior to the TPR. The PIR should then be discussed in the TPR so that the result would be a PIR that has been agreed upon by the project, the executing agency, UNDP CO and the concerned RC.
166. The individual PIRs are collected, reviewed and analyzed by the RCs prior to sending them to the focal area clusters at the UNDP/GEF headquarters. The focal area clusters supported by the UNDP/GEF M&E Unit analyze the PIRs by focal area, theme and region for common issues/results and lessons. The TAs and PTAs play a key role in this consolidating analysis.

167. The focal area PIRs are then discussed in the GEF Interagency Focal Area Task Forces in or around November each year and consolidated reports by focal area are collated by the GEF Independent M&E Unit based on the Task Force findings.

168. The GEF M&E Unit provides the scope and content of the PIR. In light of the similarities of both APR and PIR, UNDP/GEF has prepared a harmonized format for reference.

(d) **Quarterly Progress Reports**

169. Upon completion of a quarter the programme manager will prepare a brief quarterly progress report. This report should describe actual programme progress against each quarter’s work plan and budget, identify any problems encountered, explain the main variances from the work plan and budget, and present plans and recommendations for the next quarter’s work.

(e) **Interim Reports**

170. The programme manager will prepare Interim Reports for the PSC to consist of brief summary of progress in relation to work plan and update on financial progress if requested.

171. Short reports outlining main updates in project progress will be provided quarterly to the local UNDP Country Office and the UNDP-GEF regional office by the project team. See format attached.

(f) **Periodic Thematic Reports**

172. As and when called for by UNDP, UNDP-GEF or the Implementing Partner, the project team will prepare Specific Thematic Reports, focusing on specific issues or areas of activity. The request for a Thematic Report will be provided to the project team in written form by UNDP and will clearly state the issue or activities that need to be reported on. These reports can be used as a form of lessons learnt exercise, specific oversight in key areas, or a troubleshooting exercises to evaluate and overcome obstacles and difficulties encountered. UNDP is requested to minimize its requests for Thematic Reports, and when such are necessary will allow reasonable timeframes for their preparation by the project team.

(g) **Project Terminal Report**

173. During the last three months of the project the project team will prepare the Project Terminal Report. This comprehensive report will summarize all activities, achievements and outputs of the Project, lessons learnt, objectives met, or not achieved, structures and systems implemented, etc. and will be the definitive statement of the Project’s activities during its lifetime. It will also lay out recommendations for any further steps that may need to be taken to ensure sustainability and replicability of the Project’s activities.

**Independent Evaluation**

174. The project will be subjected to at least two independent external evaluations as follows:-
(i) **Mid-term Evaluation**

175. An independent Mid-Term Evaluation will be undertaken at the end of the second year of implementation. The Mid-Term Evaluation will determine progress being made towards the achievement of outcomes and will identify course correction if needed. It will focus on the effectiveness, efficiency and timeliness of project implementation; will highlight issues requiring decisions and actions; and will present initial lessons learned about project design, implementation and management. Findings of this review will be incorporated as recommendations for enhanced implementation during the final half of the project's term. The organization, terms of reference and timing of the mid-term evaluation will be decided after consultation between the parties to the project document. The Terms of Reference for this Mid-term evaluation will be prepared by the UNDP CO based on guidance from the UNDP-GEF RCU and UNDP-GEF.

(ii) **Final Evaluation**

176. An independent Final Evaluation will take place three months prior to the terminal tripartite review meeting, and will focus on the same issues as the mid-term evaluation. The final evaluation will also look at impact and sustainability of results, including the contribution to capacity development and the achievement of global environmental goals. The Final Evaluation should also provide recommendations for follow-up activities. The Terms of Reference for this evaluation will be prepared by the UNDP CO based on guidance from the Regional Coordinating Unit and UNDP-GEF.

**Audit Clause**

177. The Government will provide the Resident Representative with certified periodic financial statements, and with an annual audit of the financial statements relating to the status of UNDP (including GEF) funds according to the established procedures set out in the Programming and Finance manuals. The programme will be subject to management and financial audit (for UNDP and GEF inputs) at the end of each year as per UNDP requirements.

**Learning and Knowledge Sharing**

178. Results from the project will be disseminated within and beyond the project intervention zone through a number of existing information sharing networks and forums, including those of UNDP/GEF. In addition:

- The project will participate, as relevant and appropriate, in professional networks, organized for Senior Personnel working on projects that share common characteristics.

- The project will identify and participate, as relevant and appropriate, in scientific, policy-based and/or any other networks, which may be of benefit to project implementation though lessons learned.

179. The project will identify, analyze, and share lessons learned that might be beneficial in the design and implementation of similar future projects. Identify and analyzing lessons learned is an on-going process, and the need to communicate such lessons as one of the project's central contributions is a requirement to be delivered not less frequently than once every 12 months. UNDP/GEF and UNDP CO will provide assistance to the project team in categorizing, documenting and reporting on lessons learned. To this end a percentage of project resources will need to be allocated for these activities.
7. **Legal Context**

1. This Project Document shall be the instrument referred to as such in Article I of the Standard Basic Assistance Agreement between the His Majesty's Government of Nepal and the United Nations Development Programme, signed by the parties on 23 February 1984. The host country implementing agency shall, for the purpose of the Standard Basic Assistance Agreement, refer to the government co-operating agency described in that Agreement.

2. UNDP acts in this Project as Implementing Agency of the Global Environment Facility (GEF), and all rights and privileges pertaining to UNDP as per the terms of the SBAA shall be extended mutatis mutandis to GEF.

3. The UNDP Resident Representative in Nepal is authorized to effect in writing the following types of revision to this Project Document, provided that she has verified the agreement thereto by GEF Unit and is assured that the other signatories to the Project Document and co-funding partners have no objection to the proposed changes:

   - Revision of, or addition to, any of the annexes to the Project Document;
   - Revisions which do not involve significant changes in the immediate objectives, outputs or activities of the project, but are caused by the rearrangement of the inputs already agreed to or by cost increases due to inflation (for GEF and UNDP inputs only);
   - Mandatory annual revisions which re-phase the delivery of agreed project inputs or increased expert or other costs due to inflation or take into account agency expenditure flexibility (for GEF and UNDP budgets only); and
   - Inclusion of additional annexes and attachments only as set out here in this Project Document.

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**Table H.1: Indicative Monitoring and Evaluation Work plan and corresponding Budget**

<table>
<thead>
<tr>
<th>Type of M&amp;E activity</th>
<th>Responsible Parties</th>
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<th>Time frame</th>
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<td>$3,000</td>
<td>Within first two months of project start up</td>
</tr>
<tr>
<td></td>
<td>Project Team, UNDP CO</td>
<td>None</td>
<td>Immediately following UW</td>
</tr>
<tr>
<td>Inception Report</td>
<td>National Project Director</td>
<td>To be finalized in Inception Phase and Workshop, Indicative cost $60,000</td>
<td>Start, mid and end of project</td>
</tr>
<tr>
<td></td>
<td>will oversee specific studies, and delegate responsibilities to relevant team members</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Measurement of Means of Verification for Project Purpose Indicators</td>
<td>Oversight by Project GEF Technical Advisor and National Project Director, Measurements by regional field officers and local IAs</td>
<td>To be determined as part of the Annual Work Plan's preparation, Indicative cost 25,000</td>
<td>Annually prior to APR/PIR and to the definition of annual work plans</td>
</tr>
<tr>
<td>APR and PIR</td>
<td>Project Team, UNDP-CO, UNDP-GEF</td>
<td>None</td>
<td>Annually</td>
</tr>
<tr>
<td>TPR and TPR report</td>
<td>Government Counterparts, UNDP CO</td>
<td>None</td>
<td>Every year,</td>
</tr>
<tr>
<td>Event</td>
<td>Responsible Party</td>
<td>Budget</td>
<td>Description</td>
</tr>
<tr>
<td>----------------------------------------</td>
<td>----------------------------------------</td>
<td>-----------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Steering Committee Meetings</td>
<td>National Project Director, UNDP CO</td>
<td>None</td>
<td>Following Project IV and subsequently at least once a year</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>To be determined by Project team and UNDP CO</td>
</tr>
<tr>
<td>Periodic status reports</td>
<td>Project team</td>
<td>5,000</td>
<td>To be determined by Project team and UNDP CO</td>
</tr>
<tr>
<td>Technical reports</td>
<td>Project team, Hired consultants as needed</td>
<td>15,000</td>
<td>To be determined by Project Team and UNDP- CO</td>
</tr>
<tr>
<td>Mid-term External Evaluation</td>
<td>Project team, UNDP-CO, UNDP-GEF Regional Coordinating Unit, External Consultants (i.e. evaluation team)</td>
<td>30,000</td>
<td>At the midpoint of project implementation</td>
</tr>
<tr>
<td>Final External Evaluation</td>
<td>Project team, UNDP-CO, UNDP-GEF Regional Coordinating Unit, External Consultants (i.e. evaluation team)</td>
<td>40,000</td>
<td>At the end of project implementation</td>
</tr>
<tr>
<td>Terminal Report</td>
<td>Project team, UNDP-CO, External Consultant</td>
<td>None</td>
<td>At least one month before the end of the project</td>
</tr>
<tr>
<td>Lessons learned</td>
<td>Project team, UNDP-GEF Regional Coordinating Unit (suggested formats for documenting best practices, etc.)</td>
<td>15,000 (average $3,000 per year)</td>
<td>Yearly</td>
</tr>
<tr>
<td>Audit</td>
<td>UNDP-CO, Project team</td>
<td>4,000 (average $1,000 per year)</td>
<td>Yearly</td>
</tr>
<tr>
<td>Visits to field sites (UNDP staff travel costs to be charged to IA fees)</td>
<td>UNDP Country Office, UNDP-GEF Regional Coordinating Unit (as appropriate), Government representatives</td>
<td>15,000 (average one visit per year)</td>
<td>Yearly</td>
</tr>
</tbody>
</table>

**TOTAL INDICATIVE COST**

Excluding project team staff time and UNDP staff and travel expenses

US$ 212,000
3. Logical Framework Analysis

Applicable MYFP Service Line:
Goal 3: Energy and Environment for Sustainable Development. Service Line 3.1: Frameworks and Strategies for Sustainable Development
Core Results: Sustainable management of environment and natural resource incorporated into poverty reduction strategies/key national development frameworks and sector strategies

Intended Outcome as stated in the Country Results Framework:
Clear recognition and incorporation of environmental dimension into pro-poor policies

Outcome indicator as stated in the Country Programme Results and Resources Framework.
Sectoral policies and plans address the linkage between the poverty and environment

As part of the project’s adaptive management approach, the LFA will be revisited annually during results-oriented performance assessments and revised based on agreement of all stakeholders according to the changing context. Indicators and targets have been set based on current best estimates according to situation analysis, field realities and available budget. These will be confirmed or revised and specified in year one based on a participatory process to develop both the site level demonstration plans and the overall project monitoring plan/ performance measurement plan.

<table>
<thead>
<tr>
<th>Narrative description</th>
<th>Key Performance Indicator</th>
<th>Baseline</th>
<th>Target (Year 5 unless specified)</th>
<th>Means of Verification and frequency</th>
<th>Assumptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Objective: To strengthen national and local capacity on ecosystem management of wetland biodiversity in Nepal</td>
<td>10 years after the project has started: ✓ Population size of globally threatened wetland species ✓ Conservation status of globally significant wetlands ✓ Access rights to wetland-dependent communities and income</td>
<td>✓ Rate of loss currently not available and will be surveyed • Population size of Asian wild buffalo = 159 (2004) • No globally significant wetland effectively conserved • Access restricted, average annual household income will be surveyed</td>
<td>✓ Rate of loss = 0 • Population size increased by 30% • All globally significant wetlands in Nepal conserved, with no degradation occurring • All wetland dependent communities have clearly defined access rights and average annual household income increased by 20%</td>
<td>✓ monitoring reports of DNWPC management plans ✓ biodiversity surveys ✓ social surveys</td>
<td></td>
</tr>
</tbody>
</table>

- Wetlands and aquatic biodiversity remain a priority of Gov
- National Financial Strategy developed by project can identify diverse sources of funding for ongoing support to wetlands
- Social, political and economic situation of the country does not deteriorate significantly

- Wetland biodiversity remains an Gov
<table>
<thead>
<tr>
<th>Narrative description</th>
<th>Key Performance Indicator</th>
<th>Baseline</th>
<th>Target (Year 5 unless specified)</th>
<th>Means of Verification and frequency</th>
<th>Assumptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>biodiversity conservation values integrated into national policy and planning framework</td>
<td>exists but does not fully reflect field realities</td>
<td>revised based on project recommendations and field experience</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Content of sectoral policies, plans and guidelines</td>
<td>Aquatic Conservation Act and National Parks and Wildlife Act and Buffer Zone guidelines do not adequately integrate wetlands issues</td>
<td>Aquatic Conservation Act and National Parks and Wildlife Act and Buffer Zone guidelines revised to integrate wetlands</td>
<td>new sectoral strategies and plans Assessed annually, starting yr 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sectoral policies and plans (water resources and agriculture) do not give attention to wetland conservation or sustainable use</td>
<td>Inconsistencies between the Local Self-Governance Act and sectoral policies &amp; laws create a confusing policy framework</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>10th Five Year Plan and demo site District development plans do not adequately integrate wetland conservation and use</td>
<td>Wetlands are integrated into national 11th Five Year Plan and demo site district development plans</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use and relevance of</td>
<td>No forum exists</td>
<td>National Wetland</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1) Sectoral departments adopt the guidelines and ensure their use

2) Wetland biodiversity remaining an GoN priority

3) Adequate inter-sectoral
<table>
<thead>
<tr>
<th>Narrative description</th>
<th>Key Performance Indicator</th>
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<th>Target (Year 5 unless specified)</th>
<th>Means of Verification and frequency</th>
<th>Assumptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Wetland Committee (NWC)</td>
<td>to discuss and resolve inter-sectoral issues impacting wetlands No regular mechanism for practitioners to influence national decision-making on wetlands</td>
<td>Committee is used to discuss and resolve inter-sectoral issues impacting wetlands Wetland network members believe decision-making of the NWC reflects interests and ideas of stakeholders 75% of the time</td>
<td>✓ survey of NWC committee members</td>
<td>participation in National Wetlands Committee (seniority &amp; frequency)</td>
<td>GoN remains open to the participation of civil society in wetland management</td>
</tr>
<tr>
<td>Legal decisions taken regarding wetlands</td>
<td>Current % of wetland cases resolved in favour of wetland conservation and sustainable use will be determined in year 1</td>
<td>60% of legal cases impacting wetlands are resolved in favour of wetland conservation and sustainable use</td>
<td>✓ national reports to CBD &amp; Ramsar Yr 1, 3 and 5</td>
<td>GoN remains open to the participation of civil society in wetland management</td>
<td>GoN biodiversity remains an GoN priority</td>
</tr>
<tr>
<td>TORs of MFSC staff</td>
<td>No explicit responsibility for wetland conservation in MFSC staff</td>
<td>5 national level staff of Ministry of Forests and Soil Conservation have wetland conservation related responsibility explicitly in their TOR by year 4</td>
<td>✓ minutes of NWC and sub committees</td>
<td>GoN biodiversity remains an GoN priority</td>
<td></td>
</tr>
<tr>
<td>OUTCOME 2: Strengthened national institutional, technical and economic capacity and awareness for wetland biodiversity conservation and sustainable use</td>
<td>Staff and budget allocation for aquatic ecosystem management No staff are explicitly responsible for, nor have adequate skills in aquatic ecosystem management No explicit budget for aquatic ecosystem management</td>
<td>Environment division of MFSC has adequate trained staff and increase in budgets allocated to aquatic ecosystem management by year 3</td>
<td>✓ Environment division budgets and staff profile</td>
<td>GoN counterpart funding and staff are provided in a timely manner</td>
<td></td>
</tr>
<tr>
<td>Scientific and economic tools and methods available</td>
<td>No wetland inventory beyond the</td>
<td>Inventory, assessments, economic valuation</td>
<td>✓ biodiversity &amp; sectoral strategies</td>
<td>Environment division provides leadership on</td>
<td></td>
</tr>
<tr>
<td>Narrative description</td>
<td>Key Performance Indicator</td>
<td>Baseline</td>
<td>Target (Year 5 unless specified)</td>
<td>Means of Verification and frequency</td>
<td>Assumptions</td>
</tr>
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<td>---------------------------</td>
<td>----------</td>
<td>---------------------------------</td>
<td>----------------------------------</td>
<td>-------------</td>
</tr>
<tr>
<td>Public awareness of wetland issues</td>
<td>Media coverage of wetland issues limited and not high quality</td>
<td>Increased coverage of wetland issues in media</td>
<td>✓ interviews &amp; focus groups ✓ newspaper articles; radio &amp; television programmes Assessed annually</td>
<td></td>
<td>Media retains its independence</td>
</tr>
</tbody>
</table>

OUTCOME 3: Enhanced collaborative management of wetland resources for conservation and sustainable livelihoods

| Sectoral and development actions | Sectoral and development actions (particularly upstream) inadequately consider impacts to wetlands | Commitments by relevant government units to prevent actions that would negatively impact demonstration site wetlands (by end of year 1) | ✓ letters by relevant government agencies Assessed annually | | Macroeconomic and sectoral planners open to developing pro-wetland economic policies and instruments ☞ GoN abides by its EIA laws and guidelines ☞ field activities are not unduly hampered by the political situation |

| Mechanisms for multi-stakeholder local decision-making on wetlands | Buffer zone council for KTWR not operational (and inadequate provisions for women or indigenous groups) No mechanism in GGC | Multi-stakeholder forum used for local decision-making regarding wetland management (incl. women and indigenous groups) | ✓ minutes of BZDC, KTWR & GGLC meetings Assessed annually, starting yr 2 | | ☞ field activities are not unduly hampered by the political situation |

<p>| Reduced conflicts over resource use | Number of recorded | 50% reduction in the number of | ✓ records of conflict | | ☞ field activities are not unduly |</p>
<table>
<thead>
<tr>
<th>Narrative description</th>
<th>Key Performance Indicator</th>
<th>Baseline</th>
<th>Target (Year 5 unless specified)</th>
<th>Means of Verification and frequency</th>
<th>Assumptions</th>
</tr>
</thead>
</table>
| Degree of community involvement for wetlands | Poor community involvement for wetlands conservation | Increased community support and participation for wetland conservation and sustainable use (incl. women and indigenous groups) | | ✓ PRA  
✓ perceptions of community & use groups  
Yr 1, 3 and 5 | ✓ field activities are not unduly hampered by the political situation |
| Protection of critical wetlands | Basic assessment of critical wetland sites in the project sites but limited restoration or protection (esp. outside KTWR) | Critical wetlands identified (year 2), restored and protected through collaborative approaches (year 5) | | ✓ protected area documents  
✓ records of wetland disturbance  
Yr 1, 3 and 5 | ✓ field activities are not unduly hampered by the political situation |
| Capacity of government staff | Inadequate government staff with capacity in wetland issues | Adequate qualified government staff at demonstration sites (DNFWC and DoF) | | ✓ Environment division budgets and staff profile  
Assessed annually, starting yr 2 | ✓ Staff turnover does not impede institutional knowledge & capacity |
| Financing | KTWR budget for DNFWC is inadequate. No funds for communities from BZ. No specific budget for DoF or communities in GGC for wetlands. | Increased budget available to line departments, local government and community groups from piloting of demo site financing strategies (agreed to by year 4 and in place by year 5) | | ✓ letters by relevant government agencies  
Assessed annually, starting yr 3 | incentives (social & economic) applied in 2 sites are replicable to other sites |
| Number of buffalo and cattle inside KTWR | High number of domestic and feral cattle and buffaloes inside the Reserve | 50% reduction in number of buffalo and cattle inside KTWR | | ✓ Periodic biological and social surveys  
Yr 1 and 5 | incentives (social & economic) applied in 2 sites are replicable to other sites |
<p>| Coverage of water | High water | 20% reduction of | | ✓ Periodic | |</p>
<table>
<thead>
<tr>
<th>Narrative description</th>
<th>Key Performance Indicator</th>
<th>Baseline</th>
<th>Target (Year 5 unless specified)</th>
<th>Means of Verification and frequency</th>
<th>Assumptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Growth of water hyacinth</td>
<td>hyacinth</td>
<td>water hyacinth at demo sites</td>
<td>Strategies for income generation based on sustainable use of wetland resources implemented in demo sites</td>
<td>Biological and social surveys Yr 1 and 5</td>
<td>( \checkmark ) field activities are not unduly hampered by political situation</td>
</tr>
<tr>
<td>Implementation of income generation strategies</td>
<td>No income generation strategies exist for wise use of wetland resources focused on poor wetland dependent communities</td>
<td>Strategies for income generation based on sustainable use of wetland resources implemented in demo sites</td>
<td>20% increase in income for 15% of wetland-dependent HhIs generated through community action &amp; eco-tourism plans</td>
<td>( \checkmark ) Periodic biological and social surveys Yr 1, 3 and 5</td>
<td></td>
</tr>
<tr>
<td>Adoption of sustainable resource use practices</td>
<td>Widespread unsustainable use practices</td>
<td>15% of wetland-dependent HhIs have stopped unsustainable resource use practices</td>
<td>( \checkmark ) Periodic biological and social surveys Yr 1, 3 and 5</td>
<td>( \checkmark ) incentives (social &amp; economic) applied in 2 sites are replicable to other sites</td>
<td></td>
</tr>
<tr>
<td>Adoption of integrated pest management and organic farming</td>
<td>Will be measured in year 1</td>
<td>20% of demo site communities adopt integrated pest management and organic farming</td>
<td>( \checkmark ) Periodic biological and social surveys Yr 1, 3 and 5</td>
<td>( \checkmark ) field activities are not unduly hampered by the political situation</td>
<td></td>
</tr>
<tr>
<td>Steps toward replication</td>
<td>No mechanisms exist for sharing of strategies among wetland sites</td>
<td>2 sister sites with collaborative mechanisms in place</td>
<td>( \checkmark ) Project reports Yr 5</td>
<td>( \checkmark ) Sister sites remain accessible</td>
<td></td>
</tr>
</tbody>
</table>

\(^2\) In Koshi Tappu Area, 31% of the households are from wetland dependent ethnic groups and in Ghodaghodi Lake Complex area 51% of households are from a wetland dependent ethnic group.
<table>
<thead>
<tr>
<th>Indicator</th>
<th>Means of verification</th>
<th>Assumptions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Outcome 1.1:</strong> Strengthened Mechanisms for Inter-Sectoral Co-operation</td>
<td>✓ PMU established and operational ¡ Project Steering Committee minutes ✓ project documents (plans, monitoring reports) ✓ National Wetland Committee minutes ✓ Technical Advisory Committee minutes ✓ preparatory workshop reports ✓ position statements for MEAs ✓ network reports &amp; meeting minutes ✓ sub-committee reports ✓ project reports ✓ guidelines ✓ awareness raising materials</td>
<td>✓ adequate inter-sectoral participation in National Wetlands Committee (seminars &amp; frequency) ✓ PMU can be established in an accessible location ✓ suitable staff &amp; counterparts are identified &amp; available in a timely manner ✓ existing wetland specialists &amp; indigenous peoples are interested &amp; able to participate in the networks ✓ GoN is open to further analysis &amp; amendment of wetland policy framework based on testing of its application in the field ✓ Macroeconomic and sectoral planners open to developing pro-wetland economic policies and instruments</td>
</tr>
</tbody>
</table>

| Outcome 1.2: Strengthened ability to integrate wetland values into national policy and planning framework | ✓ analysis & recommendations to strengthen policies and acts on wetlands, biodiversity and other sectors (water resources, agriculture, local self governance and protected areas as specified by year 2) ✓ analysis of economic policy disincentives and perverse incentives to wetlands in key wetland-impacting sectors (water, hydropower, irrigation and agriculture) and economic instruments/policy reforms for wetland conservation proposed for key sectors (water, hydropower, irrigation and agriculture) ✓ guidelines to support implementation of the wetland policy developed & disseminated ✓ guidelines for wetland economic assessment developed for integration into economic planning and investment appraisal procedures for key sectors (water, hydropower, irrigation and agriculture) ✓ guidelines on best practices to integrate wetland issues into specific sectors (agriculture, forestry, industry, tourism, river engineering, EIA) developed & disseminated |
OUTCOME 2: STRENGTHENED NATIONAL INSTITUTIONAL, TECHNICAL AND ECONOMIC CAPACITY AND AWARENESS FOR WETLAND BIODIVERSITY CONSERVATION AND SUSTAINABLE USE

<table>
<thead>
<tr>
<th>Output 2.1: Knowledge and Tools for Strengthened Development of Planning and Policy on Wetlands</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ toolkit on wetland assessment and inventory methodologies</td>
</tr>
<tr>
<td>✓ national inventory of wetlands (focus on mid-hills and mountains) including distribution of alien invasive species &amp; available in accessible database</td>
</tr>
<tr>
<td>✓ guidelines on AIS management &amp; action plan developed &amp; disseminated</td>
</tr>
<tr>
<td>✓ regular mechanisms established to update list of species under legal protection</td>
</tr>
<tr>
<td>✓ methodology for &amp; best practices of economic valuation of wetlands for conservation planning developed &amp; disseminated</td>
</tr>
<tr>
<td>✓ 10 national and site level development and conservation institutions with skills in wetland valuation</td>
</tr>
<tr>
<td>✓ 4 wetland valuation case studies (incl. project sites) with recommendations for financial and economic measures for conservation management</td>
</tr>
<tr>
<td>✓ Proposal for national sustainable financing mechanism for wetland conservation</td>
</tr>
<tr>
<td>✓ case studies on indigenous knowledge</td>
</tr>
<tr>
<td>✓ awareness action plan developed and implemented (based on needs assessment)</td>
</tr>
<tr>
<td>✓ 40 visits monthly to the resource centre</td>
</tr>
<tr>
<td>✓ 25 fact sheets, posters, brochures and other awareness raising materials developed and disseminated to 100 institutions</td>
</tr>
<tr>
<td>✓ increased access to wetland information resources through public information centre</td>
</tr>
<tr>
<td>✓ database of wetland information</td>
</tr>
<tr>
<td>✓ capacity building plan developed and delivered (based on needs assessment)</td>
</tr>
<tr>
<td>✓ 20 government &amp; NGO organizations with skills in ecosystem management approach to wetland management</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Output 2.2: Enhanced Awareness of Wetland Issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ inventory</td>
</tr>
<tr>
<td>✓ guidelines</td>
</tr>
<tr>
<td>✓ project documents</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Output 2.3: Strengthened technical capacity in wetland management</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ access to mountain sites is maintained</td>
</tr>
<tr>
<td>✓ planning &amp; sectoral staff are interested in the economic valuation</td>
</tr>
<tr>
<td>✓ indigenous communities agree to participate in the documentation of their knowledge</td>
</tr>
</tbody>
</table>

OUTCOME 3: ENHANCED COLLABORATIVE MANAGEMENT OF WETLAND RESOURCES FOR CONSERVATION AND SUSTAINABLE LIVELIHOODS

Component 3A: Collaborative management of wetland resources in the Koshi Tappu Area demonstrated as a model for wetland protected area management

<table>
<thead>
<tr>
<th>Output 3A.1:</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ BZ Development Committee established</td>
</tr>
</tbody>
</table>

72
<table>
<thead>
<tr>
<th>Strengthened Coordination for Collaborative Management in Koshi Tappu Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>and operational with multi-stakeholder representation, including women and wetland dependent communities</td>
</tr>
<tr>
<td>regular multi-stakeholder mechanisms for review of BZ and Reserve MPs established and operational</td>
</tr>
<tr>
<td>field office operational and accessible</td>
</tr>
<tr>
<td>District water resource committees strengthened to address wetland issues</td>
</tr>
<tr>
<td>institutional support provided based on needs analysis of government and community stakeholder groups</td>
</tr>
<tr>
<td>mapping of wetlands and analysis of tenure issues</td>
</tr>
<tr>
<td>report on linkages between resource access, livelihood security, environmental condition and conflict</td>
</tr>
<tr>
<td>20 organizations with increased skills in participatory planning, equity and conflict resolution</td>
</tr>
<tr>
<td>incentives for wetland conservation identified and piloted including buffalo insemination programme</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Output 3A.2: Strengthened Technical Capacity for Wetland Management in Koshi Tappu Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>✔ Staffed and skilled DNPWC (including % women staff)</td>
</tr>
<tr>
<td>✔ Applied training developed and delivered to DNPWC, BZ, line agency, NGO and community members on ecosystem and collaborative approaches to wetland management, economic valuation and sustainable financing</td>
</tr>
<tr>
<td>✔ Training of NGO and CBOs as resource personnel for communities on wetland conservation and sustainable use</td>
</tr>
<tr>
<td>✔ All critical wetland habitats identified and restored or protected</td>
</tr>
<tr>
<td>✔ Revisited KTWR and BZ management plans and mechanisms for regular review and revision</td>
</tr>
<tr>
<td>✔ Targeted monitoring plan developed and implemented</td>
</tr>
<tr>
<td>✔ Mechanism for reducing cattle in KTWR developed and tested</td>
</tr>
<tr>
<td>✔ Strengthened dialogue with India on transboundary cooperation</td>
</tr>
<tr>
<td>✔ Links established with other projects (including TAI)</td>
</tr>
<tr>
<td>✔ Sustainable Financing Strategy for conservation and sustainable use activities in KTWR and BZ developed &amp; piloted, including payment for environmental services, user charges and damage fees, and other market-based mechanisms for wetland management</td>
</tr>
</tbody>
</table>

| ✔ Training reports & follow-up surveys |
| ✔ KTWR management & monitoring plans & reports |
| ✔ Minutes of & participation at review meetings |
| ✔ PRA surveys and community & park perceptions |
| ✔ Minutes and actions identified for transboundary cooperation |
| ✔ Minutes and actions for collaboration with other projects |
| ✔ Sustainable financing strategy & reports on its piloting |
| ✔ Variety of market-based instruments developed for wetland management |

| ✔ Field project office and is accessible to all stakeholders |
| ✔ Artificial insemination is a viable option for buffaloes |
| ✔ Women & wetland-dependent communities are interested and able to participate |
| ✔ Resource-based user groups are a useful addition to existing geographical-based user groups |

| ✔ Government & community interested to build on participatory process established through Parks & People Programme and extend to wetlands |
| ✔ Training can be developed & delivered to both government & non-governmental people |
| ✔ Cost-effective indicators can be identified |
| ✔ Other projects & planning & line agencies are willing & able to collaborate (especially for financing strategy) |
| ✔ Indian Government is
### Component 3B: Collaborative management of wetland resources in the Ghodagodi Lake Complex (GLC) demonstrated as a model for wetland management outside protected areas

**Output 3B.1:** Strengthened Local Institutional Capacity and Coordination for Collaborative Management in GLC

- GLC institution established and operational with multi-stakeholder representation, including women and wetland-dependent communities
- Regular multi-stakeholder mechanisms for review of GLC Management Plan established and operational
- Field office operational and accessible
- District Water Resource committees strengthened to address wetland issues
- Institutional support provided based on needs analysis of government and community stakeholder groups
- Mapping of wetlands and analysis of tenure issues
- 10 organizations with increased skills in participatory planning, equity and conflict resolution

**Output 3B.2:** Strengthened Technical Capacity for Wetland Management in GLC

- Applied training developed and delivered to GLC, line agency, NGO and community members on ecosystem and collaborative approaches to wetland management, economic valuation and sustainable financing
- 16 NGO and CBOs trained as resource personnel for communities on wetland conservation and sustainable use
- Critical wetland habitats identified

**Interested in:**
- trans-boundary cooperation
- Communities are willing to shift to buffalo from cattle
- Communities (incl. women & wetland-dependent people) are interested & able to participate in school eco-club
- will be interested in working on wetland issues

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**Community action plans developed through participatory planning process and implemented:**
- Women's & under-represented groups' participation in action plan development and implementation
- Demonstration of conservation farming techniques through enhanced capacity of extension workers and methods to reduce energy consumption
- Eco-tourism plan developed and initially implemented
- Strengthened awareness of wetland values
- 4 school wetland programmes initiated in demo sites

**Community action plans & assessment of their implementation:**
- PRA & perception surveys
- # of HHs visited by extension workers trained in conservation farming
- Eco-tourism plan & assessment of their implementation
- Project documents

**GLC minutes and participation:**
- Project reports
- User group action plans and minutes
- Gender & Equity strategy and reports

**Field project is accessible to all stakeholders:**
- Women & wetland-dependent communities are interested and able to participate
- Resource-based user groups are a useful addition to existing geographical-based user groups

**Training reports & follow-up surveys:**
- GLC management & monitoring plans & reports
- Minutes of & participation at review meetings
- PRA surveys and community &

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Restored or protected GLC management plan developed and mechanisms in place for regular review and revision
- Targeted monitoring plan developed and implemented
- Mechanism for reducing cattle in GLC developed and tested sustainable water management practices assessed & recommendations made at sub-catchment level
- Links established with other projects (including TAL)
- Sustainable Financing Strategy developed & piloted for conservation and sustainable use activities in GLC including payment for environmental services, user charges and damage fees, and other market-based mechanisms for wetland management
- 5 community action plans developed through participatory planning process and implemented
- Women’s participation in action plan development and implementation
- Demonstration of conservation farming techniques through enhanced capacity of extension workers and methods to reduce energy consumption
- Strengthened awareness of wetland values
- 3 school wetland programmes initiated in demo sites

- Park perceptions
- Minutes and actions for collaboration with other projects
- Water management report & follow-up
- Sustainable financing strategy & reports on its piloting
- Variety of market-based instruments developed for wetland management
- Community action plans & assessment of their implementation
- PRA & perception surveys
- # of HHs visited by extension workers trained in conservation farming
- Project reports

Governmental people
- Cost-effective indicators can be identified
- Other projects & planning & line agencies are willing & able to collaborate (especially for financing strategy)

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Output 3B.3:
Strengthened Community Support in GLC for Wetland Conservation and Sustainable Use

Component 3C: Mechanisms developed to share project experience and promote replication in other key wetland sites
- Semi-annual newsletter distributed to 100 institutions
- 10 fact sheets distributed
- Website developed
- 10 study visits
- 10 workshops to share experience
- Publications & reports
- Analysis of & recommendations to improve guidelines, training programmes & materials, & other tools
- 10 study visits to sister sites
- 10 workshops with sister sites

Other communities (incl. women & wetland-dependent people) are interested & able to participate
- School eco-clubs will be interested in working on wetland issues

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Output 3C.1: Project experience, results and lessons learned disseminated nationally and internationally

Output 3C.2:
Relevance of tools and approaches examined in other locations

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PROJECT ACTIVITIES

**OUTCOME 1: WETLAND BIODIVERSITY CONSERVATION VALUES INTEGRATED INTO NATIONAL POLICY AND PLANNING FRAMEWORK**

Output 1.1: Strengthened Mechanisms for Inter-Sectoral Co-ordination
1.1.1: Establish and operate national support structures for all project activities
1.1.2: Support the establishment of a National Wetlands Committee

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1.1.3: Create and support national networks of wetland stakeholders

Output 1.2: Strengthened ability to integrate wetland values into national policy and planning framework
1.2.1: Strengthen the wetland policy and planning framework and integrate market-based incentives and wetland values
1.2.2: Enhance senior decision makers' understanding of wetland issues, including valuation

OUTCOME 2: STRENGTHENED NATIONAL INSTITUTIONAL AND TECHNICAL CAPACITY AND AWARENESS FOR WETLAND BIODIVERSITY CONSERVATION AND SUSTAINABLE USE

Output 2.1: Knowledge and Tools for Strengthened Development of Planning and Policy on Wetlands
2.1.1: Improve technical knowledge base for wetland management planning
2.1.2: Develop guidelines for invasive species management
2.1.3: Institutionalise regular revision of protected and threatened species lists
2.1.4: Build capacity for using economic tools for wetland management planning
2.1.5: Document indigenous knowledge on sustainable wetland management

Output 2.2: Enhanced Awareness of Wetland Issues
2.2.1: Raise awareness on wetland issues

Output 2.3: Strengthened technical capacity in wetland management
2.3.1: Establish a wetland information centre
2.3.2: Train national government and NGO staff on wetland issues

OUTCOME 3: STRENGTHENED COLLABORATIVE MANAGEMENT OF WETLAND RESOURCES FOR CONSERVATION AND SUSTAINABLE LIVELIHOODS

COMPONENT 3A: Component 3A: Collaborative management of wetland resources in the Koshi Tappu Area demonstrated as a model for wetland protected area management

Output 3A.1: Strengthened Co-ordination for Collaborative Management in Koshi Tappu Area
3A.1.1: Support better co-ordination and collaboration between stakeholders
3A.1.2: Strengthen the role of communities in wetland decision-making
3A.1.3: Design and pilot local incentives for biodiversity conservation
3A.1.4: Strengthen equity in wetland management

Output 3A.2: Strengthened Technical Capacity for Wetland Management in Koshi Tappu Area
3A.2.1: Strengthen the implementation of management and buffer zone plans
3A.2.2: Training in ecosystem approach to wetland management
3A.2.3: Facilitate dialogue on trans-boundary wetland management issues
3A.2.4: Formulate sustainable financing strategies and identify market-based instruments for Reserve and buffer zone management plans

Output 3A.3: Strengthened Community Support in Koshi Tappu Area for Wetland Conservation and Sustainable Use
3A.3.1: Facilitate action plans for community sustainable livelihoods
3A.3.2: Local-level awareness raising

COMPONENT 3B: Collaborative management of wetland resources in the Ghodaghodi Lake Complex demonstrated as a model for wetland management outside protected areas

Output 3B.1: Strengthened Local Institutional Capacity and Coordination for Collaborative Management in GLC
3B.1.1: Establish and strengthen institutional and management capacity for collaborative management
3B.1.2: Strengthen the role of communities in wetland decision making
3B.1.3: Design and pilot local incentives for biodiversity conservation
3B.1.4: Strengthen equity in wetland management

Output 3B.2: Strengthened Technical Capacity for Wetland Management in GLC
3B.2.1: Develop and support the implementation of a wetland collaborative management plan for the Ghodaghodi Lake Complex
3B.2.2: Training in ecosystem approach to wetland management
3B.2.3: Analyse and recommend equitable and sustainable water management practices at the sub-catchment level
3B.2.4: Formulate sustainable financing strategies and identify market-based instruments for wetland conservation and sustainable use

Output 3B.3: Strengthened Community Support in GLC for Wetland Conservation and Sustainable Use
3B.3.1: Facilitate action plans for community sustainable livelihoods
3B.3.2: Local-level awareness raising

COMPONENT 3C: Mechanisms developed to share project experience and promote replication in other key wetland sites

Output 3C.1: Project experience, results and lessons learned disseminated nationally and internationally
3C.1.1: Sharing of project lessons and results

Output 3C.2: Relevance of tools and approaches examined in other locations
3C.2.1: Examine the relevance of tools and approaches in other Terai wetlands
3C.2.2: Examine the relevance of tools and approaches in wetlands in hills and mountains
3C.2.3: Seek feedback from neighbouring nations on the relevance of project materials and approaches
9. ADDITIONAL INFORMATION

9.1 Other agreements

SEE ANNEX 7:
Terms of References for key project committees, staff and main sub-contracts

1. FIELD ADVISORY COMMITTEES

181. The Field Advisory Committees will be established at the two field sites - Koshi Tappu and Ghodaghodi. They will serve as the local advisory body in order to provide policy guidance to the field programme activities, promote coordination among all relevant stakeholders and encourage use of site findings to influence local policy and practice. Their role will be instrumental to integrate the project’s work into larger district level conservation and development initiatives, to influence work beyond Programme sites, to obtain additional support and partnerships and to avoid duplication of efforts.

182. The Programme intends to use existing inter-sectoral and multi-stakeholder committees where possible in order to promote more integrated development in the field areas, and will follow the guidelines and regulations of such existing inter-sectoral and multi-stakeholder committees. The FAC will meet at least semi-annually. The exact composition of the field level advisory committee will be decided after wide consultation with district stakeholders. In Ghodaghodi, the FAC is proposed to be chaired by the chair of the District Forest Coordination Committee and include members from Department of Forest, District Development Committee (DDC), Village Development Committee (VDC), Forest User Groups, Regional Directorate Office of the MFSC, WTLCP and TAL projects and Programme Manager. The DFO will serve as the Member Secretary. In Koshi Tappu, the FAC is proposed to be chaired by the Buffer Zone Management Council (BZMC) Chair and will include members from the, DDC, VDC, BZMC, Regional Directorate Office of the MFSC and Programme Manager. The KTWR Warden will serve as the Member Secretary.

183. Key responsibilities include:
   (a) Promote inter-sectoral coordination and collaboration to support Programme activities at
district and local levels (including co-ordination with donors in the relevant districts);
   (b) Review Programme performance and major findings as appropriate;
   (c) Mobilize co-fund and in-kind support from all sources, including local government,
government line agencies, NGOs, community-based organizations, private sector etc;
   (d) Coordinate with all relevant stakeholders at the district level and locally to avoid
duplication of or conflicting actions at demonstration sites;
   (e) Support replication or scaling up of successful actions from demonstration sites to other
sites in the district;
   (f) Facilitate cross-sectoral learning by sharing strategies, programmatic approaches,
findings and recommendations;
   (g) Facilitate the translation of Programme experience into national policy and practice.

2. FIELD MANAGEMENT COMMITTEE (FMC)

184. Field Management Committees (FMC) will be established at each field site and will consist of
key field site implementing partners. The FMC is responsible for the implementation of the field site
activities as per the Programme agreements and the guidance of the PMU. In Ghodaghodi it will be
chaired by the DFO and members will initially include the Field Programme Manager and Forest User
Groups (FUGs). In Koshi Tappu, it will be chaired by the Warden and members will initially include the
Field Programme Manager and a representative from the Buffer Zone Management Council (BZMC).
Additional implementation partners will be added once local implementation is finalized. The National Programme Manager (NPM) and Chief Technical Advisor (CTA) will attend at least one meeting per year at each site. The FMC will meet quarterly.

185. Key responsibilities include:
(a) Promote coordination and collaboration to support site level activities;
(b) Approve field site’s annual and quarterly plans and budget allocations;
(c) Review site performance and major findings and recommend adjustment to site strategies and plans to remain relevant to the national and local contexts (including national policies and priorities);
(d) Ensure timely access to co-fund (including technical support);
(e) Coordinate with all relevant district and local stakeholders to avoid duplication of or conflicting actions at demonstration sites and promote synergy;
(f) Facilitate cross-sectoral learning by sharing strategies, programmatic approaches, findings and recommendations;
(g) Support replication or scaling up of successful actions from demonstration sites to other sites in the district;
(h) Facilitate the translation of Programme experience into national policy and practice;
(i) Field Management Committee members are to serve as the focal point for their institution and take any issues to their institution for resolution.

3. NATIONAL PROGRAMME DIRECTOR

186. The National Programme Director will be appointed by the Ministry of Forests and Soil Conservation and has overall responsibility for the project.

187. Key responsibilities include:
(a) Guide Programme implementation to ensure that they are done in accordance with Programme Document and Programme Steering Committee guidance;
(b) Ensure coordination within various MFSC departments and other technical departments for smooth operation of the Programme at national level and at the demonstration sites as well as replication;
(c) Provide technical and policy advice as necessary;
(d) Act as the government representative of the program during review meetings, evaluations, and discussions;
(e) Support recruitment of candidates, national and international, for long term and short term assignments for the project;
(f) Assume direct responsibility for the government co-finance.

4. NATIONAL PROGRAMME MANAGER

188. The National Programme Manager is responsible for the implementation of the Programme under the overall guidance of the National Programme Director and will receive technical support from the Chief Technical Advisor. The NPM will be selected through UNDP procedures.

189. Key responsibilities include:
(a) Coordinate the planning, management and implementation of Programme activities as set out in the Programme document and as guided by the PSC;

(b) Work in close collaboration with Chief Technical Advisor to assure coherence between all Programme components and partners;

(c) Prepare a detailed work plan consistent with the envisaged outputs and objectives of the Programme Document that incorporates the workplan prepared by IUCN;

(d) Ensure sharing and flow of information in a transparent manner among all groups as appropriate;

(e) Manage the Programme budget and ensure that timely financial reports are prepared for UNDP;

(f) Liaise with other GEF projects in Nepal for the sharing of learning and experience;

(g) Establish and operate National Programme Management Unit, including the provision of space for the PMU that has easy access to all Programme partners and stakeholders;

(h) Participate in the recruitment of, and supervise Programme personnel and subcontractors/consultants, maintaining strong quality control and providing advisory support as required;

(i) Supervise the procurement and maintenance of Programme equipment and development of infrastructure. Ownership of such equipment will be retained by UNDP for the life of the project. The decision for transferring assets of the Programme at the time of Programme completion will be taken in mutual consultation between UNDP and MFSC;

(j) Provide technical inputs to the project;

(k) Maintain close coordination/linkages with concerned line agencies and NGOs, projects and keep them fully informed and supportive of the Programme activities through formal and informal interactions;

(l) Act as a regular liaison with the UNDP Country Office, government agencies, co-funders, and other Programme partners;

(m) Supervise timely preparation and submission of quarterly and annual progress reports, work plans, budgets, and financial plans as required, integrating the respective reports and plans from IUCN;

(n) Ensure the systematic transfer of responsibilities, authority and ownership of the Programme to the relevant institutions and community;

(o) Be responsible for information dissemination, resource mobilization and development of partnerships;

(p) Undertake monitoring of the project, facilitate internal and external evaluations and promote the sharing of lessons learning nationally and internationally;

(q) For the specific components of the Programme under direct GoN implementation responsibility:

i. Design, deliver and manage the resources, services and facilities required to achieve the results for these components, under the guidance and decisions of the Programme Steering Committee and in accordance with GEF, UNDP and GoN provisions;

ii. Develop an overall work plan and annual work plans and respective budgets for the specific components as per agreed-to formats for submission to UNDP;
iii. Recruit and manage required staff and consultants;

iv. Manage the finances of the Programme under GoN responsibility including disbursement and verification, according to approved work plans and budgets:

5. CHIEF TECHNICAL ADVISOR

190. The Chief Technical Advisor will provide overall technical guidance to the Programme and be directly responsible for the detailed planning and implementation of the specific Programme components under IUCN's direct implementing responsibility. The CTA will be selected by IUCN in close consultation with UNDP CO and MFSC.

191. Key responsibilities include:

(a) Support the NPM in the overall management of the Programme to assure coherence between all Programme components and partners;

(b) Ensure sharing and flow of information in a transparent manner among all groups as appropriate;

(c) Liaise with other wetland projects in Nepal and globally for the sharing of learning and experience;

(d) Participate in the recruitment of Programme personnel and subcontractors/consultants, maintaining strong quality control and providing advisory support as required;

(e) Provide technical advice on all elements of the project;

(f) Maintain close coordination/linkages with concerned line agencies, NGOs, projects and field site partners and keep them fully informed and supportive of the Programme activities through formal and informal interactions;

(g) Act as a regular liaison with IUCN;

(h) Contribute to resource mobilization and development of partnerships to further the Programme objectives;

(i) Undertake monitoring of the project, facilitate internal and external evaluations and promote the sharing of lessons learning nationally and internationally;

(j) Ensure learning to and from, and facilitate discussions on transboundary issues through links with the IUCN regional wetlands programme and other IUCN country offices.

(k) For the specific components of the Programme under direct IUCN implementation responsibility:

i. Design, deliver and manage the resources, services and facilities required to achieve the results for these components, under the guidance and decisions of the Programme Steering Committee and in accordance with GEF, UNDP and IUCN provisions;

ii. Develop an overall work plan and annual work plans and respective budgets for the specific components as per agreed-to formats for submission to NPM;

iii. Deliver the Programme components in accordance with GEF, UNDP, GoN and IUCN provisions using IUCN's prevailing personnel, financial and other rules for all matters including human resources management, travel, logistics and financial management:
iv. Recruit and manage required staff and consultants and identify and sub-contract partners;

v. Provide the National Programme Manager with progress and financial reports as required, as well as input into other reports required by the MFSC or UNDP, as per the frequency and timing agreed to by the Programme Steering Committee;

vi. Manage the finances of the Programme components under IUCN’s responsibility including disbursement and verification, according to approved work plans and budgets and using IUCN financial management and accounting systems;

vii. Establish and operate Field Programme Management Units in both Koshi Tappu Wildlife Reserve and Ghodaghodi Complex;

6. WETLAND BIODIVERSITY SPECIALIST

192. The Wetland Biodiversity Specialist is responsible for technically supporting all programme activities related to wetland biodiversity monitoring, planning, conservation and management. He/she will support activities both nationally and at the two field sites with approximately 50% of time in the field. He/she will be selected by IUCN in consultation with UNDP and MFSC and will report to the CTA.

193. Key responsibilities include:

(a) Provide technical support to all programme activities related to conservation of wetland biodiversity;

(b) Assume lead responsibility for IUCN’s outputs/activities related to wetland ecosystem conservation and management;

(c) Work with national and local counterparts (within and outside of government) to build capacity in wetland biodiversity issues, through training and coaching;

(d) Identify national and local partners and individuals to contribute to the programme and encourage networking for exchange and learning;

(e) Proactively identify means to enhance programme delivery to assure the achievement of results;

(f) Work with the monitoring and evaluation specialists to specify indicators for wetland biodiversity health; and

(g) Support the CTA and NPM as required in the overall implementation of the Programme to assure coherence between all Programme components and partners.

7. INDIGENOUS COMMUNITIES AND GENDER SPECIALIST

194. The Indigenous Communities and Gender Specialist is responsible for technically supporting all programme activities related to sustainable and equitable livelihoods. He/she will support activities both nationally and at the two field sites with approximately 50% of time in the field. He/she will be selected by IUCN in consultation with UNDP and MFSC and will report to the CTA.

195. Key responsibilities include:

(a) Provide technical support to all programme activities related to sustainable and equitable livelihoods;

(b) Assume lead responsibility for IUCN’s outputs/activities related to sustainable and equitable livelihoods;

(c) Develop and implement strategies for gender and social inclusion for the entire programme

(d) Work with national and local counterparts (within and outside of government) to build capacity in sustainable and equitable livelihoods issues, through training and coaching;
(c) Identify national and local partners and individuals to contribute to the programme and encourage networking for exchange and learning;
(l) Proactively identify means to enhance programme delivery to assure the achievement of results;
(g) Work with the monitoring and evaluation specialists to specify indicators for sustainable and equitable livelihoods and
(h) Support the CTA and NPM as required in the overall implementation of the Programme to assure coherence between all Programme components and partners.

8. FIELD MANAGERS

196. The Programme Field Managers are each responsible for the planning, implementation and monitoring of the activities in their respective field sites. He/she will be selected by IUCN in consultation with UNDP and MIFIs and will report to the CTA.

197. Key responsibilities include:
(a) Design, deliver and manage the resources, services and facilities required to achieve the results for the field site outputs, under the guidance of the CTA and NPM and in accordance with GEF, UNDP and IUCN provisions;
(b) Establish and operate Field Programme Management Units in either Koshi Tappu Area or Ghoraghothi Complex;
(c) Develop an overall work plan and annual and quarterly work plans and respective budgets for the field site outputs as per agreed-to formats;
(d) Provide overall technical advice to field site implementation and coordinate with programme staff to provide additional technical advice;
(e) Recruit and manage required staff and consultants and identify and sub-contract partners;
(f) Provide the CTA with progress and financial reports as required;
(g) Manage the finances of the Field Site Activities according to approved work plans and budgets and using IUCN financial management and accounting systems;
(h) Maintain close coordination/linkages with concerned line agencies, INGOs, programmes, projects and partners in the field site and keep them fully informed and supportive of the Programme activities through formal and informal interactions;
(i) Work with the monitoring and evaluation specialists to specify indicators for sustainable and equitable livelihoods;
(j) Proactively identify means to enhance programme delivery to assure the achievement of results;
(k) Contribute to resource mobilization and development of partnerships to further the Programme objectives in the field site;
(l) Undertake monitoring of the project, facilitate internal and external evaluations and promote the sharing of lessons learned; and
(m) Support the CTA and NPM as required in the overall implementation of the Programme to assure coherence between all Programme components and partners.

Stakeholder Involvement Plan

Major project stakeholders and their participation/contribution are detailed in the Table below:

<table>
<thead>
<tr>
<th>Institution</th>
<th>Role in the Project</th>
</tr>
</thead>
</table>

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### NATIONAL INSTITUTIONS

<table>
<thead>
<tr>
<th>Institution</th>
<th>Role in the Project</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ministry of Forests and Soil Conservation (MFSC)</strong></td>
<td>MFSC will be the project-executing agency. The Minister of MFSC will chair the National Wetland Committee (NWC). The Secretary of this Ministry will chair the Project Steering Committee (PSC). The Ministry, as the focal ministry of CBD will also be responsible for institutionalizing most of the project's lessons learnt.</td>
</tr>
<tr>
<td>1. Foreign Aid Coordination Unit (FACD)</td>
<td>The FACD will ensure that other donor supported projects are consistent with, and complement this project's objectives. Head of this division will also be a member of the Project Steering Committee.</td>
</tr>
<tr>
<td>2. Planning and M&amp;E Division</td>
<td>This Division will also support Project activities and will be represented in the PSC.</td>
</tr>
<tr>
<td>3. Environment Division</td>
<td>This Division will also support Project activities and will be represented in the PSC.</td>
</tr>
<tr>
<td>4. Department of National Parks and Wildlife Conservation (DNPWC)</td>
<td>MFSC's technical departments, namely DNPWC, DoF, and DSCWM will provide technical expertise and oversight for management of the protected areas and national forest areas in the project area. The Department of National Parks and Wildlife Conservation will play important roles in updating list of protected species, transboundary biodiversity conservation issues, and replicating successful project experiences in other protected areas. It will be the focal institution to guide project activities at the Koshi Tappu Wildlife Reserve, and in building capacity of other protected area managers in wetland management.</td>
</tr>
<tr>
<td>5. Department of Forests (DoF)</td>
<td>The Department of Forest will play an important role in promoting awareness and capacity building of community based natural resources groups - particularly community forestry groups on water and wetland issues integration in their action plans nationally. The Department of Forest will be the focal institution to guide project activities at the Ghodaghodi Lake Complex demonstration area.</td>
</tr>
<tr>
<td>6. Department of Soil Conservation and Watershed Management (DSCWM)</td>
<td></td>
</tr>
<tr>
<td><strong>Ministry of Water Resources</strong></td>
<td>Participation in NWC and PSC. Resources and materials to the National Wetland Resources Centre and technical support. The Ministry's role in better river basin management will also be important for wetland and aquatic biodiversity conservation. Technical staff form the Ministry will be key resources for various Technical Advisory Committees under the National Wetland Committees, and the Ministry will play a role in partnering with the project to replicate to other sites in Nepal the approaches and tools developed. The Ministry will be involved in various project activities such as assessment of wetland sites in Nepal as well.</td>
</tr>
<tr>
<td><strong>Ministry of Agriculture and Cooperatives</strong></td>
<td>Participation in NWC and PSC, resources and materials to the National Wetland Resources Centre and technical support. The Ministry's research and outreach on fisheries, agrobiodiversity, agroforestry, integrated pest management, fertilizer management are all expected to be used to promote better farming techniques. Technical staff from the Ministry will be key resources for various Technical</td>
</tr>
<tr>
<td>Institution</td>
<td>Role in the Project</td>
</tr>
<tr>
<td>-------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Ministry of Science, Technology and Environment</td>
<td>Participation in NWC and PSC, resources and materials to the National Wetland Resources Centre and technical support. Technical staff from the Ministry will be key resources for various Technical Advisory Committees under the National Wetland Committees. Key areas for contribution by the experts will include EIA and pollution control and harmonization of activities with other multi-lateral environmental agreements.</td>
</tr>
<tr>
<td>Ministry of Local Development</td>
<td>Participation in NWC and PSC, resources and materials to the National Wetland Resources Centre and technical support. Local development planning / indigenous people’s empowerment. Technical staff from the Ministry will be key resources for various Technical Advisory Committees under the National Wetland Committees and will play a key role in integrating wetland issues into local development plans (DDC, VDC, Municipalities etc).</td>
</tr>
<tr>
<td>Ministry of Finance</td>
<td>Participation in NWC and PSC, resources and materials to the National Wetland Resources Centre and technical support. Technical staff from the Ministry will be key resources for various Technical Advisory Committees under the National Wetland Committees, particularly on issues of valuation, incentives and decentralized financial resource generation and management.</td>
</tr>
<tr>
<td>IUCN Nepal</td>
<td>IUCN Nepal will provide co-funding and technical back stopping to the project. It will serve as implementing partner for certain components of the project, notably the technical capacity building and demonstration sites. It will be represented in the Project Steering Committee. IUCN will also be instrumental in linking its global and regional lessons learnt into the proposed project.</td>
</tr>
<tr>
<td>UNDP</td>
<td>UNDP, as the Implementing Agency, will be responsible for monitoring and evaluation as well as a co-funder and PSC member to the project. It will also ensure links with other UNDP projects and initiatives.</td>
</tr>
</tbody>
</table>
KOSHI TAPPU AREA

Koshi Tappu Wildlife Reserve Office (DNPWC)

The KTWR Office, with its BZ unit will be the main government partner for
the project in Koshi Tappu area. The warden will represent DNPWC in the
KTWR Field Implementation Committee. The DNPWC is also implementing
a joint project with UNDP – the Participatory Conservation Programme,
which this project will work very closely with.

Buffer Zone Committee

The Buffer Zone Committee will be important stakeholder in the project
implementation, particularly in implementation of the Buffer Zone Plan and
to ensure that all activities in the BZ are sustainable and wetlands friendly. A
representative will sit on the KTWR Field Implementation Committee.

District Development
Committees (DDCs)
Udayapur, Saptari and Sunsari

The following individuals, committees and projects will support project
implementation as necessary:

- District Development Committee
- Local Development Officer
- District Water Resources Committees
- Sub Committee on Forest, Environment and Cottage Industries
- UNDP/GON Local Governance Project (LGP), to mainstream
  wetland conservation issues into DDC plans
- 16 Village Development Committees (VDCs) that include the
  KTWR Buffer Zone

Community groups, CBOs
and Local NGOs

As partners and beneficiaries

GHODAGHODHI LAKE COMPLEX

District Forest Office (DFO)
Kailali

The DFO will be the main government partner for the project in GGC. The
District Forest Officer will represent the DoF in the GGC Field
Implementation Committee. The DFO is also the main counterpart for the
proposed UNDP-GEF Nepal Biodiversity Landscape Project, and joint work
on various issues is proposed to assure synergy and no duplication.

District Development
Committees (DDCs) Kailali

The following individuals, committees and projects will support project
implementation:

- District Development Committee
- Local Development Officer
- District Water Resources Committees
- Sub Committee on Forest, Environment and Cottage Industries
- UNDP/GON Participatory District Development Planning Project
  (PDDP), to mainstream wetland conservation issues into DDC plans
- Three Village Development Committees (VDCs) comprising of
  Ghodaghodi lake complex

UNDP/GEF Nepal WTL C
Project

The Conservation and Sustainable Use of Wetlands in Nepal project is
adjacent to (though not overlapping with) WTL C. The projects will work
closely to influence district and local development plans to be more
biodiversity friendly. WTL C will also be used to replicate best approaches
and methods for wetland conservation within its work areas.
Local NGOs (including Ghodaghodi Conservation Awareness Forum), CBOs - Forest Users Groups Local communities

As partners and beneficiaries
ANNEXES

ANNEX 1: Threats to Wetland Biodiversity and Analysis of their Root Causes in Nepal

1. Review of threats

1.1 Destruction and degradation of wetland habitats

There are a number of threats to wetland biodiversity in Nepal. These can be categorized as habitat destruction and degradation; loss of ecosystem integrity; and depletion of species abundance and diversity.

Geographic inaccessibility, paucity of resources, and more recent armed insurgency, have hindered economic development in Nepal, particularly in the mountain areas and far western parts of the country. However, industrial development and agricultural intensification have made steady progress over the past ten years (per capita GDP increased over from US$3,411 in 1992 to US$4,173 in 2000 (both at 1985 prices)) and this, coupled with high population growth rates and large-scale in-country migration from the hills to the lowland Terai, have radically increased the pressure on the country’s wetland systems and associated biodiversity.

Drainage and reclamation: The conversion of wetlands through drainage and reclamation for industrial and urban use is occurring throughout Nepal. Conversion for industry is mostly prevalent in the more highly developed central region where wetlands are still regarded as wasteland by much of the population and the price of this land is relatively inexpensive compared to farmland. Thus, wetland areas are often the favoured sites for industrial use or housing.

Modification of land use: The human population of Nepal is estimated at nearly 23 million with densities ranging between 33 people per km² in the mountains and over 550 per km² in some parts of the Terai. The current estimates for population growth are over 2.5 percent per year; thus the total population of the country could exceed 30 million within the next decade. Since 81 percent of the population is engaged in agriculture, demand for the modification of wetlands to agricultural land, particularly rice fields, will continue to increase, placing additional pressure on the wetlands and their fisheries stocks. This is particularly the case in the lowland Terai region where substantial settlement of migrants from upland areas has pushed population growth rates up to over 4.5 percent in some areas. Many of these wetlands have no inlets but depend upon monsoon rains. The draining of these wetlands, often by high-powered pumps to provide irrigation or harvest fish, rapidly leads to them drying out when at best they undergo vegetation changes and at worst are encroached upon for grazing or reclamation for agriculture. Excessive drainage also leads to increased incidence of subsidence, reduced water retention capacity, flooding, acid-sulphate soils and the creation of habitats where mosquitoes thrive. Of 163 wetland sites in the Terai inventoried by IUCN in 1998, 70 (43 percent) had suffered some degree of drainage. Much of this agricultural development produces a trade-off with the values of the wetlands for fish, wetland products and the more generalized benefits of wetlands, e.g. flood control and groundwater recharge. A range of policy incentives have been provided to stimulate production in the agricultural sector, including subsidies and support to credit, inputs, marketing, research and development. As a result there exist strong financial and price inducements to convert wetlands to other uses.

Inappropriate wetland management: This occurs typically when wetlands are managed according to single sectoral objectives. For example, water is often pumped from wetlands for dry-season crop irrigation or is subject to swidden agriculture or heavy grazing disturbing the structure of wetland vegetation. Even the management of wetlands for fishing does little to conserve biodiversity since fisher folk often take fish

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and fingerlings until stocks are depleted. Where management is by commercial fishing lots, the owners often seek to maximize returns by harvesting all aquatic species including turtles and amphibians, often by pumping the wetland dry, thereby removing the breeding stock as well. This latter practice is prevalent at the demonstration sites—in the smaller lakes of Ghodaghodi, and the ghols and marshes at Koshi Tappu.

Fragmentation: The higher than average population growth rates in the Terai districts, stemming largely from high levels of immigration, has resulted in increasing pressure upon wetlands and forests that have become increasingly degraded and fragmented. In the western Terai, in the districts of Bardia, Kailali, and Kanchanpur, the forest area has decreased by 12 percent, 15 percent, and 24 percent respectively between 1978/79 and 1986/81 and it is projected that all the Terai forests would be cleared in 70 years assuming this annual rate of deforestation of 1.3 percent per year continues. This fragmentation has the effect of reducing previously extensive populations, especially of mammals and large reptiles, into genetically isolated sub-populations, many of which now risk falling below the threshold of population viability.

1.2 Loss of wetland ecosystem integrity

Alteration of the hydrological regime: The wetland systems of Nepal are dependent upon annual inundation by wet season water flows and their productivity is dependent upon the level and duration of inundation. Changes to flood height and duration can result in some seasonal wetlands not filling, or in previously permanent wetlands drying out thereby diminishing wetland productivity. There are a number of existing and proposed developments that may result in reduced peak flows and/or increases in dry season flow in rivers. The cumulative effects of such changes upon their biodiversity are unknown, but experience suggests they are deleterious. These include:

- Hydro-power dams: The four major rivers of Nepal—the Mahakali, the Karnali, the Gandaki and the Saptakoshi—and a number of smaller ones, all of which flow into the Ganges, are viewed widely as a great potential source of hydro-electric power. However, the construction of dams poses a major threat to wetland biodiversity by inundating important habitats; reducing downstream water flows, suspended load sediments, bed load transport, oxygenation, and nutrient dynamics; acting as barriers to migration; leading to associated development; displacing people into new ecologically-sensitive habitats; and by altering local microclimates. Nepal has identified 114 projects with a total projected capacity of 45,610 MW. Problems of erosion, damage to turbines and siltation caused by heavy sediment loads are often overlooked. Although the controversial Arun III project has been cancelled and the World Bank’s Operation Evaluation Department has recognized by its own analysis that the Kulekhani Hydroelectric Dam should not have been built, threats are again posed by Indo-Nepal co-operative proposals for new hydro-power dams on the Mahakali (7,200 MW), Karnali (10,800 MW) and Saptakoshi (3,600 MW) rivers. The Chisapani Karnali Multi-purpose project costing billions of dollars will have the most profound impacts on the presently least modified or disturbed river system in Nepal thereby adversely affecting the highly productive fishery system downstream of the dam. The Karnali also supports the most viable population of the globally-threatened Gangetic Dolphin in Nepal—a mammal particularly susceptible to the detrimental effects of dams and whose population has been divided into small, isolated sub-populations by prevented migration and reduced food availability. Similarly proposed large projects on the Koshi River have to be studied carefully to understand their impacts on the river’s dolphin population since although EIA studies are undertaken, implementation of recommendations is limited to standard responses and very few studies pin-point specific solutions. Although no comprehensive study has yet been undertaken to assess the prevailing ecological impacts from disturbed water regimes, the effects of continuous habitat degradation arising from hydropower/irrigation/flood management dam development is reflected in the reduction of ungulate diversity. Nepal has 15 ungulate species that are either permanently or seasonally dependent on
river floodplains, and at present, only Royal Chitwan and Royal Bardia National Parks maintain varied populations of ungulate species. Koshi Tappu, although distinguished as the only area with a viable Asian Wild Buffalo population, has lost over half of its endemic ungulate species.

Irrigation and Flood Management: Management of rivers in Nepal to control flooding (mainly in India) and to provide water for large-scale, dry-season irrigation (again mostly in India) has involved a number of low-gated dams or barrages being built, with several more planned. Key examples are the Koshi Barrage, those on the Karnali and Narayani rivers, the recently completed US$30 million Babai Dam, and the proposed Rapti Irrigation Project northeast of Royal Chitwan National Park. These barrages lead to major changes in seasonal water availability (e.g. the Rapti Project will remove 40 percent of the Rapti’s dry season flow), temperature regimes, water energy, bed and suspended material transport, and oxygenation of the rivers themselves, as well as in associated vegetation and faunal communities. They effectively isolate wildlife populations leaving them particularly vulnerable to the impacts of human development, catastrophic environmental events, demographic changes, and reduced genetic transfer and associated in-breeding depression. The ecology of fishes inhabiting floodplain shows them to be extremely sensitive to modifications in flood regime. Despite fish passes being included in many, these barrages still interfere with fish migrations between feeding areas and spawning habitats with well-oxygenated waters and swift currents often long distances upstream, thereby leading to the disappearance or serious decline in the productivity of migratory species. The Babai Dam, completed in October 2001, was constructed for irrigation to improve the productivity of the farming land in the surrounding lower lying Terai. It will remove 75 percent of the Babai’s dry season flows, thereby threatening Nepal’s most sustainable population of Gharials in Royal Bardia National Park. Fish numbers have decreased in the Babai River over the last ten years and all evidence suggests that this is due to a combination of dam construction and an increase in the local human population. The dam is a physical barrier to the movement of fish, particularly the globally-threatened Mahseer (Tor tor), and the fish pass is poorly-positioned so that it is missed by fish swimming up river. As a result, the breeding behaviour of a number of fish species (small- and large-scale spawning migrations) has been affected adversely and the overall number of fish in the river has been reduced.

Construction of dams for irrigation in the Ganges system has divided dolphin populations into small isolated subpopulations, preventing migrations and reducing food availability. In Bangladesh, the dolphin population above the Kaptai irrigation dam on the Karnaphuli River disappeared over a period of six or seven years after completion of the dam, and that of the Padma River system is said to be “fast declining” due to the construction of the Farakka Barrage. A land-locked population in the Kosi River, a southern tributary of the Brahmaputra, declined from 24 animals in 1992 to 12 in 1995. The diversion of water for irrigation causes great fluctuations in water flows, reducing suitable habitats for the dolphins. Similar effects are expected with dolphin populations in the major rivers of Nepal, including the Koshi, Narayani and Karnali rivers in Nepal.

The Koshi Barrage, built to retain water and protect the vast river plains of Bihar, India, from flooding, has proved markedly attractive to water birds, but has had significantly adverse effects on riparian vegetation and animal communities, particularly populations of mammals. The long-term and continuing loss of remaining riverine forest, as well as the so far unpredictable habitat changes, will most likely make this area unsuitable for many species. Even, the relict population of Asian Wild Buffalo is severely affected and spends a substantial amount of time on agriculture lands outside the Koshi Tappu Wildlife Reserve. Large carnivores such as tiger and leopard seem to have disappeared a considerable number of years ago. The trends in vegetation cover predict that the continuing high levels of water in the Reserve will finally lead to the destruction of forest cover leaving only early successional stages that can cope with the frequent high floods.

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Recently the District Irrigation Office, Kailali has completed the pre-feasibility study for using Ghodaghodi Lake to provide irrigation facilities for up to 45 hectares of land. A detailed study is planned.

While the DIO is concerned mainly with the use of overflow/over-dammed water from the lake basin, a full EIA is necessary to conserve and manage the lake basin for irrigation while maintaining aquatic biodiversity. This task of conserving the lakes, analysing the environmental factors, and designing necessary mitigation measures comes under an environmentalist mandate and hence is not within the remit of DIO (Chief, DIO, Kailali pers. comm.).constantly.

Groundwater: Growing human populations and increasingly polluted surface water make groundwater the main source for domestic and other water requirements, particularly for irrigation. The Government’s agriculture development plan is promoting groundwater extraction for irrigation in many parts of the Terai. However, the lack of institutional control over usage to ensure adequate recharge, coupled with the lack of monitoring, has resulted in haphazard drilling of deep tube wells by big hotels, large-scale industrial and commercial establishments, and drilling of small-diameter shallow tube wells by households, which has produced considerable stress on finite groundwater potentials. Kathmandu’s deep aquifer has dropped from 9m below the surface to 68m below within the past few years and it has been estimated that the total sustainable withdrawal of groundwater from the Valley’s aquifer is approximately 26.3 MLD while current withdrawals total about 58.6 MLD. Such reduction in groundwater levels inevitably affects surface wetlands.

As is the case for agricultural production, a range of fiscal and market instruments have been used in support of these water-based developments, often at the cost of wetlands. Another critical factor is that development planning, investment appraisal and project pricing structures have paid little attention to the fact that natural ecosystems form an economic part of water infrastructure. In the water and energy sectors, there has been a move over recent years towards full-cost recovery in pricing and investment. Yet both the allocation of investment funds and the calculation of market prices still focus only on the direct costs of establishing and maintaining physical infrastructure. They do not see the costs of ecosystem management as a necessary target for investment or as a component of price calculations. Yet, because wetlands are both economic uses of water and economic components of the water supply chain, there is an appreciable cost to not factoring them into investment and pricing decisions, to channel sufficient funds into their management as part of water infrastructure, or to invest in measures to avoid or mitigate downstream ecosystem impacts.

Pollution: The increasing industrialisation and intensification of agriculture in Nepal is increasing the pollution load in its rivers, which in the absence of government measures will continue to increase. Discharge of untreated industrial effluent, domestic waste-water, and mineral rich agricultural run-off into the water bodies is common in Nepal and this has enhanced pollution, eutrophication and excessive growth of weeds, particularly alien species such as water hyacinth, thereby resulting in decreased species diversity and loss of functionality, e.g. potable water supply. The IUCN inventory of Terai wetlands reveals that of the 163 wetlands surveyed, 51 (31 percent) were affected by pollution. The sources of pollution include:

Industrial waste: Industrial effluents are a source of increasing pollution in Nepal. Discharges from the Gorkha Brewery and the Bhrikuti Paper and Pulp factory are the major source of pollution in the Narayani River. Wastewater from carpet factories is also one of the major sources of pollution of the Bagmati River in Kathmandu. Due to comparatively higher numbers of industries in the Terai, many rivers and streams there are polluted by industrial waste.

Pesticides and herbicides: The use of herbicides and pesticides is increasing throughout Nepal and India—an estimated 2,600 tons of pesticides are dumped annually into the Ganges River.
system. The emphasis on high-value crops and commercial agriculture laid out in Nepal’s Agriculture Perspective Plan (APP) 1995 has greatly accelerated the use of agro-chemicals.

Although the use of DDT for agricultural purposes is banned in Nepal, many other chemicals, e.g. Dichloro, Aldrin, and Endrin, classified as severely hazardous (Rotterdam Convention) are still commonly used throughout the country, and control measures remain inadequate. Alternatives such as Caldan and Nukil are not widely available. Often, due to a lack of understanding and a wish to increase crop production, excessive doses are applied. The problem is exacerbated by ineffective implementation of policies and regulations for the safe disposal of pesticides. With increased emphasis on crop production and corresponding increase in the use of pesticides by farmers, several types of pesticide are imported in large quantities, a significant portion of which expire before they can be used. These are either used after expiry or disposed of carelessly. The open border with India is also a problem since chemicals are available freely, and can be brought across the border for use easily. These toxins run off into water bodies to be absorbed by aquatic organisms. Bioaccumulation of these in many higher-level animals leads to high concentrations of toxic products causing death and sub-lethal effects such as reduced reproductivity capability and making them unsafe for human consumption. Pesticides (Phorect, Thiodan, Methyl parathion, Cypermethrin) are used for poisoning birds both to prevent crop predation and those used for food, and in fishing bait. Their use has also been reported in illegal poaching for the wildlife trade.

Government pesticide regulations and implementation of existing legislation are inadequate; and import, marketing, use and disposal of chemical pesticides are all being handled haphazardly. The quantity and quality of imports are poorly known, and various persistent and toxic chemicals are also formulated, marketed, and distributed throughout the country. Users are often ignorant of the hazards of chemical pesticides and of the symptoms of poisoning, so most cases go unreported in rural Nepal. Cases of fatal pesticide poisoning are reported sporadically and one study revealed that about 300 people were admitted to 10 hospitals with pesticide poisoning over a twelve-month period in 1992. The Department of Agriculture has initiated an Integrated Pest Management system combining mechanical, biological, and chemical methods of pest control with a view to minimizing the harmful effects of toxic pesticides on man and the environment, and although the APP calls for greater emphasis on IPM and full coverage of the country within five years, this has not been achieved.

- **Fertilizers**: The use of inorganic fertilizers is increasing throughout Nepal resulting in high nutrient run-off that causes eutrophication, oxygen depletion, accelerates serial succession towards dry land, and possibly facilitates disease spread. It is estimated that about 1.15 million tonnes of chemical fertilizers are dumped annually into the Ganges River system. IUCN’s inventory of Terai wetlands indicates that of the 163 wetlands surveyed, 100 (61 percent) were severely affected by agricultural run-off. Epizootic Ulcerative Syndrome (EUS), a disease caused by the fungus *Aphanomyces invadans* in the internal tissue of fish (which has caused significant losses of wild and cultured freshwater and estuarine fishes throughout the Indo-Pacific region), has been prevalent in Nepal since 1983. The source of contamination and the causative agent of EUS in Nepal are not known, but deterioration of water quality in water bodies provides favourable environmental conditions for the growth of *A. invadans* in fish. Over 40 species of fish, mostly freshwater species, are reportedly susceptible to EUS with Catfish (*Wallago attu*, and *Mystus spp.*), Snakeheads (*Channa spp.*), and Barbs (*Puntius spp.*), being the most susceptible. While local fish species (*Rohu, Labeo rohita, Naini Cirrhinus mrigala* and *Bhyakur Catta catta*) are also affected, exotic Chinese Major Carps (*Ctenopharyngodon idella, Hypophthalmichthys molitrix, Aristichthys nobilis*), Tilapias (*Oreochromis mossambicus*) and Milkfish (*Chanos chanos*) are seen to be resistant. EUS has been reported in the Koshi Tappu area since 1983 where it has caused high mortality of native fish resources, and from Ghodaghodi Lake since 1998. Itching problems in humans have also been reported for the same lakes.
In Koshi Tappu, many of the wetlands have changed from mesotrophic to eutrophic due to the accumulation of nutrients from natural and human activities. Seepage areas on the eastern side of the embankment adjacent to the agricultural fields are severely affected by agricultural run-off. These areas are now hyper-eutrophic, being almost completely covered by water hyacinth and other macrophytes, and few migratory birds now visit these areas. The Ghadagodi Lake Complex is severely affected by natural eutrophication, although agricultural run-off is affecting Nakhrodi Lake. Extensive proliferation of macrophytes causes a shift in the balance of bird species, favouring egrets, storks and jacanas at the expense of those migratory waterfowl that require some open water for feeding. Ultimately these plants die and contribute to the organic material on the lake bottom raising it and accelerating seale successions towards dry land. In Nakhrodi Lake, succession is rapid due to shallow, eutrophic, macrophyte-rich waters and the lake is changing into marshland where Ipomoea fishtolosa and Salix spp. are prominent.

Domestic sewage: Total outputs of sewage are increasing and rivers and wetlands around many large towns are used extensively for dumping solid waste, and untreated domestic and industrial effluents. The Bagmati River system in Kathmandu Valley receives some 10 million litres of untreated wastewater per day, 95 percent from domestic sources. The misuse of the River has greatly disturbed the balance in its ecology and caused the number of fish species to decline from 54 to seven species within a decade. Disposal of untreated domestic sewerage, leaked septic tanks, extremely polluted rivers, and disposal of untreated effluents are polluting the shallow groundwater aquifers (dug wells and shallow hand pumps) in the Valley. Bacterial and chemical contamination includes high faecal coliforms, nitrate or ammonia, iron and manganese. During the monsoon, an average faecal coliform count of 4,464 col/100ml was reported for water from dug wells. In Pokhara, water pollution and solid waste disposal problems have been greatly exacerbated by the establishment of tourist facilities along the shores of Phewa and Begnas Lakes, and their water quality has deteriorated due to faecal contamination from the direct discharge of sewerage via drains including the overflow from septic tanks in hotels and restaurants. Washing of clothes by hotels, restaurants and households results in the discharge of over 100 kg of soap and detergents daily into Phewa Lake.

Sedimentation: Asia’s rivers are by far the greatest contributors of sediment, possibly supplying up to 80 percent of the world total. The combined Ganges-Brahmaputra Basin ranks first, with an estimated annual sediment yield of 2.4 billion tons (15 t/ha/yr), of which the Ganges alone contributes three-quarters (11.3 t/ha/yr), vastly higher than such tropical rivers as the Mekong (2.1 t/ha/yr) and the Orinoco (0.9-2.1 t/ha/yr). The total Ganges system is estimated to carry approximately 430 million tons of sediment per year for a unit area sedimentation rate of slightly over 400 tons/km²/year. Of the total volume of sediment passing through the Ganges system annually, it has been estimated that 170 million tons (40 percent), is contributed by the Koshi River—at a unit area sedimentation rate of 2.720 tons/km²/year, 3.5 times that of the Upper Indus Basin. The sediment load carried by the Koshi River is extremely variable. The average annual silt load of the river during 1948-78 was 95 million cubic metres. Point source sediment contributions, caused by mass wasting, are the major source of sediment for most Himalayan rivers. Highest sediment concentrations are associated with flood discharges. IUCN’s inventory of Terai wetlands indicates that of the 163 wetlands surveyed, 112 (69 percent) were threatened by sedimentation/siltation.

The Koshi River has a steep gradient of about 1.5 m/km in the gorge upstream of Chatarra and this reduces sharply to 0.87 m/km between Chatarra and the Barrage as the river suddenly leaves the hills and enters the flatlands of the Terai. The sudden reduction in sediment transportation capacity deposits heavy sediments in this zone resulting in braiding of the river, and forcing it to change its course— it has been notoriously unstable for over 250 years with a progressive westward shift. Although clearly a natural phenomenon, sedimentation at Koshi Tappu has increased significantly as a result of disruption of the river dynamics by the Koshi Barrage and its embankments. This
movement has been curtailed by the Barrage and the incidence of silting is higher in the area upstream of the barrage where a rise in the riverbed of >1m has seriously threatened the Reserve's wetland habitats.

Prior to construction (1963-74), the river was degrading at a maximum rate of 165.6mm/yr (1955-62) but since then, the river has aggraded at a rate of 197.0 mm/yr. The Koshi Barrage is now little more than an expensive flooding basin, where permanently rising flood beds undermine its original function of flood containment. The shifting of the river within the confines of the embankments has caused major damage to wetland habitats, increasing braiding, eroding most of the Sal and riverine forest and some ox-bow lakes, and turning large areas of grassland into river but leaving a vast area of barren sandly land behind from where it used to flow. These areas may slowly re-vegetate. Sedimentation of ox-bow lakes and marshes through deposition of silt during monsoon floods is also a problem.

At Ghodaghodi too silting is a problem, here caused by deforestation within the Churia watershed (Betmi forest) and human encroachment along the Lake's shoreline and upstream areas.

### 1.3 Depletion of species abundance and diversity

**Over-harvesting of plant and animal products:** Nepalese communities remain overly dependent on their surrounding natural resource base for their livelihood. This has led to the steady depletion of resources to fulfill basic needs, in particular food, firewood, fodder, and construction materials. The main unsustainable uses of resources are:

- **Firewood and timber:** Forests are under pressure from increasing human populations and their demand for firewood, timber, leaf litter, and other forest products. The survival of wetlands is closely associated with forests. For example, the high forest coverage (approx. 65 percent) in Kailali District supports a large number of ox-bow lakes and marshes/swamps. Over 75 percent of the energy resources and over 40 percent of fodder needs are met through forests. In Kanchanpur District, it is estimated that only 50 percent of wood demand and 5 percent of firewood can be met by local forests at present, thus leading to unsustainable resource extraction practices, including collection and sale of firewood as a source of income. Felling of Sal and riverine forests for trade and domestic uses in the Terai, collection of biomass such as leaf litter, fodder, and collection of medicinal and aromatic plants have led to the depletion of forest cover and availability of resources. The forest area in the Terai decreased at an annual rate of 1.3 percent between 1978-91 (cf. 2.3 percent in the hills between 1978-94). Degradation and fragmentation of forests is particularly severe in Government-managed forests where trade in illegally-felled timber is motivated by extensive tracts of commercially-valuable Sal forest in the lowland Terai and facilitated by the open border with India. It is estimated that four or five Sal trees can fetch the price of a small car (about US$6,400)! At Koshi Tappu, 90 percent of households within the vicinity of the Reserve collect firewood (of which 26.3 percent comes from forest and 16.4 percent from driftwood collected within the Reserve) and 16 percent of households collect fodder from within the Reserve.

- **Fishing:** The size of fish catches is unregulated, even where they could be. Although the Koshi Barrage has the provision to ban fishing within a two-mile radius the two DDCs actually lease the area to contractors such that there are about 2,000 fisher folk around the Koshi Barrage catching between 1.5 and 6kg per person per day.

- **Grazing:** Traditional socio-cultural and agricultural practices in the Terai favour high cattle populations. As a Hindu country, killing and export of cattle in Nepal is illegal. This has
exacerbated grazing pressure on grasslands and forests through a proliferation of unproductive animals (cows too old to produce milk and oxen too old to plough fields or pull carts).

In three districts of the western Terai in 1996/97, the estimated population of domestic animals (cattle, buffaloes, goats, and sheep) was about 1.2 million compared to a human population in 2001 of just over 1.3 million, i.e. a livestock to human ratio of close to 1:1. However, grasslands outside of protected areas in the Terai are now limited and, as a result there is heavy grazing pressure within the protected areas as well as in Government forests. Intensive year-round grazing in forests disrupts the regeneration of trees and impoverishes the ground flora. The threat is highest in forests lying close to settlements, e.g. over 12,600 cattle are recorded grazing the shoreline forests at Ghodaghodi, where the composition of wetland vegetation is gradually changing into terrestrial communities as a result of over-grazing. In high elevation pastures in the Himalayas, grazing is generally a seasonal threat, but in the Terai it is a year-round threat to many of the highly productive Protected Areas. Koshi Tappu is a good example, where approximately 70 percent of the land area is now grassland but these too are degraded from heavy grazing by domestic livestock. Stocking densities in the area are high—at an average holding of 5 animals per household or a density of more than 400 animals/km². Since there is no clear Park boundary, no fences, no regular patrolling, and free grazing, between 15,000-20,000 livestock graze the area daily, and 3,000 are stocked inside the boundaries permanently. Animals are even herded across the border from India. The resulting over-grazing and cutting degrades the Phragmites karko- Saccharum spontaneum grasslands that are replaced by the Imperata cylindrica-type not favoured by Asiatie Wild Buffalo. This reduction in, and changed composition of, palatable species results in scarcity of food for ungulates in turn forcing them to raid agricultural crops in the surrounding villages. Over-grazing also leads to disturbance in bird habitat through the destruction of the nests of ground-dwelling species (e.g. Bengal Florican and Swamp Partridge) and destruction of the habitat of tall grass specialists (e.g. Striated Grassbird and Hodgson’s Bushchat). Over-grazing and movement of livestock along shoreline contribute to soil erosion and high input of nitrogenous nutrients to wetlands resulting in elevated eutrophication of water and excessive growth of certain aquatic vegetation, which again leads to loss of suitable habitat for birds and other aquatic life. Over-grazing also reduces the condition of the livestock themselves through poor nutrition, inadequate food supply and high population pressure, making them more prone to disease, e.g. liver fluke transmitted mainly through marshland snails. Such diseases may be transmitted to wild ungulates thereby leading to local extinctions of species, e.g. Asian Wild Buffalo were present in Royal Chitwan National Park in the early 1960s but became extinct there, probably due to diseases carried by domestic cattle and buffaloes. It is estimated that 62 percent of the domestic livestock inside Koshi Tappu are in poor condition and concerns over disease transmission to Nepal’s last remaining herd of Asiatie Wild Buffalo are high.

Poaching: Poaching is widespread in Nepal, often for subsistence purposes to supplement either meagre diets or inadequate alternative livelihood opportunities. Ineffective law enforcement and insufficient conservation awareness are contributory factors. At Koshi Tappu, 763 wild animals were reported killed between 1994 and 1999 comprising 683 wild boars, 65 hog deer and 15 spotted deer, of which 81 (76 wild boars, 3 hog deer and 2 spotted deer) were poached in 1999 alone. Wild Buffalo, turtles and birds are also killed but no records are kept. Since most poachers and their victims remain undetected by the Reserve authorities, annual mortality due to poaching is believed to be several times higher than what the records suggest, and is one of the main causes for the depletion of the several wildlife species in the Reserve. Poachers use traps, snares, spears, guns, explosives, and poisons (mainly pesticides) to kill targeted species. In addition to subsistence use, various live animals and parts of dead animals are sold as food, medicine, pets, and for a variety of decorative purposes. Gangetic Dolphins in the Kamali River are exploited for their meat and oil. Oil, which is used in lamps, as an attractant for catching fish, and for medicinal purposes, is expensive (about US$8 per 250ml bottle, at 1989 prices). Hunting pressure may have contributed to
Reducing the number of dolphins in the Koshi River to the point where the population currently has little chance of long-term survival.

Small populations of dolphins isolated behind barrages will quickly become extinct even with limited hunting pressure. Hunting of Gharial and Marsh Crocodiles for skins, meat, and body parts thought to have medicinal value, and the collection of their eggs for food, has contributed to population declines. Current poaching levels are unknown but as with dolphins, even low-level exploitation can have devastating effects on small, fragmented populations. Otters are still hunted for their pelts, meat, and uterus thought to have medicinal value, but the effects of hunting on their populations are unknown. Freshwater turtles are exploited for their meat and those body parts thought to have medicinal value. No information is available on levels of exploitation or which species are most affected in Nepal, but all the turtle species recorded in the Karnali and Narayani Rivers are used on a subsistence basis in the neighboring states of Uttar Pradesh and Bihar in India. The large-scale commercial exploitation of turtles in India focuses primarily on flap- and softshell turtles.

Destructive harvesting practices: A number of resource harvesting practices are destructive to biodiversity, through their destruction of non-target species. Practices include:

- **Fish bombing**: There is worrying and increasing trend in the use of explosives to collect all the fish from a specific area. The use of fish-bombs using dynamic taken from road construction projects began in the 1980s. The practice has significant adverse impacts on fish populations and on the survival of key indicator species (dolphins, gharial and crocodiles, otters, fishing cats).

- **Electro-fishing**: This practice of using an electric charge to kill all aquatic organisms within a selected range is widespread in Nepal, and particularly in the Terai. Car batteries with electrodes provide the charge. This is particularly destructive when used on dry season refuges for important breeding species.

- **Poisoning**: Another worrying and increasing trend since the 1980s is the use of poisons e.g. pesticides (particularly Thiodine and Phoret), household bleach and other chemicals derived from local plants, to catch fish, either indiscriminately or introduced into bait. It reduces the fish population by mass killing, affects the food chain of the ecosystem, and causes pollution of water bodies. Use of poisons is widespread at Koshi Tappa and at Ghodaghodi.

- **Small-mesh nets**: Use of small-mesh sizes is widespread in Nepal and these are used on a variety of net types—gill nets, cast nets, drag nets, and a variety of local types, e.g. in the Ghodaghodi area, traditional fishing implements include nets down to 6mm mesh size. These nets are indiscriminate in their catches resulting in the removal of both adult breeding stock and young fingerlings from the populations, thereby reducing the possibilities of future breeding and recruitment from the areas. Although fishermen try to avoid entanglements because of potential damage to their nets, bycatches of other species including dolphins do occur.

- **Draining**: Draining of entire small wetlands to harvest all fish and aquatic products is widely practiced, an unsustainable method since it causes the loss of feeding and breeding sites of other species and causes habitats to undergo ecological succession towards dry land.

- **Gravel and driftwood collection**: The removal of driftwood and associated debris from riverbeds and banks for firewood, and unregulated mining of gravel and rock for road-building, decreases river productivity, alters the hydraulics and substrate composition, and eliminates essential habitat for several fish species during all or part of their life cycle, thereby endangering fish populations and the aquatic wildlife that depends on them.
Change in indigenous species composition is being caused in Nepal through the spread of existing alien invasive species, and by the introduction of new ones.

Spread of existing alien invasive species: Several alien invasive species are problematic in Nepal. Water hyacinth (Eichhornia crassipes), present in the country for many years, is widespread and is assumed to have altered aquatic ecosystems to some extent. Invasive species such as Ipomoea cairica subspecies fistulosa, and Mikania micrantha are also becoming more abundant in areas near wetlands, thereby affecting habitats of water birds and other wetland dependent fauna as well.

Introduction of new alien species: Exotic fish farming is being promoted as a profitable method of income generation in natural lakes and ponds, as well as in private ponds in Nepal. Several exotic fish species have been introduced in Nepal, some of which can be invasive (such as Oreochromis mossambicus or Nile Tilapia). Their spread in Nepal's wetlands is as yet not assessed. A recent assessment of natural lakes in Kailali district (where Ghodaghodi Lake Complex is situated), showed that of the 101 natural lakes found in the district at least 80 were being used for exotic fish farming, mostly carps. This is being encouraged not only by the Department of Agriculture, but also by Village Development Committees and District Development Committees in most parts of the Terai, and also in other parts of the mid-hills, to generate much needed cash for development. A reduction of 42 percent in the yield of native fish species (Mystus and Puntius spp.) was observed in Begnas Lake in Pokhara after introduction of exotic Bighead Carp (Aristichthys nobilis), Silver Carp (Hypophthalmichys molitrix) and Grass Carp (Ctenopharyngodon idella). This practice is doubly harmful for local flora and fauna. In smaller lakes in the Terai, exotic fish farming involves draining wetlands to remove local flora and fauna and restocking these with exotic fish. Surviving native fish populations are reduced by exotics preying on their fry, or by out-competing them for food and breeding sites resulting in the extinction of species, and water birds and others are discouraged from feeding at these sites.

2. Root Causes

Three root causes have been identified as underlying the threats described above (see Figure 1). These are described further below, along with the factors that contribute to them, and a brief overview of how the Project intends to address each.

2.1 Poor integration of wetland biodiversity values into sectoral, legal and policy frameworks and poorly co-ordinated implementation of plans between sectors

One of the major underlying causes of inappropriate land-use and poor water management in Nepal is the lack of an integrated approach to planning at national and district levels. There is a lack of a coherent, co-ordinated institutional framework for wetland management. Several Government agencies organised along single sectoral lines having overlapping jurisdiction over wetlands—mainly the Ministry of Water Resources, Ministry of Agriculture, Ministry of Forests and Soil Conservation, and District and Village Development Committees supported by the Ministry of Local Development. The laws, policies and programmes of these agencies are not coordinated either during formulation or implementation, and their priorities and programmes do not provide adequate attention to wetland biodiversity. There is little awareness of wetland values and functions and hence these tend to be ignored in development plans leading directly to their subsequent loss and the loss of the biodiversity they sustain.

Until very recently, wetlands did not even receive any attention in conservation planning, e.g. the National Conservation Strategy (1989) did not include any provisions for wetland ecosystem conservation or sustainable use. Similarly, the Department of National Parks and Wildlife Conservation Act (1973), which laid the legal framework for the Protected Area system, and the Buffer Zone Management Rules
(1996) and the Buffer Zone Management Guidelines (1999), paid inadequate attention to wetlands conservation and sustainable use. Even the first Ramsar Site in Nepal, Koshi Tappu Wildlife Reserve, was created originally for the protection of the last remaining population of Asian Wild Buffalo and not for the protection of wetland biodiversity. As a direct result, most of the important wetland areas were not included under protection and fall outside the Reserve boundaries. Only the recently approved Nepal Biodiversity Strategy (2002) has recognised the need for wetland conservation, while the National Wetland Policy (2003) has recently emerged as the central plank of the Government’s approach to wetland biodiversity conservation for the foreseeable future, but this needs to be implemented.

Though many wetlands exist on Government land and under the legal jurisdiction of the Department of Forests, the focus on forestry issues means that wetland conservation does not receive adequate attention. In other cases, single sector foci prevail, e.g., the Ministry of Agriculture has been promoting farming of exotic fish species in lakes without due attention to indigenous fish species or other local biodiversity, and a similar lack of concern for biodiversity is apparent in the activities of the Department of Irrigation. The Water Resources Act (1992) does not list conservation of wetlands and aquatic biodiversity among its many priorities.

Policy harmonization and programme coordination of different line Ministries is the primary remit of the National Planning Commission. However, such co-ordination is weak and national level plans and policies remain single sector in focus and this permeates down to district development planning and implementation. Although District Development Committees have a sub-committee on the forest, environment and cottage industry, and also water resources committees for periodic integrated multisectoral district development planning, this has also proved ineffective in integrating biodiversity conservation into sectoral plans and in providing a coordinated approach to wetland conservation. DDC plans have also failed to recognize the importance of sustainability of wetland resource use for local indigenous communities since these communities lack the power to influence these policies. This has in turn contributed to a general lack of awareness on wetland values, capacity, and incentives. Though there is a burgeoning number of civil society institutions, including conservation-oriented organizations and special wetland interest groups, that could potentially influence district level planning and implementation to make them more sensitive to wetland issues, they too have inadequate capacity and fora to influence the planning and implementation process.

There is an additional coordinated planning opportunity for wetland management under the Water Resources Rules (1993), which has the provisions for a District Water Resources Committee, headed by the Chief District Officer, with representatives from District Agriculture Development Office, District Forest Office, District Drinking Water Office, District Irrigation Office, any relevant Government Hydroelectricity Project, other Office relating to uses of water resources and the DDC. The Local Development Officer is the committee’s Member Secretary. However, the focus of such committees is on maximising water use for irrigation, and domestic and industrial use, and to a smaller extent arbitrating in cases of dispute. However, this committee is not responsible for equitable use of water and conservation.

20. When developments are planned, economic trade-offs balanced, or project profitability assessed there is perceived to be little economic benefit to wetland conservation, and few economic costs to their degradation and loss. Macroeconomic and sectoral policies continue to favour wetland-degrading sectors, and to employ fiscal and market instruments that encourage the activities, land and resource uses that lead to wetland modification and conversion. Because markets and prices remain distorted against wetland conservation there are few financial or economic disincentives for wetlands-degrading sectors to modify their activities. Investment in wetland management continues to be seen as an uneconomic use of land, funds and other resources.
The UNDP-GEF intervention aims to establish a multi-sectoral planning process that will be operational at national and local levels. It will achieve this by supporting the creation and operation of a National Wetlands Committee comprising senior government officials from all relevant sectors to ensure integration and co-ordination of wetland issues into the legal, policy, and planning frameworks. A national network of specialists on wetland issues will act as a scientific and technical body to advise the Committee. National wetland and biodiversity action plans, already under development, will be strengthened through technical support, and elements of them will be implemented through the Project.

2.2 Inadequate technical, economic and institutional capacity, information base, and awareness for wetland biodiversity conservation planning and management decisions

Within Nepal’s biodiversity and natural resource protection and management sectors, human and institutional resources are extremely low and this is particularly so for wetland conservation. There are very few professionals in Nepal with technical skills on wetland conservation, and none of the universities offer courses on wetland conservation and management (although some teach topics relevant to small aspects of wetland conservation). Expertise does exist nationally on flora, fauna, water and watershed resources management, but the mechanisms for these professionals to share their ideas, skills and learning are absent. The general lack of resource allocation for wetland conservation has meant that there have been no wetland conservation projects and programmes in the country resulting in no “learning-by-doing”, and hence no cadre of people with practical wetland management skills. Additionally, the strong information base, recognized as a prerequisite for sound policymaking and natural resource management planning, is also absent. Although some basic data collection has been undertaken in Nepal on aspects of wetland biodiversity and limnology by various government departments, universities and NGOs supported by funds from UNDP, the World Bank, and Asian Development Bank, IUCN, WWF, King Mahendra Trust for Nature Conservation, and foreign universities, there is still a lack of basic information on most wetland biodiversity issues, with data holdings often fragmentary, of varying quality, outdated, unavailable or underused. This is particularly true for wetlands in the mid-hills and mountains. At all levels there is currently little information on, or understanding of, wetland functions and values, the principles of wise use of natural resources, and a lack of awareness of the global importance of the country’s biodiversity. This has led directly to poor policies, planning, and development decisions and impaired natural resource management resulting in a depletion of natural resources through over-harvesting and destructive harvesting practices.

The under-valuation of wetland goods and services has acted as a pervasive force in hastening their degradation and loss. As well as influencing development and economic sectors, this has meant that conservation efforts have often been based on unsound economic and financial principles. They have largely failed either to set in place the incentive systems that are essential for their economic viability and acceptability, or to secure the funding base that is required for their long-term sustainability.

The UNDP-GEF intervention will develop a comprehensive capacity building programme to train trainers and support national training programmes that will significantly enhance the capacity of the natural resource protection and management sectors. Training programmes will be developed after a strong needs analysis involving all relevant national and local sectors within the country. The Project will create a broader and more policy-relevant information base to support policymakers, planners, and managers and facilitate their understanding of wetland values and functions, wetland management, and sustainable use thereby encouraging their integration into development practice. This will be achieved through extensive inventory work and assessment of Nepal’s wetlands to identify and prioritise sites for key biodiversity and develop comprehensive biodiversity overlays to ensure their future protection and integration into national development plans. The overlays will be complemented by a series of information tools such as legislative updates for species protection lists and national Red Data Books.
2.3 High local community dependence on wetland resources but low involvement in their management and low recognition of wetland values

The unsustainable use of wetland natural resources is prevalent throughout Nepal. Poverty is widespread and rates of population growth are high. Since most communities have weak, un-diversified, and insecure local livelihoods based on the direct exploitation of natural resources, people have little or no option in their patterns of exploitation.

Wetlands have many stakeholders at the community level with diverse interests, and overlapping government jurisdiction and a lack of policies and programmes to support community empowerment for their management means that government and communal wetlands are often used as “open access” areas. Benefits of wetland resources accrue mostly to relatively wealthy local households—usually by livestock grazing, water abstraction for irrigation, and from DDC and VDC contracts for farming exotic fish. Poorer wetland-dependent, indigenous communities and households are not given the opportunity or the responsibility for wetland management nor opportunities for alternative livelihoods. Consequently, even though these poorer households recognise the implications of their unsustainable use, over-harvesting of plant and animal products remains commonplace simply because there are no alternatives.

Due to a poor appreciation and understanding of wetland values, few market mechanisms exist either to capture these benefits as tangible cash values or to price them according to their true scarcity and value—either for the environmental agencies who are responsible for formal conservation activities or for local communities who live around and use wetlands.

One of the world’s most successful examples of natural resources management has been the community forestry programme in Nepal. This has demonstrated that successful local natural resources management is possible provided that supportive policies, capacity building actions, and long-term tenure securities exist, complemented by proper stakeholder identification and negotiated resource management planning at the local level. The UNDP-GEF intervention will build on this successful example by promoting a similar approach to wetland conservation and management in the country, by demonstrating alternative systems of community development based on sustainable utilisation of wetland biodiversity and natural resource conservation. This will be demonstrated at two project sites with complementary integration into national and local policy and planning frameworks. The focus will be on bringing communities directly into the management planning process, identifying practical and sustainable alternatives for harvesting and collecting wetland resources and forest products, helping to influence local development policies, developing incentives for community-based ecotourism activities, and promoting the sustainable utilisation of resources. The two sites will demonstrate this collaborative approach both within and without the Protected Area system. Building on economic valuation assessments at the two demonstration sites, the Project will identify sustainable financing mechanisms for conservation activities to rectify the current state of conservation financing and act as a model for wider application.

The ultimate causes behind these root causes are mostly socio-political and will not be addressed by the UNDP-GEF intervention. These include poor infrastructure, transport and communications; the current effects of armed insurgency; and institutionalised corruption and mismanagement at many levels.
Annex 2: Demonstration Sites – Their Selection, Biodiversity Values, Description, and Threats

Introduction

This annex:
- outlines the process for the selection of demonstration sites;
- describes each site;
- highlights globally significant biodiversity of each site;
- outlines the threats to the biodiversity of each site; and,
- identifies the root causes of the threats at each site and proposes remedial action.

The demonstration sites

Process of selection of the demonstration sites

The site selection process for the two national demonstration sites is outlined below:

a) The PDF-B Document Conservation and Sustainable Use of Wetlands in Nepal suggests work at demonstration sites to “allow testing and refinement of solutions, as well as promoting replicability to other wetland sites in Nepal” and short-lists four sites in the Terai as potential demonstration sites. These have been identified to “represent various ecosystems such as river floodplain, ox-bow lakes, marshes, swamps and reservoirs”. Mid-hill and mountain wetlands were not short-listed because of very limited information on biodiversity values, threats and socio-economic importance. In addition, their remoteness would reduce their potential demonstration value, and the current insurgency, which is more prevalent in the upland areas, poses a threat to the sustainability of project activities.

b) As stated in the PDF-B document, the “final selection of sites, based on recommendations presented by the PDF-B team” was undertaken at the First Project Steering Committee Meeting. These sites were selected after evaluating information against selection criteria developed for the IUCN GEF Mekong River Basin Wetland Biodiversity Conservation and Sustainable Use Programme and adapted for use here. This was conducted in conjunction with a national review of the information base, policies and plans, and the progress towards management planning for internationally important wetland sites. This review confirmed that the four candidate sites described in the PDF-B Document were the most relevant of the 10 identified from the Action Plan, but it also revealed significant overlap between the sites in terms of global biodiversity values present, threats faced, and likely demonstration activities available. As a result, a different approach was adopted, and the main objective of the demonstration sites was clarified, namely to demonstrate a range of sustainable management techniques suitable for replication in different situations throughout the Terai of Nepal, while making a significant contribution towards conserving global biodiversity. Two main situations were identified:
- management of protected wetlands and their buffer zones; and
- management of wetlands outside of Protected Areas where a regional planning or catchment planning approach would be suitable.

Two sites (Beeshazar Lake and Lumbini wetlands) were rejected on the basis of limited global biodiversity values dependent upon the sites themselves; significant overlap with the two recommended sites in terms of ecosystem and biodiversity, threats, and Protected Area status; and because Lumbini is primarily an artificial wetland.
c) Both selected sites were visited at least once during the project preparation period to verify biodiversity values. Discussions were held with local authorities, and where possible with local people, to determine current activities and threats to biodiversity at each site.

**Sites selected for demonstration activities**

As a result, the two sites selected for the project are:

- **Koshi Tappu Wildlife Reserve and its proposed buffer zone (collectively referred to as “Koshi Tappu Area”)**
- **Ghodaghodi Lake Complex.**

The Koshi Tappu Wildlife Reserve and its proposed buffer zone have been selected to demonstrate the management of a riverine ecosystem within and around a Protected Area. The site also has the potential of being used to demonstrate trans-boundary wetland management since the Koshi Barrage area has been leased to India for a period of 199 years. The site was selected on the basis of its high global biodiversity values, including the presence of endangered and endemic flora and fauna such as Gangetic Dolphin, Asian Wild Water Buffalo, Gharial, and the Bengal and Lesser Floricans; the absence of an adopted management plan for the entire ecosystem and the resources needed for its implementation; the existence of several threats to the wetland from both natural and anthropogenic activities; and, the opportunity to demonstrate the role of community participation in wetland management.

The Ghodaghodi Lake Complex has been selected as being ideal for the purposes of demonstrating the management of an unprotected wetland ecosystem using a sub-catchment planning approach. This area is a key link between the Churia Hills and the Terai plains, and also acts as a corridor connecting the Royal Bardia National Park with the Royal Sukhlapanta Wildlife Reserve. Furthermore, this site falls within the Terai Arc region identified by the WWF Project bearing that name, linking Royal Chitwan National Park with Corbett Tiger Reserve (India). The area has high global biodiversity values including the presence of the nationally Critically Endangered plant Bijay Sal or Indian Kinna Tree (*Pterocarpus marsupium*) and globally-threatened fauna including Gharial, Marsh Crocodile and Red-crowned Roofed Turtles, is under threat from both natural and anthropogenic activities; and affords an excellent opportunity to demonstrate the importance of community participation in wetland management in a non-Protected Area setting.

Figure 1 shows the approximate locations of each within the region. Figures 2 and 3, which appear later in the text, show the locations in greater detail. Table 1 provides an evaluation of each of the selected sites against the site selection criteria. The two sites were recognised as priority areas for biodiversity conservation by the 1995 IIMNG/Government of the Netherlands Biodiversity Profiles Project. Koshi Tappu was declared a Ramsar site in December 1987; Ghodaghodi was nominated as a Ramsar Site by IIMNG in January 2002 and is awaiting formal listing by the Ramsar Bureau.

The Koshi Tappu Wildlife Reserve (86°55'15"-87°05'02"E, 26°33'57"-26°43'40"N) occupies 17500 ha of the Saptakoshi River floodplain in the most north-easterly part of the Gangetic plain, close to Nepal’s southern border with Bihar State in India. Its proposed buffer zone encompasses an additional 17300 ha. At some points the Nepal-India border is less than 100m from the proposed Buffer Zone area. The Reserve, roughly rectangular in shape, is 16.3km north south and 9.3 km east west and lies within Sunsari, Saptari, and Udayapur Districts of the eastern Terai of Nepal. The Reserve's headquarters is in Kushalnagar village, Sunsari District, 2.6 km northwest of the East-West Highway (the only highway in Nepal connecting the breadth of the country) and approximately 57km west of Biratnagar by road, the country’s second largest city.
The Saptakoshi River floodplain is the largest of all river basins in Nepal comprising 60,400 km$^2$ (of which 32,537 km$^2$ lies in China). The Saptakoshi River carries the highest sediment load of all rivers in Nepal and reputedly contributes 40 percent of the sediment load of the Ganges River. The southern boundary of the Reserve runs parallel to the Koshi Barrage, 6.5 km to the south. The 4,995 ha of disturbed (submerged land), between the Barrage and the southern boundary of the Reserve, has been leased to the Indian Government for 199 years. The northern boundary of the Reserve is demarcated along the floodplain of the eastern embankment near Prakashpur, to the village of Tapeshwor north of the Trishuli River.

Table 1: Evaluation of the demonstration sites against site selection criteria

<table>
<thead>
<tr>
<th>Criteria for site selection</th>
<th>Koshi Tappu Area</th>
<th>Ghodaghodi Lake Complex</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supporting rare or threatened (vulnerable or endangered) wetland species</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Maintaining the genetic and ecological diversity because of the uniqueness of its flora and fauna</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Providing the habitat for plants or animals at a critical stage of the biological cycle</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Supporting one or more endemic plants or animals or communities</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Supporting a significant proportion of indigenous fish Subspecies, Species or Families or including areas on which fish stocks depend</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Area large enough to be significant, but small enough to be managed as a unit. In this respect, individual small lakes or marshes are not recommended, but boundaries of the demonstration sites should preferably lie within Provincial or equivalent administrative authority</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Provide a high likelihood of success for management in a manner which will provide adequate protection of the biodiversity values</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Have important trans-boundary implications if not managed properly</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>May be under threat from significant development proposals, but can be managed in a way that these threats can be minimized or ameliorated</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Provide examples of wetland functions and ecological services</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Are near communities who are to some degree dependent on its values and benefits, and who can be involved in future management of the wetland</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Have the potential to demonstrate Wise Use principles, as described in the Ramsar Convention</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Can act as a model for best practice and facilitate a learning role for other initiatives</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Are significant for religious, cultural, historic or socio-economic reasons</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

Biodiversity values of the demonstration sites

The key biodiversity values of the demonstration sites are summarized in Table 2.

Table 2: The key global biodiversity values at the two demonstration sites

<table>
<thead>
<tr>
<th>Koshi Tappu Area, Eastern Nepal</th>
<th>Ghodaghodi Lake Complex, Kailali District, Far Western Nepal</th>
</tr>
</thead>
</table>

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### Site Description

Stretch of the Saptakoshi River and its floodplain in the Terai lowlands in Eastern Nepal, adjacent to the Indian border. This area has been long-settled, and has a relatively high density of people, including many ethnic minorities directly dependent on the River and other wetlands in the area for their livelihoods.

### Biodiversity Highlights

- High density of migratory and resident bird populations—467 species listed, with congregations of over 50,000 migratory waterfowl during the winter months. Largest known breeding in Nepal.
- Last surviving population of the Asiatic Wild Buffalo in Nepal.
- Gangetic Dolphins are resident in the Saptakoshi river.
- Two endemic fish species—*Barilius jhalangravi, Pseudotropius muini*.
- 45 percent of total vertebrate species of the country.

### Habitats

<table>
<thead>
<tr>
<th>Wetland types:</th>
<th>Riverine: a) Perennial rivers; b) River floodplain; Lacustrine (ox bow lakes and ponds); Palustrine (marshes and swamps); Man-made: a) Water-storage area (Koshi barrage); b) Canals; c) Rice fields.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Others</td>
<td>Grassland (67.3 percent): 5 main types, namely Saccharum type, Saccharum-Phragmites mixed type, Imperata type, Saccharum-Typha mixed marsh type, and Cymbopogon-Saccharum type. River, sand, boulders (25.9 percent).</td>
</tr>
<tr>
<td>Forest land</td>
<td>4 main types namely, Khair (<em>Aegle catechu</em>) forest, Sissoo (<em>Dalbergia sissoo</em>) forest, Mixed deciduous riverine forest, and Savannah forest (<em>Bombax ceiba</em> dominated).</td>
</tr>
<tr>
<td>Savannah</td>
<td>(2.6 percent).</td>
</tr>
</tbody>
</table>

A complex of lakes, marshes and seasonal ponds in the lowland plains stretching up to the foothills of the Siwaliks. The area has long been settled by the Tharu communities but has of late seen a rapid influx of hill migrants. The area remains relatively less disturbed than most other wetland areas in lowland Nepal.

- Supports 1 percent of the population of Cotton Pygmy-geese and has substantial populations of migratory waterfowl in the winter months.

34 mammal species recorded.

### Wetland Types

| Riverine: a) Perennial rivers; b) River floodplain; Lacustrine (ox bow lakes and ponds); Palustrine (marshes and swamps); Man-made: a) Water-storage area (Koshi barrage); b) Canals; c) Rice fields. |
|----------------|---------------------------------------------------------------------------------------------------|
| Others         | Grassland (67.3 percent): 5 main types, namely Saccharum type, Saccharum-Phragmites mixed type, Imperata type, Saccharum-Typha mixed marsh type, and Cymbopogon-Saccharum type. River, sand, boulders (25.9 percent). |
| Forest land    | 4 main types namely, Khair (*Aegle catechu*) forest, Sissoo (*Dalbergia sissoo*) forest, Mixed deciduous riverine forest, and Savannah forest (*Bombax ceiba* dominated). |
| Savannah       | (2.6 percent). |

**Others**

- Forest land: 3 main types, namely Sal (*Shorea robusta*) forest, Asna or Saj (*Terminalia alata*) forest, Mixed deciduous riverine forest.
### Plants

658 plant species recorded of which 284 are wetland macrophytes.

- **Globally Vulnerable**: Delhbergia latifolia (IUCN, 2002)

107 plant species with medicinal values; 64 edible (by humans) wild plant species; and, 12 plant species with domestic utility.

<table>
<thead>
<tr>
<th>Species</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delhbergia latifolia</td>
<td>Globally Vulnerable</td>
</tr>
<tr>
<td>Oxalidum indicum</td>
<td>Endangered</td>
</tr>
<tr>
<td>Crataea mollocularis</td>
<td>Endangered</td>
</tr>
<tr>
<td>Operculina tuberculata</td>
<td>Vulnerable</td>
</tr>
<tr>
<td>Asparagus racemosus</td>
<td>Vulnerable</td>
</tr>
<tr>
<td>Alstonia scholaris</td>
<td>Vulnerable</td>
</tr>
<tr>
<td>Buta monosperma</td>
<td>Vulnerable</td>
</tr>
<tr>
<td>Curculigo arboidea</td>
<td>Vulnerable</td>
</tr>
<tr>
<td>Piper longum</td>
<td>Vulnerable</td>
</tr>
<tr>
<td>Trapa nevricula</td>
<td>Vulnerable</td>
</tr>
<tr>
<td>Acacia catechu</td>
<td>Protected</td>
</tr>
<tr>
<td>Bombax ceiba</td>
<td>Protected</td>
</tr>
<tr>
<td>Shorea robusta</td>
<td>Protected</td>
</tr>
</tbody>
</table>

### Mammals

32 species reported. Globally endangered and threatened species (IUCN, 2002) include:

- **Endangered**: Gangetic River Dolphin (Platanista gangetica), Asian Wild Buffalo (Bubalus bubalis), Asian Elephant (Elephas maximus); Vulnerable: Gaur (Bos gaurus), Common Otter (Lutra lutra), Smooth-coated Otter (Lutra perspicillata), Fishing Cat (Prionailurus viverrinus); Least Risk: Rhesus Macaque (Macaca mulatta), Hanuman Langur (Semnopithecus entellus); Data Deficient: Bengal Fox (Vulpes bengalensis).

Other significant mammals include Leopard (Panthera pardus), Jungle Cat (Felis chaus), Jackal (Canis aureus), Spotted Deer (Axis axis), Hog Deer (Axis porcinus), Barking Deer (Muntiacus muntjak), Porcupine (Hystricidae), Civets (Viverra zibetha, Viverricula indica) and Mongoose (Herpestes edwardsii, H. javanicus).

<table>
<thead>
<tr>
<th>Species</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Platanista gangetica</td>
<td>Endangered</td>
</tr>
<tr>
<td>Bubalus bubalis</td>
<td>Endangered</td>
</tr>
<tr>
<td>Elephas maximus</td>
<td>Endangered</td>
</tr>
<tr>
<td>Bos gaurus</td>
<td>Vulnerable</td>
</tr>
<tr>
<td>Lutra lutra</td>
<td>Vulnerable</td>
</tr>
<tr>
<td>Lutra perspicillata</td>
<td>Vulnerable</td>
</tr>
<tr>
<td>Prionailurus viverrinus</td>
<td>Vulnerable</td>
</tr>
<tr>
<td>Macaca mulatta</td>
<td>Vulnerable</td>
</tr>
<tr>
<td>Semnopithecus entellus</td>
<td>Vulnerable</td>
</tr>
<tr>
<td>Vulpes bengalensis</td>
<td>Data Deficient</td>
</tr>
<tr>
<td>Panthera pardus</td>
<td>Vulnerable</td>
</tr>
<tr>
<td>Felis chaus</td>
<td>Vulnerable</td>
</tr>
<tr>
<td>Canis aureus</td>
<td>Vulnerable</td>
</tr>
<tr>
<td>Axis axis</td>
<td>Vulnerable</td>
</tr>
<tr>
<td>Axis porcinus</td>
<td>Vulnerable</td>
</tr>
<tr>
<td>Muntiacus muntjak</td>
<td>Vulnerable</td>
</tr>
<tr>
<td>Hystricidae</td>
<td>Vulnerable</td>
</tr>
<tr>
<td>Viverra zibetha</td>
<td>Vulnerable</td>
</tr>
<tr>
<td>Viverricula indica</td>
<td>Vulnerable</td>
</tr>
<tr>
<td>Herpestes edwardsii</td>
<td>Vulnerable</td>
</tr>
<tr>
<td>H. javanicus</td>
<td>Vulnerable</td>
</tr>
<tr>
<td>Birds:</td>
<td>467 species of birds recorded including 114 species of water birds, representing almost all the water bird species known to occur in Nepal. Globally-threatened species (IUCN:2002); Critically Endangered: White-naped Vulture (Gyps bengalensis), Slender-billed Vulture (G. tenuirostris); Endangered: Greater Adjutant Stork (Leptoptilos dubius), Bengal Florican (Houbaropsis bengalensis), Lesser Florican (Syrmaticus Problem); Vulnerable: Spot-billed Pelican (Pelecanus philippensis), Lesser Adjutant Stork (Leptoptilos javanicus), Baikal Teal (Anas formosa), Bactrian Pochard (Aythya baeri), Pallasin's Fish Eagle (Haliaeetus leucocephalus), Greater Spotted Eagle (Aquila clanga), Lesser Kestrel (Falco naumanni), Swamp Francolin (Francolinus guttaticornis), Wood Snipe (Gallinago nemorcola), Black-Bellied Tern (Sterna acuticauda), Indian Skimmer (Rynchops albicollis), Bristled Grassbird (Chaoornis striatus), Grey crowned prinia (Prinia cinereopallida); Least Risk: Black-Bellied Tern (Sterna acuticauda), Ferruginous Duck (Aythya nyroca), Painted Stork (Mycteria leucocephala), Black-necked Stork (Ephippiorhynchus asiaticus), Oriental White Ibis (Threskiornis melanocephalus), White tailed Eagle (Haliaeetus albicilla), Grey-headed fish-eagle (Ichthyophaga ichthyoeus), Lesser fish-eagle (Ichthyophaga haematopus), Indian Black Vulture (Sarcorhamphus papa), Black vulture (Aegypius monachus), Pallid Harrier (Circus macrourus), Black-bellied tern (Sterna acuticauda). Two restricted range species recorded: Kashmir Flycatcher (Ficedula subrubra) and Yellow-vented warbler (Hyllococcyx cantator).</td>
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<td>140 species of birds recorded. Globally-threatened species (IUCN:2002); Critically Endangered: White-naped Vulture (Gyps bengalensis), Slender-billed Vulture (G. tenuirostris); Endangered: Lesser Adjutant Stork (Leptoptilos javanicus); Least Risk: Ferruginous Duck (Aythya nyroca), Grey-headed fish eagle (Ichthyophaga ichthyoeus).</td>
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<tr>
<td>Reptiles</td>
<td>45 species recorded. Globally-threatened species (IUCN: 2002); Critically endangered: Red-crowned Roofed Turtle (Kochuga kochu) Endangered: Gharial (Gavialis gangeticus), Elongated Tortoise (Indotestudo elongata); Vulnerable: Marsh Crocodile (Crocodylus palustris), Three-striped Land Tortoise (Melanochelys triostegata), Crowned river turtle (Haldemasth thaljii); Three other species are listed in CITES Appendix I; Ganges Soft-shell Turtle (Aspideretes gangeticus), Peacock Soft-shell Turtle (Aspideretes hummi), Bengal Monitor Lizard (Varanus bengalensis), and Indian Python (Python molurus).</td>
</tr>
<tr>
<td>10 species recorded. Globally-threatened species (IUCN: 2002); Critically endangered: Red-crowned Roofed Turtle (Kochuga kochu); Endangered: Three-striped Roof Turtle (Kochuga dhongka); Vulnerable: Marsh Crocodile (Crocodylus palustris); Least Risk: Asiatic Rock Python (Python molurus); Three other species are listed in CITES Appendix I; Indian Roofed Turtle (Kochuga rostii), Golden Monitor Lizard (Varanus Flavesens), Indian Python (Python molurus).</td>
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</tbody>
</table>
| Fish: | 17 species recorded.  
Globally-threatened; Unknown; National Red Data Book for Nepal (1995) lists: Endangered: Tor tor; Vulnerable: Ruta rita, Acrossochelius hexagonolepis, Channugilus chagantio, Tor putitora, Barilius bocca, Danio rerio, Terodon cotula, Schizothorax plagiostomus, Schizothorax progynosus, Pseudobrycon pseudobrycon, Anguilla bengalensis; and another 13 species as susceptible.  
Only site in Nepal where the fish Caloosa solua has been recorded.  
27 fish species recorded.  
<table>
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<tr>
<td>Amphibians</td>
<td>11 species recorded (2 toads and 9 frogs).</td>
</tr>
<tr>
<td>Invertebrates</td>
<td>No surveys undertaken except for butterflies - 77 species identified.</td>
</tr>
</tbody>
</table>

**Koshi Tappu Wildlife Area**

**Description of the site**

The Wildlife Reserve was gazetted in 1976 as the only remaining site in Nepal for the globally-threatened Asian Wild Buffalo (*Bubalus bubalis*) and in 1988 became Nepal's first Ramsar site on the basis of its high numbers of resident and migratory waterfowl.

The area comprises a complex mosaic of lotic (running water) and lentic (standing water) ecosystems with a variety of physical, hydro-biological and vegetative characteristics. Of the 20 global freshwater wetland types found in Nepal, 17 are said to be present in Koshi Tappu (see Table 4 at end of Annex). Construction of the Koshi Barrage between 1958 and 1964 created a huge reservoir with seepage marshes and reed beds on the periphery, which became a significant over-wintering and staging area for large numbers of migratory waterfowl. The structure and function of these are affected significantly by sedimentation, river dynamics and seasonal monsoon flow, and the maintenance of the Barrage is not conducive to continued conservation of all these wetlands since the natural processes of continuing shifts in the river course and high sedimentation rates now occur within the artificial constraints of the embankments.

**Environmental context**

The main habitats within the Koshi Tappu area include:

- Permanent, seasonal, and irregular rivers and floodplains: The total water surface area of the rivers and streams is approximately 1,426.8 km during the dry season but this increases significantly in the monsoon season. The Koshi and Trijuga are the main rivers. In the north-eastern part of the Reserve (Prakashpur to Madinban) the Koshi River has shifted recently to the west by about 1-3 km, converting the former riverbed to barren land, while elsewhere its shift to the east has threatened existing ox-bow lakes but left old channels with seasonal and irregular waters on the western side (e.g. Moriya Khola/Dhar). Other small seasonal streams such as Gangajali, Pouda, Sundari and Mohali flow on the western side of the Reserve.

The rivers are the only habitat for the globally-threatened Gangetic Dolphin, Gharial, and Indian Narrow-headed Softshell Turtle, and many of the nationally-threatened fishes including Sihar (*Tor*...
tor), Mahseer (*F. putihora*), Jalkapur (*Balirius radiolates*), Bucche asala (*Schizothorax plagiosomus*), Asala (*S. richardsonii*), Chuche asala (*S. progatus*), and Rajapam (*Anguilla bangaeformis* and the main habitat of the globally-threatened Smooth-coated and Eurasian Otters, Black-bellied Tern, Indian Skimmer, and Baikal Teal.

**Floodplain**: The Reserve is located on the floodplain of the Koshi River. Much of the floodplain, about 2,300 ha, is barren land comprising sandbars and islands formed by the natural deposition during flooding. These are almost devoid of any vegetation, with the exception of some older sandbars that have been colonised by *Tamarix dioica* and *Sacccharum spontaneum* through the normal succession towards grassland. The habitat provides safe breeding sites for the globally-threatened Black-bellied Tern and Indian Skimmer as well as Asian River Tern, Little Tern, Little Pratincole, Eurasian Stone-curlew, and Sand Lark. The floodplain is highly affected and modified each year by monsoon flooding which has created inundated grasslands, swampy forest, and seasonal marshes.

**Freshwater oxbow lakes**: Four freshwater oxbow lakes are present within the Reserve along the eastern embankment, and two more—the Kamalpur and Bhagalpur Lakes—are prominent in the western part. All of these lakes are maintained by monsoon flood, rainwater, and seepage water but they are severely threatened by high rates of siltation, vegetational succession, and infestation by water hyacinth (*Eichornia crassipes*) and Ipomoea (*Ipomoea aquatica*). The oxbows, swamps, and marshes play host to some of the river and floodplain animals mentioned above and are also the favoured habitat of the globally-threatened Marsh Crocodile, Red-crowned Rooked Turtle, White-bellied Heron, Greater Adjutant Stork, Bae’s Pochard, Ferruginous Duck and some nationally-threatened fishes including Kite (*Acreosochelius hexagonolepis*), Potharchatti (*Chogunnius chogunnoi*), and Zebra (*Danti rio*).

**Seasonally flooded grassland**: Wet or seasonally flooded grassland covers an area of about 1,652 ha (70 percent) within the Reserve and includes *Sacccharum-Paragmites* dominated type, *Sacccharum-Tamarix* association, and *Typha-Vetiveria* dominated swampland. These grasslands are the most important habitat of the remaining Asian Wild Buffalo and other globally-threatened species such as the Bengal Florican, Swamp Partridge, Hodgson’s Bushchat and Bristled Grassbird, as well as other significant mammals such as Hog Deer, Spotted Deer, and Wild Boar.

**Floodplain forest**: The riparian forest is inundated seasonally during the monsoon floods and develops characteristics of freshwater swamp forest during this time. There are three main types of such forest found in floodplain area, namely Khair (dominated by *Acacia catechu*), Sissoo (dominated by *Dalbergia sissoo*), and mixed deciduous riverine forest. A fourth type, the wet grasslands with savannah trees (*Bombax ceiba*), is also included. These forests are the main habitat of the globally-threatened Gaur (*Bos frontalis*) and Elongated Tortoise, and provide nesting sites for numerous species of waterbirds.

**Reservoir**: The huge reservoir created by the Koshi Barrage and used for irrigation in India forms an extremely important habitat for migratory waterbirds, notably ducks and waders. It is by far Nepal’s most important wetland for waterfowl and at least 22 species of waterbird have been recorded in the country only from here. Numbers vary, but over 20,000 waterbirds have been counted during winter including most of the globally-threatened species listed above for rivers and lakes.

**Seasonally flooded rice fields**: Seasonally flooded rice fields are a wetland type in the classification of global freshwater wetlands (Pugan 1990). Over 11,280 ha of rice fields are found in the Project area including in Sunsari and Saptari districts. These rice fields are inundated during the monsoon and converted into wetland sites of importance for birds and amphibians.
Socio-economic Context

Koshi Tappu is located in the eastern development region of Nepal and the Project area involves 16 Village Development Committees (VDCs) of Sunsari (6 VDCs), Saptari (7 VDCs) and Udayapur (1 VDC) Districts. The total population of the two major Project districts (Sunsari and Saptari) is estimated to be 1,195,918, settled in 221,436 households (2001 Census). The two districts support 22.3 percent of the total population of the eastern region and 5.2 percent of the country's population. Population density of the area is estimated at 460 persons/km², which is extremely high compared to the national average (157 persons/km²), regional average (188 persons/km²) and Terai average (330 persons/km²). The population growth rate of Sunsari and Saptari, during the 1991-2001 census period, is estimated to be 3.04 percent and 2.2 percent per annum respectively, compared to the national average of 2.24 percent and the Terai average of 3.0 percent per annum. The high population in Sunsari indicates the presence of more hill migrants than in Saptari. Average family size of the two districts is 5.4, in line with the national average (5.44), although in Saptari district alone it is relatively greater (5.64).

Agriculture is the main occupation for about 66.6 percent of the population of the Project districts; of the rest, 26.8 percent depend on wage-earning (largely agriculture), 2.6 percent on commerce/trade, 1.3 percent in services and 2.7 percent on other occupations. More than 50 percent of the farmers own less than 1 ha of land, but the Project area produces a food surplus. The total livestock population of the district is estimated to be 1,052 million animals with the average holding being 5.44 animals/household. Almost 30 percent of the population of the Project districts belong to wetland-dependent ethnic groups in the following order of population size — Tharu, and Sani. The dominant non-wetland-dependent ethnic groups of the project districts include Yadav/Adib, Dhamik, and people of hill-origin.

Sunsari District ranks 61st (1 = least developed, 75 = most developed) and is classified as "Best" from the perspective of its overall composite index of development, while Saptari is ranked 67th and is classified as "Intermediate". The Human Development Index (HDI) of Sunsari and Saptari is 0.382 and 0.374 respectively, both above the national average index of 0.325. Similarly, the Gender-sensitive Development Index (GDI) is 0.338 for Sunsari and 0.325 for Saptari, again above the national average of 0.267.

The Project site itself, which includes 16 VDCs, supports 105,706 people from 18,093 families with an average family size of 5.84 persons/household (2001 Census). The population density in the VDCs falling within the Project area varies between 313 and 998 persons/km². Population growth in these VDCs ranges from 2.15-4.73 percent per annum. Wetland-dependent groups such as Tharu, Mallah, Rajbanshi, Dusadh/Paswan, Muster, Kewat, Banar, Pattali/Satar, and Jangh/Dhagar constitute 31% of project site population. Farmers of Terai origin, comprising of Yadav, Rajput, and Misra, constitute the largest population (31.9%). The hill-origin groups such as the Brahmin, Chhetri, Newar, Gurung, Magar, Rai and occupational peoples comprise 27 percent of the population. Emigration from the Project area is estimated to be only about 1 percent per annum, the result of some large landholders migrating to urban centres. Immigration is high, particularly along the northern boundary of Koshi Tappu called Sitalkote Tappu. People from the hills area of Udayapur district as well as from Bihar State of India are the main immigrants settling mainly within Prakashpur, Haripur, Lauki, Badagamba, Bairaiv and Sipir VDCs. Information on annual immigration is not available. People of Terai origin are dominant especially in West Kushaha, Haripur, and the southern part of Laukahi, Bairaiv, East Pipra, Badagamba and Jagatpur.

Land ownership is small — about 39 percent of households are either landless or own less than 0.05 ha of land, 31 percent of households own 0.05 to 1 ha, 20 percent own 1 to 3 ha, and only 10 percent own more than 3 ha. Irrigated lowland (khet) is the dominant land type (ever 80 percent) owned privately by people.
The other types owned are upland (bari/bhitar) followed by ponds, reed beds and rushes for thatching (kharbari), barren land, and orchard.

Almost 87.3 percent of the economically active population in the Project area is involved in agricultural activities, of which, 51.2 percent are involved fully in farm activities including animal husbandry, while 36.1 percent are involved partially in agriculture and allied activities. Other occupations include trade (4.8 percent), services (6.8 percent), and other work (1.1 percent). Minority groups such as fishermen (Mallah, Godi) undertake agricultural labour to supplement income from their traditional occupation. In order to cope with food deficiencies, most households rely on one or more alternative income generation activities. Agricultural production is sufficient to subsist upon for up to 3 months for 36 percent of households, who then undertake wage labouring, seasonal migration to seek jobs, fishing, etc. to earn a living for the rest of the year. Agricultural production is adequate for 3-6 months for another 31 percent of households and for the remaining months they are dependent on off-farm activities. Only 22 percent of households produce enough for the whole year, while 11 percent of households produce a surplus that they sell in the local markets.

Of the households that produce too little food for annual subsistence, about 58 percent are involved in wage earning (often on others' agricultural land), 19 percent in sharecropping, 5 percent in fishing, and 3 percent in NTFP collection and sale. About 2 percent migrate seasonally to seek employment and another 2 percent work temporarily as full-time labourers in others' houses. Similarly, others (11 percent) are involved in the sale of firewood, timber trading, and other businesses (KTWRMP 2002). The people of wetland-dependent communities, in particular, are struggling for basic survival. Women face more problems due to income constraints; household responsibilities; no reproductive rights (women have 4-16 children); inadequate supplies of grass, fuel-wood and fodder; and overall gender discrimination; and are desperate for needs-based assistance to improve their lives and the well being of their children.

Rice is the main crop grown during the monsoon (summer). However, in some places, early rice is also grown. Wheat, oilseeds, and pulses are grown in winter, and maize is grown in summer. Crop yields vary by location and cultivation practice. VDCs in the east, from Kushaha to Haripur, remain wet throughout the year and hence rice yields are better but those of wheat and other crops are low. The average annual income derived from present agricultural practices on one hectare of rice field is US$385. However, production and income varies by place and cultivation practices. Cultivation of fruits and vegetables are mainly for domestic consumption, the fruits commonly grown are mango, litchi, jackfruit and banana. However, land occupied by fruit trees is very small—just 0.99 percent of the total private land. Vegetable cultivation potential is yet to be tapped in the area, except in Lankahi, where people have started to grow vegetables for market. Most other farmers in the proposed buffer zone grow winter and summer vegetables mainly for their own consumption. There is good potential and scope for commercial vegetable production.

Livestock is an integral part of agriculture or crop cultivation and counts as an important asset for farm households. Some rear livestock to supplement their crop production activities, while some others rear them as their main subsistence activity. Cattle and buffaloes are valued highly for their secondary products, e.g. for ploughing and manure, whereas goats, sheep and pigs are kept mainly for meat and cash income. Most livestock reared within the Project site are local breeds. Free grazing is the most common feeding practice and stall-feeding is limited to some milch cows and buffaloes. It is estimated that only 2 percent of households have adopted stall-feeding for milch animals, but in some areas such as Prakashpur bazaar, stall-feeding is gradually increasing.

Fish farming is one of the most important economic activities in the Terai. However, it is not popular among the communities around Koshi Tappa due to the relative abundance of fish in the Koshi River and
associated wetlands. Fishing remains limited to and practiced mainly by traditional fishermen. Despite the ban on fishing inside the Reserve, it is still widespread along the Trisaga River, Kamal Daha and in some stretches of the Koshi River. Outside the Reserve, fishing is most common in the area to the south near the Barrage as well in the seepage streams and marshes along the eastern boundary of the Reserve. Fish farming was initiated as a cage fishery pilot project in Koshi Tappu during 1994-1997 with support from the Wetland Conservation Fund of Ramsar Convention, and since 1995 the buffer zone development programme under the Parks and People Programme (PPP) has further encouraged it. As a result, a few private and community fishponds have been developed recently, especially in the eastern seepage area. Fish farming is also integrated with duck and poultry farming. However, the shifting of Koshi River to the western edge of the site about two years ago has dried out most of the community ponds developed by the Parks and People Programme.

Koshi Tappu Wildlife Reserve has not yet become a major tourist destination but there has been an increase in visitors from 754 in 1995 to 2,536 in 1999. However, since then, visitor numbers have reduced to about 2,000, reflecting the general decline in tourist arrivals due to the political insurgency. Although there is good potential for tourism activities in Koshi Tappu, so far the substantial proportion of tourism benefits have gone directly into the Reserve revenue or to the four hotels located in the proposed buffer zone. Few residents in the proposed buffer zone are involved in tourism related activities and only about 20 households have benefited from employment in hotels and from village and cultural tourism such as performing the traditional Jhangad dance. Negative impacts from tourism are not yet visible in the area, probably because of the relatively small number of visitors.

**Main threats to the wetland biodiversity in the Koshi Tappu Ramsar Site**

A brief description of the threats to the biodiversity of the Koshi Tappu Ramsar site is presented below and an analysis of the root causes and proposed remediation measures is presented in Table 3.

- **Conflict between management of site as Protected Area and as Ramsar Site:** The Wildlife Reserve was created and defined primarily for conservation of the Asian Wild Buffalo and not as a Ramsar Site. As a result, most important wetland sites lie outside the boundaries of the current Wildlife Reserve. The new management plan does not contain adequate measures for conservation of waterbird habitat.

- **The Koshi River has a history of being extremely dynamic and changes its course and flow patterns often.** As a result of the change in course over the recent years, many wetland sites lying outside the Protected Area are drying up due to alteration in the water regime of the area. Some of these wetland sites are crucial areas for wintering migratory birds. The shifting of the River has also led to the loss of habitat, especially climax vegetation. The River has one of the highest rates of sedimentation in Nepal and the creation of the barrage has increased the rates of sedimentation in the regions north of the Barrage. The construction of the Sapta Koshi Multi-Purpose Project, a hydropower dam on the Koshi River upstream of the Reserve, is a potential threat.

- **Small remnant, isolated population of Asian Wild Buffalo in danger of extinction.** The population of Asian Wild Buffalo at Koshi Tappu is the last in Nepal and is isolated from populations in India due to the degradation and loss of forest corridors between sub-populations.

- **Feral cattle and cattle grazing pressures are a threat to the Asian Wild Buffalo population as crossbreeding can cause dilution of the gene pool.** Feral populations are not only a source of competition for wild ungulates for food and habitat resources but also act as a medium for spread of disease to wild populations.

Over 3,000 cattle reside in the Reserve and roughly another 10,000 from the surrounding villages graze the grasslands on a daily basis. Some herders have erected permanent cattle sheds along the
Southern and northern boundaries of the Reserve to house their animals at night. The intensive
grazing has affected the composition and productivity of grasslands adversely, including disturbing
of wildlife habitats. Over-grazing causes replacement of the Phragmites-Saccharum community by
Imperata cylindrica (an unpalatable dry land species). This problem is worsened due to the open
border with India where there is a good market for hybrid buffalo calves and also because the
culling and export of cows is illegal in Nepal as it is a Hindu kingdom.

Encroachment has been a considerable threat to the site and has been taking place due to many
reasons including the unclear demarcation of the boundary on the western side of the Reserve and
the lack of a buffer zone. While some settlements were relocated when the Reserve was
established, compensation does are still pending in some cases. Encroachments on the high land
north of the Wildlife Reserve are of particular concern as this deprives animals of shelter on high
ground during the seasonal flooding.

Trans-boundary issues, including the jurisdiction, management and use of biological resources in
the Barrage and adjacent areas leased by India, are responsible for the neglect and poor status of
wetlands and wetland species in the area. Problems include the drainage of water for irrigation at
times when it is most required for migratory waterfowl, and the opening of floodgates without
consideration for the impact on aquatic species.

Over-fishing is a common phenomenon around the Reserve and in the Barrage area. There is no
restriction on catch size and the age of the fish caught, leading to a decrease in fish populations in
the region. Over-fishing has resulted in the dwindling of food supplies for otters, gharial, dolphin
and other fauna in the region. Fishing is the main source of income for many landless wetland-
dependent communities, particularly Mallah/Gong, Bantar, Jhangad, Mushi, etc. The fish habitats
and population in the proposed buffer zone including the Barrage are highly degraded and over
exploited and as a result more pressure is exerted on wetlands of the Reserve. These communities
illegally fish in the Trisula, Marsiyathar and Koshi rivers including lakes/ponds and marshes in the
Reserve. A variety of traps, nets and poisons are used by fishermen to fish throughout the year.

Poaching and killing of wildlife. Poaching is high in the Reserve with a recorded 763 cases detected
by Reserve officials between 1994 and 1999. Poisoning of birds and fish is common and victims
include turtles and gharials. Mist-netting of birds is common in the area and birds are often trapped
on sandbars from breeding colonies and their eggs are collected. The villagers mainly use the
animals for food. Other animals that are poached include otters (for their pelts and fat), Gharial,
Wild Boar, Hog Deer, Spotted Deer and turtles.

Threats to Gangetic Dolphins, a highly endangered species, include the creation of large dams on
all the four main tributaries of the Ganges originating in Nepal. Very few records exist of the
existence of dolphins upstream of the Koshi Barrage since its creation. Dolphins are poached and
captured in nylon fishing nets. There is demand for their oil, which is used as fish-bait and in
medicine.

Invasive species: Significant areas of the wetlands are covered by Water Hyacinth (Eichhornia
craspides) and Ipomea (Ipomea carnea ssp. fistulosa). Much of the vegetation inside and along the
Reserve is infested with Mikania micrantha, Lantana camara, Chromolaena odorata, and
Parthenium hysterophorus.

Human-wildlife conflict is common in the area and the absence of any compensation schemes or
insurance for crops destroyed by wild animals is cause for great hostility. Crop damage is often
carried by animals like the wild buffalo, elephants, deer, wild boar and porcupine.

Disturbance and habitat loss due to the collection of biological resources including grass, wood,
timber and non-timber forest produce has a great impact on the breeding of fauna within the
Reserve. Collection of these resources is often associated with the destruction of prime grassland
habitat and forest fires.

Uncontrolled drainage of small wetland areas for irrigation and fishing leads to the loss and
destruction of habitat in and around the Ramsar Site.
Ghadaghodi Lake Complex

Description of the Site

The area remains outside of the Protected Area system. A part of the whole complex has been nominated by GON to the Ramsar Bureau for listing as a site of international importance under the Wetlands Convention. The basis for the nomination was that the area includes examples of a specific type of wetlands that are rare and vulnerable in the western Terai bio-geographical region; supports an appreciable assemblage of rare, vulnerable, or endangered species; and, regularly supports 1 percent of the Asian population of the Asian Pygmy-goose (Nettapus coromandelianus). The Ramsar nominated area, in the context of the whole Complex is shown in Annex 3 (Maps).

Environmental Context

The Ghadaghodi Lake Complex (80°56'43"E, 28°41'03"N) site comprises 14 natural, permanent or seasonal lakes ranging from 2 to 138ha (total area 259 ha) and at an altitude of 205masl. The Complex, irregular and elongated in shape, some 5.9km north south by 1.5km east west, lies within Kailali District in Nepal’s far western Terai. The site is remote—although it lies close to the East-West Highway, it is some 60km by road from the district headquarters of Dhangadi to the southwest. It was connected with the rest of the country by road only in 1993, when the bridge over the Kamali River was completed. Since then it has undergone much socio-economic change.

Ghadaghodi Lake, spread across 138ha, is the largest natural lake in the Nepali Terai. The lake system is connected with extensive forests along the Siwalik (Churia) Hills to the north and falls between two of the Terai’s Protected Areas—the Royal Bardia National park and the Royal Suklaphanta Wildlife Reserve—and functions as an important corridor for the movement of wildlife. The Complex is characterised by various types of wetlands. Marshy areas on the fringes of the lakes are subject to periodic inundation. Only Ghadaghodi Lake and Narcondi Lake are perennial; the others are seasonal, and turn marshy for varying periods during the dry season.

The Ghadaghodi Lake Complex is an intricate ecological system with a variety of physical, hydrological and vegetative characteristics. It comprises a series of inter-related, but not surface-connected, lakes surrounded by deciduous forest largely of Sal (Shorea robusta), Assa or Saj (Terminalia alata) and mixed riverine forests in which Jamin (Syzygium cumini) and Pun Bet or ratten (Calamus kunthi) are dominant. The wetlands are a complex of open water, areas of floating vegetation, swamps, marshes, and wet grasslands. Rivers and streams are present throughout the area. The hydrology of the system depends on the Betini Churia watershed. Seasonal freshwater marshes are entirely associated with inundation by the monsoon rains. These marshes convert gradually into grassland due to lack of permanent water.

Lake waters are generally eutrophic with N:P ratios and overall levels of nitrogen comparable with most Terai lakes. However, Narcondi Lake (the second largest in the Complex) has a high concentration of phosphorous, probably due to agricultural inputs from adjoining fields, while Ghadaghodi Lake itself is phosphorous deficient. The abundance of aquatic macrophytes serves as food and breeding sites for numerous fish and waterbirds. The lake ecosystem and its adjoining river system provide important habitats for the globally-threatened Marsh Crocodile (Crocodylus palustris) and Smooth-coated Otter (Lutra perspicillata) as well as various turtles.

The main habitats within the Ghadaghodi complex include:

- Permanent and seasonal lakes: Groundwater, springs, and seasonal monsoon rains maintain the permanent freshwater lakes. Ghadaghodi Lake, Narcondi Lake, Bainsbawa, and Ojhuwa are permanent while the remainder are seasonal and for varying periods. There are areas of open water.

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but aquatic plants abound. Submerged species are dominated by Hydrilla (Hydrilla verticillata), Starworts (Chara spp.) Hornwort (Ceratophyllum demersum) and pondweeds (Potamogeton spp.). There are large areas covered by free-floating species such as Azolla imbricata, duckweeds (Lemma minor and Wolffia globosa), and by anchored leaf-floating species dominated by water lilies (Nymphea nouchali, Nymphaeodes hydrophyllum and N. indica), Water Primrose (Ludwigia adscendens), pondweeds (particularly Potamogeton natans), and Lotus (Nelumbo nucifera). These lakes are important for the globally threatened Marsh Crocodile (Crocodylus palustris) and Smooth-coated Otter (Lutra perspicillata), and support almost 1 percent of the world population of Cotton Pygmy-goose (Nettapus coromandelianus), as well as numerous rare waterbirds including Ferruginous Duck (Aythya nyroca), Grey-headed Fishing Eagle (Ichthyophaga icthyaeus), Oriental Darter (Anhinga melanogaster), and Comb Duck (Sarkidiornis melanotus).

Permanent and seasonal freshwater marshes: Permanent marshes are found around the fringes of the four permanent lakes and along the edges of the rivers (Tengwa, Kauwa, Kandra, Donda, and Sukritkanda), while elsewhere are seasonal marshes fed by the monsoon rains. These marshes are dominated by emergent species—those around the lakes are dominated by Limnophila indica, Monochoria vaginalis, Cyperus esculentus, Polygonum hydropiper and P. glabrum; elsewhere by Puspdalidium flavidum, Reed (Phragmites karka), Reed-mace (Typha angustifolia), sedges (Cyperus difformis, C. diffinis, C. iria), Buttercup (Ranunculus sceleratus), Schoenoplectus articulatus and S. puniceus, and Acorn calamus to name but a few. Over 70 species of emergent species have been identified here. The swamps and marshes are important for many waterbirds including the Lesser Adjutant Stork (Leptoptilos javanicus), Red-naped Black Ibis (Pseudibis papillosa), Black Stork (Ciconia nigra), and Woolly-necked Stork (Ciconia episcopus).

 Permanent and seasonal rivers and streams: There are four perennial rivers originating from the Siwalik foothills and Mahabharat Hills—the Donda and Sukti Kada flow along the eastern side of the Ghodagodi Lake complex basin, the Kandra and Tengwa along its western side. These rivers are characterized by flat terrain, wide floodplains, and sandy substrates, some marshy grasslands, mixed riverine forests and some Sal forest. They are swollen during the monsoon and some turn partially dry for some parts of the year. These rivers are important habitats for nationally-threatened fish species such as Tor tor, T. putitora, and Acrossochelus hexagonolepis, as well as a variety of rare waterbirds.

Grassland: Adjacent wet grassland forms a rich habitat comprising sedges (Cyperus distans, C. esculentus, C. imbricatus), Reed (Phragmites karka), and grasses Alpina nigra, Chrysopogon cocculusatus, Cygdom dactylon, Imperata cylindrica, and herbs such as Desmodium triflorum, Dichanthium annulatum, Digitaria sp., Centella asiatica. Livestock grazing is heaviest in the southern and eastern parts of Ghodagodi Lake and the eastern part of Narocchi Lake because of their proximity to villages and the abundance of I. cylindrica: in the less disturbed areas, C. dactylon and C. asiatica are dominant.

Permanent freshwater swamp forest: is dominated by the Willow (Salix tetrasperma) and Jamun (Syzygium cumini and S. jambos) these occur in particular around Narocchi Lake and other lakeshores. Lowered water levels in the lake have initiated ecological succession and changed lake habitat into swampy lands with Ipomea fistulosa and caused some of the smaller lakes, e.g. Gaichkutwa and Chiriyam, to become swamp forest.

This habitat forms one of the most important breeding sites for the globally near-threatened Grey headed Fishing Eagle (Ichthyophaga ichthyaeus) and the nationally-threatened Comb Duck (Sarkidiornis melanotus).

Terrestrial Forest: Sal Forest, in which Sal (Shorea robusta) and Asna or Saj (Terminalia alata) are dominant, is present around the north and west of the Ghodagodi and Narocchi Lakes. Other major tree species include Anula (Phyllanthus emblica), Kyamin (Cherstecalyx opertculata), Be (Jugle
marmelos), Kusum (Schleichera oleosa), and Kannu (Adina cordifolia). The forest is thick with lianas and undergrowth, and the secondary layer is formed by a variety of trees including Bhaayyo (Senecarpus anacardium), Bhogate (Musaica macrophylla), and Sindure (Malus philippensis). The forests on the northern shores are drier and more open with a rich growth of Dhaneyro (Woodfordia fruticosa). Amana or Sal Forest is dominant along the lakes' eastern shores with Sindure being the second dominant species and other main species as in Sal forest. The forest is again thick with lianas and dense undergrowth. Trees of Eugenia kirsie are common along the lakeshores and in depressions while the secondary layer is composed of a number of trees including Bayer (Azizulus mauritiana), Bhogate, Dhaneyro, Pyar (Buchanania latifolia) and Kalikath (Aponoget octandra). Jarnun (Saccus cauxi) is found along the lakeshores in both forest types. Riverine Forest is relatively open, dominated by Kair (Acacia catechu) and Simal (Bambus ceiba) with a secondary layer of Bhogate, Kalikath, and Murraya (Murraya koenigii). Sissoo (Dalbergia sissoo), a common and important component of Terai riverine forests, is rare here. The rare spiny shrubs of Gardenia turgida and G. campylophyta, which have highly restricted distributions within Nepal, are present here.

- **Seasonally flooded rice fields:** Seasonally flooded rice fields are a wetland type in the classification of global freshwater wetlands (Dugan 1999). Rice is cultivated in an estimated 3,560 ha in the Project area. These rice fields are inundated during the monsoon and converted into wetland sites of importance for waterbirds and amphibians.

- **Irrigation canals:** There are seven irrigation projects within the Project area with a total area of over 1,300 ha. The numerous irrigation canals form an artificial habitat of flowing water suitable for waterbirds (e.g. egrets, herons, storks) and amphibians.

**Socio-economic Context**

The Ghodaghodi Lake Complex is located in the far western development region of Nepal and the Project area includes two Village Development Committees (VDC) fully and a part of a third VDC located in one District - Kailali. The total population of the Project district is estimated to be 616,697, settled in 94,430 households (2001 Census). The district supports 28.1 percent of the total population of the far western region and 27 percent of the national population. Population density of the area is 191 persons/km², which is slightly higher than the national (157 persons/km²) and regional average (112 persons/km²), but lower than the average for the Terai as a whole (330 persons/km²). The population growth rate of Kailali district during the 1991-2001 census is estimated at 4.8 percent per annum, over twice that of the national average of 2.24 percent and much higher than the Terai average of 3.0 percent. Average family size is 6.53, also above the national (5.44) and regional averages (5.96).

Agriculture is the main occupation for about 80 percent of the economically active population; of the rest, 15 percent are engaged in production labour, 1.2 percent professional/technical workers, 1 percent in services and 2.8 in other occupations. Almost 55 percent of farmers own less than 1 ha of land but the Project area produces a food surplus. The total livestock population of the district is estimated at 751,209 with the average holding being 7.96 animals/household. More than 60 percent of the area is covered by forest and roughly 56 forest related industries are active in the district, including one large company - the Resin and Turpentine Industry. These industries provide employment for about 2,830 persons.

About 50 percent of the population of the Project district belong to wetland-dependent ethnic groups, Tharu being the dominant group (49.52 percent). Other major groups include those of hill origin such as Brahmin, Chhetri, Magar and other occupational castes.
Kailali District ranks 32nd (1 = least developed, 75 = most developed) and is classified as "intermediate" from the perspective of its overall composite index of development. The HDI and GDI of the district are 0.299 and 0.244 respectively, both below the national averages of 0.325 and 0.267 respectively. Low agricultural development, low institutional capacity, gender discrimination, an unmanaged educational system, inadequate health facilities, lack of basic infrastructure, encroachment and, ultimately, increasing poverty, are recognized as the major constraints for the development of Kailali district.

The Project site itself, which includes five VDCs (Kota Tulisipur, Khairad, Basniya, Joshipur and Darakh) and supports 74,500 people from 1100 families, with an average family size of 7.2 persons/household (2001 Census). The population growth rate in the VDCs in the Project area is even higher than the district growth rates and ranges from 6.74–8.07 per annum. The majority of the population within the Project site belong to the Tharu community who are recognized as a Terai indigenous community and wetland-dependent ethnic group. The people of hill-origin, mostly Chhetri, Brahmin, Magar and other occupational castes, form the second largest ethnic group (47.0 percent). Other Terai-origin groups make up the remaining 1.7 percent of the population. Emigration from the Project area is estimated to be minimal, while immigration into the area is very high. People from the northern hilly districts of Darchula, Baitadi and Doti make up the bulk of immigrants. Information on annual immigration is unavailable, but the District Forest Office (DFO 2002) records that 20,000 ha of forest land within Kailali District has been encroached upon by migrants since 1978. Similarly, in the catchment area of Ghodaghodi Lake, more than 400 ha of forest have been converted into agricultural land since 1978, due to the increasing number of migrants from the hills (IUCN 1998). The latest DFO study (DFO 2002) notes that about 90 households have settled within the Ghodaghodi area and encroached about 13 ha of land.

Land ownership is small—an estimated 64 percent of households own less than 1 ha of land. Rice is the main crop grown in the monsoon (summer), but in some places early rice is also grown. Wheat, oilseeds and pulses are grown in winter and maize is grown in summer. Crop yields vary by location and cultivation practices.

Livestock is an integral part of agriculture or crop cultivation and counts as an important asset for farm households. Some households rear livestock to supplement their crop production activities, while some others rear them as their main subsistence activity. Cattle and buffaloes are valued highly for their secondary products and services (e.g. ploughing and manure), whereas goats, sheep and pigs are kept mainly for meat and cash income. Most of the livestock reared in the Project site are local breeds. Free grazing is the most common feeding practice and stall-feeding is limited to some milk cows and buffaloes.

Despite rich biodiversity, Ghodaghodi Lake has not yet become a major tourist destination. However, many Indian and Nepali pilgrims visit the area and celebrate various Hindu rituals such as marriage, weaving of the holy thread, Puja (worship), etc. in the temples along the shore of lakes.

Almost 88 percent of the economically active population in the Project area is involved in agricultural, forestry and fishing activities. Due to low agricultural production and the lack of alternatives, many people seek work in India as seasonal labourers, while some work in the district municipal headquarters and urban centres. However, the indigenous Tharu are mostly involved in fishing and agriculture. Those households that cannot produce enough food for annual subsistence are involved in wage earning (mostly agricultural or forestry), sharecropping, fishing, and collection and sale of NTFPs. The people of wetland-dependent communities are struggling for basic survival. Women in the Project area are mainly involved in domestic work and agricultural activities, but are also engaged in collecting fuel wood, fodder and other forest resources. Tharu women, who are shy and avoid outsiders, are involved in collecting snails, fish and other wetland resources. The illiteracy rate of women is high.
Main threats to the wetland biodiversity in the Ghodaghodi Lake Complex

A brief description of the threats to the biodiversity of the Ghodaghodi Lake Complex is presented below and an analysis of the root causes and proposed remediation measures is presented in Table 3.

- **High Degree of human disturbance:** highway traffic, construction of unplanned new temples, picnicking and increasing human activities around Ghodaghodi areas have disturbed the habitats of birds and other wildlife.

- **High Grazing Pressure:** Over 12,000 cattle from the villages adjoining the Ghodaghodi Lake Complex graze daily in all seasons either in the forests or on the fringes of the lakes. Grazing pressure is higher in the eastern part of Narerodi Lake and the north and southeastern parts of Ghodaghodi Lake. The heavy grazing has led to the loss of native vegetation and the proliferation of the unpalatable Imperata cylindrica. Rearing of improved varieties of livestock and stall-feeding practices are very limited. Over grazing and browsing of palatable species has damaged the regeneration capacity of vegetation.

- **Poaching, hunting and illegal forest produce extraction:** Hunting is a common pastime of a certain section of the community in the region. Wildfowl, wild bear and deer species are commonly hunted. Wildfowl and bird trapping and egg collection has also been reported in the area. Illegal tree felling and smuggling of Sal (Shorea robusta) and Khair (Acacia catechu) timber is prevalent.

- **Encroachment:** Human encroachment along the lakes’ shores and adjoining forests has been increased by continue unflow of migrants from the hill districts (Dadeldhura, Baitadi and Doli) since 1978. The open access conditions of the government-managed forests and wetlands make it easier for encroachers to convert these lands into agricultural lands. Due to increasing number of migrants over 400 hectares of forestland along Ghodaghodi Lake Complex has been converted into cropland. The encroachment problem is severe in the lake shore part of Narerodi Lake, the eastern part of Sompokhari and Buxi Narerodi, and the southeastern and northwestern part of Ghodaghodi Lake.

- **Eutrophication:** Natural eutrophication through the death and decay of biological products is higher in Ghodaghodi. However, increasing human activities such as bathing, washing, disposals from religio-cultural practices, and buffalo wallowing and grazing around the area, have accelerated the process of eutrophication. The accumulation of humus and organic matter in the lakes has promoted the excessive growth of several species of emergent and aquatic plants. The aquatic herbaceous vegetation of the northern part of Narerodi Lake is gradually being replaced by woody Salix species. The excessive growth of aquatic macrophytes such as Ceratophyllum demersum, Nymphaea nymphaea, Naja minor, Hydrilla verticillata on the water surface of Ghodaghodi Lake has made it difficult to observe the bottom of the lake.

A number of marshy floating islands dominated with Reed (Phragmites karka), sedge (Cyperus spp., Schoenoplectus sp.) and fern (Thelypteris interrupta) are observed to be profusely growing in the Ghodaghodi Lake. Besides, many marshes and shallow lakes are being converted into grasslands due to a rapid succession rate.

- **Siltation:** Rapid deforestation, over-grazing, and other human disturbances have increased soil erosion and siltation in the rivers, canals and lake system and have gradually led to the subsidence of lake’s bottom.

- **Dependency on forest and wetland resources:** There is a high dependence on forest and wetland resources since roughly 85 percent of the population is engaged in agriculture and fishing. Fish, snails, lotus leaves and rhizome, leaves of trees, wild fruits, green vegetables, grass, the local community extracts fodder, firewood and timber for use.
Reduced inflows into the lakes: Due to degradation and silting up of the existing but inadequate canal system there is a decrease in water flows into the lakes leading to stagnation and succession. The northern Beth Siwaliks Watershed, where a number of water springs ooze out from the ground, is the major source of water for the Lake Complex. But due to rapid deforestation and encroachment in the area the water sources are gradually drying up.

Lack of waste disposal schemes and pollution: The rites and rituals performed at the shrines in the area, the frequent visits of religious pilgrims and the observance of seasonal festivals contribute to polluting the lake area. Pollution by waste generated during the observance of religio-cultural practices in Ghodaghodi Lake is highest during Magha Panchami, a special occasion for worshipping the Ghodaghodi deity during which the indigenous Tharu community celebrates by sacrificing pigs, goats, chickens, and pigeons. In addition, washing, bathing and buffalo wallowing also pollutes the lake waters.

Invasive species: Ipomoea carnea ssp. Fistulosa is the major invasive alien species in the area. The species is rapidly colonizing marshes/swamps, canals and ditches. Water Hyacinth (Eichhornia crassipes) has been introduced in small lakes and marshes.

Exotic fish farming: Over 100 lakes and ponds in Kalali district are used extensively for farming exotic carp species (Common Carp, Grass Carp, Silver Carp). This is also true of all the smaller lakes in the Complex with only the larger Ghodaghodi and Narerodi being exempt from these practices.

Drainage of water for irrigation and dredging: The main interest of landowners downstream of the Lake Complex is to secure water for irrigation. About 500ha of rice fields are currently irrigated by water from the Ghodaghodi Lake.
Conservation and Sustainable Use of Wetlands in Nepal
Location of Project Demonstration Sites

Legends
- Demonstration Sites
- Protected Area
- International Boundary
Village Development Committees (VDC) Under UNDP-GEF Landscape Level
Biodiversity Conservation in Nepal's Western Terai Complex Project (LLBC NWTC)
and UNDP-GEF Conservation and Sustainable Use of Wetlands in Nepal Project (DSUWN)
in Kailali District

[Map showing areas of priority for VDCs under the LLBC NWTC and DSUWN projects in Kailali District.]
Data Unavailable from the Government Due to Security Concerns for Barrage in the Area
Annex 4: Nepal's National Legal, Policy and Institutional Framework Relevant To Wetland Conservation

1. This annex presents the key policy and legal bases for wetland resources conservation and sustainable use in Nepal. Nepal has an institutional and policy base, and policy and legal framework that support biodiversity conservation. A more comprehensive list of Acts can be found in Table 1.

2. A number of other legal acts have a direct bearing on wetland biodiversity conservation but many of their directives conflict and gaps persist. Numerous Government departments and agencies are involved in wetland conservation with overlapping responsibilities for planning, coordinating, implementing, and monitoring environmental policies and legislation. Furthermore, their mandates for different aspects of environmental management continue to change as ministries are created or abolished, and the limits of institutional responsibility are not always clear.

The most important legal, policy and institutional framework are discussed below:

3. The commitment to environmental conservation is enshrined in the Constitution of the Kingdom of Nepal - 2047 BS (1991) under Chapter 4, which states that, “The Kingdom of Nepal will give priority to raising public awareness on environmental issues, to mitigating the adverse effects development works have on the environment, and to the conservation of rare fauna and flora.” The Constitution also makes provision for the formation of a committee on Natural Resources and Environmental Conservation by the House of Representatives (Chapter 8).

International Conventions

4. Section 9 of the Treaty Act (1990) ensures that domestic laws do not contravene the provisions of international treaties or conventions that have been ratified, acceded, accepted or approved by the Parliament of Nepal.

5. Nepal ratified of the Convention on Biological Diversity (CBD) in 1994. The Environment Division of the Ministry of Forests and Soil Conservation (MFSC) is the focal unit to facilitate implementation of the country's obligations as a Contracting Party to the CBD, under the guidance of the National Biodiversity Steering Committee. It acts as a national focal point for guiding CBD implementation and monitoring.

6. Nepal became signatory to the Convention on Wetlands of International Importance Especially as Waterfowl Habitat (Ramsar) in 1988. The Department of National Parks and Wildlife Conservation (DNPWC) of the MFSC is the focal institution for this convention. The Koshi Tappu Wildlife Reserve (proposed demonstration site of this project) in the first Ramsar site of Nepal and three other wetland sites—Ghodaghodi Lake area (proposed demonstration site of this project), Bish Hazari Lake, and Jagdishpur Reservoir have been recently nominated. These recent nominations all fall outside protected areas, and the legal basis for their conservation and management arrangements have not been clarified. Although the DNPWC is the focal point for Ramsar and is responsible for Koshi Tappu Wildlife Reserve, at the newer Ramsar sites of Jagdishpur Reservoir and Ghodaghodi Lake, the Department of Irrigation and the Department of Forests respectively are responsible.

7. Nepal became a contracting party to the Convention on International Trade in Endangered Species of Wild Fauna and Flora, 1973 (CITES). The goal of the treaty is to control, reduce or eliminate international trade in those species whose numbers or conditions suggest further removal of individuals from their natural habitat would be detrimental to the survival of the species, including wetland species. Although the National Parks and Wildlife Conservation Act, 1973 and National Parks and Wildlife Conservation Rules, 1974 are the principal legal devices for
implementing the CITES in Nepal. The Forest Act of 1993 also bears a similar responsibility. District Forest Officers have to resort to the Forest Act to implement CITES beyond the protected areas.

National Policies and Strategies

8. A National Conservation Strategy (NCS) (1988) emphasizes the basic requirements of the people, as well as the need to safeguard natural and aesthetic values, and maintain the country’s cultural heritage. It also resolved that a separate body, the National Council for the Conservation of Natural and Cultural Resources, was to replace the National Commission for the Conservation of Natural Resources to be responsible for implementing the NCS and formulating guidelines concerning resource conservation matters. This Council has since been formed and represents the most important step so far in establishing an institutional framework for cooperative environmental management and protection in the country.

9. The Nepal Biodiversity Strategy (NBS), 2002 lays down Nepal’s strategy for biodiversity conservation and has clearly identified the need for conservation and sustainable-use of wetlands and specifically the need for the following key actions:
   • Formulation of comprehensive national wetland policy and wetland legislation,
   • Review of institutional arrangements to ensure clarity in tenure, wise-use, and conservation,
   • Research on wetland resources to provide scientific data and information,
   • Identification of critical wetland habitats and their protection, and directory and database on wetlands
   • Promotion of collaborative management of wetland resources,
   • Implementation of demonstration projects to apply and promote wise use of wetlands and their resources, and
   • Promotion of awareness and capacity programmes on the importance, use, function and management of wetlands and their resources.

10. In order to meet its obligations under Article 3 of the Ramsar Convention to develop a national wetland policy, and under Recommendation 6.3 of the Conference of the Parties 1996, to manage wetlands in participation with local people and communities, the National Wetland Policy (2001) has been recently formulated.

11. The policy addresses the need for a coordinated approach to wetland management and includes the following objectives:
   • to conserve, manage and promote wise use of national wetlands particularly through the collaboration of communities;
   • to recognize the importance of the knowledge, innovations, and practices of indigenous people and local communities in relation to wetlands, and to promote the wider use of such for conservation and sustainable-use of wetlands;
   • to manage wetlands in an ecologically sustainable way;
   • to achieve community participation in the management and decision-making process of wetlands;
   • to raise public awareness, especially of women, about the conservation values and benefits, and wise-use of wetlands; and
   • to ensure a sound scientific and technological basis for conservation, management, and wise-use.

12. Concomitant with the above initiatives, another strategy has been outlined by the Government—the Water Resources Strategy (2002) aimed at setting guidelines for the sustainable use of water while providing for hazard mitigation, environmental protection, economic growth and
constructive methods of resolving water use conflicts. Section 6.3 focuses on the management of watersheds and aquatic ecosystems and is a landmark for Nepal in that it is the first legal or policy document related to water resources that acknowledges environmental conservation and ecosystem maintenance as a priority during water resource planning. The strategy emphasizes the need to strengthen institutional capacity for this purpose and includes the following activities:

• Enhance institutional capacity and coordination
• Improve environmental database system
• Map important, critical, and priority watersheds and aquatic ecosystems
• Implement watershed and aquatic ecosystem protection, rehabilitation and management programmes
• Develop and implement Strategic Environmental Assessment in water resources management
• Implement a water conservation education programme
• Develop water and wastewater quality standards and regulations
• Promote community participation

13. The Agricultural Perspective Plan (1995) provides the priorities for agricultural development in the country and also highlights the need for sound environmental management for agricultural productivity. It also includes aquaculture as a key area of work. The Ministry of Agriculture and Cooperatives is the local Ministry.

Conservation and sustainable use of Wetlands and important wetland species

14. The foundation for the legal framework for biodiversity conservation was laid in the early 1970s when GON created an Office for the Management of National Parks and Wildlife in 1972, which subsequently became the Department of National Parks and Wildlife Conservation (DNPWC) under the Ministry of Forests and Soil Conservation (MFSC) in 1980. The National Parks and Wildlife Conservation Act (1973) laid the outline for the conservation of wildlife in the country and lists protected species in an annex. This list has only been amended four times since (1974, 1982, 1989 and 1991), with inadequate inclusion of globally threatened species. The DNPWC presently works with a network of eight National Parks, four Wildlife Reserves, three Conservation Areas, one Hunting Reserve which, including five buffer zones around national parks, cover a total of 26,696km² or 18.14 percent of the country’s total land area and 67.89 percent of ecosystems of the country. The Ministry of Forests and Soil Conservation (MFSC) approved the Buffer Zone Management Guidelines in 1999. The Guidelines have been implemented in the five Buffer Zones already declared by GONepal. Detailed guidelines have been provided for the implementation of provisions related to the Buffer Zones of the National Parks and Wildlife Conservation Act as well as the Buffer Zone Management Regulation at the field level. Moreover, it facilitates the work of government staff and User Committees in Buffer Zone Programmes. In addition, regulation for government-managed conservation areas has been passed to enhance community participation in conservation and local development.

15. Though there is no statutory definition of wetland in Nepal, the Aquatic Fauna Conservation Act (1961)'s subsequent amendment includes the term “wetland” under its definition of water as:

“Water includes lakes, marshes, streams, rivers, rivulets, tanks, canals, channels, ponds, reservoirs, artificial reservoirs, wetlands, eases used for fish farming and fish farming water in paddy fields and their sources.”

16. The Act defines "aquatic life" as "any living creature in the water," thus is unclear about inclusion of amphibians and waterfowl under its scope. Act prohibits the use of electric current, explosives or poison or to harvest aquatic fauna. However, section 5(a) has permitted the use poison under special circumstances. The Act also prescribes that as far as possible dam construction should

5 The Original Act had defined "Water" as "lakes, ponds, streams, rivers, rivulets, banks, canals, channels, reservoirs, and their sources."
include fish ladders to facilitate their movement or alternatives to ensure their existence upstream of the dams. However, neither it has defined wetlands nor it has incorporated any mechanism on management of wetlands and institutionalisation of wise use system. The Ministry of Agriculture and Cooperatives is the main agency for this Act but the Chief District Officer (Under Home Ministry) is designated as the implementing authority of this Act.

17. The implementation of the Master Plan for the Forestry Sector (MPFS) (1988) is done under the Forest Act (1993). Under the Act, forest resources in the country, including the possible management of wetlands contained within can be managed as national, community, leasehold, private or religious forests. More than 845,193ha of forests have been handed over to about 10,966 Forest Users’ Groups (FUGs) under community forestry, mainly in the hills. The Department of Forest (DoF) under MFSC is the main agency for forest management in Nepal. The Community Forestry Division under the DoF is the main agency for the promotion of community forestry programme in Nepal.

18. The Soil and Watershed Conservation Act (1982) and the Soil and Watershed Conservation Rules (1986) empowers the Ministry of Forests and Soil Conservation to declare any area as a protected watershed area. Under the Act, any construction of dams, drainage, ditches and canals, harvesting of privately owned trees, excavation of sand, boulders and soil, discharge of solid waste, and establishment of industry or residence within any protected watershed areas requires permission. Though this Act has no specific provision on wetlands, it has a possible value for protecting important wetland sites. The Department of Soil Conservation and Watershed Management (DSCWM)

19. The Water Resources Act (1992) stipulates that the ownership of water resources within Nepal to be vested in the Kingdom of Nepal. Any kind of use of water resources requires license from District Water Resources Committee, or the Ministry of Water Resources, except for domestic, local irrigation and small scale water based industries such as water mills. The Act does not list biodiversity or environmental uses of water resources. It has prioritised the use of water (from highest priority to the lowest) as: drinking water and domestic uses, irrigation, agricultural uses such as animal husbandry and fisheries, hydroelectricity, cottage industry, industrial enterprises and mining uses, Navigation, Recreational uses, and other uses. The Ministry of Water Resources exercises jurisdiction and authority over the water resources of Nepal under this Act. Under this Act, GoN is authorized to prescribe the necessary water quality standards and to prescribe pollution tolerance limits, which has not yet been done. Water pollution has been prohibited by this Act, but lack of standards in determining the limit has made this provision ineffective.

20. The Electricity Act (1992) forbids any activities with adverse impacts environment, such as activities that cause soil erosion, flooding, landslides, and air pollution, while generating, transmitting or distributing electricity thus is very important for ensuring environmental friendly hydropower projects.

21. Under the Environment Protection Act (1997), any area of Nepal can be gazetted as “Environment Protection Area” to protect areas containing special natural heritage, rare wildlife, biological diversity, plant, or places of historical and cultural importance. However, no such protected areas are designated under this Act so far and the Act provides no clear provisions on the system of operation and management of such protected areas. The Environment Protection Rules (1997) requires an environmental impact assessment (EIA) study of any river engineering projects for electricity generation of more than 5 mega watts, construct multipurpose reservoirs, and inter-basin water transfer and use of water. The Ministry of Population and Environment of the local ministry for this Act.

22. The Land Act (1964) has set a ceiling on private land ownership, and guarantees the right of tenant farmers. Private wetlands (such as paddy fields) would fall under the provisions of this Act. This Act has also envisioned a national Land Use Council under the Chairmanship of the Vice
Chairman of the National Planning Commission to determine national land use policy. The Ministry of Land Reforms and Management is the local Ministry for this Act.

23. The Local Self-Governance Act (LSGA) (1999) has authorised the locally elected district development committees (DDCs), village development committees (VDCs), Municipalities and Metropolitan authorities to carry out developmental activities, conservation of cultural heritage and natural resources, and the environment. The authority and jurisdiction given to the local governments under this Act (e.g. on water resources) conflicts with other Acts (such as Water Resources Act, Aquatic Fauna Conservation Act, Soil and Watershed Conservation Act, Forests Act). The Ministry of Local Development is the local ministry for this Act.

Some issues and proposed Project Focus

24. The overall Project strategic focus will be on strengthening the implementation of existing enabling environment (laws, policies and regulations), since in general the frame exists, but it is not being implemented. In order to strengthen regulatory frameworks for wetland conservation, the project will take two approaches: it will undertake to reform or clarify some key wetland influencing frameworks and will improve understanding to influence other policy reforms. The three key issues the project will work directly on will include the implementation of the National Wetland Policy (2003), strengthening the scope and implementation of the Aquatic Life Conservation Act, and strengthening the National Parks and Wildlife Act and Buffer zone guidelines.

25. Government agencies working on wetlands still work largely independently of each other, e.g. the concurrent preparation of the Water Resources Strategy (2002) and the National Wetland Policy (2003) with neither acknowledging the other, indicates little collaborative planning and programme implementation. The field-based counterparts of central agencies also work largely independently of each other and of local authorities. As a result, conservation and sustainable use objectives are not understood and incorporated into local plans fully as ideally they should be. The establishment of a permanent, self-governing, multi-agency organization, with representatives from government agencies, district and village authorities, academia, NGOs, industry, and other interested parties, that co-ordinates and promotes the conservation and recovery of wetlands in Nepal, could serve as a platform upon which inter-sectoral co-ordination and planning for wetland biodiversity conservation is strengthened.

26. Though certain protection is afforded to aquatic fauna through the Aquatic Life Conservation Act (1961), this does not cover migratory water birds. Penalties for the poaching or destruction of aquatic fauna are minimal and have ceased to be a deterrent. The protection afforded to fauna under the National Parks and Wildlife Conservation Act (1973) is inadequate. Of the total 12,651 known faunal species in Nepal only 39 species receive complete protection under its Appendix I and this list does not even cover all globally Critically Endangered and Endangered species. The Bill on the Fifth Amendment to the National Parks and Wildlife Conservation Act 1973 has been prepared and forwarded for the approval of the Cabinet. Among other things, the new amendment includes provision for farming of common wildlife species, invocation of research studies, detailed specification of the provisions of Buffer Zone, and specifications relating to the exchange of wildlife species with other countries. A number of Bills related to conservation of biodiversity such as Access to Genetic Resources and Benefit Sharing, Implementation of the CITES, and Plant Resources Conservation Bill have been finalised and forwarded for the approval of the Cabinet. A CITES unit has been established within the DNPWC to carry out various activities related to the effective implementation of CITES. The proposed UNDP-GEF intervention will support activities so that the Aquatic Life Conservation Act and the National Parks and Wildlife Conservation Act give adequate protection to globally and nationally threatened species. It will help clarify the responsibility for implementing the Aquatic Life Conservation Act (currently the Chief District Officer is to ensure this Act is enforced at the local level, and is ineffective). Special focus of the project will be to clarify the legal status of new Ramsar Sites outside
protected areas (such as the Ghodaghodi Complex) to ensure that adequate protection is given to these sites from inappropriate development interventions. The Project will also help refine Buffer Zone guidelines so that wetland buffer zones follow appropriate hydrological boundaries so that it promotes associated watershed management practices.

27. Efforts on the legislative and policy fronts to decentralize decision-making over land and natural resource management have formed part of a broader systemic shift towards decentralisation of authority to district levels under the Local Self Governance Act of 1999, but this is currently in conflict of other government Acts such as the Forest Act and even Water Resources Act. This UNDP-GEF Project will help clarify roles and responsibilities of the District and Village Development Committees at the four project districts for wetland management, where the two Project demonstration sites are located. Lessons from this experience are expected to influence national policy harmonisation between LSGA and other Acts (especially because of the Government commitment to reform other legislation in line with LSGA). Though the Nepal Biodiversity Strategy (2002), the Forest Policy (2000) and the 10th Five Year Plan emphasise landscape-scale conservation efforts, no specific regulatory regime exists for biological corridors or habitat networks. The Project will work very closely with the UNDP-GEF Project “Nepal Biodiversity Landscape Project” to ensure that regulatory regimes on landscape-level conservation also give focus on wetlands such as rivers that cut across both productive and protected areas, and are integral for the maintenance of both aquatic flora and fauna and are particularly important for migratory species.

28. Despite the existence of the Pesticide Act (1991) and Pesticide Regulations (1993), the use and resulting spread of pesticides particularly in the aquatic environment is neither regulated nor monitored. Many persistent organic pesticides used regularly in Nepal include those listed in Annex A of the Stockholm Convention and also in the UNEP list of internationally recognised chemicals whose production and use should be banned in the world. The problem is exacerbated by the fact that the Act does not cover the disposal of date-expired pesticides. There is also a lack of effective legislation on utilisation of groundwater resources in the country. Reforms in the Pesticide Act and Regulations, though highly desirable, will be outside the scope of this project. The Project will, however, help improve understanding on the impacts of inappropriate pesticide usage on public health and wetland ecosystems. A draft Ground Water Legislation is being prepared which will govern use of groundwater for drinking water, irrigation, industrial, commercial, and other uses and will empower the private sector and local communities to manage irrigation and drinking water supplies. Water rights and wetland rights have not yet been dealt with adequately in existing legislation, and without adequate guidelines traditional rights could come into conflict with both development and conservation objectives. Revisions and additions to existing legislation are required to deal with this issue also ensuring that traditional water and wetland management systems are acknowledged and maintained. Such revision will be facilitated through Technical Advisory Committees of the National Wetland Committee and advice will also be sought from international lawyers on this issue.

29. The land review, squatter resettlement, and land compensation mechanisms in use are ineffective in curbing the spread of illegal settlements at wetland sites. Some of these settlements have been able to secure regularisation partly due to support from local elites who capitalise on illegal settlements as part of their vote bank in exchange for favours to entrench them. This has contributed to perverse incentives for further encroachment. Where formal reviews of illegal settlements have taken place, the criteria for land compensation have not targeted effectively nor secured the needs of the genuine landless and this has contributed to the emergence of professional land squatters and professions who profit from organised encroachment. A major part of the Project work at the demonstration site, particularly in Ghodaghodi Lake Complex, will

4 including DDT, BHC, Aldrin, Dieldrin, Endrin, Chlordane, Aldicarb, Endosulfan, Lindane, and Hectachlor.
be to clarify the land rights and to undertake activities that discourage encroachment through improved delineation of communal and private properties, community rules enforcement, and incentives. Details of this will be worked out during project implementation in consultations with local communities, leaders, District and Village Development Committees.

30. Environmental impact assessment of new development initiatives is carried out in accordance with existing rules and procedures, but without complete transparency on the findings of the reports and the involvement of all stakeholder groups, the effectiveness of the exercise remains questionable. Implementation of recommendations and long-term monitoring of most projects' impacts leave much to be desired. Recognition of the impact of watershed development on wetland ecosystems is essential to ensure the minimisation of environmental degradation. An ecosystem approach to wetland management that includes consideration of direct and indirect biophysical and social effects, and compliance with participatory, comprehensive and rigorous environmental assessment and management should be integrated into all levels of the development process from policy setting and strategy formulation through project planning, design, implementation, and operation. The Project will establish close working relationship with MOPE-NORAD project “Regulation and Monitoring of Capacity Building for EIA of Hydropower Projects in Nepal” on EIA capacity building issues. The Project will take an active interest in any proposed interventions that may impact on the proposed demonstration sites. At the beginning of Year 1 of project implementation, national commitments and local commitments will be obtained from relevant government agencies to prevent any actions that would negatively impact the demonstration sites. National level commitment on this will be one of the first agenda of the First Project Steering Committee Meeting, which has all wetland impacting line Ministries are represented.

31. Water-related treaties have been signed with India but have never been fully executed to their original intent. Expectations are still raised but rarely fulfilled, leaving both sides dissatisfied. There is also uncertainty as to how to proceed with additional river basin treaties, how to handle rivers that originate form the Siwalik (Churia) Hills, or whether to formulate a joint (or regional) umbrella treaty covering all trans-boundary rivers. Trans-boundary co-operation for water, biodiversity, and wetland conservation also needs to be strengthened, especially between India and Nepal, and will help towards resolving the conflicts that have arisen between resource use and conservation goals in several irrigation and large, multi-purpose projects. The Project will support a series of dialogues with India, specifically in relation to Koshi Tappu Area management, and this is expected to influence other transboundary water and wetland management issues as well.

32. Review and evaluation of the Acts are urgently required to adequately address obligations arising from the Articles of the Convention on Biological Diversity (CBD) and other international agreements and conventions to which Nepal is party. The intellectual and cultural property rights of indigenous peoples need to be secured through legislation. Since this is the focus of an ongoing project of IUCN Nepal, the proposed UNDP-GEF intervention will work very closely with IUCN Nepal.
<table>
<thead>
<tr>
<th></th>
<th>Act</th>
<th>Year</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Private Forest Nationalisation Act</td>
<td>1957</td>
<td>To nationalise all the natural forests in the country</td>
</tr>
<tr>
<td>2</td>
<td>Aquatic Life Conservation Act</td>
<td>1961</td>
<td>Forbids the introduction of poisonous, noxious, or explosive materials into a water source or destroying any dam, bridge or water system with intent to catch or kill aquatic life.</td>
</tr>
<tr>
<td>3</td>
<td>The Land Act</td>
<td>1965</td>
<td>Makes a provision related to land consolidation and development along with control of land degradation.</td>
</tr>
<tr>
<td>4</td>
<td>Forest Areas Land Act</td>
<td>1971</td>
<td>Land ownership and use of forests</td>
</tr>
<tr>
<td>5</td>
<td>Plant Protection Act</td>
<td>1972</td>
<td>To monitor the selling, import and export, and transplantation of various kind of plants and their products from one district to another, to regulate use of pesticides, plant quarantine station, prevention and treatment of plant disease.</td>
</tr>
<tr>
<td>6</td>
<td>National Parks and Wildlife Conservation Act</td>
<td>1973</td>
<td>To protect animals, defines wildlife as any wild animals including mammals, birds, fish and reptiles, and to look the welfare of wetland dependent and other wildlife.</td>
</tr>
<tr>
<td>8</td>
<td>The Tourism Act</td>
<td>1975</td>
<td>Makes it mandatory for mountaineers to keep the environment clean and abide by the specified conditions.</td>
</tr>
<tr>
<td>9</td>
<td>Soil and Watershed Conservation Act</td>
<td>1982</td>
<td>To preserve convenience and financial interest of common public by controlling natural disasters such as flooding and landslides.</td>
</tr>
<tr>
<td>10</td>
<td>King Mahendra Trust for Nature Conservation Act</td>
<td>1982</td>
<td>To formulate conservation, maintenance and management of wildlife and other natural resources.</td>
</tr>
<tr>
<td>11</td>
<td>Solid waste (management and resource mobilisation) Act</td>
<td>1986</td>
<td>Ensure solid waste management through the collection, transportation, recycling, disposal and the classification of hazardous waste.</td>
</tr>
<tr>
<td>12</td>
<td>The Town Development Act</td>
<td>1987</td>
<td>Conserves wildlife and vegetation including natural environment within the reserved areas.</td>
</tr>
<tr>
<td>13</td>
<td>Management and Resource Mobilisation Act</td>
<td>1987</td>
<td>Manages solid waste and controls air, water and soil pollution from solid waste.</td>
</tr>
<tr>
<td>14</td>
<td>National Conservation Strategy</td>
<td>1987</td>
<td>Preserves biological diversity and maintains essential ecological and life support systems.</td>
</tr>
<tr>
<td>15</td>
<td>The Nepal Water Supply Corporation Act</td>
<td>1989</td>
<td>Takes necessary steps to control water pollution and provides legal provision to penalize those who are found contaminating drinking water.</td>
</tr>
<tr>
<td>16</td>
<td>Seed Act</td>
<td>1989</td>
<td>Register, certify, ownership and release of seeds.</td>
</tr>
<tr>
<td>17</td>
<td>Constitution [Article 26(3)]</td>
<td>1990</td>
<td>“The State shall pursue a policy of mobilizing the natural resources and heritage of the country in a manner which might be useful and beneficial to the interest of the nation.”</td>
</tr>
<tr>
<td>Act/Policy</td>
<td>Year</td>
<td>Description</td>
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<td>------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td></td>
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<tr>
<td>Constitution [Article 26(4)]</td>
<td>1990</td>
<td>&quot;The State shall give priority to the protection of the environment and the prevention of its further damage that may cause significant adverse effect in the environment.&quot;</td>
<td></td>
</tr>
<tr>
<td>The Village Development Committee Act</td>
<td>1991</td>
<td>Makes provision of legal measures for environment protection in villages.</td>
<td></td>
</tr>
<tr>
<td>The District Development Committee Act</td>
<td>1991</td>
<td>Makes provision of legal measures for environment protection at district level.</td>
<td></td>
</tr>
<tr>
<td>The Pesticide Act</td>
<td>1991</td>
<td>Registration of pesticides before they can be imported, exported and produced. Container and labels specification and licensing for any person, institution or agency for selling, formulating or professionally spraying pesticides.</td>
<td></td>
</tr>
<tr>
<td>The Vehicle and Transport Management Act</td>
<td>1992</td>
<td>Defines and prescribe necessary standards for vehicles.</td>
<td></td>
</tr>
<tr>
<td>The Electricity Act</td>
<td>1992</td>
<td>Makes provision of license to carry out electricity generation with no substantial adverse effect on environment.</td>
<td></td>
</tr>
<tr>
<td>The Industrial Enterprises Act</td>
<td>1992</td>
<td>Regulates industries by providing permission to those that may not cause significantly adverse effects on the environment.</td>
<td></td>
</tr>
<tr>
<td>Water Resources Act</td>
<td>1992</td>
<td>To minimize environmental damage to wetlands, especially to lakes and rivers through the requirement of environment impact assessment, requires one to submit a detailed economic, technical and environmental report before survey or use of water resources and to prepare environment study and subsequent report before a licence is granted.</td>
<td></td>
</tr>
<tr>
<td>Forest Act</td>
<td>1993</td>
<td>Ensure the development, conservation and proper utilization of forest and forest products.</td>
<td></td>
</tr>
<tr>
<td>Pesticides Regulation Act</td>
<td>1993</td>
<td>To regulate pesticide entry into the country by permitting the import of registered chemicals only.</td>
<td></td>
</tr>
<tr>
<td>Environmental Protection Act</td>
<td>1996</td>
<td>To make necessary arrangements to open the EIA report for the general public to render opinions and suggestions.</td>
<td></td>
</tr>
<tr>
<td>Buffer Zone Management Rules</td>
<td>1996</td>
<td>To conserve buffer zone along with forest, wildlife, natural environment and natural resources, biodiversity and development work for all.</td>
<td></td>
</tr>
<tr>
<td>Environmental Conservation Rules</td>
<td>1997</td>
<td>Institutionalisation of EIA system, pollution control, management of environmental conservation area and management of environment fund.</td>
<td></td>
</tr>
<tr>
<td>No.</td>
<td>Act/Policy</td>
<td>Year</td>
<td>Description</td>
</tr>
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<td>-----</td>
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</tr>
<tr>
<td>36</td>
<td>The Kathmandu Valley Development Authority Act</td>
<td>1998</td>
<td>Guidelines for environment of Kathmandu Valley</td>
</tr>
<tr>
<td>37</td>
<td>Drinking Water Supply and Sanitation Policy</td>
<td>1998</td>
<td>Defines water quality and pollution standards and waste water disposal</td>
</tr>
<tr>
<td>38</td>
<td>Master Plan for Forestry Sector</td>
<td>1988</td>
<td>Specifies provisional strategies for the phased handing over of all accessible hill forest to user communities.</td>
</tr>
<tr>
<td>39</td>
<td>Animal Health and Livestock Services Act</td>
<td>1998</td>
<td>Import regulation through quarantine check-posts and standard formulation for biochemical</td>
</tr>
<tr>
<td>40</td>
<td>Buffer Zone Management Guidelines</td>
<td>1999</td>
<td>Sustainable utilization and conservation of natural resources in the buffer zone and to give sustainable protection to National Parks and Reserves</td>
</tr>
<tr>
<td>41</td>
<td>Hydropower Development Policy</td>
<td>2001</td>
<td>To supply electricity as per demands of the people through the development of the high potentiality of the water resources, motivate the national as well as foreign sector to invest for the development of hydropower.</td>
</tr>
<tr>
<td>42</td>
<td>Water Resources Strategy</td>
<td>2002</td>
<td>Tempering the interests of the public and environment with economic development to ensure long-term sustainability of water resource use in Nepal.</td>
</tr>
<tr>
<td>43</td>
<td>9th Five Year Plan</td>
<td>1997-2002</td>
<td>Prioritise the adoption and implementation of necessary legal and procedural measures, and promote inter-sectoral cooperation for environmental protection</td>
</tr>
<tr>
<td>44</td>
<td>10th Five Year Plan</td>
<td>2002-2007</td>
<td>Conserve biodiversity, conserve land against degradation, expand ecotourism, better land use planning</td>
</tr>
<tr>
<td>45</td>
<td>Nepal Biodiversity Strategy</td>
<td>2002</td>
<td>To protect and promote the wise use of biological diversity and resources, the maintenance of ecological processes and system and the equitable sharing of ensuing benefits on a sustainable basis.</td>
</tr>
<tr>
<td>46</td>
<td>Wetland Policy</td>
<td>2003</td>
<td>Collaborative community management and sustainable use of wetland resources ensuring conservation of wetland biodiversity</td>
</tr>
<tr>
<td>48</td>
<td>Ground Water Act</td>
<td>Under preparation</td>
<td>NA</td>
</tr>
</tbody>
</table>

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Figure 3: Coordination/Policy Level Institutions for the Water Sector (Existing Situation)

Prime Minister

Council of Minister

Environment Protection
National Development Council
National Planning Commission
National Water Resources Development

Minister of WR
Minister of PP&W
Minister of ST&E
Minister of MPSC

Water and Energy Commission
Ministry of Physical Planning and Works
Ministry of Science, Technology and Environment
Ministry of Forests and Soil Conservation

Water and Energy Commission Secretary

Water and Energy Commission

National Water Supply and Sanitation Committee

Central Drinking Water Coordination Committee

* The list of WEC Members includes Minister/State Minister for Water Resources, Member (Water) NPC; Secretaries from MOWR, MOF, MPPW, MOAC, MOHE, MOP&SC, MORS&I, MOI, MOL&J, MOFA and MEF; two nominated experts from non-government sector, Dean, Institute of Engineering, Tribhuvan University; President, Nepal Engineers Association; Representative of FNCCI; and Executive Secretary, WRCS.

** WBCS has been designated as the National Water Planning Unit and it is also the Secretariat to NWRDC.

Annex 5: Project Risks and Proposed Mitigation Measures (updated)

The main project risks are highlighted in the Table below along with proposed adaptive management strategies to mitigate these risks.

<table>
<thead>
<tr>
<th>Risk</th>
<th>Rating</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Widespread insecurity due to internal armed conflict has limited field-based activities at many sites nationally. Government offices and projects have been targets of physical attacks. Under the prevailing conditions of social unrest, the Project may be locally exposed to and influenced by the armed conflict.</td>
<td>Medium</td>
<td>The Project aims at improving socio-economic development and promoting sustainable and equitable livelihoods at the community level. It also focuses on strengthening the role of local people in decision-making and the management of natural resources, i.e., improving environmental governance. As such, the Project will contribute towards reducing some of the root causes of the present conflict.</td>
</tr>
</tbody>
</table>

Many projects have been able to continue operating in spite of the insurgency; including IUCN's projects and three ongoing medium-sized GEF Projects in Nepal (one in the lowland Terai). The learning from IUCN, UNDP and other projects suggests that initiatives with significant community support are less affected by the insurgency. Through its participatory and transparent nature, and its responsiveness to local needs, the Project aims to build strong community support.

In the two particular field sites of the project UNDP and other partners are implementing several projects without any threat. In the area of Ghodaghodi Lake Complex, which falls in Kailali district, WWF is successfully implementing Terai Arc Landscape Programme which is collaborating with Western Terai Landscape Complex Programme supported by UNDP/GEF. IUCN has been working in Ghodaghodi Lake Complex since 1996 and has a good rapport and credibility with the local communities. UNDP has recently set up a Programme Office in Kailali district which will ascertain security of the project staff and assets and ensure effective delivery of all UNDP supported projects. In Koshi Tappu Complex, UNDP's supported buffer zone programme has been implemented in collaboration with the buffer zone communities of Koshi Tappu Wildlife Reserve for the last 10 years. IUCN has its field office in the area (45 KM away from Koshi Tappu Complex) which will closely monitor the project activities and impact of conflict. IUCN has been successfully implementing other projects even in mountain areas of Nepal where the relative impact of conflict is higher. Both UNDP and IUCN have good rapport with the local communities including the conflicting parties and have got high level of acceptance from them for programme implementation.

Maoists targets are mostly the government structures and programmes which are directly implemented in the field through the government. Since neutral parties have greater access to conflict-affected field sites, IUCN Nepal will directly implement the demonstration activities in overall government's guidance. The implementation approach for the project includes working through local partners (especially NGOs and CBOs) in affected areas, under the support of IUCN. This is a strategy that has been effectively used by IUCN and other organizations in areas currently affected by the insurgency.

The 5-year timeframe of the overall Project provides flexibility for delays should they occur. The Project also focuses demonstration on sites in the
Since these areas are less affected than the mid-hills and mountains.

The adaptive management approach also enables project interventions to be modified in response to the local situation. The project will adopt conflict-sensitive approaches while implementing activities based on continuous analysis of security situations. National programming and much of the capacity building could continue even if field movement is restricted for some time.

A security assessment and response system will be established, which includes both preventive measures (training of staff on how to avoid conflict) as well as actions to be taken according to the severity of the situation to assure staff and partner safety. Special communication systems will be purchased should communication lines be disrupted. The project will maintain close communication links with other government, donor and non-governmental projects to ensure a coordinated approach.

The project assumes a 6-8 month start-up period to bring all staff on board. In Koshi Tappu, the government has shown its commitment to the recommended staffing levels in its recently developed Management Plan. In Ghodaghodi, the Project will work with existing line agency staff. The Technical advisors will maintain close discussions with the Government to ensure that staff and finances are secured as required.

Most of the government's contributions are through its existing staff and facilities, or budgets allocated for the sites. The project will build staff capacity to make them more effective in wetland conservation and sustainable use.

The development and initial piloting of a sustainable financing strategy by the project that builds on successful international experience in wetland conservation financing is designed to address the perpetual shortcomings in government funds to finance conservation and identify funds for after the project's completion.

The project recognizes that the best way to influence cross sectoral policy is to demonstrate both the need to integrate wetland sensitive activities and by drawing on lessons from Nepal and elsewhere to show the costs of not taking wetland issues into consideration for human and ecosystem well-being. The project has built in several opportunities for joint learning and capacity building for senior decision-makers, particularly to understand the full economic benefits of wetlands. Furthermore it will develop and pilot market-based instruments to demonstrate to these decision-makers ways to integrate these economic values as well as finance the conservation of wetlands.

Despite previous changes in political leadership, GoN Nepal has remained committed to biodiversity conservation, including wetland conservation and sustainable use. These issues figure in the Nepal Biodiversity Strategy and in preliminary documents of the Tenth Development Plan.

By demonstrating the value of wetlands to sustainable development in the country, the project will advocate for the continued priority of wetlands in development policy.

Although large river engineering schemes are being discussed for various
| Engineering schemes significantly alter river hydrology in the Project sites. | Sites in Nepal, there is an increased government commitment to make them as environment-friendly as possible. A national discussion on the World Commission on Dams recommendations is likely to clarify some issues for their construction and management. The Project will engage in multisectoral policy discussions on river engineering as well as address this issue through transboundary dialogues. It will also create guidelines for wetland-friendly construction and operation of river engineering works. Commitments from relevant government authorities to prevent negative impacts on the demonstration sites are included as project milestones.

While significantly strengthening the EIA process in Nepal is beyond the scope of the project, the project will produce guidelines on how to make EIAs more wetland-sensitive and will collaborate with existing and planned projects to support EIA. The project will also work with civil society (local and national networks) to improve their understanding of wetland issues and strengthen their ability to engage in dialogue with the government should the EIA process not be adequately followed.

The project will also work with civil society (local and national networks) to improve their understanding of wetland issues and strengthen their ability to engage in dialogue with the government should the EIA process not be adequately followed.

| Sedimentation in the Koshi River (primarily a natural phenomenon) results in significant changes in the river course in the Koshi Tappu Area. | Low | While controlling significant changes in the River course is beyond the scope of the Project, the importance of this river to Nepal (and the number of people who would be impacted if the river shifted substantially) and particularly to India (for flood management) imply that the government would act to rectify the situation. Other government line agencies (including Water and Energy Commission) are monitoring the situation.

Although it is unlikely that the project will be able to change land ownership in its timeframe, emphasis is placed on promoting secure access rights to wetland resources for local communities, and in particular wetland-dependent communities on local land resources (including wetlands). The community forestry experience in Nepal has demonstrated the effectiveness of collaborative and community-based resource management approaches once access is secured even without land ownership. The establishment of the buffer zone and its council in KTWR is another positive indication for an environment that is conducive to resolving access and benefit issues.

| Lack of secure land tenure for many households in the demonstration sites will impede efforts to change local practices regarding sustainable management and use of wetlands. | Low |

| Inability to identify sufficient means for continuing project activities beyond the life of the project. | Medium | This will primarily be addressed through the sustainable financing strategies to be prepared by the Project for both the national and the demonstration sites. The economic value of wetlands will be demonstrated along with the costs associated with continued degrading practices, and will serve as an incentive for national investment in wetlands. Policy makers from the relevant finance and planning departments and Ministries are specifically targeted for awareness raising based on the economic valuation.

The Financing Strategies will identify a diversity of sources of funds, and not focus only on securing additional central funds for MFSC. By demonstrating to developmental line agencies (such as Ministries of Finance, Local Development, Agriculture and Water Resources) the value of wetland conservation and sustainable use from development, poverty reduction and ecosystem service perspectives, the financing strategy will aim to identify allocations from multiple sources.

At the sites, the community action plans will focus on low cost...
<table>
<thead>
<tr>
<th>Lack of support for the entities established by the project (NWC, TACs, Networks) beyond the life of the project.</th>
<th>Low</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government lacks the staff, capacity and resources or will to adequately implement the project. Staff turnover within government could also weaken institutional memory and the sustainability of the project.</td>
<td>Medium</td>
</tr>
<tr>
<td>The networks created in the project have been designed on a low cost input to avoid their dependence on project funds. The NWC will be the responsibility of the Ministry of Forests and Soil Conservation, and they will form TACs as required. Such thematic task teams are a common current practice in Nepal and are specifically outlined in the National Biodiversity Strategy and Action Plan. The specialist and indigenous communities networks are expected to operate on a demand-driven basis; for example, practitioners will seek each other’s expertise as needed and as their resources permit. These networks are also anticipated to provide services to government and other organizations for wetland conservation as part of increasing decentralization and recognition of the role of civil society through the Local Self Governance Act. Additionally, capacity will be built in these groups for proposal writing to provide them with the skills to access other sources of funds to assist them to implement their wetland-related action plans.</td>
<td></td>
</tr>
<tr>
<td>The Government’s national endorsement of the project signifies its commitment to realize this project. It remains a priority initiative in key policy documents such as the National Biodiversity Strategy and Action Plan. Recognizing that project implementation of a large size requires specialized project management capacity and knowledge, strong technical support has been built into the project from IUCN Nepal. The selection of appropriate and qualified technical personnel and best available technical advice will be essential as a part of the project implementation framework. Since neutral parties have greater access to conflict-affected field sites, IUCN Nepal will directly implement the demonstration activities, under the government’s overall guidance. To address staff turnover, the project has also built in significant resources for institutional capacity building within government and other institutions. This will involve in training of trainers and the provision of materials to be able to train new staff. Emphasis will also be placed on the importance of handover mechanisms to maintain institutional memory.</td>
<td></td>
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</table>
### Annex 6: Response to GEF Council Review

#### A. Comments from Germany

<table>
<thead>
<tr>
<th>Summary of Comment</th>
<th>Response</th>
<th>Reference to the document where changes are made</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 A clear baseline has to be provided for all indicators using percent reductions or increases.</td>
<td>Available baseline information has been added to the revised LFA and Results Framework table. Where no information exists, baseline studies will be undertaken during project inception.</td>
<td>Section II Part II LFA Page 56-68</td>
</tr>
<tr>
<td>2 Financial sustainability of the project is contradicting. How the National Financial Strategy will be able to secure funds from government's budget which is extremely low and under heavy competition from other sectors of the economy</td>
<td>One of our working assumptions is that the lack of adequate government allocation of budgets for wetland conservation and use is in part due to lack of understanding of the full costs of improper wetland management (including costs to development/ livelihoods through reduced ecosystem services). The development of financial strategies nationally as well as at the two sites is the main project intervention to try to identify new sources of financing in the future. It is expected that there will be a greater allocation of government budgets to wetland issues once the costs have been analyzed and articulated in economic terms to development planners and policy makers. It is indicated under financial sustainability strategy and specific activities have been proposed in the log-frame (Activity 2.1.4 for central level and Activities 3A.2.4 and 3B.2.4 for field level)</td>
<td>Para 85 under financial strategy</td>
</tr>
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<td>3 Assumptions and outcomes seem to overlap each other. The project planning matrix needs to be re-considered</td>
<td>LFA/ Results Framework and related Pro-Doc text have been revised to separate outcomes as compared to assumptions that are beyond the direct control of the project proponents.</td>
<td>Section II Part II LFA Page 57-68</td>
</tr>
<tr>
<td>4 An updated risk assessment with reasonable measures elaborated to counter the risks of project failure need to be included</td>
<td>The risk analysis and mitigation strategy submitted in the original brief has been revised and strengthened. A risk monitoring and mitigation strategy and emergency plan will be developed upon project inception that builds on the considerable experience of UNDP, IUCN and other development partners active in Nepal.</td>
<td>Annex 5 Page 139-142: Revised Risk Analysis &amp; Mitigation Strategy</td>
</tr>
<tr>
<td>1</td>
<td>Strategies for financial sustainability of the project are not very clear. How the project will ensure allocation of more funds from the government for wetland conservation, when the government budget for conservation is extremely low and under heavy competition from other sector of economy.</td>
<td>Project financial strategy Para: 84-87, Page 33-34</td>
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<td>2</td>
<td>Considering the socio-economic conditions of the target populations, application of financial and economic instruments will be challenging and may involve risks of failures.</td>
<td>N/A</td>
</tr>
<tr>
<td>3</td>
<td>Use of flagship species has limited scientific value as an indicator for monitoring purposes and caution is needed while applying as monitoring indicators.</td>
<td>Section II Part II LFA Page 57-61</td>
</tr>
</tbody>
</table>

This has been covered under comments 2 above.

The financial strategies are not expected to be solely dependant on central government resources from the Ministry of Forests and Soil Conservation. They will explore contributions from all levels, including other national government departments to pay for the environmental services provided by wetlands, as well as from community contributions and from revenue generated though sustainable use of wetland resources.

Creating incentives for sustainable and equitable use and conservation of wetlands is a major challenge for the project. This will continue to be reviewed and addressed during project implementation. Some budget revisions have been made to allocate additional resources to the testing of these instruments.

Use of flagship species is not a single indicator proposed but rather it will be used in combination with other indicators. Attention will be placed on globally threatened species and on developing other appropriate indicators during the inception phase.
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<tr>
<td>1</td>
<td>Linkage to Tenth Plan and focus on poverty reduction and social inclusion is weak. Livelihood support should be a separate outcome with significant resources allocated for this. Linkage to country’s 10th Plan and focus on poverty reduction as well as social inclusion has been made under Section I Part II Strategy. National project actions (Outcome 1&amp;2) have been designed to integrate issues of livelihood security and equitable development. Core project staff includes a gender, social inclusion and indigenous people specialist who will lead the development and implementation of national and site level gender and social inclusion strategies as well as related capacity building and policy recommendations. Outcome 3 includes specific actions, expected results and budgets to support sustainable livelihoods. Additional budget has been allocated for these actions and efforts will be made throughout the project to seek additional funds for further work.</td>
<td>Para 78 Table 1 Page 30 Para 49: Page 22 Part III Implementation Arrangement, Para 100, Page 36-38 and Section IV Part II TOR Page 82 Outcome 3 :Page 27</td>
</tr>
<tr>
<td>2</td>
<td>Heavy and complex central structure with addition of new institutions and mechanisms seems not to be non-sustainable set up and does not necessarily guarantee for policy reforms. Revisions to the project management structure have been made as part of detailing the project implementation responsibilities. The project will be managed through a steering committee and advisory committees that are part of existing or proposed government bodies. Day to day project management will occur through a national project management unit housed with the Ministry of Forests and Soil Conservation. At the two field sites the project will be guided through existing multisectoral committees that include key local development bodies in order to effect policy influence, promote synergy and use of results and avoid duplication. The national committee proposed to address wetland issues from a multisectoral perspective is based on the government’s proposal under its biodiversity strategy. In the field sites, existing multisectoral development committees will be used. Although ongoing costs of such committees are currently thought to be minimal, this will be assessed during the life of the project and integrated into financing strategies if needed.</td>
<td>Part III Implementation Arrangement Page 35-39 and Section IV Part II TOR Page 76-82</td>
</tr>
<tr>
<td>3</td>
<td>Several assumptions and The risk analysis and mitigation strategy has been revised and strengthened.</td>
<td>Annex 5, Revised Risk Analysis &amp;</td>
</tr>
</tbody>
</table>

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D. Comments from U.S.A.

Need to clarify whether security situation is a project risk or not; and, if so, how this will be mitigated.

The risk analysis and mitigation strategy has been revised and greatly strengthened as a result of Council concerns and our own concerns about the security situation and its implications for the project. Full details are given in Annex 5 of the project document, where the seriousness of each risk has been individually evaluated and mitigation strategies proposed. A major outcome of the risk analysis has been the modification of implementation arrangements to increase the role of non-governmental partners who will now directly implement a greater portion of the project, notably at the field sites, (while government maintains overall control and responsibility). This approach has been shown to enable safe and effective project implementation at the field level in other projects (including other GEF/UNDP projects and IUCN projects) while at the same time acknowledging the role of the central government in making policy changes. Security-related issues and risks to the project will continue to be seriously reviewed and addressed during project implementation as part of regular monitoring and evaluation and as well as through inputs from specialists who can bring global experience of project implementation in conflict situations. A risk monitoring and mitigation strategy and emergency plan will be developed upon project inception that builds on the considerable experience of UNDP, IUCN and other development partners active in Nepal.
Annex 7: Other Agreements (please see separate file)

1) Endorsement Letter & Letter of Commitments
2) Memorandum of Understanding between FSC and IUCN
3) Project Co-operation Agreement between IUCN and UNDP
Annex 8: PAC Minutes

Minutes of the
Local Project Appraisal Committee Meeting
for
Conservation and Sustainable Use of Wetlands in Nepal

Date: 03 January 2006
Venue: UN Conference Hall, UN House, Pulchowk, Kathmandu,
Chairperson: Mr. Ghulam M. Isacza, DRR (P), UNDP

Opening:

Mr. Ghulam Isacza, DRR (P), UNDP chaired the PAC meeting on “Conservation and Sustainable Use of Wetland Resources in Nepal” held on 03 January 2005 at UNDP. He welcomed all the members to the meeting and highlighted on the important contributions made by various partners in the project formulation and the Ministry of Forestry and Soil Conservation (MFSC) in particular for providing leadership in the process from the beginning. He apprised the participants of the purpose of the PAC review and mentioned that the suggestions received would feed into the finalization of the project document. He then asked Mr. Vijaya Singh to make a brief presentation about the project.

Mr. Vijaya Singh, UNDP made a brief power point presentation of the project concept; major areas of interventions; implementation modality and partnership; and project budget. After the presentation, Mr. Isacza opened the floor for discussion.

Discussion:

Mr. Ananda Ram Regmi, MoF requested clarifications on the cash contributions by IUCN to the project and details on the committed co-financing contribution which has now been spent in the project work/area, given the delay in project start-up process. He wanted to know that why some of the indicators have been chosen to be measured after 10 years of project implementation; while the project actual duration is only for 5 years.

Mr. Laxman Gautam, FAO asked the reason for having the two positions - National Programme Manager and Chief Technical Advisor. He also suggested that coordination mechanism between two government ministries – the Ministry of Agriculture and Co-operatives (MoAC), which is the focal ministry regarding Aquatic Plant Protection Act and the Ministry of Forest and Soil Conservation.
(MFSC), which is the executing agent for this project - be established. He also suggested having concrete plans for gradual mainstreaming of donor supported activities into existing structures by ensuring co-ordination among different agencies such as MoAC and MFSC and involving District Development Committee (DDC) and Village Development Committee (VDC) in programme implementation by providing block grants as necessary.

Mr. K. C. Paudel, MFSC appreciated that the project has made provisions for documenting indigenous knowledge related to wetland resources which Ministry of MFSC has been supporting for long time. He asked further clarifications/suggestions on the following indicators and assumptions listed in the pro-doc.

**Indicators:**
- **Outcome 1 Bullet 01:** Wetland policy framework is revised based on project recommendation and field experience. The revision of the wetland policy, which has recently been promulgated, needs to be based on implementation experience. The learning from the implementation should be reflected in the policy revision.
- **Outcome 2:** Bullet 01: Environment Division of the MFSC will have adequate staff and budget for aquatic ecosystem management. Does it mean that the government’s capacity for aquatic ecosystem management is lacking and needs enhancement? He suggested that rather than only specifying the "Environment Division" it should mention MFSC, which is responsible for managing biodiversity in the country.
- **Outcome 1 Bullet 04:** Inconsistencies between LSGA and sectoral policies and laws identified (year 3) and resolutions accepted (year 5). How can we ensure about the inconsistencies in the beginning of the project?

**Assumptions:**
- **Bullet 04:** GoN remains open to the participation of civil society in wetland management. Why this assumption is needed given the fact that GoN has always been open to the civil society organizations.

He wanted to know how National Wetland Committee (proposed in the document) will be linked to National Biodiversity Co-ordination Committee (NBCC) and suggested to make provisions for discussing wetland issues under one of the thematic committees of NBCC instead of having a separate wetland committee. He also opined that the expectation from this project to contribute to trans-boundary co-operation will be too ambitious.

Mr. Biju K Shrestha, NPC suggested that the project should contribute to developing the technical capacity of the local bodies (DDC and VDC) in the spirit of full devolution of district programmes. He further suggested using the
indicators for gender and social inclusion and ensuring mechanisms to gather disaggregated information to fit into the frame of the PRSP.

Mr. Pradip Koirala, NPC mentioned that with regard to the various outcomes and the budgeting under each outcome, more budgets for Outcome 3 should be allocated if possible. He further wanted clarifications on the role of local government bodies like DDC and VDC in the project and suggested to include representative from the Ministry of Environment, Science and Technology in the project steering committee.

Mr. Parvin Aryal, MoWR emphasized on the need to define threshold values for sustainable use of wetland resources and wanted to know how the project will address this. He suggested including exit strategy to ensure continuity of the activities even after the phase out of the project in five years time. He further wanted to know how the project will ensure trans-boundary co-operation outlined under outcome 3.

Mr. G.J. Thapa, KMTNC mentioned that besides Koshi Tappu and Ghoda Ghodi Lake complexes, there are several other important wetland sites including the Bishazari Lakes in Chitwan, which were preliminary identified as candidate sites during PDF –B phase but not included later on into the project. He raised the concern that how these sites will be conserved in the near future.

Ms. Neera Shrestha Pradhan, WWF wanted to know that where the proposed Wetland Information Centre will be established. She further raised the concern that why more resources has been allocated to capacity building and policy components and only less resources to field level activities.

Mr. Huub Peters, SNV Nepal, made following suggestions (through email)

- Linkage to MDGs and PRSP has to be strongly built; and provisions for implementing complementary programmes like TGA, agro-biodiversity and renewable energy, next to wetland management, need to be made.
- Mapping of partners’ programme complementary to wetland management need to be done to ensure effective partnership and co-ordination among the partners. It is important that the project activities boost the government regular programme rather than replacing them.
- Need to strengthen the local management committees with clear mandates in wetland management. At the same time, the role of DFCC, DDC and civil societies in the project has to be clarified.
- Effective awareness programmes, going beyond the traditional methods, will be needed (radio, pamphlets, eco clubs, TV, leaflets, etc.) to provide environmental education to the school children and the parents.
Responses:

Ms Lisa Singh, UNDP:

- IUCN, in 2004, implemented a one-year project supported by the World Bank's Development Market Place in Koshi-Tappu area, one of the two sites identified by the project, in collaboration with the Department of National Parks and Wildlife Conservation (DNPWC). Given the delay in project approval process and the need to start inception work, it was agreed in the beginning that the contributions made by the Development Market Place Project to Koshi-Tappu Wetland site will be counted as the part of IUCN contributions to this project. However, because of delay in GEF project inception, the former Project completed before the actual start of the GEF project. IUCN contributions to the GEF project were counted as a part of total project co-financing in the ratio of 1:1.

- Furthermore policy strengthening and community field activities have an integrated framework since field experiences are expected to feed into policy refinement while policy aspects can be tested through field work. In this regard, from UNDP-GEF perspective all three components are of importance in ensuring project sustainability to include institutional capacity building which included community institutions.

Mr. Vijaya Singh, UNDP

- The remaining contributions from IUCN (both in kind and cash) to the project have been specified in the document.

- The Wetland Information Centre will be established at the centre and government will provide space for that.

- The National Programme Manager will be responsible for managing the UNDP/GEF funds while the Chief Technical Advisor will be responsible for managing the rest of the project activities on behalf of IUCN.

- Having MoAC represented in the project steering committee it is expected that there will be strong linkage between the MFSC and MoAC both at the field and centre level.

- Since the current policies related to wetlands are quite broad and have gaps in addressing the issues like building dams or draining of wetlands; these policies have to be reviewed and revised over time. Recommendations for policy review have been made based on detailed policy analysis done during the project development phase.

- The reason for substantial amount of budget being allocated for capacity building, policy and institutional strengthening components is - this project tries to address all the coherent issues related to wetland management based on threat analysis done during the project development phase. The project tries to demonstrate successful models of wetland management in the pilot sites by creating positive incentives for the local people to protect
the wetlands; strengthening sectoral policies to favour wetland conservation; and enhancing institutional capacity at local and centre level to co-ordinate and jointly implement wetland management activities.

- The project does not envision direct investments at the local level for community development or poverty alleviation as such; instead, it will support soft activities such as awareness creation and capacity building for wise use of wetland resources to support the livelihood and institutionalising market based approaches for sustainable wetland management. The budget allocation to different three components is, therefore, based on intricate linkage of one component to another.

- Emphasis has been given and provisions are made for translating policies into actions by ensuring co-ordination and programme ownership at all levels and using existing institutional structures as far as possible. Since the programme in the district will use the established DFCC structure there DDC and VDC will have lead role in planning and co-ordination. The role of DDC and VDC has been identified as the implementing partner for providing support and co-ordination as well as taking lead role in project implementation as necessary.

- Financial and institutional sustainability aspects as well as the replication strategies which together constitute the exit strategy for the project have been clearly articulated.

- Since one can not measure the impacts on short period, long term indicators extending up to 10 years from the year of start of the project have been chosen. It is expected that after five years of implementation the nation will develop sufficient capacity for managing wetlands on sustainable basis. By then conservation issues will be mainstreamed into sectoral policies; and wetland management plans will be implemented locally in a co-ordinated way.

- GoN needs to mobilise more resources (either external or internal) to conserve other important wetlands in the future. The learning from the two project sites will provide important feedback for managing other sites in the country. A provision has been made in the project to replicate successful wetland management practices in other sites as well.

**Dr. Damodar Parajuli, MoFSC:**

- Due to funding constraints it was not possible to include other priority wetland sites in this project.

- The government has been doing conservation work in the proposed two sites through partners’ support and also utilizing its own resources for long time; and will continue to do so even after the termination of this project. So, there will be no gap in implementation.

- The government has given due attention to management of other priority wetlands in the country in line with NBS and NBSIP by mobilizing resources.
from other agencies. JICA has already showed interests in this area to work together with the government.

**Mr. Narayan Paudel, DNPWC**

- The government is committed to manage priority wetlands in the country and has started consistently mobilizing partners' resources for that. As a result, King Mahendra's Trust for Nature Conservation (KMTNC) and World Wildlife Fund (WWF) have opened separate units on fresh water management. As per the provisions of Ramsar Conventions it is the government's mandate to conserve and make wise use of wetland resources in Nepal.
- Nepal's conservation efforts are rooted further down to the level of local community organizations rather than limiting at the level of DDC and VDC. The local user groups are empowered enough to take direct benefits from the conservation programmes; and the same modality will apply in the case of wetland management.
- The efforts for trans-boundary co-operation between India and Nepal to conserve the wildlife species have already initiated under Terai Arc Landscape programme. Even, recently, for declaring the buffer zone of Koshi Tappu Wildlife Reserve, dialogue between the two countries was proven meaningful.

**Conclusion:**

**Dr Damodar P Parajuli, MFSC** thanked UNDP for organising the LPAC review meeting for this project. He also thanked to participants from different institutions for joining hands with the MFSC in this project and appreciated their valuable comments on the project document. He mentioned that the MFSC, as an Executing Agent for this project, wants to see the project implemented as soon as possible so that the government could work on bridging the remaining gap in the area of wetland management with the help of other partners. He requested to incorporate the comments made during the meeting as far as feasible and practicable. He further mentioned that MFSC would like the document to be clearer on roles and responsibilities of the partners – who will do what - so that there will be no confusion left at the later stage during implementation. The document should have flexibility to work under the changed context.

**Mr. Ghulam Isaczai, UNDP** thanked all the participants for their valuable contributions in the meeting and asked to send further comments, if any, via email to be sent by the end of this week. He summarized the discussion as below for improvement of the project document:

- To clarify the linkage between policy, capacity development, and institutional strengthening components with field level implementation work.
- To elaborate the linkage between PRSP, poverty reduction and biodiversity conservation;
- To ensure the role of local stakeholders in the programme implementation;
- To create awareness about the importance of wetlands in other areas outside the current project sites;
- To clarify on the issues related to sustainability and exit strategy;
- To include the partnership arrangement plan and detailed risk analysis in the pro-doc.

Finally, Mr. Isaczi concluded the meeting by summarising that the PAC had approved the project for approval.

Annex 1:

Project Appraisal Committee Meeting
Conservation and Sustainable Use of Wetlands in Nepal
03 January 2006

UN Conference Room, UN House, Pulchowk

AGENDA

14:30 – 14:35 Welcome Remarks:
Mr. Ghulam M. Isaczi, Deputy Resident Representative (P), UNDP

14:35 – 15:15 Presentation of the Project Concept

15:15 – 16:15 Discussion

16:15 – 16:30 Closing Remarks:
Mr. Ghulam M. Isaczi, Deputy Resident Representative (P), UNDP
Dr. Damodar Parajuli, Chief, Foreign Aid Coordination Division, Ministry of Forests and Soil Conservation
List of Participants:

1. Dr. Damodar Parajuli, Joint Secretary and Chief, Foreign Aid Co-ordination Division, Ministry of Forests and Soil Conservation, Singha Durbar
2. Dr. Krishna Chandra Paudel, Joint Secretary and Chief, Environment Division, Ministry of Forests and Soil Conservation, Singha Durbar
3. Mr. Narayan Prasad Paudel, Director General, Department of National Parks and Wildlife Conservation, Babar Mahal
4. Mr. Ananda Ram Regmi, Under Secretary, FADC, Ministry of Finance, Singha Durbar
5. Mr. Pradip Koirala, Programme Director, National Planning Commission, Singha Durbar
6. Mr. Biju Kumar Shrestha, Programme Director, National Planning Commission, Singha Durbar
7. Mr. Dilip Kumar Chapagain, Under Secretary, Ministry of Local Development, Pulchowk
8. Mr. Pravin Aryal, Senior Divisional Engineer, Ministry of Water Resources, Babar Mahal
9. Mr. Dinesh Acharya, Agriculture Officer, Ministry of Agriculture and Cooperatives, Singha Durbar
10. Mr. Sagendra Tiwari, Acting Country Representative, IUCN, Nepal Programme, Pulchowk
11. Mr. Huub Peters, NRM Practice Leader, SNV Nepal Programme, Pulchowk
12. Ms. Julia Robinson, IUCN, Nepal Programme
14. Mr. Ganga Jung Thapa, Executive Officer, King Mahendra’s Trust for Nature Conservation, Jawalakhel
15. Mr. Ghulam M. Isaczai, Deputy Resident Representative (Programme), UNDP
16. Ms. Lolita Thapa, Assistant Resident Representative, UNDP
17. Ms. Lisa Singh, Assistant Resident Representative, UNDP
18. Mr. Sharad Neupane, Assistant Resident Representative, UNDP
19. Mr. Vijaya Singh, Biodiversity Analyst, UNDP
20. Ms. Jaina Vosmisto, Programme Officer, UNDP
Annex 9: NPC Briefing Meeting Notes

Meeting notes of the
Project Briefing Meeting for

Conservation and Sustainable Use of Wetlands in Nepal

Date: 09 February 2007
Venue: Meeting Hall, National Planning Commission (NPC), Singhadarbar, Kathmandu
Chairperson: Honorable Dr. Pushpa Raj Rajkarnikar, Acting Vice Chair, NPC.

On the request of NPC, a project briefing meeting on Conservation and Sustainable Use of Wetlands in Nepal was held on 09 February 2007 in the context of final endorsement of the project by the Government of Nepal. The purpose of the meeting was to provide a fresh update on the project and brief on in what ways the project is still relevant in the changed context of the country and how it is going to provide tangible benefits to the local community. The meeting provided opportunities for better understanding and clarification of project activities, implementation modalities and outcomes. Several queries and concerns were clarified in this meeting and it was agreed that the project was relevant and should go for implementation without any delay. The Honorable Vice-Chair concluded the meeting with following instructions:

The project will ensure that:-

1. Right from the inception of the project, adequate attention must be given to ensure capable, effective and sustainable institution (local, district and national) particularly at local level for addressing wetland issues in a sustainable manner.

2. Focus on field level activities that directly contribute to livelihoods of the local communities should have higher priority and possibility of revising the project inputs if required;

3. The concerns of the local people and their traditional knowledge are well considered

MFSC, UNDP and IUCN will pay due attention to ensure institutional sustainability and capacity development of local community right from the project inception. Issues of budget reallocation will be dealt with during project budget revision after one year of project implementation. Other relevant issues which might emerge during the implementation of the project will be addressed by learning by doing process.
List of Participants

1. Honorable Dr. Pushpa Raj Rajkamkar, Acting Vice Chair, NPC
2. Honorable Dr. Bhim Neupane, Member, NPC
3. Honorable Dr. Chaitanya Subba, Member, NPC
4. Honorable Dr. Posh Raj Pandey, Member, NPC
5. Honorable Dr. Indira Shrestha, Member, NPC
6. Ms. Geeta Shrestha, Joint Secretary, NPC
7. Mr. Hari Dutta Pandey, Joint Secretary, NPC
8. Mr. Biju Kumar Shrestha, Program Director, NPC
9. Mr. Mohan Dhungel, Deputy Director General, Department of Forest (DoF)
10. Mr. Hari Narayan Belbase, Section Officer, NPC
11. Ms. Neeta Pokharel, Section Officer, NPC
12. Dr. Jagadish Chandra Baral, Planning Officer, MoFSC
13. Mr. Ram Chandra Kandel, Assistant Planning Officer, MoFSC
14. Mr. Sher Singh Thaguna, Assistant Planning Officer, DNPWC
15. Mr. Vijay Singh, ARR, UNDP
16. Mr. Narayan Belbase, Acting Country Representative, IUCN Nepal
17. Mr. Bhawati Prasad Kharel, Senior Program Officer, IUCN Nepal