Nepal

Poverty Reduction through Sustainable Management of Protected Areas and Wetlands in Nepal: Processes, Modalities, Impacts and Identification of Areas for Future Support

Volume II: Annexes

March 2004

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Abbreviations

AAP	Annual Action Plan
ACA	Annapurna Conservation Area
ACAP	Annapurna Conservation Area Project
ACF	Area Conservation Facility
APU	Anti Poaching Units
AsDB	Asian Development Bank
BCF	Bharandabhar Corridor Forest
BCN	Brahmin, Chhetri, Newar
BCP	Bardia Conservation Project
BES	Birds Education Society
BICP	Bardia Integrated Conservation Project
BIP	Banaganga Irrigation Project
BIS	Banaganga Irrigation System
BISEP-ST	Biodiversity Support Programme for Siwaliks and Terai
BkT	Betkot Tal
BPP	Biodiversity Profile Project
BRP	Bardia Research Project
BT	Badahiya Tal
BTRS	Bishazari Tal Ramsar Site
BZ	Buffer Zone
BZCF/s	Buffer Zone Community Forest/s
BZDP	Buffer Zone Development Project
BZMC	Buffer Zone Management Committee
BZUC	Buffer Zone User Committee
BZUC/s	Buffer Zone User Committee/s
BZUG/s	Buffer Zone User Group/s
CA	Conservation Area
CAM	Conservation Area Management
CAMC/s	Conservation Area Management Committee/s
CAMR	Conservation Area Management Regulation
CBD	Convention on Biological Diversity
CBO/s	Community Based Organization/s
CBWMP	Community Based Watershed Management Prospect
CCO	Canadian Cooperation Office
CEDA	Centre of Economic Development and Administration
CF/s	Community Forest/s
CFCC	Community Forest Coordination Committee
CFUG	Community Forest User Group
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
COs	Community Organizations
CRMP	Community Resources Management Plan
DAGs	Disadvantaged Groups
DANIDA	Danish International Development Agency
DDC	District Development Committee
DFID	Department for International Development United Kingdoms
DFO	District Forest Office
DHR	Dhorpatan Hunting Reserve
DNPWC	Departments of National Parks and Wildlife Conservation
DOF	Department of Forest
DOI	Department of Irrigation
DSCO	District Soil Conservation Office/Officer
DSCWM	Department of Soil Conservation and Watershed Management
DT	Deukhuriya Tal

E – W	East – West
EIA	Environmental Impact Assessment
EU	European Union
FAO	Food and Agriculture Organization of United Nations
FGD	Focus Group Discussion
FGs	Functional Groups
FOs	Functional Organizations
GACAAF	Ghodaghodi Area Conservation and Awareness Forum
GEF	Global Environment Facility
GT	Gaindahawa Tal
GTF	Global Tiger Forum
GTRS	Ghodaghodi Tal Ramsar Site
GttE	Gift to the Earth
ha	hectare
HH/s	Households
HMG/N	His Majesty Government of Nepal
HR	Hunting Reserve
ICDP	Integrated Conservation and Development Project/Program
ICIMOD	International Centre for Integrated Mountain Development
IDD	Irrigation Development Division
IEE	Initial Environmental Examination
IGA/s	Income Generating Activity/ies
Imp	Improved
IMTP	Irrigation Management Transfer Project
ITNC	International Trust for Nature Conservation
IUCN	World Conservation Union
IUG	Irrigation User Group
JICA	Japan International Cooperation Agency
JRRS	Jagdishpur Reservoir Ramsar Site
KCA	Kangchenjungha Conservation Area
KCAP	Kangchenjungha Conservation Area Project
KIS	Khageri Irrigation System
km	kilometre
KMTNC	King Mahendra Trust for Nature Conservation
KNP	Khaptad National Park
KWR	Koshitappu Wildlife Reserve
LDO	Local Development Office/r
LNP	Langtang National Park
LSGA	Local Self Governance Act
m	metre
MBNP	Makalu Barun National Park
MCA	Manaslu Conservation Area
MEDP	Manaslu Ecotourism Development Project
MIS	Management Information System
MLT	Mid-Level Technician
MoAC	Ministry of Agriculture and Cooperative
MoFSC	Ministry of Forests and Soil Conservation
MoLD	Ministry of Local Development
MoTCA	Ministry of Tourism and Civil Aviation
MoU	Memorandum of Understanding
MoWR	Ministry of Water Resources
NAF	Nepal Agroforestry Foundation
NARMA	Center for Natural Resource Analysis, Management, Training and Policy Research
NBS	Nepal Biodiversity Strategy
NBSIP	Nepal Biodiversity Strategy Implementation Plan

NF	National Forest
NGO/s	Non Government Organization/s
NMCP	Northern Mountains Conservation Programme
NORAD	Norwegain Agency for Development
NP	National Park
NPWCA	National Parks and Wildlife Conservation Act
NT	Nakhrodi Tal
NTB	Nepal Tourism Board
NTFP/s	Non Timber Forest Product/s
NUG	Non User Group
OG	Operational Guidelines
PA/s	Protected Areas
PCP	Participatory Conservation Programme
PDI	Poverty Deprivation Index
POWER	Poor People, Occupational Caste and Women's Empowerment for Resources Management
PPP	Park People Program
PRA	Participatory Rural Appraisal
PT	Patriyani Tal
PWR	Parsa Wildlife Reserve
RSWR	Royal Shuklaphanta Wildlife Reserve
RBNP	Royal Bardia National Park
RCNP	Royal Chitwan National Park.
RNA	Royal Nepal Army
RNP	Rara National Park
RS	Ramsar Site
RSWR	Royal Shuklaphanta Wildlife Reserve
RT	Rampur Tal
RTCPA	Research and Training Centre for Protected Areas
SABIHAA	*Samudayik Bikash tatha Hariyali Ayojana*
SALOGC	Significance, Achievement, Lesson learned, Obstacle, Gap and Commitment
SCAFP	Sagarmatha Community Agro-Forestry Project
ShNP	Shivapuri National Park
SIWDP	Shivapuri Integrated Watershed Development Project
SNP	Sagarmatha National park
SNV	The Netherlands Cooperation Agency
SPNP	Shey Phoksundo National Park
SRT	Sustainable Rural Tourism
STG	Special Target Group
STIDP	Second Tourism Infrastructure Development Project
STOL	Short Take Off and Landing
SWOT	Strength, Weakness, Opportunity and Threat
TAL	Terai Arc Landscape
TMCs	Tourism Management Committees
TMI	The Mountain Institute
TRCP	Tiger Rhino Conservation Project
TRPAP	Tourism for Rural Poverty Alleviation Programme
TRUG	Tourism Related User Group
UC/s	User Committee/s
UGs	User Group\s
UMBCP	Upper Mustang Biodiversity Conservation Project
UNDP	United Nations Development Programme
UNF	United Nations Fund
USAID	United States Agency for International Development
VDC/s	Village Development Committee/s

WCC	Ward Conservation Committee
WE	Women in Environment
WGs	Women Group/s
WHC	World Heritage Convention
WHS	World Heritage Site
WR	Wildlife Reserve
WSs	Wetland Site/s
WUA	Water Users' Association
WWF	World Wildlife Fund

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Study Methodology

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1. Introduction

1.1 Background

This study on Poverty Reduction through Sustainable Management of Protected Areas and Wetlands in Nepal: Processes, Modalities, Impacts and Identification of areas for Future Support was commissioned to Center for Natural Resource Analysis, Management, Training and Policy Research (NARMA) Consultancy (Pvt) Limited by Japan International Cooperation Agency Nepal (JICA-Nepal). The main objective of the study was to make a comprehensive review of biodiversity in Protected Areas (PAs) and Wetland Sites (WSs) of economic and conservation importance in Nepal and thereby identify feasible areas for JICA-HMG/N cooperation in this sub-sector for participatory biodiversity conservation and poverty reduction. The study spanning over five months became effective from November 2003.

As required NARMA submitted an Inception Report to JICA Nepal on 19 November outlining the detail study methodology which was revised based on comments and suggestions received from several stakeholders during a half-day consultation meeting organized in the Department of National Parks and Wildlife Conservation (DNPWC) on 28 November 2003. **Appendix 1** presents the list of participants attending the meeting and **Appendix 2** presents the summary of discussions and comments and suggestions made. This methodology was further revisited and revised after incorporating the findings from the review analysis and finalized after its discussion with the related stakeholders during a second half day consultation organized in DNPWC on 8 January to present the review report. **Appendix 3** presents the list of participants attending the meeting and **Appendix 4** presents the summary of discussions and comments and suggestions made. With the finalization of the priority PAs and WSs for field study, three PAs and three WSs were covered by the field study and a field study report submitted on 25 February 2004. Based on the findings of review analysis and field study, a draft Final Report was submitted on 22 March 2004. This report was presented in a seminar on 2 April 2004. **Appendix 6** presents the highlights of the seminar. The draft report was finalized after incorporating valid comments and suggestions.

1.2 Objectives

The main objective of this annex is to present the details on the methodology adopted for review analysis, prioritizing PAs and WSs and conducting the field studies and data analysis.

1.3 Limitations

This study had initially planned to use both quantitative and broader range of qualitative tools of field survey. While use of quantitative survey tools was limited to household survey using household questionnaire, qualitative methods involved one to one discussion and use of several participatory tools, which required interactions with groups of people. Because of security situation, field survey team was advised to avoid meeting in-groups. Thus use of several Participatory Rural Appraisal (PRA) tools was not possible and it was limited only to Focused Group Discussions (FGD) with limited number of stakeholders.

1.4 Organization of the Report

This annex is organized into three sections. With the background, objectives and limitations presented in this section, the next section is devoted to the presentation of detail methodology. In this section, presentation is divided into two main sub-sections. The first sub-section highlights the methodology of review analysis with details on bibliographic search, review work, and methods adopted in prioritizing PAs and WSs. The second sub-section then deals with field survey methodology covering such details like stakeholders selection, survey instruments used and survey methods applied. The last section then presents details on data analysis and reporting. A total of 6 appendices support this annex.

2. Methodology

This study was carried out in two distinct stages. The first stage was the review stage focused on the review analysis covering all the 16 PAs of the country and 10 WSs of Nepal's Terai recommended by Nepal Biodiversity Strategy (NBS) 2002 for initiating immediate protection measures. Results of the review stage helped to specify criteria in prioritizing PAs and WSs, their application and in the selection of priority PAs and WSs for field study. The second stage was the field study of selected PAs and WSs. Following sub-sections details out the methodology adopted in both of these stages.

2.1 Review Phase

The review phase of the study was divided into two parts. In the first part, an annotated bibliography of PAs and WSs related literatures of Nepal was prepared and sorted by their type and contents including broader areas of information content. In the second part, most relevant literatures were consulted and reviewed analytically to suit the study objectives.

2.1.1 Bibliography search

Review analysis began with study team's visit to documentation centers and project offices of related organizations and obtaining the list of related literature (reports, documents, brochures and other information materials). Organizations visited included government ministries, government departments, conservation partners, donors including International Non Government Organizations (INGOs) like CARE-Nepal and national Non Governmental Organization (NGOs) like King Mahendra Trust for Nature Conservation (KMTNC)[12]. The elaborate list of literature were briefly scanned and were documented as standard database of publication list by developing computer programme in Microsoft Access and by segregating these into PA and WS specific groups. The list generated and resulted from preliminarily analyses is presented in **Annex 2.**

2.1.2 Review analysis

From the quick scan of available literature carried out it was learnt that the available literature in each of the PAs and WS were not uniform both in terms of numbers and subject matters covered. While some PAs and WSs were more researched, other were least covered. In order to systematically and objectively organize the review analysis based on such disproportionate list of available literature, it was considered necessary to specify the focus of analysis and the review approach. Thus the review analysis began with determining the areas of inquiry and specification of analytical approach as described in following paragraphs:

In view of the study objectives, following five common areas of inquiry were considered essential for coverage by the review analysis. These five focus areas for review analyses are:

1. Biodiversity (species and habitat including ecosystem's description, conservation and management).
2. Socio-economic (vulnerability context, livelihood capitals, policy, strategies and outcomes that are responsible for biodiversity conservation and poverty reduction).
3. Conflict (arising from the interaction of park-people, people-park, policy, organizations and people-people).

[1] Different organizations visited included Ministry of Forests and Soil Conservation, Ministry of Water Resources, Ministry of Agriculture and Cooperatives and Ministry of Local Development among government ministries; Department of National Parks and Wildlife Conservation, Department of Forests, Department of Soil Conservation and Watershed Management and Department of Irrigation among government departments; World Wildlife Fund, World Conservation Union, The Mountain Institute and International Center for Integrated Mountain Development among conservation partners; and United Nations Development Programme, Department for International Development of United Kingdom, Netherlands Development Agency, Danish International Development Agency and Norwegian Agency for Development Assistance among the donors.

4. Managerial (program implementation process and modality of various organizations to support biodiversity conservation and poverty reduction).
5. Policy/Legislation (international, national and cross cutting policies and legislations concerning biodiversity conservation in PAs and wetlands)

In order to have a common analytical approach, following NBS, 2002, this study also adopted an abbreviated approach called SALOGC in digging out in-depth information from each of the parameters listed in the five areas of inquiry mentioned above against each PA and WS covered by this study. SALOGC stands for and concentrates analysis of the PAs and WSs in terms of their significance, achievements, lessons learned, obstacles, gaps and commitments. Definitions or the type of information analyzed under each heading are described below:

S = Significance (background information which illustrates the situation and importance of the PAs and WSs).

A = Achievements (favorable progress of intervention in biodiversity conservation and poverty reduction).

L = Lessons learned (both positive and negative learning/practice emerging out of intervention in biodiversity conservation and poverty reduction as an example for similar other projects/programs).

O = Obstacles (major problems faced during intervention to achieve the stated objectives such as, weak communication, traditions, remoteness, etc.).

G = Gaps (exclusion or incomplete policy and program implementation such as, non-representation of *Dalits*/women, inadequate scientific information on species and habitat, etc).

C = Commitment (this refers to the initiatives taken or obligations fulfilled towards biodiversity conservation and poverty reduction at the international, national and local levels such as Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES), Convention on Biological Diversity (CBD), World Heritage Convention, Ramsar Convention, Buffer Zone Regulation, Wetland Policy and effective operation of Community Based Organizations (CBOs), etc)

Using the most recent literatures and following SALOGC approach, each PA and WS was reviewed covering the five areas of inquiry mentioned above and the results are documented (presented in **Annex 3 and 4** respectively) together with the results from a detail desk and field review of ***Samudayik Bikas Tatha Hariyali Ayojana*** popularly known as SABIHAA model developed under JICA funded ***Community Development and Forest/Watershed Management Project*** in Kaski and Parbat district (presented in **Annex 5**). The basic purpose of SABIHAA review was to examine the appropriateness and possibility of replicating this model or its components in PAs and WSs studied for participatory and sustainable management of natural resources. The review analysis also generated information required to quantify different indicators under each criteria set for prioritizing the PAs and WSs for selecting three PAs and three WSs for field study.

2.2 Prioritization of Priority Protected Areas

2.2.1 Selection criteria

A set of 7 criteria for prioritizing PAs was identified during the Inception Phase. Initially, the set of criteria identified was common to both the PAs and WSs. Review of PAs and WSs however revealed the need to revisit these criteria in terms of their relevancy to PAs and WSs and available information. Accordingly, these criteria were revisited and revised without loosing the essence of the criteria included earlier. In respect of PAs, the revised list contains a total of eight criteria. The list of these criteria together with their indicators and variables to measure these and decision rule applied in prioritization is presented in Table 1.

Table 1: Criteria used in prioritizing Protected Areas

Criteria	Indicators	Variables	Decision rule
• Biodiversity significance	• Species diversity • Habitat diversity • Area	• Number of floral and faunal species per unit area of PA • Number of ecosystem types • Area in sq. km	• Select those sites that are rich in biodiversity and larger in area
• Conservation significance	• Protection of endemic plant • Protection of endangered species	• Number of endemic flowering plants • Number of endangered wildlife species	• Select those sites with more number of endemic flowering plants and endangered species
• Poverty significance	• Relative level of poverty in PA located districts	• Average Poverty Deprivation Index (PDI) rank of district where PA is located	• Select those sites that are situated in districts ranked high in poverty
• Socio-economic significance	• Socio-economic opportunities • Religious value	• Number of tourists visiting • Dependent population • Revenue generated • Number of religious sites • Number of pilgrims	• Select those sites with high socio-economic and religious significance
• Conflict significance	• Level of threats	• Number of threatening activities	• Select those sites that have higher threat levels
• Programme significance	• Development assistance	• Budget allocated • Presence of donor support	• Select those sites with low development assistance
• Partnership significance	• Partnering possibilities	• Possibilities to replicate SABIHAA model • Status of donors support	• Select those sites that have high chance of replicating SABIHAA and partnering with donors
• Global significance	• International importance	• Relevancy of various international conventions/agreements • Trans-boundary value	• Select those sites with high international commitments pertinent to global significance

2.2.2 Rating of PAs based on biological significance

Biodiversity significance of PAs was assessed using three indicators namely species diversity, habitat diversity and area. While species diversity is measured through number of flora, fauna and fish species found per unit area of a given PA, habitat diversity is measured through number of ecosystem types that fall within a given PA and area in terms of sq. km. As indicated in Table 1 and 2, prioritizing PAs based on these technical indicators implied assigning higher score to those PAs where there are more numbers of biological species per unit area and also to those that have more number of ecosystem types. Rating of the 16 PAs reviewed based on this criterion is presented in Table 2:

Based on the relative rating arrived, Langtang National Park (LNP), Rara National Park (RNP), Makalu Barun National Park (MBNP), Annapurna Conservation Area (ACA), Koshitappu Wildlife Reserve (KWR) and Manaslu Conservation Area (MCA) ranked at the top in terms of biological richness; while, Shey Phoksundo National Park (SPNP), Khaptad National Park (KNP), Shivapuri National Park (ShNP), Royal Shuklaphanta Wildlife Reserve (RSWR) and Kangchenjungha Conservation Area (KCA) ranked second in priority; and Royal Chitwan National Park (RCNP), Sagarmatha National Park (SNP), Royal Bardia National Park (RBNP), Parsa Wildlife Reserve (PWR), and Dhorpatan Hunting Reserve (DHR) fall in the third priority rank.

Table 2: Rating of Protected Areas based on number of flora and fauna and habitat types

Protected Areas	Area of PA (Sq. Km)	Rating (1)	Flora (No/sq.km)	Rating (2)	Fauna (No/sq.km)	Rating (3)	Ecosystem Types (No)	Rating (4)	Overall score	Overall Rating (5)
Royal Chitwan National Park	932	2	0.99	1	0.64	1	7	1	5	1
Langtang National Park	1,710	3	2.16	3	0.16	1	18	2	9	3
Sagarmatha National Park	1,148	2	0.54	1	0.10	1	8	1	5	1
Rara National Park	106	1	10.09	3	2.55	3	8	1	8	3
Shey Phoksundo National Park	3,555	3	0.44	1	0.07	1	21	2	7	2
Khaptad National Park	225	1	2.52	3	1.28	2	8	1	7	2
Royal Bardia National Park	968	2	0.87	1	0.62	1	7	1	5	1
Makalu Barun National Park	1,500	3	2.05	2	0.44	1	20	2	8	3
Shivapuri National Park	144	1	14.74	3	1.36	2	5	1	7	2
Royal Shuklaphanta Wildlife Reserve	305	1	2.30	3	1.40	2	3	1	7	2
Koshitappu Wildlife Reserve	175	1	2.94	3	4.21	3	5	1	8	3
Parsa Wildlife Reserve	499	1	1.84	2	1.12	2	8	1	6	1
Dhorpatan Hunting Reserve	1,325	2	0.87	1	0.00	1	14	2	6	1
Annapurna Conservation Area	7,629	3	0.45	1	0.08	1	28	3	8	3
Kangchenjungha Conservation Area	2,035	3	1.47	2	0.00	1	8	1	7	2
Manaslu Conservation Area	1,663	3	1.50	2	0.09	1	18	2	8	3

(1) Rating method:
Up to 749 (106+643) =1
949-1392 (749+643) =2
and Greater than 1392 = 3

(2) Rating method:
2.94-0.44=2.50/3 = 0.83
Up to (0.44 +0.83) = 1.27 =1
1.27-2.10 (1.27 + 0.83) = 2 &
and Greater than 2.10 =3

(3) Rating method:
2.55-0.00=2.55/3 = 0.85
Up to (0.85 +0.00) = 0.85 =1
0.85-1.70 (0.85 +0.85)= 2 and
Greater than 1.70 =3

(4) Rating method:
28-5=25/3 = 8.33
Up to (5 +8.33) = 13.33 =1
13.33 – 21.66 (13.33+ 8.33) = 2
and Greater than 21.66 =3

(5) Rating method:
9 -5 =4/3 = 1.33
Up to (5 + 1.33) = 6.33 =1
6.33-7.66 (6.33 + 1.33) = 2 and
Greater than 7.66 =3

Note: In calculating relative rating outliers (14.74 and 10.09 in the case of per sq km flora, and 4.21 in the case of fauna) have not been considered.

Source: Appendix 5, Table 1, 2 and 3

2.2.3 Rating of PAs based on conservation significance

Conservation significance of PAs was assessed using two indicators namely the status of endangered wildlife species and endemic flowering plants. Status of endangered wildlife species is measured through number of endangered fauna (mammals, birds and reptiles) present in the given PA. Likewise, status of endemic flowering plants is measured through number of such plants present in a given PA. Prioritizing PAs based on conservation significance implied assigning higher score to those PAs with more numbers of endangered wildlife species and endemic flowering plants. Rating of the 16 PAs reviewed based on these two indicators together with their aggregated rating is presented in Table 3:

Table 3: Rating of Protected Areas based on number of endangered fauna species and endemic flowering plants

Protected Areas	Endangered Fauna species		Endemic flowering plants		Overall score	Overall rating (3)
	Aggregate Score	Ratings (1)	Number	Rating (2)		
Royal Chitwan National Park	9	3	0	1	4	2
Langtang National Park	4	1	15	2	3	2
Sagarmatha National Park	3	1	11	2	3	2
Rara National Park	4	1	16	2	3	2
Shey Phoksundo National Park	4	1	30	3	4	2
Khaptad National Park	3	1	4	1	2	1
Royal Bardia National Park	9	3	0	1	4	2
Makalu Barun National Park	6	2	7	1	3	2
Shivapuri National Park	3	1	16	2	3	2
Royal Shuklaphanta Wildlife Reserve	6	2	0	1	3	2
Koshitappu Wildlife Reserve	7	2	4	1	3	2
Parsa Wildlife Reserve	7	2	0	1	3	2
Dhorpatan Hunting Reserve	5	1	36	3	4	2
Annapurna Conservation Area	6	2	56	3	5	3
Kangchenjungha Conservation Area	3	1	23	3	4	2
Manaslu Conservation Area	3	1	0	1	2	1

(1) Rating method:
9-3=6/3= 2
Up to 5 (3+2 =1
5-7 (5+2) = 2 & and
Greater than 7 =3

(2) Rating method:
30-0=30/3 = 10
Up to 10 (0.44 +0.83) = =1
10-20 (10+10) = 2 & and
Greater than 20 =3

(3) Rating method:
5-2 = 3/3 = 1
Up to 3 (2+1) = 1
3-4 (3 +1) = 2 and
Greater than 4 =3

Note: In rating PAs based on number of endemic flowering plans two outlier values (56 and 36) have not been included in rating
Source: Appendix 5 Table 4, 5 and 6

In terms of conservation significance ACA was ranked first; KNP and MCA third; and all other remaining PAs second.

2.2.4 Rating of PAs based on poverty significance

Significance of PAs in terms of their potential contribution to poverty reduction through participatory management of resources was assessed using a single indicator namely the level of poverty in a district/s where the PA is located. Using International Center for Integrated Mountain Development's (ICIMOD) ranking of districts based on PDI, PAs were ranked in terms of relative level of poverty. For PAs, which fell in more than one district, relative ranking was arrived at by taking the average rank. Prioritizing PAs based on their potential contributions to poverty reduction implied assigning higher score to those PAs, located in poorer districts. Rating of the 16 PAs reviewed based on this indicator is presented in Table 4:

Table 4: Rating of Protected Areas based on poverty level

Protected areas	Average poverty rank	Poverty rating	Scoring based on poverty level
Royal Chitwan National Park	39.3	2	2
Langtang National Park	21.0	1	3
Sagarmatha National Park	43.0	2	2
Rara National Park	18.5	1	3
Shey Phoksundo National Park	22.5	1	3
Khaptad National Park	7.0	1	3
Royal Bardia National Park	36.0	2	2
Makalu Barun National Park	53.2	3	1
Shivapuri National Park	39.7	2	2
Royal Shuklaphanta Wildlife Reserve	59.0	3	1
Koshitappu Wildlife Reserve	38.0	2	2
Parsa Wildlife Reserve	27.0	2	2
Dhorpatan Hunting Reserve	34.7	2	2
Annapurna Conservation Area	62.0	3	1
Kangchenjungha Conservation Area	62.0	3	1
Manaslu Conservation Area	54.0	3	1

Rating method:
62-8.5 =53.5/3 = 17.83
Up to (8.5 + 17.83) = 26.33 =1, 26.33-44.16 (26.33 + 17.83) = 2 and Greater than 44.16 =3

Source: Appendix 5 Table 7

Based on this criterion, LNP, RNP, KNP and SPNP were ranked high in terms of level of poverty; RCNP, SNP, RBNP, ShNP, KWR. PWR and DHR were ranked medium and MBNP, RSWR, ACA, KCA and MCA were ranked low in poverty.

2.2.5 Rating of PAs based on socio-economic significance

Socio-economic significance of PAs was assessed in terms of two indicators, namely economic importance and cultural and religious values. Economic importance was measured through number of tourists visiting the area and revenue generated per unit area of the PAs and the dependent population per unit area of PA. Cultural and religious value of the PAs is measured in terms of number of religious sites and number of pilgrims visiting the area. Prioritizing PAs based on socio-economic criteria implied assigning higher score to those PAs with high visitors, greater revenue per unit area, more dependent population, more religious sites and more pilgrims. Rating of the 16 PAs reviewed based on this criteria is presented in Table 5:

Based on socio-economic criteria, ShNP ranked first followed by RCNP, LNP, KWR and ACA second and the rest 11 PAs third.

Table 5: Rating of Protected Areas based on socio-economic and religious values

Protected Areas	Economic value		Cultural value		Overall socio-economic score	Overall socio-economic rating (3)
	Score	Rating (1)	Score	Rating (2)		
Royal Chitwan National Park	7	2	4	2	4	2
Langtang National Park	6	1	6	3	4	2
Sagarmatha National Park	6	1	4	2	3	1
Rara National Park	5	1	2	1	2	1
Shey Phoksundo National Park	5	1	4	2	3	1
Khaptad National Park	6	1	4	2	3	1
Royal Bardia National Park	6	1	3	1	2	1
Makalu Barun National Park	5	1	3	1	2	1
Shivapuri National Park	7	2	5	3	5	3
Royal Shuklaphanta Wildlife Reserve	6	1	4	2	3	1
Koshitappu Wildlife Reserve	8	3	3	1	4	2
Parsa Wildlife Reserve	6	1	2	1	2	1
Dhorpatan Hunting Reserve	5	1	2	1	2	1
Annapurna Conservation Area	5	1	6	3	4	2
Kangchenjungha Conservation Area	5	1	3	1	2	1
Manaslu Conservation Area	6	1	3	1	2	1

(1) Rating method:
8-5=3/3= 1
Up to 6 (5+1) =1
6-7 (6+1) = 2 & and
Greater than 6 =3

(2) Rating method:
6-2=4/3= 1.33
Up to 3.33 (2-1.33) =1
3.33-4.66 (3.33-1.33) = 2
and Greater than 4.66 =3

(3) Rating method:
5-2=3/3= 1
Up to 3 (2+1) =1
3-4 (3+1) = 2 and
Greater than 4 =3

Source: Appendix 5 Table 8, 9, 10 and 11

2.2.6 Rating of PAs based on conflict significance

Conflict significance of PAs reviewed was assessed in terms of a single indicator namely the level of threat measured through presence of numbers of threat activities. Threat activities encompassed two types of threats: threats to park resources like natural hazards, habitat loss, poaching, revenge killing, etc and threats to human population like crop damage, livestock depredation, etc. Prioritizing PAs based on this criterion implied selecting those PAs with greater threats. This meant assigning higher score to PAs with greater number of threats. Rating of the 16 PAs reviewed based on this criteria is presented in Table 6:

Based on this criterion, RCNP, RBNP, RSWR, KWR and ACA ranked first, followed by LNP, MBNP and PWR in the second rank and by SNP, RNP, SPNP, KNP, ShNP, DHR, KCA and MCA in the third rank.

2.2.7 Rating of PAs based on programs significance

Program significance of PAs reviewed was assessed in terms of two indicators namely government's budgetary contribution and donors presence. Government contribution was measured in terms of average government budget allocated to a given PA per unit area of PA in last three years and donor assistance on the other hand was measured in terms of presence of number of donors. Prioritizing PAs based on this criterion implied selecting those PAs with low government budget and presence of few donors. Rating of the 16 PAs reviewed based on this criteria is presented in Table 7:

Based on this criterion, except for RCNP, which ranked in lowest priority and SNP, RBNP and RSWR ranked in the second priority, all the remaining 12 PAs evaluated were ranked in the first priority.

Table 6: Rating of Protected Areas based on number of threats

Protected Areas	Threats	
	Number	Scoring
Royal Chitwan National Park	16	3
Langtang National Park	12	2
Sagarmatha National Park	9	1
Rara National Park	6	1
Shey Phoksundo National Park	8	1
Khaptad National Park	8	1
Royal Bardia National Park	15	3
Makalu Barun National Park	10	2
Shivapuri National Park	6	1
Royal Shuklaphanta Wildlife Reserve	13	3
Koshitappu Wildlife Reserve	14	3
Parsa Wildlife Reserve	11	2
Dhorpatan Hunting Reserve	9	1
Annapurna Conservation Area	13	3
Kangchenjungha Conservation Area	9	1
Manaslu Conservation Area	8	1

(1) Rating method:
14-6=8/3= 2.66
Up to 8.66 (6+2.66) =1, 8.66-11.32 (8.66 + 2.661) = 2 and Greater than 11.32 =3

Source: Appendix 5 Table 12

Table 7: Rating of Protected Areas based on program significance

Protected Areas	Budget per species		Presence of donors		Overall score	Overall Rating (3)
	Rs	Rating (1)	Number	Rating (2)		
Royal Chitwan National Park	8,843	1	7	1	2	1
Langtang National Park	1,963	3	4	2	5	3
Sagarmatha National Park	3,758	3	6	1	4	2
Rara National Park	2,645	3	2	3	6	3
Shey Phoksundo National Park	3,048	3	4	2	5	3
Khaptad National Park	4,103	2	1	3	5	3
Royal Bardia National Park	6,057	2	4	2	4	2
Makalu Barun National Park	1,753	3	2	3	6	3
Shivapuri National Park	2,427	3	0	3	6	3
Royal Shuklaphanta Wildlife Reserve	4,390	2	3	2	4	2
Koshitappu Wildlife Reserve	2,994	3	2	3	6	3
Parsa Wildlife Reserve	2,536	3	2	3	6	3
Dhorpatan Hunting Reserve	3,106	3	1	3	6	3
Annapurna Conservation Area	1,479	3	3	2	5	3
Kangchenjungha Conservation Area	2,008	3	4	2	5	3
Manaslu Conservation Area	2,277	3	2	3	6	3

(1) Rating method:
8843-1479=7364/3= 2455
Up to 3934 (1479+2455) = 3
3934-6389 (3937+2455) =2
and Greater than 6389 =1

(1) Rating method:
7-0=7/3= 2.33
Up to 2.33 (0+2.33) =3
2.33-4.66 (2.33+2.33) = 2
and Greater than 4.66 =1

(1) Rating method:
6-2=4/3= 1.33
Up to 3.33 (2+1.33) =1
3.33-4.66 (3.33+1.33) = 2
and Greater than 4.66 =3

Source: Appendix 5 Table 13 and 14

2.2.8 Rating of PAs based on partnership significance

Partnership significance of PAs reviewed was evaluated based on two indicators namely the status of donor support and possibilities for replicating SABIHAA modality for participatory natural resources management. Status of donor support was measured in a scale of 3 to 1 where 3 indicated that donors has just phased out its support, 2 indicated that the donor support was going to be phased out soon and 1 indicated continuing donor support. Possibilities of replicating SABIHAA was also rated in a 3 to 1 scale where a scale of 3 indicated possibilities of replicating SABIHAA without any modification, a scale of 2 indicated possibilities of replicating SABIHAA with slight modification and a scale of 1 indicated possibilities of replicating SABIHAA only with substantial change in existing acts and regulations. Values assigned to each of the PA against these two indicators were added. PAs with higher values were then prioritized using a 1 to 3 scale. Rating of the 16 PAs reviewed based on this criteria is presented in Table 8:

Table 8: Rating of Protected Areas based on partnership possibilities

Protected Area	Status of donors support (1)	Replicability of SABIHAA model (2)	Total score	Rating (3)
Royal Chitwan National Park	1	1	2	1
Langtang National Park	2	1	3	1
Sagarmatha National Park	1	2	3	1
Rara National Park	2	2	4	2
Shey Phoksundo National Park	1	1	2	1
Khaptad National Park	2	2	4	2
Royal Bardia National Park	1	1	2	1
Makalu Barun National Park	3	1	4	2
Shivapuri National Park	3	3	6	3
Royal Shuklaphanta Wildlife Reserve	1	2	3	1
Koshitappu Wildlife Reserve	2	2	4	2
Parsa Wildlife Reserve	2	2	4	2
Dhorpatan Hunting Reserve	3	3	6	3
Annapurna Conservation Area	1	2	3	1
Kangchenjungha Conservation Area	1	2	3	1
Manaslu Conservation Area	1	2	3	1

(1) Rating method:
Just phased out= 3
Phasing out soon =2

(2) Rating method:
Replicable w/o modification =3
Replicable w/ slight modification =2
Not easily replicable = 1

(3) Rating method:
6-2=4/3= 1.33
Up to 3.33 (2+1.33) = 1
3.33-4.66 (3.33+1.33) =2
and Greater than 4.66 = 3

Source: Appendix 5 Table 15

Based on this criterion, ShNP and DHR ranked in the first priority; RNP, KNP, MBNP, KWR and PWR in the second priority and the rest in the third priority.

2.2.9 Rating of PAs based on global significance

Global significance of PAs reviewed was evaluated using two indicators namely the relevance of a given PA to Nepal's commitments to international conventions/agreements and its trans-boundary value. Relevance of a PA to international conventions/agreements was measured in terms of numbers of such conventions applicable to a given protected area and that of its trans-boundary value by its linkage to PAs across the boarder. Prioritizing PAs in terms of their global significance thus implied assigning higher

score to those PAs with more numbers of relevant international commitments and linkage with PAs across the boarder. Rating of the 16 PAs reviewed based on this criteria is presented in Table 9:

Table 9: Rating of Protected Areas based on global commitments and trans-boundary values

Protected Area	International commitments[3]		Trans-boundary ratings (2)	Overall score	Overall Ratings (3)
	Number	Ratings (1)			
Royal Chitwan National Park	2	3	3	6	3
Langtang National Park	0	1	3	4	2
Sagarmatha National Park	1	2	3	5	3
Rara National Park	0	1	1	2	1
Shey Phoksundo National Park	1	2	1	4	2
Khaptad National Park	0	1	1	2	1
Royal Bardia National Park	2	3	2	5	3
Makalu Barun National Park	0	1	3	4	2
Shivapuri National Park	0	1	1	2	1
Royal Shuklaphanta Wildlife Reserve	1	2	2	4	2
Koshitappu Wildlife Reserve	1	2	2	4	2
Parsa Wildlife Reserve	1	2	2	4	2
Dhorpatan Hunting Reserve	0	1	1	2	1
Annapurna Conservation Area	0	1	1	2	1
Kangchenjungha Conservation Area	1	2	3	5	3
Manaslu Conservation Area	0	1	1	2	1

(1) Rating method:
No commitment = 0
One commitment = 1
Two commitments =2

(2) Rating method
Adjoining to PA in neighboring countries = 3
Indirectly linked to PA in neighboring countries = 2
Not linked to PAs neighboring countries = 1

(3) Rating method:
6-2 =4/3 =1.33
Up to 3.33 (2+1.33) = 1
3.33-4.66 (3.33+1.33) = 2
and Greater than 4.66 = 3

Source: Appendix 5 Table 16

Based on these criteria, RCNP, SNP, RBNP and KCA ranked at the top priority followed by LNP, SPNP, MBNP, KWR and PWR in the second priority and RNP, KNP, ShNP, RSWR, DHR, ACA and MCA in the third priority.

2.2.10 Selection of Protected Areas for field study

As seem in Table 2 through 9, PAs prioritized differed depending upon the criteria used. For example, LNP, RNP, MBNP, ACA and KWR were prioritized when biological significance alone was considered. Likewise, RCNP, SNP, RBNP and KCA ranked at the priority top when evaluated against global significance. Based on socio-economic significance alone ShNP ranked high. Given the objective of selecting priority PAs for biodiversity conservation and poverty reduction through participatory management, these were evaluated using all the criteria simultaneously. This meant building total perspective in the prioritization and selection of three priority PAs. To achieve this, priorities of all the eight criteria used were combined and PAs were evaluated jointly. This was accomplished by adding the rating score of all the criteria and ranking the PAs accordingly. This is done as indicated in Table 10.

[3] WHS = World Heritage Site, GttE = Gift to the Earth, RS = Ramsar Site and GTF = Global Tiger Forum

Table 10: Ranking of Protected Areas based on all criteria simultaneously

Protected areas	Technical significance	Conservation significance	Poverty significance	Economic significance	Conflict significance	Program assistance	Partnership significance	Global significance	Overall Score	Overall rating
Royal Chitwan National Park	1	2	2	2	3	1	1	3	15	V
Langtang National Park	3	2	3	2	2	3	1	2	18	II
Sagarmatha National Park	1	2	2	1	1	2	1	3	13	VII
Rara National Park	3	2	3	1	1	3	2	1	16	IV
Shey Phoksundo National Park	2	2	3	1	1	3	1	2	15	V
Khaptad National Park	2	1	3	1	1	3	2	1	14	VI
Royal Bardia National Park	1	2	2	1	3	2	1	3	15	V
Makalu Barun National Park	3	2	1	1	2	3	2	2	16	IV
Shivapuri National Park	2	2	2	3	1	3	3	1	17	III
Royal Shuklaphanta W. Reserve	2	2	1	1	3	2	1	2	14	VI
Koshitappu Wildlife Reserve	3	2	2	2	3	3	2	2	19	I
Parsa Wildlife Reserve	1	2	3	1	2	3	2	2	16	IV
Dhorpatan Hunting Reserve	1	2	2	1	1	3	3	1	14	VI
Annapurna Conservation Area	3	3	1	2	3	3	1	1	17	III
Kangchenjungha Conservation Area	2	2	1	1	1	3	1	3	14	VI
Manaslu Conservation Area	3	1	1	1	1	3	1	1	12	VIII

Source: Based on Table 2 through 9

When all the indicators were combined, KWR and LNP ranked at the top two priority and ShNP and ACA in the third priority rank. Since the criteria considered were guided by the twin objectives of the study which are conservation of natural resources and poverty reduction within the protected area through participatory management, the first two PAs (KWR and LNP) automatically qualified for selection. In the case of third PA, among the two PAs with equal ranking, ShNP was recommended because ACA was supported by KMTNC and also because ShNP is the only PA located in the middle hills of Nepal.

2.3 Wetland Sites Selection

2.3.1 Selection criteria

Following detail review of all the 10 WSs identified by NBS on the basis of Biodiversity Project Profile (BPP) and IUCN inventory, the study required selecting three priority WSs for detail field study. For this purpose, a set of 7 criteria had been identified during the Inception Phase. Initially, the set of criteria identified for WS selection was common to those of PAs. However, review of WSs revealed non-relevance of using the same set of criteria while prioritizing PAs and WSs. Thus the criteria proposed earlier were revisited in the context of their relevancy and available information and were revised accordingly. In the revised list, seven different criteria, slightly different from the ones proposed earlier, were included. The list of these criteria together with their definitions and decision rules is presented in Table 11.

Table 11: Criteria Used in Prioritizing Wetland Sites

Criteria	Indicators	Variables	Decision rule
• Biodiversity significance	• Species diversity • Habitat diversity • Area of wetland	• Species diversity rating done by BPP • Number of habitat type • Area in ha	• Select those sites that are rich in speeies indicated by high score, more number of habitat types and larger wetland area
• Conservation significance	• Present condition of wetland	• Local perception on the present condition rated as excellent, high, average, fair and poor	• Seleet those sites that are not in good condition
• Poverty significance	• Relative level of poverty in WS located district	• PDI index of ICIMOD	• Select those sites that are situated in districts ranked high in poverty
• Socio-economic significance	• Extent of community dependence	• Plant production / collection • Animal production / harvesting • Water storage or supply • Tourism/recreational value • Land development	• Select those sites where community dependence is high
• Conflict significance	• Level of threats	• Number of threatening activities	• Select those site that have higher level of threats
• Partnership significance	• Partnership possibilities	• Existence or otherwise of conservation effort • Existence or otherwise of conservation plans • Presence or otherwise of donors	• Select those sites that have high chance of partnering with local bodies and donors
• Global significance	• International importance	• Declaration or otherwise of Ramsar site • Cited in other international documents	• Select those sites with high international commitments pertinent to global significance

2.3.2 Rating of WSs based on biological significance

Biological significance of WSs reviewed was evaluated using three indicators namely size of wetlands, level of biodiversity and habitat diversity. Size of WSs was measured in hectares of WS, biodiversity was measured using BPP rating of WSs and habitat diversity was measured by number of habitat types. Using the decision criteria WSs were first rated based on individual indicators and then on the basis of total score arrived at by adding score of all the three indicators. Prioritizing WSs in terms of biological significance implied assigning higher score to those WSs with larger area, more number of species and habitat types. Rating of the 10 WSs reviewed based on this criterion is presented in Table 12.

Table 12: Rating of Wetland Sites based on biological significance

Wetland site	Area of wetland		Biological diversity		Habitat types		Total Score (4)	Overall rating (1-5 scale)
	Area (ha)	Score (1)	Rating	Score (2)	No of Habitats	Score (3)		
Bishazari Tal Ramsar Site	180	5	5	5	5	5	15	5
Gaindahawa Tal	11	1	3	3	4	4	8	2
Jagadishpur Reservoir Ramsar Site	156	5	5	5	2	2	12	4
Badahiya Tal	100	3	4	4	2	2	9	2
Ghodaghodi Tal Ramsar Site	150	5	5	5	2	2	12	4
Nakhrodi Tal	100	3	4	4	5	4	11	3
Rampur Tal	22	1	4	4	2	2	7	1
Deukhuria Tal	22	1	4	4	1	1	6	1
Patriyani Tal	35	1	4	4	2	2	7	1
Betkot Tal	4	1	4	4	2	2	7	1

(1)Rating method
180-4=176/5=35.2
Up to 39.2 (4+35.2) =1
39.2to74.4 (39.2+35.2) =2
74.4to109.6 (74.4+35.2) =3
109.6to144.8 (109.6+35.2)=4
greater than 144.8 =5

(2) Adopted from BPP

(3) Rating method: 5-1=4/5=0.8
Up to 1.8 (1+0.8)=1,1.8-2.6
(1.8+0.8)=2
2.6-3.4 (2.6+0.8)=3, 3.4-4.2
(3.2+0.8)=4 and Greater than 4.2=5

(4)Rating method : 15-6=9/5=1.8
Up to 7.8 (6+1.8)=1, 7.8to9.6
(7.8+1.8)=2, 9.6to11.4 (9.6+1.8) =3
11.4to13.2 (11.4+1.8)=4 and
Greater than 13.2 = 5

Source: BPP 1995

Based on biological significance, Bishazari Tal Ramsar Site (BTRS), Jagadishpur Reservoir Ramsar Site (JRRS) and Ghodaghodi Tal Ramsar Site (GTRS) were ranked in the top three priorities.

2.3.3 Rating of WSs based on conservation significance

Conservation significance of WSs was assessed based on the present condition of the WSs assessed by BPP. Only one indicator of present condition rated by local in five different classes was used. Prioritizing WSs in terms of their conservation significance implied assigning higher score to those WSs with higher significance. Ten WSs thus and their relative rating as arrived at by using BPP classification is presented in Table 13.

Table 13: Rating of WSs based on present conditions

Wetlands	BPP Rating	Scoring (1)	Rank	Wetlands	BPP Rating	Scoring (1)	Rank
Bishazari Tal Ramsar Site	Excellent	5	1	Nakhrodi Tal	High	4	2
Gaindahawa Tal	High	4	2	Rampur Tal	Average	2	3
Jagadishpur Reservoir RS	High	4	2	Deukhuria Tal	Average	2	3
Badahiya Tal	Average	2	3	Patriyani Tal	High	4	2
Ghodaghodi Tal RS	Excellent	5	1	Betkot Tal	High	4	2

Note: (1) Score of 5 is given to WSs classified as excellent and and 1 to those classified poor.

Source: BPP 1995

When wetlands are to be selected based on their present condition, Badahiya Tal (BT), Rampur Tal (RT) and Deukhuriya Tal) (DT) classified as having the average condition were ranked in the first

priority followed by GTRS, JRRS, Nakhrodi Tal (NT), Patryani Tal (PT) and Betkot Tal (BkT) in the second priority and by BTRS and GTRS in the third priority.

2.3.4 Rating of WSs based on poverty significance

Referencing a given wetland site to district where it is located and using ICIMOD's ranking of districts based on PDI and the decision criteria (selecting sites that are located in districts with high incidence of poverty, 10 WS were rated using a scale of 1-5 as shown in Table 14.

Table 14: Rating of WSs based on relative level of poverty

Wetland site	ICIMOD's ranking based on PDI	Scoring based on relative level of poverty
Bishazari Tal Ramsar Site	66	1
Gaindahawa Tal	33	4
Jagadishpur Reservoir Ramsar Site	26	5
Badahiya Tal	22	5
Ghodaghodi Tal Ramsar Site	20	5
Nakhrodi Tal	20	5
Rampur Tal	20	5
Deukhuria Tal	20	5
Patriyani Tal	22	5
Betkot Tal	59	1

* Rating / scoring methods: 66-20 = 46/5=9.2 Up to 29.2 (20+9.2)= 5 29.2 to 38.4 (29.2+9.2)= 4 38.4 to 47.6 (38.4+9.2)= 3 47.6 to 56.8 (47.6+9.2)= 2 and Greater than 56.8 = 1

Source: ICIMOD's ranking of districts based on PDI

When wetlands were to be selected using relative level of poverty, JRRS, BT, GTRS, NT, RT, DT and PT got first priority followed by GT in the second priority and BTRS and BkT in the third priority.

2.3.5 Rating of WSs based on socio-economic significance

Socio-economic significance of WSs was assessed using a single indicator namely the community dependence. Five measures of community dependence on WS as used by BPP reflecting direct use values were used. These included plant product collection, animal production /harvesting, water storage or supply, tourism /recreation potential and land development. Rating of BPP was adopted for individual use values and these were then added and prioritized using a 1-5 scale where a scale 1 indicated low use value and thus low community dependence and higher scales showing higher levels of use value and dependence. Using the decision criteria (select WSs with high community dependence), these were then rated accordingly as shown in Table 15.

Based on the overall score under socio-economic significance and the decision criteria, DT was ranked in first priority, BTRS, Gaindahawa Tal (GT), JRRS, BT, NT and RT in the second priority and GTRS and PT in the third priority and BkT in the last priority.

Table 15: Rating of WSs based on level of community dependence

Wetlands	Plant product collection	Animal production /harvesting	Water storage or supply	Tourism /recreation potential	Land development	Total score	Rating using a I-5 scale*
Bishazari Tal Ramsar site	4	4	3	4	2	17	4
Gaindahawa Tal	2	4	4	3	3	16	4
Jagadishpur Reservoir RS	2	2	5	3	4	16	4
Badahiya Tal	3	4	3	2	4	16	4
Ghodaghodi Tal RS	4	3	3	4	1	15	3
Nakhrodi Tal	3	3	4	4	3	17	4
Rampur Tal	4	5	3	3	2	17	4
Deukhuria Tal	4	4	3	4	4	19	5
Patriyani Tal	3	3	3	3	3	15	3
Betkot Tal	1	1	3	4	1	10	1

* Rating / scoring methods: 19-10 = 9/5=1.8
up to 11.8 (10+1.8)= 1 , 11.8 - 13.6 (11.8+1.8)= 2, 13.6 - 15.4 (13.6+1.8)= 3, 15.4 - 17.2 (15.4+1.8)= 4 and > 17.2 = 5
Source: BPP 1995

2.3.6 Rating of WSs based on conflict significance

Conflict significance of WSs was evaluated using a single indicator namely the level of threats. Level of threats was measured in terms of number of threat activities listed by BPP. Depending upon the relevance, numbers of threats to WSs studied were counted. Since the number of threats counted did not exceed 2, these were given scores close to each other. Thus WSs with 2 threats were given a core of 3 while others with only one or no threats were given a score of 2 as shown in Table 16.

Table 16: Rating of WSs based on number of threats

Wetlands	No of reported threats	Scoring
Bishazari Tal Ramsar Site	1	2
Gaindahawa Tal	2	3
Jagadishpur Res.	1	2
Badahiya Tal	2	3
Ghodaghodi Tal Ramsar Site	1	2
Nakhrodi Tal	1	2
Rampur Tal	1	2
Deukhuria Tal	2	3
Patriyani Tal	1	2
Betkot Tal	0	2

Source: BPP 1995

When wetlands are to be selected based on the level of threats, GT, BT, and DT get the top priority followed by other seven WSs.

2.3.7 Rating of WSs based on partnership significance

Partnership significance was evaluated using three sets of indicators and these included existence or otherwise of conservation initiatives, conservation/development plans and donors presence. Using BPP information and information from other sources, individual indicators were applied and WSs were rated first and using the total score, these were then rated using a 1-5 scale where increasing score implied higher possibilities in partnering. Individual and overall rating of WSs based on these indicators is shown in Table 17 below.

Table 17: Rating of WSs based on partnering possibilities

Wetlands	Conservation measures initiated		Existence of development plans		Donor assistance		Total score	Rating using a scale**
	Status	Score*	Status	Score*	Status	Score*		
Bishazari Tal Ramsar Site	yes	3	yes	3	yes	3	9	5
Gaindahawa Tal	no	2	yes	3	no	2	7	2
Jagadishpur Reservoir RS	yes	3	no	2	no	2	7	2
Badahiya Tal	no	2	no	2	no	2	6	1
Ghodaghodi Tal Ramsar Site	yes	3	yes	3	no	2	8	4
Nakhrodi Tal	no	2	no	2	no	2	6	1
Rampur Tal	no	2	no	2	no	2	6	1
Deukhuria Tal	no	2	no	2	no	2	6	1
Patriyani Tal	no	2	no	2	no	2	6	1
Betkot Tal	yes	3	yes	3	no	2	8	4

* To avoid greater differences a score of 3 is given to WSs with yes and 2 with no situation
* *Rating / scoring methods: 9-6 = 3/5=0.6
up to 6.6 (6+0.6)= 1 > 6.6 up to 7.2 (6.6+0.6)= 2 > 7.2 up to 7.8 (7.2+0.6)= 3 > 7.8 up to 8.4 (7.8+0.6)= 4 and > 8.4 = 5

Source : BPP 1995

Based on the overall score and the decision criteria, the first three WSs prioritized happened to be BTRS, BkT and GTRS

2.3.8 Rating of WSs based on global significance

Two indicators were used to reflect global significance of the studied WSs. The first was the declaration of Ramsar Site and the other was the recognition of WSs in any other international documents. Using these two indicators, WSs that were recognized as Ramsar Site were given a score of five, those with other recognition as three and those without any recognition as 0. Ratings are shown in Table 18.

Table 18: Rating of WSs based on global significance

Wetlands	Ramsar Site	Score
Bishazari Tal Ramsar Site	yes	5
Gaindahawa Tal *	no	3
Jagadishpur Reservoir Ramsar Site	yes	5
Badahiya Tal	no	0
Ghodaghodi Tal Ramsar Site	yes	5
Nakhrodi Tal	no	0
Rampur Tal	no	0
Deukhuria Tal	no	0
Patriyani Tal	no	0
Betkot Tal	no	0

* A score of 3 has been given for its mention in Directory of Asian Wetlands

Source: BPP, 1995 and DNPWC, 2003

Based on the rating and the decision criteria (prioritize those with more international recognition), the first three WSs prioritized happened to be BTRS, JRRS and GTRS.

2.3.9 Selection of WSs for field study

Different WSs get prioritized when these were evaluated using individual criteria as shown in Table 11 through 18,. Building a total perspective in the prioritization and selection of three priority WSs required combining all these criteria and evaluating the 10 WSs jointly. This was accomplished by

adding the rating score of all the criteria and ranking the WSs in ascending order of total score. This was accomplished as indicated in Table 19.

Table 19: Ranking of WSs based on indicators used to select priority WSs for detail field study

Wetland Sites	Biological significance	Conservation significance	Poverty significance	Socio-economic significance	Conflict significance	Partnership significance	Global significance	Overall score	Rank
Betkot Tal	1	2	1	1	2	4	0	11	VIII
Patriyani Tal	1	2	5	3	2	1	0	14	VII
Rampur Tal	1	3	5	4	2	1	0	16	VI
Nakhrodi Tal	3	2	5	4	2	1	0	17	V
Badahiya Tal	2	3	5	4	3	1	0	18	IV
Deukhuria Tal	1	3	5	5	3	1	0	18	IV
Gaindahawa Tal	2	2	4	4	3	2	3	20	III
Bishazari Tal	5	1	1	4	2	5	5	23	II
Ghodaghodi Tal	4	1	5	3	2	4	5	24	I
Jagadishpur Res.	4	2	5	4	2	2	5	24	I

Source: Based on Table 12 through 18

When all the indicators were combined, JRRS ranked at the top of the priority. It is followed respectively by BTRS, GTRS, GT, DT, BT, NT, RT, PT, and BkT. Considering the conservation and poverty reduction significance through collaborative management of WSs, the first three high-ranking WSs were selected for field study.

2.4 Field Study Phase

Field study phase of the study was planned with three objectives. The first objective was to assess field conditions and collect most recent information from districts where selected PAs and WSs are located to supplement and update the review findings. Second objective was to collect primary information from a range of stakeholders to prepare baseline of selected PAs and WSs. The third objective was to identify potential areas for JICA and HMG/N cooperation in future. Field study was limited to three PAs (KWR, LNP and ShNP) and three WSs (BTRS, JPRS and GTRS) prioritized as described under sections 2.2 and 2.3 above.

2.4.1 Selection of stakeholders

Ten different organizations were identified as important stakeholders from field survey perspectives and recommended during the Inception phase. Relevance of these stakeholders was endorsed in the first interaction meeting organized to discuss the inception report. These included PA/WS Authority, Local Unit of Conservation Partners, District Development Committee (DDC), Village Development Committee (VDC) and municipalities, related district Line Agencies, related NGOs, related CBOs at three levels, related private sector, households and prison inmates. Following paragraphs describe the procedure used in selecting these stakeholders.

Selection of DDC for Interview and Discussion: In case that the selected PA and WS spanned geographically to more than one district, only one DCC where the PA headquarter / management unit of WS was located was covered. Based on this, DDC of Sunsari (KWR), Chitwan (BTRS), Kapilavastu (JRRS), Kailali (GTRS), Kathmandu (ShNP) and Rasuwa (LNP) were selected. Initially consultation with DDC authority was planned with two officials DDC chair or vice chair and Local Development Officer (LDO), it was later converted into group discussion with DDC officials.

Selection of VDC and Municipality for Interview and Discussion: In general areas directly influenced by PAs and WSs spanned over many VDCs and some include municipality as well. Thus considering the time and resources, two VDC/municipalities were selected for field survey in each selected PA and WS. In selecting VDC/municipalities, one was selected from among those adjoining

the PA/WS and the other from among those that lied farther. The VDC / municipalities selected are as indicated in Table 20:

Table 20: VDC/Municipality selected for field survey

Selected PA	Selected VDC / municipality	Selected WS	Selected VDCC / municipality
Koshitappu Wildlife Reserve	Shreepur VDC, Sunsari, and Purwa Pipra VDC, Saptari	Bishazari Tal Ramsar Site	Bharatpur Municipality and Bachauli VDC, Chitwan
Shivapuri National Park	Samundradevi VDC, Nuwakot and Chapali Bhadrakali VDC, Kathmandu	Jagadishpur Reservoir Ramsar Site	Kapilvastu Municipality, Niglihawa VDC, Kapilvastu
Langtang National Park	Dhunche VDC and Dhaibung VDC, Rasuwa	Ghodaghodi Tal Ramsar Site	Darakh VDC, and Sandepani VDC, Kailali

As in the case of DDC, consultation with VDC authority was planned with two officials (VDC Chair or Vice-chair and Secretary, it was later converted into VDC level workshop participated in by VDC officials and representatives from CBOs selected for survey and other key persons.

Selection of NGOs for Interview and Discussion: Considering the time and resources, the study had planned to cover three related NGOs during the field survey by distributing them into three functional areas. Among the three, one was selected from among those involved in enterprise development, other involved in community development activities and the third one involved in conservation and related activities. Based on availability of NGOs, NGOs consulted and discussed are presented in Table 21.

Table 21: NGOs selected for field survey

Selected PA	NGOs consulted		
	1	2	3
Koshitappu Wildlife Reserve	Environmental Conservation and Social Development Institute	Bird Conservation Nepal, Koshitappu	Association for Preservation of Environment and Culture, Biratnagar
Shivapuri National Park	Japanese Alpine Club	Center for Women's Right and Development	Budhanilkantha Environment Club
Langtang National Park	Nepal Agroforestry Foundation (NAF)	Gosainkunda Area Development Committee	Search Nepal, Dhunche
Bishazari Tal	Social Development and Environment Conservation Society, Nepal	Birds Education Society (BES)	Nepal International Friendship Club
Jagadishpur Reservoir	Siddhartha Social development center	Kalika Swabalamban Kendra	Nigli Yuva club
Ghodaghodi Tal	CARE Nepal	Ghodaghodi Samrachan Manch	Tharu Sanskriti Kendra

Consultation with relevant NGO followed FGD with the officials focusing mainly on their activities, capacities and their views on conservation and poverty reduction.

Selection of CBOs for Interview and Discussion: To the extent of availability, the study had planned to select 13 CBOs in each of the priority PA and WS surveyed by distributing them as five operational level CBOs per selected VDC/municipality, one VDC level CBOs from each of the two selected VDCs and one district level CBOs.

In selecting the operational level CBO, all related CBOs operating in the selected VDC were listed and categorized based on their major activities. Then from each group one CBO was selected randomly. Selection of VDC level CBO was rather easy as there was only one such CBO or there was no such CBO. Selection of district based CBO was limited to district level committees or federation of operational level or VDC level CBOs. Consultation with CBOs was through FGD with members. The list of CBOs surveyed is presented in Table 22.

Selection of households for Interview: Selection of households for detail livelihood survey was planned for the members of the operational CBOs surveyed. From each of the 5 operational level CBOs selected from each of study PA and WS, 10 members were randomly picked up. In selecting the 10 households from each CBO care was taken to distribute them across all economic and social class and to have fair gender representation. Based on the recommendation of JICA, household survey was further extended to cover 2 additional households located in the operational area of operational level CBO but not so far affiliated to any CBOs. This was done to gather views of non-CBO members on PA/WS activities.

In addition, few inmates from district prison of selected districts were also consulted to have further insights on the type of conflict between protected areas and the community.

2.4.2 Survey methods and survey instruments

Field survey work in each PA and WS started with the first visit to PA/WS authority. Concerned PA/WS authority was first briefed about the study and its methodology. Using the methodology mentioned above, stakeholders to be covered by the survey were identified jointly with the concerned PA/WS authority and a survey plan was prepared. Stakeholders covered methods of survey and survey instruments used are indicated in Table 23.

All the team members carried out field survey work in one PA (KWR) and one WS (BTRS). The team was then divided into two groups. One group carried out survey work in remaining two PAs (LNP and ShNP) and the other group conducted field survey in the remaining two WSs (JRRS and GTRS).

The first field survey was conducted in BTRS. Prior to the actual survey all survey instruments were pre-tested, revised and translated into Nepali language for easy use and for ensuring transparency about the work being carried out.

3. Data Analysis and Reporting

3.1 Data Processing

Except for household survey data, all other information collected were of qualitative type and were collected using checklists. Such information was recorded in notebooks and were analyzed at the end of each field trips and brief report prepared for use in the main reporting.

In the case of household survey data, questionnaire completed each day were checked by the professionals and checked for completeness and consistency. Any gaps or inconsistency observed was rectified next day by revisiting the relevant households. These questionnaires were examined in Kathmandu before entering the data into computers.

Data from the questionnaire were directly entered in Excel Spreadsheet and processed using its pivot table and pivot reporting facility. Keeping the objectives in mind, dummy cross tables to summarize household data were prepared and information were analyzed by classifying households according to economic status proxied by the size of operated land. The summary tables prepared for each of the PA and WS studied are presented in **Annex 7** as baseline data and are selectively used in drafting the main report.

Table 22: List of CBOs surveyed in each PA and WS

Selected PA	Level	Name of CBO surveyed
Koshitappu Wildlife Reserve and Ramsar Site	Operational	Janjagaran Male Users Group
		Pathari Women Group
		Sriram Sewa Group
		Jeevjantu Women Group
		Bajrangbali Users group
	VDC	Haripur – Shreepur User Committee
		Purwapipra, Ghoganpur – Dharampur User Committee
Shivapuri National Park	Operational	Kalika Gujera Group (Samundradevi)
		Dukurni Community Forest Users Group (Chapali Bhadrakali)
		Sirjan Women Group (Sunakhani)
		Panchakanya Community Forest User Group (Chapali Bhadrakali)
		IG Saving Credit Women Group (Bishnu Budanilkantha)
	VDC	Not applicable
		Not applicable
Langtang National Park	Operational	Chhangam Buffer Zone Users Group (Dhunche)
		Dongme Buffer Zone Users Group (Dhunche)
		Bazar Sarsafai Sub User Group (Dhunche)
		Panchkanya Users Group (Dhaibung)
		Kalikadevi Religious Community Buffer Zone Users Group (Dhaibung)
	VDC	Dhibung Buffer Zone User Committee
		Dhunche Buffer Zone User Committee
Bishazari Tal Ramsar Site	Operational	Haryali Users group (Gaurijung – Bharatpur Municipality)
		Mayur Women users group (Gaurijung–Bharatpur Municipality)
		Srijana Users group (Bacchauli)
		Tourism Entrepreneur Group (Bacchauli)
		Women Empowerment User Group (Bacchauli VDC)
	VDC	Mrigakunja Buffer zone User Committee
		Bharandabhar Buffer zone User Committee
Jagadishpur Reservoir Ramsar Site	Operational	Pashupati Womens Saving credit Group – Niglihawa
		Banganga Jal User Sub Committee – Niglihawa
		Banganga Jal User Sub Committee – Sandawa
		Banganga User Sub Committee – Bargadawa
		Banganga Jal User Sub Committee – Moria
	VDC	Jagadhishpur User Committee – Taulihawa
		Bhrikuti Multipurpose Cooperative – Niglihawa
Ghodaghodi Tal Ramsar Site	Operational	Tenduwa women Users group – Darak
		Hariyali Men users group – Ramshikharjal
		Pashupati community forest users group – Ramshikharjala
		Janhit forest users group – Sandepani
		Monyal group – Sandepani
	VDC	Tharu Bikas Kendra – Dharak
		Pashupati Yuwa Club - Ramshikharjala

3.2 SWOT Analysis

As mentioned under sub-section 2.4.1information generated during interactions with different stakeholders following FGD and individual interview approach were summarized in each site prior to returning to Kathmandu from each site surveyed. The information was used to conduct SWOT analysis. SWOT analysis of the study sites is presented in **Annex 8.**

Table 23: Stakeholders covered, methods and instruments used in field survey

Stakeholders Covered	Methods	Instruments
1. PA/WS authority	Interview/Discussion	Checklist
2. Local unit of conservation partners	Interview/Discussion	Checklist
3. DDC	Interview/Discussion	Checklist
4. VDC and Municipality	Interview/Focused Group Discussion (FGD)	Checklist
5. District Line Agencies	Interview/FGD	Checklist
6. NGOs	Interview/ FGD	Checklist
7. Community Based Organizations		
7.1 District level CBOs	Interview/ FGD	Checklist
7.2 VDC level CBOs	Interview/ FGD	Checklist
7.3 Operational level CBOs	Interview/ FGD	Checklist
8. Private sector	Interview/Discussion	Checklist
9. Households	Interview	Questionnaire
10. Prison Inmates	Interview/Discussion	Checklist

* Due to security situation, use of PRA tools except holding FGD was not possible and thus abandoned.

3.3 Identification of Potential Intervention Areas

Potential areas for external intervention from the perspective of biodiversity conservation and poverty reduction were identified based on the SWOT analysis. The identified areas were then cross-examined with the activities recommended by different stakeholders. The identified potential areas for external intervention were then elaborated and presented as Potential Future Areas of Cooperation between JICA and HMG/N and are presented in **Annex 9**.

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Appendices

Appendix 1

List of participants attending the First Consultation meeting
28 November 2003

DNPWC Meeting Hall, Babar Mahal, Kathmandu

SN	NAME	INSTITUTION	DESIGNATION
1	Mr. Narendra K. Gurung	JICA Nepal Office	Senior Programme Officer
2	Mr. Top B. Khatri	PCP	NPM
3	Mr. Vaskar Thapa	KMTNC	Senior Programme Officer
4	Mr. Jhamak Bdr. Karki	DNPWC	Asst. Cons. Officer
5	Mr. Shyam Bajimaya	DNPWC	Ecologist
6	Mr. Narayan Poudel	DNPWC	DDG
7	Ms. Sushila. Nepali	WWF Nepal	Program Officer
8	Mr. Surya Pandey	DNPWC	Asst. Mgmt. Officer
9	Mr. Sagendra Tiwari	IUCN	Program Coordinator
10	Mr. Gopal P. Upadhyaya	DNPWC	Planning Officer
11	Mr. Jeewan. Bajracharya	DNPWC	A/C Officer
12	Mr. Vijaya P. Singh	UNDP	Biodiversity Adviser
13	Mr. Pawan Shrestha	DNPWC	Ranger
14	Mr. Ek Raj Sigdel	TRPAP/ DNPWC	Program Officer
15	Dr. Shyam K. Poudel	NARMA	Research Director
16	Mr. Ukesh Raj Bhuju	NARMA	Team leader
17	Mr. Santosh Rayamajhi	NARMA	NRM
18	Mrs. Sabitra Banskota	NARMA	Community Dev Specialist
19	Ms. Pooja Pant	NARMA	Research Officer
20	Mr. Sunil K.C	NARMA	Research Officer
21	Mr. Amir Poudel	NARMA	Research Associate
22	Mr. Samir Rijal	NARMA	Research Associate
23	Mr. Niraj B.S. Basnet	NARMA	Office Assistant

Summary of Discussions, Comments and Suggestions in the First Consultation Meeting

A half-day consultation meeting was organized in the meeting hall of Department of National Parks and Wildlife Conservation (DNPWC) on 28 November 2003 to discuss the ***Inception Report*** of the study entitled ***"Poverty Reduction through Sustainable Management of Protected Areas and Wetlands in Nepal: Processes, Modalities, Impacts and Identification of areas for Future Support."*** The meting was chaired by Mr. Narayan Prasad Poudel, Deputy Director General (DDG), DNPWC and was participated in by representatives from a number of stakeholder institutions (Appendix 1 provides the list of participants). The meeting started after taking the Chair by the Chairman and with the introduction of the participants. Salient features of the meeting proceedings are summarized below:

Welcome speech by Mr. Narayan Prasad Poudel, Deputy Director General, DNPWC

JICA's Introductory Remark: Mr. Narendra Kumar Gurung

- Inclusion of Natural Resources Management in JICA's Country Strategy Paper
  - Forestry/Watershed
  - NP/Wetlands
  - NTFP
- JICA's involvement in conservation: 12 years experience in watershed management (Parbat, Kaski)
- In line with one of the priorities of Country Strategy a team of consultants from NARMA Consultancy has been commissioned to conduct a study on Protected Areas and Wetland Sites, the Inception Report of which is being discussed today
- The study is a stock taking exercise to inform JICA headquarters on the status, potentialities and priorities in the Protected Areas (PAs) and Wetland Sites (WSs) in Nepal
- This is not yet a programming exercise, rather an identification exercise.
- What JICA Nepal expects from today's presentation is that it would inform JICA's interest in the sub sector and also comments and suggestions on the study framework presented by the study team to make the study useful both to JICA and HMG/N

Presentation: Mr. Ukesh Raj Bhuju (Team Leader)

On behalf of the study team, Mr. Ukesh Raj Bhuju presented the Inception Report and his presentation was focused on the followings in sequence:

- Objectives of the consultation
- Study objectives, scope and methodology
- Review Analysis in terms of Coverage and Modality
- Explanation of criteria, indicators and variables that will be used for the selection of three PAs and three WSs
- Coverage of Stakeholders during the field study/survey, methods and instruments of the field Study/Survey
- Work Plan and
- Tentative draft of Report Format

After the presentation of the Inception Report, the Chairman opened the floor for Discussion.
Discussions

1. **Mr. Gopal Upadhaya (DNPWC)**
   - Strict criteria may lead to non-selection of significant PAs and WSs.
   - The PAs and WSs with global significance should be prioritized. In other words, selection criteria should also include Nepal's Global Commitments.

- *The study team while recognizing the issues raised, agreed to include one more criteria (global commitments) while selecting priority PAs and WSs.*

2. **Mr. Sagendra Tiwari (IUCN)**
   - The title of the study is not clear. 3 different components viz., Poverty, PAs and WSs are included in the title.
   - There must be conceptual clarity of the study.
   - Why both PAs and WSs are included in the study? How do you justify the relationship between PAs and WSs in the study? Management priorities are different for PAs and WSs. Therefore, the study should concentrate on only one area, either WS or PA.
   - The concept of BZ might not be effective where the revenue is low.
   - What about the wetlands inside PAs?
   - The instruments should be tested before implemented.
   - What about the validation of data? The data should be tested by the use of different tools for the validation.
   - The team should address the biodiversity rich but low revenue generating PAs.
   - The study should give the idea about the general need of the PAs and WSs.
   - Only, social research tools are used, scientific tools should also be used.
     - *The study team clarified various issues raised. More importantly, the study team clarified that the main objective of the present exercise is to assess issues that lie in the interface between conservation objectives and poverty reduction objectives. It was latter agreed that the study should assess how and to what extent conservation objectives of PAs and WSs have contributed to poverty reduction and any effort to be made in future to conserve biodiversity within PAs and WSs should also lead to poverty reduction.*

3. **Mr. Vaskar Thapa (KMTNC)**

   - There might be other reflection of poverty, which the study has to address.
   - If this study aims to link poverty, it should deal with the opportunity cost of PA and WS management and sustainable livelihood.
   - The study should talk about the tradeoff of PA management and poverty reduction.
   - For the effectiveness of the study, the study team has to analyze opportunity cost of parks
     - *Recognizing the merits of the points raised, the study team reemphasized its perception that any interventions in PAs and WSs should definitely be focused on biodiversity conservation but not at the cost of people's welfare level. In other words, such interventions should not lead to escalation of poverty rather it should contain poverty reduction.*

4. **Mr. Top Bahadur Khatri (PCP)**
   -
   - SALOGC is broader concept and is justified on the whole.
   - As selection criteria, the study team should keep richness of biodiversity, revenue generation of park, conducive environment for partnership platform, poverty index and HDI in mind.
   - The study is not clear whether to select 3 separate PAs or 3 separate WSs or 3 on a whole.
   - *The study team appreciated the comments made and clarified the most of the points suggested to include in the selection criteria have been directly or indirectly included except the poverty index which the team agreed. To the extent available, poverty index of PA and WS affected areas would be considered. In absence of such data, poverty index of PA and WS located districts would be taken. In respect of the selection, the study team clarified that it has no choice as this is dictated by the TOR.*

5. **Mr. Surya Bahadur Pandey (DNPWC)**

   - IUCN has prepared list of top ten wetlands. Why JICA bothers about this study?
   - The study should design the program considering the capacity of the institution.

- Restating the study objective clarified the first query, the study team took note of the fact that enhancing the capacity of DNPWC could itself be one area recommended for JICA's future cooperation area.

6. Mr. Shyam Bajimaya (DNPWC)

- Considering the short time, the study is ambitious.
- The Inception Report should rephrase some of the wordings.
- The report should not be duplication of other reports and works.
- While preparing NBS, SALOG tool has been used and Strategic framework has also been developed. ZOPP has been exercised on this.
- Why only 3 PAs and 3 WSs? We should not limit to the specific number.
- Some gaps in the Study are
  - Role of RNA (Stakeholder in terms of management)
  - Inputs of Department in this study
  - Capacity of department
  - Monitoring
- Important Selection Criteria
  - Remoteness of PAs and WSs
  - International Significance
  - Levels of project interventions
  - Staff/Resources of PAs/WSs/BZs
  - Commitment (Implementation of CITES)
  - On going Projects etc.
- The study is not clear on which comes first, Poverty or Conservation. The aspect of conservation should come on first.
- Some of the wetlands, such as Ghodaghodi, Jagdishpur Reservoir etc. do not come under DNPWC. The study must keep this in mind.
- The JICA can also go on multi-partnership approach.

  - *The study team noted the concerns and most importantly, the study team recognized the need to involve Department of Forest or other line agencies at the time of detail field study exercise (phase 3).*

7. Mr. Narendra Kumar Gurung (JICA)

- The aim of the study is to make an internal report to the JICA Headquarter for the future intervention.
- The study also aims to assess whether the learning of SABIHAA can be use in PAs and WSs.

  - *The study team thanked Mr. Gurung for clarifying some of the issues relating to study objectives and perceptions.*

8. Mr. Vijaya P. Singh (UNDP)

- There is a direct link between sustainable management of natural resources and poverty alleviation and thus between conservation and poverty
- However, good governance is must between conservation and poverty reduction.
- NBS should act as a base document.
- We should not limit to the specific number.
- Openness is essential for the implementation modality.

  - *The study team thanked Mr. Singh for endorsing the study objectives and clarified his concerns.*

9. Ms. Sushila Nepali (WWF)

- Literatures on "Rapid Assessment on PAs; ICDP" etc. might be useful for the study and WWF can share the available documents with the study team.
- A little bit different data has to be generated by the study.
- Root Cause Analysis of WWF can be another useful document.

- *The study team thanked WWF for its willingness to provide useful materials for the study and for its suggestions.*

10. Mr. Ek Raj Sigdel (TRPAP)

- The study should also talk about poverty mapping or level of poverty.
- The study is focused more on questionnaire and the level of participation is less.
- The number of questions on questionnaire should be deducted. This will save time.
- The checklist and questionnaire should be pre-tested.
- The checklist needs to be revisited and refined.

- *Acknowledging the suggestions, the study team clarified that the poverty mapping exercise as well as pre testing has been planned under the study and also assured that the questionnaire and checklist would be revisited to explore possibilities for making these short. Also, the proposed VDC level workshops and FGD were explained to make the planned investigations participatory.*

Concluding Remarks: Mr. Narayan Pd. Poudel (DDG, DNPWC)

- Thanked to all conservation partners and JICA to take interest on Natural Resources Management and Conservation.
- Thanked to all the participants for the technical and viable solution for the study.
- Hopes that the study would contribute to design the right path for the effective conservation programs.
- Presented a brief history of conservation and role of DNPWC
- Also welcomed JICA to work for the conservation and for the future intervention
- Suggest the study team to address the present status of the PAs and WSs
- Also suggest the study team to incorporate the issues of Global Warming and Climate Change.
- Inform JICA that the Participatory Conservation is a long-term commitment.
- Finally, he again thanked all and stressed "together we can make difference"

- *Assuring the DDG that the study team would incorporate all the valid comments and suggestions, the study team thanked the DDG for extending moral, technical and logistical supports to the study team. The study team also thanked all others present in the meeting for their valuable comments and suggestions and expected similar cooperation and support during the whole study period.*

Appendix 3

List of participants attending the Second Consultation meeting
8 January 2004
DNPWC Meeting Hall, Babar Mahal, kathmandu

SN	NAME	INSTITUTION	DESIGNATION
1	Dr. Damodar Prasad Parajuli	MOFSC	Joint Secretary
2	Mr. Narayan Prasad Poudel	DNPWC	DDG
3	Mr. Shyam Bajimaya	DNPWC	Ecologist
4	Mr. Gopal P. Upadhyaya	DNPWC	Planning Officer
5	Mr. Laxmi Pd. Manandhar	DNPWC	Conservation Education Officer
6	Mr. Santosh Nepal	DOF	-
7	Mr. Khruschev Shrestha	DSCWM/BIWMP	-
8	Mr. Ek Raj Sigdel	TRPAP/ DNPWC	Program Officer
9	Mr. Vaskar Thapa	KMTNC	Senior programme Officer
10	Mr. Ang Phuri Sherpa	WWF Nepal	Program Officer
12	Mr. Samir Karki	IUCN Nepal	Program Coordinator
13	Ms. Haruko Kamei	JICA Nepal Office	Assistant Resident Representative
14	Dr. Shyam K. Poudel	NARMA	Research Director
15	Mr. Ukesh Raj Bhuju	NARMA	Team leader
16	Mrs. Sabitra Banskota	NARMA	Community Dev Specialist
17	Ms. Pooja Pant	NARMA	Research Officer
18	Mr. Sunil K.C	NARMA	Research Officer
19	Mr. Amir Poudel	NARMA	Research Associate
20	Mr. Samir Rijal	NARMA	Research Associate
21	Mr. Niraj B.S. Basnet	NARMA	Office Assistant

Appendix 4

A Brief Summary of Discussions, Comments and Suggestions in the Second Consultation Meeting

A half-day consultation meeting was organized in the meeting hall of Department of National Parks and Wildlife Conservation (DNPWC) on 8 January 2004 to discuss the ***Review Report*** of the study entitled ***"Poverty Reduction through Sustainable Management of Protected Areas and Wetlands in Nepal: Processes, Modalities, Impacts and Identification of areas for Future Support."*** The meeting was chaired by Dr. Damodar Prasad Parajuli, Joint Secretary and Chief of Foreign Aid Coordination Division, MoFSC and was participated in by representatives from a number of stakeholder institutions (Appendix 1). The meeting started after taking the Chair by the Chairman and with the welcome and introduction of the participants by Mr. Narayan Prasad Poudel, DDG, DNPWC. Salient features of the meeting proceedings are summarized below:

While welcoming the participants, Mr. Poudel thanked JICA for showing its interest in the natural resources conservation sector and for commissioning this study. He also thanked all the conservation partners for their cooperation and requested all the participants for their active participation in the discussion.

Presentation: Mr. Ukesh Raj Bhuju (Team Leader)
On behalf of the study team, Mr. Ukesh Raj Bhuju presented the Review Report. With details on presentation in **Appendix 2**, his presentation was focused on the followings in sequence:

- Background
- Selection criteria
- Review findings
- Selection of PAs and WSs for detail field study

Dr. Damodar Parajuli, Joint Secretary, MoFSC opened the floor for discussion after stressing following points

Dr. Damodar Parajuli (Ministry of Forests and Soil Conservation)

- Representation from Ministry of Water Resources would have been better as the ministry is responsible for the overall water resources sector
- Appreciate JICA for its interest in conservation
- Ministry's envision the overall context of the country
- Highlighted the importance of strategic action on par with the existing policies
- Emphasized the role of DNPWC for coordination with the ministry.

Discussion

Mr. Santosh Nepal (DOF)

- Geographical area should also be one of the criteria for selecting the PAs as more the area of the PA, higher is its importance and thus area of PA should positively contribute to biodiversity.
- Suggested taking the report of NPC as a reference for ranking the geographical area.
- What is the statistical significance of the relative ranking used in selecting PAs and WSs for further study.

Thanking Mr. Nepal for his suggestion, the study team agreed to incorporate area as one of the indicators in selecting the PAs. On the question of statistical significance, the study team indicated the non relevance of statistical test as the relative ranking is used to identify PAs and WSs for further investigation and not for any academic purposes.

Mr. Sameer Karki (IUCN)

- Thanked JICA for its interest in conservation sector
- The sites that have been selected are good
- JICA could have interest in higher level of study and researches
- Lots of opportunities of partnership is possible in Koshitappu and Ghodaghodi Tal
- It is better to work with the integrated model than work with different types of models in the same field.
- Poverty alleviation should be emphasized more than what appears in the report.
- Want to know about the further steps of JICA
- Mr. Karki also highlighted the need to cover the wetlands of Hills and Mountains, which are less researched than those in the Tarai

Ms. Haruko Kamie, JICA Nepal in response to Mr. Karki's curiosity told that the study is just a learning phase for JICA Nepal. She also emphasized that there is always scope of merging the modalities for better model.

Dr. Shyam Poudel, study team member provided clarification on Mr. Karki's concern of wetlands in the hills and mountains and explained that the review has recognized this and this aspects would be highlighted in the study recommendations.

Mr. Narayan Poudel (DNPWC)

- Species value is high
- Geographical area is also an important criterion for the PA selection. In order to enhance the biodiversity significance, landscape approach has been initiated to make the effective area larger than the designated PA areas.
- Criteria for selection of National Park, Conservation Area and Wildlife reserve should be different for the better evaluation
- Level of intervention and effectiveness of the biodiversity conservation intervention should also be evaluated.
- In respect to the role of biodiversity, RCNP seems the most important PA, while in poverty prospective, Bajhang, Bajura, and Accham are of prime importance.
- However, time limit is always a major constraint
- All the programs of MoFSC are participatory approach type
- The programs of buffer zone are user group approach while SABIHAA is VDC based approach

In response to Mr. Poudel's concern over the uniform criteria being used to evaluate different types of PAs, the study team reemphasized that the sole objective of limited evaluation of all types of PAs using the same set of criteria is to select three PAs for field study and this should not be interpreted in any other ways. The study team agreed to incorporate area of PA also as one of the indicators of biological significance.

Mr. Vaskar Thapa (KMTNC)

- Word has created a little confusion. Technical significance should have been biological significance
- Ranking is mostly effected by species diversity
- Cultivation land has also been counted as ecosystem type in RSWR which should be revised.

In response to these quarries, the study team agreed to change the word technical by biological and on ecosystem types, the team expressed its view that this will not affect the selection as this criteria has been uniformly applied to all PAs and WSs.

Ek Raj Sigdel (TRPAP)

- The availability of the research works and study might have influence on the selection of the PAs and WSs for instance; Khaptad National Park might have been excluded due to unavailability of adequate information.
- The word selection for "Religious value" could be replaced by "Cultural Value".
- It would have been better if strengths of the management modalities had been reflected in the study for example, GEF in wetlands and emphasis on Landscape in the Tenth Plan.
- SWOT Analysis of the management aspect would have given better information
- The word "lack" is not suitable.

While appreciating the concern and suggestion, the study team reiterated that availability of information has definitely affected the selection process and agreed to change the words as suggested and informed that SWOT analysis has been carried out for SABIHAA modality and this would be tried in the selected PAs and WSs during field study.

Shyam Bajimaya (DNPWC)

- BZ program is resource, community, institutional and settlement based and hence it does not concern with political boundary of VDC or DDC
- The positive parts of both SABIHAA and BZ model could be integrated for better result.
- KMTNC is not private sector
- Dhorpatan Hunting Reserve has management plan framed in 1976
- PAs with Management Plan should have been given more value

The study team appreciated the suggestions and agreed to make suggested changes wherever relevant.

Final Remarks: Mr. Narayan Pd. Poudel (DDG, DNPWC)

- Thanked to all conservation partners and JICA to take interest on Natural Resources Management and Conservation.
- Thanked to all the participants for the technical and viable solution provided to the study.
- Hoped that the study would contribute to design the right path for the effective conservation programs.
- Presented a brief history of conservation and role of DNPWC.
- Also welcomed JICA to work for the conservation and for the future intervention.
- Suggest the study team to address the present status of the PAs and WSs.
- Also suggest the study team to incorporate the issues of Global Warming and Climate Change.
- Inform JICA that the Participatory Conservation is a long-term commitment.
- Finally, he again thanked all and stressed "together we can make difference"

Concluding Remarks By Dr. Parajuli

On behalf of MOFSC and himself, Dr. Parajuli made following concluding remarks:

- Hoped that this consultation meeting will help in improving this review report.
- The study team must categorically focus on the statements pointed out by DNPWC.
- In respect of PAs and WSs, conservation should always get first priority, poverty reduction is only a by-product. However, conservation should not to poverty escalation.
- DNPWC must have active role.
- MoFSC appreciates the donor policy but it would not accept donor's influence in policy formulation.

- Model is just a process and it might not require changing rules, regulations and laws.
- Good model can be replicated.
- This study should compliment the study of others organizations' study.
- Study team is requested to coordinate with MoFSC and he felt it necessary to involve all stakeholders in the process.
- DDC, VDC and LSG should be well addressed.

Finally, Mr. Ukesh Raj Bhuju assured Dr. Parajuli, Joint Secretary, MOFSC and Mr. Narayan Prasad Poudel, DDG, DNPWC that the study team would incorporate all the valid comments and suggestions and thanked Dr. Parajuli for officially endorsing the study from MOFSC and to DDG, DNPWC for extending moral, technical and logistical supports to the study team. The study team also thanked all others present in the meeting for their valuable comments and suggestions and expected similar cooperation and support during the whole study period.

Appendix 5

Table 1: Number of species recorded in different Protected Areas

S.No	Protected Area	Area of Protected Area		Flora		Fauna	
		Area (Sq. Km)	Rating	No / sq. Km	Rating	No / sq. Km	Rating
1	Royal Chitwan National Park	932	2	0.99	1	0.64	1
2	Langtang National Park	1,710	3	2.16	3	0.16	1
3	Sagarmatha National Park	1,148	2	0.54	1	0.10	1
4	Rara National Park	106	1	10.09	3	2.55	3
5	Shey Phoksundo National Park	3,555	3	0.44	1	0.07	1
6	Khaptad National Park	225	1	2.52	3	1.28	2
7	Royal Bardia National Park	968	2	0.87	1	0.62	1
8	Makalu Barun National Park	1,500	3	2.05	2	0.44	1
9	Shivapuri National Park	144	1	14.74	3	1.36	2
10	Royal Shuklaphanta Wildlife Reserve	305	1	2.30	3	1.40	2
11	Koshitappu Wildlife Reserve	175	1	2.94	3	4.21	3
12	Parsa Wildlife Reserve	499	1	1.84	2	1.12	2
13	Dhorpatan Hunting Reserve	1,325	2	0.87	1	0.00	1
14	Annapurna Conservation Area	7,629	3	0.45	1	0.08	1
15	Kangchenjungha Conservation Area	2,035	3	1.47	2	0.00	1
16	Manaslu Conservation Area	1,663	3	1.50	2	0.09	1

Source: DNPWC, 2002 and Table 2 Biodiversity Project Profile (BPP), 1995.

Table 2: Number of species recorded in different Protected Areas

S. No	Area (Sq. Km)	Flora species		Fauna		Total (Flora + Fauna)	
		Number	/ Sq. Km	Number	/ Sq. Km	Number	/ Sq. Km
1	Royal Chitwan National Park	919	0.99	593	0.64	1,512	1.65
2	Langtang National Park	3,689	2.16	279	0.16	3,968	1.08
3	Sagarmatha National Park	1,074	0.54	201	0.10	1,275	1.19
4	Rara National Park	1,070	10.09	270	2.55	1,340	1.25
5	Shey Phoksundo National Park	1,579	0.44	238	0.07	1,817	1.15
6	Khaptad National Park	567	2.52	287	1.28	854	1.51
7	Royal Bardia National Park	839	0.87	599	0.62	1,438	1.71
8	Makalu Barun National Park	3,073	2.05	665	0.44	3,738	1.22
9	Shivapuri National Park	2,122	14.74	196	1.36	2,318	1.09
10	Royal Shuklaphanta Wildlife Reserve	700	2.30	428	1.40	1,128	1.61
11	Koshitappu Wildlife Reserve	514	2.94	737	4.21	1,251	2.43
12	Parsa Wildlife Reserve	919	1.84	558	1.12	1,477	1.61
13	Dhorpatan Hunting Reserve	1,150	0.87	NA	0.00	1,150	1.00
14	Annapurna Conservation Area	3,430	0.45	643	0.08	4,073	1.19
15	Kangchenjungha Conservation Area	3,000	1.47	NA	0.00	3,000	1.00
16	Manaslu Conservation Area	2,500	1.50	146	0.09	2,646	1.06

Source: Latest Management Plans, Buffer Zone Plans, Strategic Plans, Tourism Development Plans of Respective PAs, Latest Annual Reports of DNPWC, Yonjon, 1997

Table 3: Number of ecosystem types encountered in Protected Areas

S.No	Protected Area	Ecosystem types (Number)	Rating
1	Royal Chitwan National Park	7	1
2	Langtang National Park	18	2
3	Sagarmatha National Park	8	1
4	Rara National Park	8	1
5	Shey Phoksundo National Park	21	2
6	Khaptad National Park	8	1
7	Royal Bardia National Park	7	1
8	Makalu Barun National Park	20	2
9	Shivapuri National Park	5	1
10	Royal Shuklaphanta Wildlife Reserve	3	1
11	Koshitappu Wildlife Reserve	5	1
12	Parsa Wildlife Reserve	8	1
13	Dhorpatan Hunting Reserve	14	2
14	Annapurna Conservation Area	28	3
15	Kangchenjungha Conservation Area	8	1
16	Manaslu Conservation Area	18	2

Source DNPWC.1995. Biodiversity project profile (BPP)

Table 4: Rating of Protected Areas based on number of endangered species and endemic flowering plants

Protected Areas	Mammals		Birds		Reptiles		Endangered species score	Endangered species ratings	Endemic flowering plants Number
	Number	Rating	Number	Rating	Number	Rating			
Royal Chitwan National Park	27	3	6	3	3	3	9	3	0
Langtang National Park	19	2	2	1	0	1	4	1	15
Sagarmatha National Park	13	1	2	1	0	1	3	1	11
Rara National Park	18	2	2	1	0	1	4	1	16
Shey Phoksundo National Park	19	2	2	1	0	1	4	1	30
Khaptad National Park	11	1	2	1	0	1	3	1	4
Royal Bardia National Park	23	3	5	3	3	3	9	3	0
Makalu Barun National Park	24	3	3	2	0	1	6	2	7
Shivapuri National Park	11	1	1	1	0	1	3	1	16
Royal Shuklaphanta Wildlife Reserve	19	2	3	2	2	2	6	NA	0
Koshitappu Wildlife Reserve	13	1	5	3	3	3	7	2	4
Parsa Wildlife Reserve	17	2	6	3	2	2	7	2	0
Dhorpatan Hunting Reserve	16	2	3	2	0	1	5	1	36
Annapurna Conservation Area	27	3	3	2	0	1	6	2	56
Kangchenjungha Conservation Area	15	1	1	1	0	1	3	1	23
Manaslu Conservation Area	9	1	1	1	0	1	3	1	0

Source: Chapagain 2001 and Nepal ma CITES Karyanayan, 2058 (in Nepali)

Table 5: Number of endemic flowering plants encountered in PA

S. No		Number of endemic flowering plants
1	Royal Chitwan National Park	0
2	Langtang National Park	15
3	Sagarmatha National Park	11
4	Rara National Park	16
5	Shey Phoksundo National Park	30
6	Khaptad National Park	4
7	Royal Bardia National Park	0
8	Makalu Barun National Park	7
9	Shivapuri National Park	16
10	Royal Shuklaphanta Wildlife Reserve	0
11	Koshitappu Wildlife Reserve	4
12	Parsa Wildlife Reserve	0
13	Dhorpatan Hunting Reserve	36
14	Annapurna Conservation Area	56
15	Kangchenjungha Conservation Area	23
16	Manaslu Conservation Area	0

Source: Latest Management Plans, Buffer Zone Plans, Strategic Plans, Tourism Development Plans of Respective PAs, Latest Annual Reports of DNPWC,

Table 6: Details on Protected Area specific endangered species

S. No	Species	Protected Areas															
		RCNP	LNP	SNP	RNP	SPNP	KNP	RBNP	MBNP	ShNP	RSWR	KWR	PWR	DHR	ACA	KCA	MCA
	Mammals (CITES +NPWC Act)	27	19	13	18	19	11	23	24	11	19	13	17	16	27	15	9
1	Asiatic Wild Elephant(*Elephas maximus*)	0	1	1	1	1	0	0	1	0	0	0	0	1	1	1	1
2	Assamese Monkey (*Macaca assamensis*)	1	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0
3	Black Buck (*Antlope cevicapra*)	0	1	1	0	1	0	0	1	0	0	0	0	0	1	1	0
4	Brown Bear (*Ursus arctos*)	0	1	1	0	1	1	0	1	0	0	0	0	1	1	1	1
5	Chinese Pangolin (*Manis pentadactyla*)	1	0	0	0	0	0	1	0	0	1	0	1	0	0	0	0
6	Clouded Leopard (*Neofelis nebulosa*)	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0
	Common Leopard (*Panthera pardus*)	1	0	0	0	0	0	1	0	0	1	1	1	0	0	0	0
8	Common Tree Shrew (*Tupaia glis*)	1	1	0	1	0	1	1	1	1	1	0	1	1	1	1	0
9	Fishing Cat (*Felis vivrrina*)	1	0	0	1	0	0	1	0	0	1	0	0	0	1	0	0
10	Flying Fox (*Pteropus giganteus*)	0	0	0	1	0	0	0	1	0	0	0	0	0	1	0	0
11	Four Horned Antelope (*Tetracerus quadricornis*)	1	0	0	1	0	0	1	1	0	0	1	0	0	1	1	0
12	Gangetic Dolphin (*Platanista gangetica*)	1	0	0	0	0	0	1	0	1	1	0	1	0	0	0	0
13	Gaur (*Bos gaurus*)	0	1	1	1	1	0	0	1	0	0	0	0	1	1	1	1
14	Giant Squirrel (*Ratufa macroura*)	1	1	1	1	1	1	1	1	1	0	0	0	1	1	1	
15	Golden Cat (*Felis temmincki*)	1	1	1	1	1	0	0	1	1	1	0	0	1	1	1	0
16	Great Tibetan Sheep (*Ovis ammon hodgsonii*)	1	1	0	1	1	0	1	1	1	0	0	1	0	1	0	0
17	Grey wolf (*Canis lupus*)	0	1	0	0	1	0	0	1	0	0	0	0	1	1	0	0
18	Hanuman Langur (*Semenopithecus entellus*)	1	0	0	0	0	0	1	0	0	1	0	1	0	0	0	0
19	Himalayan Black bear (*Selenarctos thibetanus*)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
20	Himalayan Ghoral (*Naemorhedus goral*)	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0
21	Himalayan Serow (*Naemorhedus sumatraensis*)	1	0	0	0	0	0	1	0	0	0	0	0	1	0	0	1
22	Hispid Hare(*Caprolagus hispidus*)	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
23	Indian Pangolin (*Manis crassicaudata*)	1	0	0	0	0	0	1	0	0	1	0	1	0	0	0	0
24	Jungle Cat (*Felis chaus*)	0	1	1	1	1	1	0	1	0	0	0	0	1	1		
25	Leopard cat (*Felis bengalensis*)	1	0	0	0	0	0	1	0	0	1	1	1	0	0	0	0
26	Lynx (*Lynx lynx*)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
27	Marble cat (*Felis marmorata*)	0	1	1	1	1	0	0	1	0	0	0	0	1	1	1	1
28	Musk deer (*Moschus chrysogaster*)	0	1	1	0	1	0	0	1	0	0	0	0	0	1	0	1
29	One Horned Rhino (*Rhinoceros unicornis*)	1	1	1	1	1	1	1	1	0	1	0	1	1	1	1	0

S. No	Species	Protected Areas															
		RCNP	LNP	SNP	RNP	SPNP	KNP	RBNP	MBNP	ShNP	RSWR	KWR	PWR	DHR	ACA	KCA	MCA
30	Otter (*Lutra lutra*)	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0
31	Pygmy hog (*Sus salvanius*)	1	0	0	0	0	0	1	0	0	1	1	0	0	0	0	0
32	Red panda (*Ailurus fulgens*)	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0
33	Rhesus Monkey (*Macaca mulata*)	0	1	0	0	1	0	0	0	0	0	0	0	1	1	0	0
34	Royal Bengal Tiger (*Panthera tigris tigris*)	1	1	0	0	0	1	0	0	1	0	0	0	0	0	0	0
35	Sloth bear (*Melursus ursinus*)	0	0	0	0	0	0	1	1	1	1	0	0	0	1	0	0
36	Snow Leopard (*Uncia uncia*)	0	1	0	0	0	1	0	1	0	0	0	0	0	1	1	0
37	Spotted Lingsang (*Prionodon pardicolor*)	1	0	0	0	0	0	0	1	0	0	1	0	0	1	0	0
38	Squirrel (*Ratufa indica*)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
39	Striped Hyena (*Hyaena hyaena*)	1	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0
40	Swamp Deer(*Cervus duvaucelii*)	0	0	0	1	0	0	0	1	0	0	1	0	0	0	0	0
41	Tibetan Antelope (*Pantholops hodgsoni*)	1	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0
42	Wild Ass (*Equus hemionus*)	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
43	Wild Dog (*Cuon alpinus*)	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
44	Wild Water Buffalo (*Babulus arnee*)	1	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0
45	Wild Yak(*Bos grunniens*)	1	0	0	0	0	0	1	0	0	1	0	1	0	0	0	0
	Birds (NPWC Act)	6	2	2	2	2	2	5	3	1	3	5	6	3	3	1	1
1	Giant Hornbill (*Buceros bicornis*)	1	0	0	0	0	0	1	0	0	1	1	1	0	0	0	0
2	Cheer Pheasant (*Catreus wallichiit*)	0	0	0	1	0	0	0	0	0	0	0	0	1	1	0	0
3	Bengal Florican (*Eupodotis bengalensis*)	1	0	0	0	0	0	1	0	0	1	1	1	0	0	0	0
4	Impeyan pheasant (*Lophophorus impejanus*)	0	1	1	1	1	1	0	1	1	0	0	0	1	1	1	1
5	Black Stork (*Ciconia nigra*)	1	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0
6	White Stork (*Ciconia ciconia*)	1	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0
7	Crimson horned Pheasant (*Tragopan satyra*)	0	1	1	0	1	1	0	1	0	0	0	0	1	1	0	0
8	Lesser Florican (*Eupodotis indica*)	1	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0
9	Sarus Crane (*Grus antigone*)	1	0	0	0	0	0	1	0	0	1	1	1	0	0	0	0
	Reptiles (NPWC Act)	3	0	0	0	0	0	3	0	0	2	3	2	0	0	0	0
1	Gharial Crocodile (*Gavialis gangeticus*)	1	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0
2	Asiatic Rock Python (*Python molurus*)	1	0	0	0	0	0	1	0	0	1	1	1	0	0	0	0
3	Golden Monitor Lizard (*Varanus flavescens*)	1	0	0	0	0	0	1	0	0	1	1	1	0	0	0	0

Source: Chapagain 2001 and Nepal ma CITES Karyanwoyan, 2058 (in Nepali)

Table 7: PDI of PA located districts and average PDI of PAs

Protected areas	Districts	Poverty Rank	Average Rank
Royal Chitwan National Park	Makwanpur	29	
	Chitwan	66	
	Nawalparasi	38	
	Parsa	24	39.3
Langtang National Park	Rasuwa	15	
	Sindhupalchok	16	
	Nuwakot	32	21.0
Sagarmatha National Park	Solukhumbu	43	
Rara National Park	Mugu	5	
	Jumla	14	18.5
Shey Phoksundo National Park	Dolpa	40	
	Mugu	5	22.5
Khaptad National Park	Bajhang	6	
	Bajura	12	
	Doti	9	
	Achham	1	7.5
Royal Bardia National Park	Banke	37	
	Bardia	22	
	Surkhet	49	36.0
Makalu Barun National Park	Sankhuwasabha	64	
	Solukhumbu	43	53.2
Shivapuri National Park	Kathmandu	71	
	Nuwakot	32	
	Sindhupalchok	16	39.7
Royal Shuklaphanta Wildlife Reserve	Kanchanpur	59	59.0
Koshitappu Wildlife Reserve	Sunsari	52	
	Saptari	21	
	Udaypur	41	38.0
Parsa Wildlife Reserve	Parsa	24	
	Bara	28	
	Makwanpur	29	27.0
Dhorpatan Hunting Reserve	Rukum	19	
	Myagdi	46	
	Baglung	39	34.7
Annapurna Conservation Area	Manang	75	
	Mustang	65	
	Kaski	69	
	Lamjung	55	
	Myagdi	46	62.0
Kangchenjungha Conservation Area	Taplejung	62	62.0
Manaslu Conservation Area	Gorkha	54	54.0

Source: ICIMOD 1998 Indicators of Development

Table 8: Numbers of visitors in protected areas

S. No	Protected Areas	Area of PA (sq km)	Number of visitors				No of visitors /sq km
			2000	2001	2002	Average	
1	Royal Chitwan National Park	932	106,254	82,542	49,031	79,276	85.06
2	Langtang National Park	1710	13,164	9184	3183	8,510	4.98
3	Sagarmatha National Park	1976	25,564	22,029	15,369	20,987	10.62
4	Rara National Park	106	47	46	8	34	0.32
5	Shey Phoksundo National Park	3555	322	321	119	254	0.07
6	Khaptad National Park	225	31	45	2	26	0.12
7	Royal Bardia National Park	968	10,262	12,388	2,895	8,515	8.80
8	Makalu Barun National Park	1500	587	479	152	406	0.27
9	Shivapuri National Park	144	NA	8,356	37,232	22,794	158.29
10	Royal Shuklaphanta Wildlife Reserve	305	1,586	635	337	853	2.80
11	Koshitappu Wildlife Reserve	175	1,901	1,435	1,409	1,582	9.04
12	Parsa Wildlife Reserve	499	333	531	84	316	0.63
13	Dhorpatan Hunting Reserve	1325	96	194	NA	145	0.11
14	Annapurna Conservation Area	7629	NA	NA	NA	NA	1.35
15	Kangchenjungha Conservation Area	2035	873	326	519	573	0.28
16	Manaslu Conservation Area	1663	NA	NA	NA	NA	6.20

Source: DNPWC (2000, 2001 and 2002) Annual reports

Table 9: Population dependent on Protected Areas

S. No	Protected Areas	Area Sq km	Dependent population Number	Dependent population /Sq km
1	Royal Chitwan National Park	932	478,170	513
2	Langtang National Park	1,710	54,326	32
3	Sagarmatha National Park	1,976	5,869	3
4	Rara National Park	106	16,156	152
5	Shey Phoksundo National Park	3,555	10,993	3
6	Khaptad National Park	225	63,616	283
7	Royal Bardia National Park	968	144,508	149
8	Makalu Barun National Park	1,500	33,281	22
9	Shivapuri National Park	144	95,837	666
10	Royal Shuklaphanta Wildlife Reserve	305	239,111	784
11	Koshitappu Wildlife Reserve	175	120,771	690
12	Parsa Wildlife Reserve	499	202,315	405
13	Dhorpatan Hunting Reserve	1,325	51,710	39
14	Annapurna Conservation Area	7,629	100,480	13
15	Kangchenjungha Conservation Area	2,035	5,908	3
16	Manaslu Conservation Area	1,663	7,661	5

Source: NBS 2002 and CBS, 2002

Table 10: Revenue generation from Protected Areas

	Protected Areas	Revenue in Rs 000				Revenue per Sq. km (Rs)
		2000	2001	2002	Average*	
1	Royal Chitwan National Park	74,303	38.887	30,831	48,007	51,510
2	Langtang National Park	8,550	4491	4,866	5,969	3,491
3	Sagarmatha National Park	15,440	11,335	10,819	12,531	6,342
4	Rara National Park	100	74	59	78	733
5	Shey Phoksundo National Park	194	481	159	278	78
6	Khaptad National Park	94	35	22	50	224
7	Royal Bardia National Park	9,822	4.378	2,777	5,659	5,846
8	Makalu Barun National Park	314	44	131	163	109
9	Shivapuri National Park	0	1,800	1986	1,893	13,146
10	Royal Shuklaphanta Wildlife Reserve	2,419	1,553	631	1,534	5,031
11	Koshitappu Wildlife Reserve	1,209	643	596	816	4,663
12	Parsa Wildlife Reserve	354	259	421	345	691
13	Dhorpatan Hunting Reserve	151	87	1.2	80	60
14	Annapurna Conservation Area	NA	NA	NA	NA	3,115
15	Kangchenjungha Conservation Area	195	44	254	164	81
16	Manaslu Conservation Area	NA	NA	NA	NA	3,115

Note: For ACA and MCA average excluding that of RCNP has been used

Source: DNPWC, Annual Reports (2000, 2001 and 2002)

Table 11: Religious value of Protected Areas

S. No	Protected Area	Number of Religious site	Number of pilgrims
1	Royal Chitwan National Park	4	H
2	Langtang National Park	16	H
3	Sagarmatha National Park	8	M
4	Rara National Park	2	L
5	Shey Phoksundo National Park	16	L
6	Khaptad National Park	7	M
7	Royal Bardia National Park	1	M
8	Makalu Barun National Park	7	L
9	Shivapuri National Park	10	H
10	Royal Shuklaphanta Wildlife Reserve	3	H
11	Koshitappu Wildlife Reserve	1	M
12	Parsa Wildlife Reserve	1	L
13	Dhorpatan Hunting Reserve	1	L
14	Annapurna Conservation Area	30	H
15	Kangchenjungha Conservation Area	3	M
16	Manaslu Conservation Area	10	L

Note: High implies more than 50,000 visitors
Medium implies more than 10,000 and up to 50,000
Low implies up to 10,000

Source: IUCN 1997, Inventory of Heritage Sites of Nepal

Table 12: Different types of threats relevant to Protected Areas

S. No	Protected Areas	Poaching	Revenge killing	Habitat loss	Illegal harvest of NTFP/commercial market	Disturbances	Natural hazards	Inbreeding	Communicable diseases/Related to grazing	Alien Species Invasion	Development infrastructures	Poison Wetlands in PA	Industries from Industries	Human Causalities	Human Injury	Livestock depredation	Crop damage	Property damage	Tourism Garbage
1	Royal Chitwan National Park	1	1	1	0	1	1	0	1	1	1	1	1	1	1	1	1	1	1
2	Langtang National Park	1	1	0	1	1	1	0	1	0	1	0	0	1	1	1	1	0	1
3	Sagarmatha National Park	1	0	1	0	1	1	0	1	0	1	0	0	0	1	0	1	0	1
4	Rara National Park	1	1	1	0	0	0	0	1	0	0	0	0	0	1	0	1	0	0
5	Shey Phoksundo National Park	1	1	1	1	0	0	0	1	0	0	0	0	0	1	1	1	0	0
6	Khaptad National Park	1	1	1	1	0	1	0	1	0	0	0	0	0	1	0	1	0	0
7	Royal Bardia National Park	1	1	1	0	1	1	1	1	1	1	1	0	1	1	1	1	1	0
8	Makalu Barun National Park	1	1	1	1	0	1	0	1	1	0	0	0	0	1	1	1	0	0
9	Shivapuri National Park	0	1	0	0	0	0	0	0	1	0	0	0	0	1	0	1	1	1
10	Royal Shuklaphanta Wildlife Reserve	1	1	1	0	0	0	0	1	1	1	1	1	1	1	1	1	1	0
11	Koshitappu Wildlife Reserve	1	1	1	0	1	1	1	1	1	1	1	0	1	1	0	1	1	0
12	Parsa Wildlife Reserve	1	1	0	0	1	0	0	1	1	1	0	0	1	1	1	1	1	0
13	Dhorpatan Hunting Reserve	1	1	1	1	0	1	0	1	0	0	0	0	0	1	1	1	0	0
14	Annapurna Conservation Area	1	1	0	1	1	1	0	1	1	1	1	0	0	1	1	1	0	1
15	Kangchenjungha Conservation Area	1	1	1	1	0	1	0	1	0	0	0	0	0	1	1	1	0	0
16	Manaslu Conservation Area	1	1	0	1	0	1	0	1	0	0	0	0	0	1	1	1	0	0

Source: Latest Management Plans, Strategic framework, Tourism Development Plan, Annual Report of KMNTC

Table 13: Budget provisions to Protected Areas

S. No	Criteria	Budget in year			Average budget in Rs 000	No of species	Rs/species
		2001/01	2001/02	2002/03			
1	Royal Chitwan National Park	11,509	14,579	14,025	13,371	1,512	8,843
2	Langtang National Park	6,100	9,592	7,670	7,787	3,968	1,963
3	Sagarmatha National Park	4,147	5,079	5,147	4,791	1,275	3,758
4	Rara National Park	3,417	3,441	3,774	3,544	1,340	2,645
5	Shey Phoksundo National Park	5,253	5,445	5,919	5,539	1,817	3,048
6	Khaptad National Park	3,302	3,641	3,570	3,504	854	4,103
7	Royal Bardia National Park	7,813	9,283	9,035	8,710	1,438	6,057
8	Makalu Barun National Park	6,057	7,050	6,555	6,554	3,738	1,753
9	Shivapuri National Park	NA	NA	5,625	5,625	2,318	2,427
10	Royal Shuklaphanta Wildlife Reserve	4,253	4,699	5,905	4,952	1,128	4,390
11	Koshitappu Wildlife Reserve	2,353	5,361	3,523	3,746	1,251	2,994
12	Parsa Wildlife Reserve	3,817	3,411	4,009	3,746	1,477	2,536
13	Dhorpatan Hunting Reserve	2,937	3,694	4,083	3,571	1,150	3,106
14	Annapurna Conservation Area	NA	NA	NA	6,024	4,073	1,479
15	Kangchenjungha Conservation Area	NA	NA	NA	6,024	3,000	2,008
16	Manaslu Conservation Area	NA	NA	NA	6,024	2,646	2,277

Note: For ACA, KCA and MCA average of 13 PAs have been used

Source: DNPWC, Annual Reports (2000, 2001 and 2002)

Table 14: Donors presence in Protected Areas

S. No	Protected Area	Donors							Number of donors
1	Royal Chitwan National Park	UNDP	GEF	UNF	KMTNC	WWF	SNV	ITNC	7
2	Langtang National Park	TMI	UNDP	DFID	SNV				4
3	Sagarmatha National Park	SNV	DFID	UNDP	EH	HT	WWF		6
4	Rara National Park	UNDP	SNV						2
5	Shey Phoksundo National Park	WWF	SNV	UNDP	DFID				4
6	Khaptad National Park	UNDP							1
7	Royal Bardia National Park	KMTNC	UNDP	WWF	CARE				4
8	Makalu Barun National Park	EH	TMI						2
9	Shivapuri National Park	None							0
10	Royal Shuklaphanta Wildlife Reserve	WWF	KMTNC	UNDP					3
11	Koshitappu Wildlife Reserve	UNDP	IUCN						2
12	Parsa Wildlife Reserve	UNDP	WWF						2
13	Dhorpatan Hunting Reserve	WWF							1
14	Annapurna Conservation Area	KMTNC	UNDP	GEF					3
15	Kangchenjungha Conservation Area	WWF	UNDP	DFID	SNV				4
16	Manaslu Conservation Area	KMTNC	ADB						2

Source: Strategic framework documents and DNPWC, Annual Reports (2000, 2001 and 2002)Table 15:

Status of donor support in Protected Areas

S. No	Protected Area	Status of donors support (1)	Donors considered
1	Royal Chitwan National Park	1	UNDP/KMTNC
2	Langtang National Park	2	TRPAP
3	Sagarmatha National Park	1	WWF
4	Rara National Park	2	UNDP
5	Shey Phoksundo National Park	1	WWF
6	Khaptad National Park	2	UNDP
7	Royal Bardia National Park	1	WWF/UNDP
8	Makalu Barun National Park	3	None
9	Shivapuri National Park	3	None
10	Royal Shuklaphanta Wildlife Reserve	1	WWF/UNDP
11	Koshitappu Wildlife Reserve	2	UNDP
12	Parsa Wildlife Reserve	2	UNDP/WWF
13	Dhorpatan Hunting Reserve	3	WWF
14	Annapurna Conservation Area	1	KMT
15	Kangchenjungha Conservation Area	1	WWF
16	Manaslu Conservation Area	1	KMTNC

Notes (1) Just phased out= 3 Phasing out soon =2 Just entered = 1

Source: Strategic framework documents and DNPWC, Annual Reports (2000, 2001 and 2002)

Table 16: International commitments and trans-boundary values of Protect Areas

S. No	Protected Area	International commitments				Total commitments	Trans-boundary value (2)
		WHS	GttE	RS	GTF		
1	Royal Chitwan National Park	1	0	0	1	2	3
2	Langtang National Park	0	0	0	0	0	2
3	Sagarmatha National Park	1	0	0	0	1	3
4	Rara National Park	0	0	0	0	0	1
5	Shey Phoksundo National Park	1	0	0	0	1	2
6	Khaptad National Park	0	0	0	0	0	1
7	Royal Bardia National Park	0	1	0	1	2	3
8	Makalu Barun National Park	0	0	0	0	0	2
9	Shivapuri National Park	0	0	0	0	0	1
10	Royal Shuklaphanta Wildlife Reserve	0	0	0	1	2	1
11	Koshitappu Wildlife Reserve	0	0	1	0	1	2
12	Parsa Wildlife Reserve	0	0	0	1	1	2
13	Dhorpatan Hunting Reserve	0	0	0	0	0	1
14	Annapurna Conservation Area	0	0	0	0	0	1
15	Kangchenjungha Conservation Area	0	1	0	0	1	3
16	Manaslu Conservation Area	0	0	0	0	0	1

Notes: Trans-boundary values:

WHS: World Heritage Site — Adjoining to PA in neighboring country/ies=3

GttE: Gift to the Earth — Indirectly linked to PA in neighboring country/ies=2

RS: Ramsar Site — Not linked to PA in neighboring country/ies=1

GTF: Global Tiger Forum

Summary of Discussions, Comments and Suggestions in the First Consultation Meeting

An open seminar was conducted at The Everest Hotel, New Baneshwore on 2 April 2004 to discuss the Final Draft Report of the study entitled "Poverty Reduction through Sustainable Management of Protected Areas and Wetlands in Nepal: Processes, Modalities, Impacts and Identification of areas for Future Support." The meeting was chaired by Ms. Haruko Kamei, Assistant Country Representative of JICA Nepal and was participated by representatives from a number of stakeholder institutions (Attachment 1). The meeting started after taking the Chair by the Chairperson. Salient features of the meeting proceedings are summarized below:

Welcome Speech

Mr. Narendra Gurung4, Senior Programme Officer of JICA-Nepal delivered a welcome speech immediately after taking the chair by the Chairperson. While welcoming the participants, Mr. Gurung thanked all the participants and organizations for their cooperation. He informed the participants that this meeting was informal and was meant to disseminate the study findings and to solicit comments and suggestions and requested all the participants to feel free to provide their feedback, suggestions and comments.

Introduction of Participants

After the welcome speech, all the participants introduced themselves.

Then the moderator requested Mr. Ukesh R. Bhuju, Team Leader of the study to present the salient findings of his study.

Presentation by Mr. Ukesh Raj Bhuju

On behalf of the study team, Mr. Ukesh Raj Bhuju presented the Final Draft Report. The presentation was focused on the following topics in sequence:

1. Objectives of the study	2. Areas of inquiry
3. Review Approach	4. Survey Methodology
5. Review Findings	6. Survey Findings
7. Areas for JICA Nepal Future Cooperation in Biodiversity conservation and poverty reduction	
a. Conceptual framework	b. Management framework
c. Broad programs for future intervention	d. Site specific intervention activities
8. Conclusions and recommendation	

Mr. Bhuju concluded his hour long presentation after thanking all the participants for listening carefully and by requesting them to provide constructive comments and suggestion on the study report.

With the consent of the Chairperson, Mr. Gurung opened the floor for discussion, feedbacks, comments and suggestions.

Discussion

Mr. Top B. Khatri (PCP)

- Congratulated the study team for the excellent report with enormous information
- Asked why EIA was inadequately and improperly implemented

[4] Mr. Narendra Gurung was also a moderator and facilitator of the consultation meeting.

- Suggested not to lump GttE in the international commitments.
- Commented that it was contradictory to state inadequate envisioning and long term planning while explaining the conservation history from species to habitat to landscape approaches.
- Raised the concern over conservation issues overshadowing issues community development issues
- Appreciated SALOGC approach in review

Mr. Shyam Bajimaya (DNPWC)

- Congratulated the study team for such a comprehensive report
- Thanked JICA for this study and its interest in conservation sector
- Remarked that the assessment were based on secondary information and verified with the field visits
- Asked why prison inmates were contacted and what sorts of information was drawn.
- Remarked that findings were more subjective and broad, and suggested to make it specific with quantification.
- The study findings are the outcome of review analysis supplemented with qualitative and quantitative data generated during field study. Except for recommendations where some subjective judgement id required, none of the findings are subjective. Chapter 4 is based on substantial numerical data gathered from baseline survey. **Annex** 7 is fully dedicated on the baseline data of the 6 selected sites.
- Explained that there was no legal basis for compensation on wildlife induced damage of crops or livestock. There was a legal provision to compensate to flood victims, whereas the provisions of relief fund for crop and livestock damage was the decisions made by the BZMC in RCNP.
- Informed that Management Plan of some PAs were under preparation. Due to the lack of fund, some management plans were not yet endorsed for implementation
- Remarked that the statement on inadequate envisioning and planning of HMG/N was not clear.
- Remarked that it was too early for him to comment on SABIHAA. However, some powerful tools of SABIHAA could be integrated.
- Questioned that there was always demand from DDCs and VDCs for the park revenue and contributions, but they did not consider what they could contribute for conservation.
- Observed that this study report was just like baseline of PAs and WSs
- Hoped the program would be developed and said that the door for present and future partnership was open

Dr. Balaram Thapa (CARE Nepal)

- Thanked for the presentation
- Said that even the study was comprehensive, it might have missed some information
- Overall the study was quite good
- Suggested not overlooking the catchment of the wetlands since the future of wetlands depends on its catchments such as Jagdihspur Reservoir and Bishazari tal.
- Advised JICA to contact some major donors like AsDB, USAID, WB, EU etc for the synergy since these donors had already some programs e.g irrigation system
- Suggested JICA not to focus narrowly while designing programs for future intervention
  Remarked that the already established payment system in Panchakanya and Khageri irrigation system could contribute to the management of BTRS.

In response to Dr. Thapa's comment, Mr. Narendra Gurung clarified that JICA-Nepal at this point is in very initial stage, not yet in the stage of consultation and program design. However, he assured Dr. Thapa that JICA Nepal would consult all concerned donors and stakeholders at the project design stage.

Mr. Madhav Belbase (DOI)

- Informed that the surface flow of the Banaganga River during monsoon was quite low where as the Koeli river had more surface flow in winter.
- Showed his concern over decreasing reservoir capacity and decreasing biodiversity.
- Told that the irrigation was the primary benefit of the reservoir, not the fishes.

Mr. Gurung assured Mr. Belbase that the study team would consider his comments.

Mr. Sagendra Tiwari (IUCN)

- Congratulated the study team for producing such a comprehensive study
- The study focused on all the relevant aspects that need to be addressed in conservation and development
- Questioned why PAs and WSs were lumped together in the study
- Clarified that WSs could be or not within the PAs, but WSs were interlinked with river system and watershed
- Suggested that issues of environmental services should have been taken into account.
- Emphasized that there was a big project of MoFSC/GEF on GTRS and KWR. Therefore JICA should build coordination with the project for synergy.
- Remarked that there was a huge overlap of projects and programs at local level as well as high/policy level.
- Commented that numbers of issues were not coming up in the study such as indigenous knowledge, alien species invasion, etc.
- Emphasized on the need of lots of works to develop partnership.

Mr. Gurung clarified to Mr. Tiwari that this study was the first step was a stock taking exercise for JICA to understand the NRM sector. So PAs and WSs were put together. PA and WS could be segregated during the project design phase, if necessary

Mr. Nakul Chhetri (ICIMOD)

- Remarked that the study prioritized the wildlife farming and NTFP collection, whereas it also pointed out on the illegal harvesting and trade in forest based resources.
- Alerted that if wildlife farming was legalized, devastating results might come out.
- Questioned why the study emphasized recreation and tourism as a priority for livelihood in the PAs and WSs since they (recreation & tourism) were not the only remedy and might have devastating effects.

Mr. Vijaya Singh (UNDP)

- Congratulated the study team for being analytical and exploring several linkages of poverty reduction to biodiversity conservation.
- Commented on the process of prioritizing PAs.
- Questioned how remote NP/PA like SPNP, KNP and RNP did not come in a priority list.
- Asked how much depth the team went into the policy and what were the implications of new policy in this present political instability and turmoil.
- Questioned JICA how long would it take to come up with a project.
- Said that UNDP would be happy to join in hands with JICA even in ShNP and LNP.

Ms. Haruko Kamei, in response to Mr. Singh's remarks, informed that the study was just a learning phase for JICA Nepal and a kind of entry point. She also said that it would take one and a half year for profiling projects. She also clarified that JICA Nepal was still open and could select any PA or WS.

Ms. Sushila Nepali (WWF)

- Informed that siltation was high in JRRS, and WUA was not properly regulating BIS.
- Asked how POWER tool could be replicated in PA/WS system.
- Remarked that some areas in the KWR BZ public wetlands were under the control of some individuals.
- Asked how WCC can be integrated in the BZ.

Dr. Balaram Thapa (CARE Nepal)

- Commented that the overall goal seem to be poverty reduction, but the prioritized sites were not poverty prone areas

Mr. Gurung informed Dr. Thapa that the same question was also discussed in first and second consultation meetings. This is always a question of discussion.

Mr. Ananda Bhandari (MoFSC)

- Congratulated the team for producing a comprehensive report
- Asked JICA about the level of collaboration since the ultimate ownership comes under MoFSC
- Asked how do boundary confusion affects management issues of Natural Resources.
- The issues of sovereign rights raised by the report is appreciable
- Remarked that driftwood policy existed and was very clear, however, collaboration with DDC would be essential for its efficient implementation.

In response to Mr. Bhandari, Mr. Gurung said that the study was very informal. He elaborated that JICA was a kind of "blind" in this sector and would like to get suggestions from the organization working in this field. He further added that, at the moment the study is own by JICA and the study would form a basis for negotiation with the government. Formal ownership of the government would be build during detail program design based on this document.

Mr. Sagendra Tiwari (IUCN)

- Remarked that biodiversity conservation could be a mean of poverty reduction
- Asked where were the opportunities, what were the essence of the study, were there any good lessons learned, and what were the implications of recently formed policies

In response to Mr. Tiwari's comment, Mr. Gurung asked Mr. Narayan Poudel to clarify in this matter

Mr. Narayan Poudel (DNPWC)

- Thanked JICA for entering into the sector of biodiversity conservation.
- Explained that DNPWC's primary goal was biodiversity conservation
- Further elaborated that poverty reduction could be the means of biodiversity conservation and could generate public support for conservation
- Thanked the team for the excellent study
- Concurred with the previous commentators on most of the comments and suggestions
- Commented that DNPWC had a clear policy vision with the MPFS, NBS and other documents
- Remarked that biodiversity conservation is a global matter
- Appreciated for the findings of the study on various aspects such as success of ICDP modality in conservation, changes in laws and regulations, multiple stakeholders and claimants and so on
- Informed that DNPWC had been formulating a policy of insurance against the wildlife induced damage
- Emphasized that biodiversity conservation in Nepal need international support
- Clarified that the new policy of NGOs management of PAs was not a privatization as such, however, government had opened a new window of partnership in conservation

Finally Mr. Gurung asked Mr. Ukesh R. Bhuju to clarify all the comments and queries of the participants

Mr. Ukesh R. Bjuju (Team Leader)

- Thanked all the participants for the comments and suggestions
- Expressed that it was difficult to present 5 months work in one-hour presentation
- Ensured that the study had covered most of the aspects and issues that the participants raised in the seminar, and that in depth explanations were included in a set of 9 annexes supporting the main document
- Explained that some of the words expressed during the presentations would have been misinterpreted in the context of envisioning and planning, however, the expression was specific to the field level programs. For example, the KWR management plan did not adequately address the burning issue of rogue elephants. Needs to clarify the management objectives of KWR from the perspectives of Wildlife reserve, Ramsar site, and Koshi project. Exist two plans for GTTR by two different organizations but neither is in implementation and a third one has been conceptualized. Management objective of BTRS is not yet clearly spelled out as it stands in the midst of a Ramsar site and a buffer zone.
- Assured the participants that appropriate comment and suggestion if not already covered by the study would be taken into consideration while finalizing the reports
- Thanked DNPWC, all the conservation partners, NGOs, CBOs and individuals for their respective support and cooperation during the study period
- Thanked JICA Nepal for entrusting the team to undertake the challenging task of reviewing the PAs and WSs and surveying the selected sites for baseline data
- Thanked all the team members for their concerted effort
- Hoped that JICA Nepal, DNPWC and other concerned organizations would start dialogue based on this study report
- Expressed that the team members would feel it a fruitful task when conservation and development projects are materialized form the study

Concluding Remarks by Chairperson, Ms. Haruko Kamei

- Thanked all the participants and appreciated for their respective comments and suggestions
- Thanked study team for conducting the study and preparing the report on time
- Expressed that the study would be useful to JICA Nepal and be a basis for discussion with DNPWC
- Further informed the participants that NRM was a priority sector of JICA Nepal
- Informed that interaction would be continued with all the stakeholders, DNPWC and NGOs
- Informed that there would be formal discussion with DNPWC and ministry at appropriate time

The seminar was concluded as per the program (Attachment 2).

Attachment1: Participants List

S N	Name	Designation	Institution
1.	Mr. Sagendra Tiwari	Coordinator	IUCN Nepal
2.	Ms. Lisa Singh	ARR	UNDP
3.	Mr. Vijaya Singh	SPO	UNDP
4.	Dr. Birendra Basnyat	Project Manager	MAOC
5.	Mr. Nakul Chhetri	Coordinator	ICIMOD
6.	Mr. Ananda Bhandari	APO	MFSC
7.	Ms. Sushila Nepali	Programme Officer	WWF
8.	Mr. Biswa N. Oli	Assistant Research Officer	DFRS
9.	Ms. Madhuri Karki	AFO	DOF
10	Dr. Balaram Thapa	Assistant Director	CARE Nepal
11	Mr. Huub Peters	HRM Manager	SNV Nepal
12	Mr. Madhav Belbase	Engineer	DOI
13	Mr. Narayan Poudel	DDG	DNPWC
14	Mr. Shyam Bajimaya	Ecologist	DNPWC
15	Mr. Top Bd. Khatri	NPM	PCP/ DNPWC
16	Dr. Udaya R. Sharma	DG	Department of Plant esources
17	Mr. Laxmi Manandhar	Under Secretary	DNPWC
18	Mr. Narendra Gurung	SPO	JICA Nepal
19	Ms. Haruko Kamei	ARR	JICA Nepal
20	Mr. Ukesh R. Bhuju	Team Leader	NARMA
21	Dr. Shyam K. Poudel	Team member	NARMA
22	Mr. Santosh Rayamajhi	Team Member	NARMA
23	Mrs. Sabitra Banskota	Team member	NARMA
24	Mr. Bijendra Basnyat	Team Member	NARMA
25	Mr. Sunil K.C.	Team member	NARMA
26	Ms. Pooja Pant	Team Member	NARMA
27	Mr. Samir Rijal	Team member	NARMA
28	Mr. Sabitri Sah	Officer	NARMA

Attachment 2: Open Seminar

JICA Nepal Sponsored Study

Poverty Reduction through Sustainable Management of Protected Areas and Wetlands: Processes, Modalities, Impacts and Identification of Areas for Future Support

Date: Friday, 2 April 2004

Venue: The Everest Hotel, New Baneswor

Programme

9:00-9:30	Arrival, Registration and Tea with Snacks
9:30-9:45	Introduction of Participants
9:45-9:50	Introduction of Study, Study Team and Moderator by JICA
9:50-9:55	Announcement of Modality by the Moderator
9:55-10:55	Presentation by Study Team (Tea Served after Presentation)
10:55-13:20	Comments and Suggestions by Participants
13:20-13:30	Concluding Remarks by Moderator
13:30	Lunch

Annex 2
Findings from the Bibliographic Search and Analysis

Contents

1. Introduction

This study on Poverty Reduction through Sustainable Management of Protected Areas and Wetlands in Nepal: Processes, Modalities, Impacts and Identification of areas for Future Support was commissioned to Center for Natural Resource Analysis, Management, Training and Policy Research (NARMA) Consultancy (Pvt) Limited by Japan International Cooperation Agency Nepal (JICA-Nepal). The main objective of the study was to make a comprehensive review of biodiversity in Protected Areas (PAs) and Wetland Sites (WSs) of economic and conservation importance in Nepal and thereby identify feasible areas for JICA-HMG/N cooperation in this sub-sector for participatory biodiversity conservation and poverty reduction. The study spanning over five months became effective from November 2003.

An Inception Report was submitted to JICA Nepal outlining the detail study methodology which was revised based on comments and suggestions received from several stakeholders during a half-day consultation meeting organized in the Department of National Parks and Wildlife Conservation (DNPWC) on 28 November 2003[1]. Following the agreed methodology, review analysis of PAs and WSs was carried out at two levels. At the first level, the study prepared and documented all studies/documents conducted/prepared in respect of all the 16 PAs and 10 WSs of Tarai and analyzed these in terms of their focus / coverage (biodiversity, socio-economic, conflict, managerial and policy/legislation aspects). This annex is devoted in the presentation of this analysis. Presentation in this annex has been organized into three main sections. With the brief presentation of background in this section, section 2 is devoted to the presentation of findings and the third section in the presentation of detail list of bibliography classified based on areas of ficus of the documents/reports/studies, etc.

2. Summary of Findings from Bibliographic Search

From various sources a total of 867 research reports and documents related to PAs and WSs of Nepal were listed. Of the 867 items listed, 438 or about 50 percent provided information on biological aspects, 150 items or about 17 percent on socioeconomic aspects, 225 items or 26 percent on policy/legislation and the remaining 54 items or 6 percent on conflict related issues. Of the 438 reports listed, 211 were focused on species, 102 on habitats and 125 provided general information about species as well as habitats (Table 1).

Table 1. List of literatures related to PAs and WSs

Category	Number of Items Listed
1. Biodiversity	438
1.1 Species	211
1.2 Habitat	103
1.3 General	124
2. Socio-economic	150
3. Policy/Programme/Legislation	225
4. Conflicts	54
Overall (Total)	867

Of the total reports/documents listed, 797 or about 91 percent were related to PAs and remaining 9 percent to WSs. A simple look at these figures indicated that WSs have not been sufficiently researched in Nepal like PAs. However, the list when disaggregated by individual PAs and WSs, a different picture emerged. In the case of PAs, the number of available reports/documents was limited to 10 or below for five PAs (about 31 percent), 11 and 20 for two PAs (about 13 percent), 21 and 30 for three PAs (about 19 percent) and greater than 31 for 6 PAs (38 percent). Of all PAs, while RCNP.

[1] Appendix 1 presents the list of participants attending the meeting and Appendix 2 presents the summary of discussions and comments and suggestions made.

KWR, SNP, RBNP and ACA happened to be the highly researched ones, LNP, MBNP, and RSWR were moderately researched and remaining are least researched. Within this last category, the situation of PWR, RNP, SPNP, KNP, ShNP, DHR, KCA and MCA appeared very weak (Table 2).

From the distribution of the documents presented in the above table, it appeared that research in PAs is relatively biased towards the biological aspects. This apparent picture changed when the available reports/documents were disaggregated by PAs except for those PAs that are relatively more researched. For example, reports/documents focused more on biodiversity aspects shared some 61 percent of total PAs specific reports in respect of RCNP, SNP, RBNP, RSWR and KWR, which are more researched. This percentage is only 40 percent in respect of other PAs that are less researched.

Table 2. Protected Areas and number of literatures and research coverage

Protected Areas/Wetland Sites	Areas of Enquiry							
	Biodiversity							
	Genera	Habita	Species	Sub-total	Socio-Economic	Conflict	Policy/Programms/Legislations	Total
A. Protected Areas								
Royal Chitwan National Park	12	10	72	94	15	20	18	147
Langtang National Park	4	1	4	9	9	1	8	27
Sagarmatha National Park	8	9	7	24	23	4	17	68
Rara National Park	2	2	4	8	0	0	2	10
Shey Phoksundo National Park	7	3	2	12	3	0	2	17
Khaptad National Park	2	1	2	5	1	0	4	10
Royal Bardia National Park	9	6	20	35	5	8	12	60
Makalu Barun National Park	8	2	4	14	11	1	9	35
Shivapuri National Park	5	3	0	8	8	2	6	24
Royal Shuklaphanta Wildlife Reser	3	4	18	25	0	1	4	30
Koshitappu Wildlife Reserve	7	18	26	51	8	7	4	70
Parsa Wildlife Reserve	2	0	3	5	1	0	4	10
Dhorpatan Hunting Reserve	2	2	2	6	0	0	0	6
Annapurna Conservation Area	12	0	8	20	27	6	28	81
Kangchenjungha Con. Area	7	0	0	7	3	0	2	12
Manaslu Conservation Area	0	0	0	0	3	0	1	4
Across PA	8	5	1	14	7	1	38	60
Others	19	10	28	57	16	3	50	126
Total	**117**	**76**	**201**	**394**	**140**	**54**	**209**	**797**
B. Wetlands								
Ghodaghodi tal	2	4	6	12	0	0	3	15
Bishazari tal	1	1	0	2	0	0	1	3
Jagdishpur Reservoir	0	1	0	1	0	0	1	2
General Wetland Site	4	21	4	29	10	0	11	50
Total	**7**	**27**	**10**	**44**	**10**	**0**	**16**	**70**
Grand Total	**124**	**103**	**211**	**438**	**150**	**54**	**225**	**867**

In the case of wetlands, the technical bias was more evident. Reports dealing more with biodiversity aspects shared some 63 percent of the total reports listed. This proportion rocketed high to a level of 75 percent when reports/documents dealing with general wetlands, which in general covered all aspects, were excluded.

3. List of Research Reports and Other Related Documents Scanned

3.1 Protected Areas

3.1.1 Royal Chitwan National Park

SN	Title of Literature	Author	Publisher	Date	Area of Enquiry
1	A Brief History of Research in RCNP	Dempsey A.		1988	Biodiversity
2	A Buffer Zone for Biodiversity Conservation: Viability of the Concept in Nepal's RCNP	Nepal S. K. and Weber, K. E.		1994	Biodiversity
3	A Classification of Subtropical Riverine Grassland and Forest in Chitwan National Park, Nepal	Lekhmkuhl J.		1993	Biodiversity
4	A Delicate Balance: Tigers, Rhinoceros, Tourists and Park Management vs. the Needs of Local People in RCNP, Nepal	Mishra H. R.		1984	Biodiversity
5	A Feasibility Study of Purpose Trekking Trail in Chitwan National Park	Thapa, B.B.	IOF, Pokhara	1985	Managerial/Policy/ Legislation
6	A study of Park-People Interaction in RCNP	Sharma U. R.		1986	Conflict
7	A study of the ecological distribution of resident and migratory birds along the Rapti and Narayani rivers in Nepal	Hallyday, J. B.		1983	Biodiversity
8	Amphibians and reptiles of RCNP, Nepal	Zug G. R. and Mitchell, J. C.		1995	Biodiversity
9	An assessment of agricultural and livestock depredation by wild animals at Patihani and Jagatpur areas near RCNP	Upreti H. K.		1995	Conflict
10	An assessment of buffer zone management programme of Park people programme in Royal Chitwan National Park	Rana, E. B.	Institute of Forestry, Pokhara	1999	Managerial/Policy/ Legislation
11	An ecological survey of the Narayani River within RCNP: A study of the fish distribution and their predators, in particular the smooth Indian otter (Lutra perspicillatta)	Evans, M., Heardman, C., Houghton, S. and Tiler, C.	KMTNC	1985	Biodiversity
12	An overview of park-people interaction in Royal Chitwan National Park, Nepal	Sharma U. R.		1990	Conflict
13	Aquatic biodiversity in the Karnali and Narayani river basins.	Smith, B. D., Bhandari, B. and Sapkota, K.	IUCN	1996	Biodiversity
14	Artificial key to the common shrubs of the riverine forests, RCNP, Nepal Phytologia	Troth R. G. and Nicholson, D. H.		1977	Biodiversity

SN	Title of Literature	Author	Publisher	Date	Area of Enquiry
15	Balancing human needs and conservation in Nepal's RCNP	Mishra, H. R.		1983	Conflict
16	Bat Survey in Royal Chitwan National Park	Philip Myers, D. Smith			Biodiversity
17	Behavioral Study of Gharial at Gharial Conservation Project, Kasara	Kunwar, Narayan Nath	Central Department of Zoology, Tribhuvan University		Biodiversity
18	Biodiversity Assessment of Terai with focus on tigers and other large mammals	Shrestha, M.K.			Biodiversity
19	Biodiversity Conservation Center: BCC/ KMTNC		KMTNC		Biodiversity
20	Biodiversity conservation in and around Royal Chitwan National Park	Rijal, A.		1999	Biodiversity
21	Biomass production in grasslands of RCNP, Nepal	Joshi S, R. and Jha P. K.		1995	Biodiversity
22	Bird population survey in Royal Chitwan National Park				Biodiversity
23	Buffer zone Policy analysis of the Royal Chitwan National Park	Sharma, UR	KMTNC	1998	Managerial/Policy/ Legislation
24	Carbon Sequestration Study	Gairhe, Janma Jaya and Lal Prasad Amgai	Institute of Agriculture and Animal Science, Tribhuvan University	2002	Biodiversity
25	Census of water birds along the Rapti River, RCNP. In: Wildlife Management in RCNP	Guttinger, C. and Lamade, T.	Wildlife Research Nepal Programme	1988	Biodiversity
26	Characteristic and Satisfaction of International Visitors	Upadhyay, G. P.	HMG/Lincoln University, New Zealand	1992	Socio-economic
27	Chitwan Sauraha and tourism	Xenthalis L. D.		1992	Socio-economic
28	Chitwan Wildlife sanctuary in Nepal	Willian, R. S. M.		1965	Biodiversity
29	Communities and conservation in Nepal's Terai region: The socio-cultural dynamics of a buffer zone ecotourism programme in Royal Chitwan National Park	Cochrane, J.	Cambridge University	1998	Socio-economic
30	Conflict between Rhinos and People adjacent to the Park Emphasizing on Crop Damage and Local Harassment	Janwali, S. R.		1989	Biodiversity
31	Conservation Education- Interpretation community extension plan, Kasara Durbar, RCNP	Pradhan, N., Junkov, M., Shrestha, A. M. and Bajimaya, S.		1989	Socio-economic
32	Conservation in Nepal II. The RCNP	Schilling T.		1992	Biodiversity

SN	Title of Literature	Author	Publisher	Date	Area of Enquiry
33	Count Rhino	Yonzon, P. B.			Biodiversity
34	Count Rhino 1994	Yonzon, PB et al.	HMG/WWF Nepal Programme/KMTNC/Resources Nepal	1994	Biodiversity
35	Count Rhino 2000	Yonzon, PB et al	HMG/WWF/KMTNC/ Resources Nepal	2000	Biodiversity
36	Development of Participatory Model for Fund Distribution and Benefit Sharing	Pokharel, Bishnu Prasad	Patan Campus, Tribhuvan University	1999	Biodiversity
37	Diet analysis of the Greater one-horned rhinoceros by Fecal Analysis	Janwali, S. R.		1986	Biodiversity
38	Dispersal, Communication, and Conservation Strategies for the Tiger, Panthera tigris	Smith, J.L.D.		1980	Biodiversity
39	Dynamics of Tiger Prey Population in Royal Chitwan National Park	Tamang, K.M.	Smithsonian Institute/Michigan State University	1976	Biodiversity
40	Ecological Separation between Tigers and Leopards	Seidensticker, J.		1974	Biodiversity
41	Ecology and Behavior of One horned Rhinoceros	Laurie, W. A.	University of Edinburgh	1974	Biodiversity
42	Ecology and behavior of the hog deer in Chitwan ecosystem	Dhungel, S. K.	DNPWC/Smithsonian Institute	1983	Biodiversity
43	Ecology of Rhinos and the Influence of Rhinos in landscape Processes	Dinerstein, Eric.	Smithsonian Institute	1987	Biodiversity
44	Ecology of South Asian Tall Grass Community	Lehmukul, John			Biodiversity
45	Ecology of the Hog Deer in Royal Chitwan National Park, Nepal	Dhungel, S.K. and O'Gara, B.W.		1991	Biodiversity
46	Eco-tourism Management Plan in and around Royal Chitwan National Park	Pradhanang, S. B.		1997	Socio-economic
47	Effectiveness of Training Program on Income Generation Launched by Park and People Program in the Buffer Zone of RCNP	Kayastha, Pankaj Kumar	Institute of Forestry	1999	Socio-economic
48	Elephants in Nepal.	Brawner C.	San Francisco State University, USA	1988	Biodiversity
49	Establishment and strengthening of anti-poaching units in		DNPWC	1993	Conflict

SN	Title of Literature	Author	Publisher	Date	Area of Enquiry
	the RCNP				
50	Ethnobotanical Study of Royal Chitwan National Park: An Approach Toward Reducing Park Dependency	Poudyal, Sushil	Central Department of Zoology, Tribhuvan University	1999	Socio-economic
51	Ethnobotany of Padampur: analysis of Dependency and conflicts	Rijal, A.	Agricultural University of Norway	1993	Conflict
52	Factor Limiting the Abundance and Distribution of a tropical Myrmecophage: The Sloth Bear, Melursus ursinus	Joshi, A. R.		1993	Biodiversity
53	Food habits of sloth bear (*Melursus ursinus*) in RCNP	Shrestha K. K.		1996	Biodiversity
54	Food habits of some wild mammals in Royal Chitwan National Park	Shrestha, K.		1984	Biodiversity
55	Gaur count in Royal Chitwan National Park				Biodiversity
56	Greater one horned rhinoceros population in Nepal - A preliminary report.	Dinerstein, E. and Jnawali, S. R.	Zool. Soc. Of San Deiago, USA	1993	Biodiversity
57	Guide to the amphibians and reptiles of RCNP, Nepal	Mishra, P. N. and Zug, G. R.		1988	Biodiversity
58	Impacts of proposed East Rapti Irrigation project on the wildlife of Royal Chitwan national park	Sharma U. R.		1990	Biodiversity
59	Insect Diversity	Chapagain, D.N.	Central Department of Zoology, Tribhuvan University	1999	Biodiversity
60	Issues of tourism and conservation in Sauraha, RCNP	Towell, P. , Tuthven, O. and Mowlam, A		1992	Socio-economic
61	Juman interaction in Chitwan	Yonzon, P. B.		1979	Conflict
62	Just how many rhino are there in Chitwan?	Dinerstein, E.	Smithsonian Nepal Terai Ecology Project	1985	Biodiversity
63	Leopards living at the edge of RCNP, Nepal	Seidensticker, J. Sunquist, M. E. and Mc. Dougal, C		1983	Biodiversity
64	Listening to the smaller voices: Children in a Environment of Change	Johnson and Hill	ACTION AID.	1995	Socio-economic
65	Livestock Depredation and Human Harassment by Wildlife and Its Control	Bhattarai, Thakur Prasad	Institute of Forestry	1999	Socio-economic

SN	Title of Literature	Author	Publisher	Date	Area of Enquiry
66	Management Problems of Elephant Breeding Center (A Case Study at Khorsor, Royal Chitwan National Park).	Yadav, Babu Ram		2003	Biodiversity
67	Management recommendations for the Chitwan tiger population, The Parsa extension and Bara hunting reserve.	Smith, J. L. D., and Mishra, H. R.	Smithsonian Institution/World Wildlife Fund	1981	Biodiversity
68	Movement and Survival of Captive reared Gharial (*Gavialis gangeticus*) in the Narayani River, Nepal	Maskey, T. M.		1988	Biodiversity
69	National parks and local development: grasses and people in RCNP	Lekhmkuhl J., Uprety, R. K. and Sharma, U. R.		1988	Conflict
70	Nepal: Impact Zones and Conservation: An Innovative Approach to Securing Boundaries of the Royal Chitwan National Park	Sharma, U.R. and Shaw W.W.		1996	Biodiversity
71	Nepal's Royal Chitwan National Park and it's Human Neighbors: A new Direction in Policy Thinking	Sharma, UR., and Shaw W.W.		1992	Managerial/Policy/ Legislation
72	Notes from the Workshop on Buffer Zone Regulations and Guidelines	Bajimaya, S.S.		2003	Managerial/Policy/ Legislation
73	Open billed stork: A resident bird of Lamital	Maskey, T. M. and Bauer, J		1991	Biodiversity
74	Operation unicorn: A new home for the rhino of Chitwan	Mishra, H. R.		1991	Biodiversity
75	Organization and Management Survey of the DNPWC covering the RCNP	Joshi, Mahendra Raj and Indra Kumar Shrestha		2002	Managerial/Policy/ Legislation
76	Ornithological study carried out in RCNP from Oct. 6 to Nov. 6, 1978	Thiollay, J. M.		1978	Biodiversity
77	Park Management Planning Workshop, Royal Chitwan National Park		DNPWC/PPP	1998	Managerial/Policy/ Legislation
78	Park people conflict around the RCNP	Shrestha B.		1996	Conflict
79	Park People Interaction in Royal Chitwan National Park, Nepal	Sharma, U.R.	University of Arizona. Tucson	1991	Conflict
80	Park-People Conflict in Royal Chitwan National Park, Nepal	Sharma, UR	University of Arizona, USA	1991	Conflict

SN	Title of Literature	Author	Publisher	Date	Area of Enquiry
81	Park-People Interaction	Sharma, U. R.			Conflict
82	Population status and food habit of sambar deer in RCNP	Dallakoti B.	WWF	1994	Biodiversity
83	Promoting local guardianship of endangered species and wildlife habitats in RCNP		BCNP/KMTNC/NCRTC	1995	Biodiversity
84	Prospects for coexistence: wildlife and local people	Nepal S. K. and Weber, K. E.		1994	Conflict
85	Protected Area Biodiversity Management: Case of Royal Chitwan National Park Management Planning	Rayamajhi, S.		2001	Biodiversity
86	RCNP: A case study.	Maskey T, M.		1992	Biodiversity
87	RCNP: past and present	Jha P. K., Ghimire G. P. S. and Tripathi, G. R.		1994	Biodiversity
88	RCNP: Report on gharial	Maskey, T. M.		1979	Biodiversity
89	RCNP: Wildlife heritage of Nepal	Mishra H. R. and Jefferies M.		1991	Biodiversity
90	Report on anti poaching unit activities in RCNP		DNPWC/RCNP/WWF	1996	Conflict
91	Report on the Chitwan National Park	Upreti B. N. and Pelinck E.		1973	Biodiversity
92	Research on the management of tall grasslands for the conservation of biodiversity and sustainable utilization	Pet, N., A. R. Watkinson, D. J. Bell, and K. Brown			Biodiversity
93	Resolving the Park-People Conflict: Socio-economic and Environmental Considerations	Nepal, S. K.	AIT, Thailand		Conflict
94	Rhino action plan in RCNP		DNPWC	1995	Managerial/Policy/ Legislation
95	Rhino increase in Nepal	Willian, R. S. M.		1965	Biodiversity
96	Role of Nepal's RCNP in meeting the grazing and fodder needs of local people	Sharma U. R, and Shaw, W. W.		1993	Conflict
97	Royal Chitwan National and Buffer Zone Tourism Plan 2001-2005	Gurung, H, Shrestha; PM, Gurung; GS, Shrestha, PB (eds)	DNPWC/MFSC, WWF	2001	Managerial/Policy/ Legislation
98	Royal Chitwan National Park after Twenty Years: An Assessment of Values, Threats and Opportunities	Banskota, K., B Sharma, U Sharma and A Rijal	KMTNC/WWF	1996	Managerial/Policy/ Legislation

SN	Title of Literature	Author	Publisher	Date	Area of Enquiry
99	Royal Chitwan National Park and Buffer Zone Management Plan (2001-2005)		HMG, MFSC, DNPWC, RCNP	2000	Managerial/Policy/ Legislation
100	Royal Chitwan National Park and economical tourism impact.	Aryal, B.	IOF, Pokhara	1985	Socio-economic
101	Royal Chitwan National Park management plan 1975-1979	Bolton M.	UNDP/FAO	1975	Managerial/Policy/ Legislation
102	Royal Chitwan National Park Regulations, 2030			1974	Managerial/Policy/ Legislation
103	Royal Chitwan National Park Twenty-Five Years of Conservation.	Shrestha, M. K.	DNPWC		Managerial/Policy/ Legislation
104	Royal Chitwan National Park: World Heritage of Nepal	Mishra, Hemanta R. and Margaret Jefferies.	Royal Chitwan National Park	1991	Socio-economic
105	Scent Marking in Free-ranging Tigers	Smith, J.L.D. and McDougal, C.		1982	Biodiversity
106	Self-help biogas construction programme to support biodiversity protection of RCNP		Integrated Rural Community Development Centre (IRCDC), Kathmandu	1994	Managerial/Policy/ Legislation
107	Small Carnivore Survey	Smith J.L.D.			Biodiversity
108	Social Mobilization and Development in Buffer Zone and conservation in Parks and their Surrounds	Shah, G; Karmacharya. B; Karna, B	Nepal Forest Resources Institute	1999	Socio-economic
109	Social Organization of the palm Civet, Paradoxurus hermaphroditus	Joshi, A. R.		1990	Biodiversity
110	Status, ecology and behaviour of Gangetic dolphin in the Narayani River of Nepal	Shrestha T. K.		1993	Biodiversity
111	Strategy to Combat Poaching in Royal Chitwan National Park		DNPWC/MFSC	2003	Managerial/Policy/ Legislation
112	Struggle for Existence: Park-People Conflict in the Royal Chitwan National Park, Nepal	Nepal, S.K. and Weber K.E.	AIT, Thailand	1992	Conflict
113	Study of Bengal Florican on Grassland of RCNP	Shrestha, A.	Institute of Forestry	1999	Biodiversity
114	Study on Gharial and Maggar Crocodiles	Misra, Nilambur	Agriculture University of Norway	2002	Biodiversity
115	Study on Gharials of Nepal	Cadi, Antoine			Biodiversity

SN	Title of Literature	Author	Publisher	Date	Area of Enquiry
116	Survey of the gharial in Kosi, Kali and Narayani rivers in Nepal	Maskey, T. M		1984	Biodiversity
117	Survey of Tiger Distribution in Nepal	Smith, J.L.D., C. Mc. Douglas, A. R. Joshi			Biodiversity
118	Sustainability of traditional energy resources- A case study from Bachauli Panchayat adjacent to RCNP	Edison, S., Thapa, B. R. and Wegge, P.		1988	Managerial/Policy/ Legislation
119	Sustainability of traditional energy resources: a case study from Bachhauli Panchayat adjacent to RCNP, Nepal	Studsrod, J. E. Bergstrom, C. E. Thapa B. and Wegge, P.	Agricultural University of Norway.	1991	Socio-economic
120	Ten Year Retrospective Report 1989-1999		KMTNC	1999	Managerial/Policy/ Legislation
121	The concept of impact zone as applied in Royal Chitwan National Park	Sharma, U. R.		1999	Conflict
122	The contribution of variance in lifetime reproduction to effective population size in tigers	Smith, J. L. D., and McDougal, C.		1991	Biodiversity
123	The ecology and behavior of Chital (*Axis axis*) in RCNP: With comparisons with hog deer (*Axis porcinus*), samber (*Cerbus unicolor*), and barking deer (*Muntiacus muntjack*)	Mishra, H. R.	University of Edinburgh, Scotland	1982	Biodiversity
124	The Ecology and Behavior of Hog Deer, Axis porcinus	Dhungel, S. K.			Biodiversity
125	The ecology and behavior of the greater one-horned rhinoceros	Laurie, W.A.	University of Cambridge	1978	Biodiversity
126	The ecology of South Asian tall-grass community	Lekhmkuhl J.	University of Washington, Washington	1989	Biodiversity
127	The fishes of RCNP	Edds, D. R.		1986	Biodiversity
128	The Impact Zone Concept: A regional Approach for Managing Royal Chitwan National Park, Nepal	Sharma, U.R. and Shaw W.W.		1992	Biodiversity
129	The response of ruddi shelduct (*Tadorna ferruginea*) to tourist activity in the RCNP	Hulbert, I. A. R.		1988	Biodiversity
130	The role of dispersal in structuring the Chitwan tiger population.	Smith J. L. D.		1993	Biodiversity
131	The Role of the Greater One-horned rhinoceros in the Ecology and Dispersal of the Weed, Cassia tora in Chitwan	Joshi, A. R.			Biodiversity

SN	Title of Literature	Author	Publisher	Date	Area of Enquiry
	Valley				
132	The social organization of tiger (*Panthera tigris*) in RCNP, Nepal.	Sunquist, M. E.		1981	Biodiversity
133	The Social Organization of Tigers	Sunquist, M.	Smithsonian Institute/ University of Minnesota	1976	Biodiversity
134	The status of tiger and its impact on principal prey population in the RCNP	Tamang, K. M.	Michigan State University, East Lansing, USA	1982	Biodiversity
135	Tiger attacks around Chitwan National Park	McDougal C.		1989	Conflict
136	Tiger Count 1995, Royal Chitwan National park	McDougal C.		1995	Biodiversity
137	Tiger Monitoring in Chitwan and other protected areas	McDougal, C. and J.L.D,. Smith			Biodiversity
138	Tiger/ Rhino Conservation Project Retrospective Overview 2001-2002		KMTNC/ BCC/ GEF/ UNDP	2002	Biodiversity
139	Tourism and Waterfowl- A potential conflict	Hulbert, I. A. R.		1988	Conflict
140	Translocation of one horned rhinoceros, Chitwan to Bardia.	Anstey, D.	KMTNC	1987	Biodiversity
141	Ungulate monitoring in Royal Chitwan National Park				Biodiversity
142	Ungulate Population in Chitwan Valley, Nepal	Seidensticker, L.		1976	Biodiversity
143	UNICORN	Rijal A. (ed)	KMTNC	1999	Biodiversity
144	Visitor centre at Nepal's RCNP	Berkmuller, K.		1979	Socio-economic
145	Waterbird survey of RCNP, Chitwan	Regmi, U. R.	Tribhuvan University, Institute of Forestry, Pokhara	1991	Biodiversity
146	Wetland management and construction in RCNP	Bauer, J. J. and Bauer S.	FAO	1987	Biodiversity
147	Wildlife Management in Royal Chitwan National Park	Anonymous	Francisco State University	1988	Biodiversity

3.1.2 Langtang National Park

SN	Title of Literature	Author	Publisher	Date	Area of Enquiry
1	A Report on the Training Need Assessment of Langtang National Park (October 14-20, 2002)	Karki, Jhamak B		2003	Managerial/Policy/ Legislation
2	A Survey of Trekking Tourists in Langtang National Park	Banskota, K. and Upadhyay, M.	DNPWC	1989	Socio-economic
3	An Ecological Study of Three Oak Forest Sites in Langtang National Park, Nepal	Lokna, A.	University of Bergen, Norway	1995	Biodiversity
4	An ecology survey of the proposed Langtang National Park	Fox, J.L.	HMGN/UNDP/FAO	1974	Biodiversity
5	Annual Progress Report (FY 2059/060): Langtang National Park, Dhunche, Rasuwa		DNPWC	2004	Managerial/Policy/ Legislation
6	Botanical Research in Langtang Valley, Central Nepal	Takayama, H.	Newsletter of Himalayan Botany (Japan)	1993	Biodiversity
7	Distribution of Rhododendrons in Langtang Valley, Central Nepal	Subedi, M.N.	Central Himalayan Environment Assoc. Bull. (India)	1993	Biodiversity
8	District Profile Analysis, Periodic District Development Plan, Rasuwa (2059/60-2063/64), Part I & II		District Development Committee, Rasuwa	2003	Managerial/Policy/ Legislation
9	Ecological Observations on the Pteridophyte Flora of Langtang National Park, Central Nepal	Gurung, V.L.		1985	Biodiversity
10	Flowers of the Lali Gurans *(Rhododendron arboretum)* on the way to Gosainkund	Suzuki, M.	Newsletter of Himalayan Botany (Japan)	1989	Biodiversity
11	Geographic Information System for Assessing Habitat and Estimating Population of Red Pandas in Langtang National Park, Nepal	Yonzon, P.B., Jones, R. and Fox, J.	Ambio	1991	Biodiversity
12	Jaributi Exploitation from the Langtang National Park	Yonzon, P.B.	FRSC	1993	Biodiversity
13	Langtang National Park Buffer Zone Management Plan (First Draft)		DNPWC	2001	Managerial/Policy/ Legislation
14	Langtang National Park Ecotourism Project	TMI	The Mountain Institute	1995	Socio-economic
15	Langtang National Park Management Plan (1977-1982)	Borradaile, L.J.,Green, M.J.B., Moon, L.C. Robinson, P.J. and Trait, A.	HMGN/UNDP/FAO	1977	Managerial/Policy/ Legislation

SN	Title of Literature	Author	Publisher	Date	Area of Enquiry
16	Langtang National Park Management Strategy Framework	DNPWC	DNPWC	1999	Managerial/Policy/ Legislation
17	Langtang National Park: Maintenance and Development Plan for Entrance Building in Dhunche	Junkov, M.	DNPWC	1987	Socio-economic
18	Learning From Langtang National Park in the Central Himalaya	Sherpa, A.R.	MBCP	1996	Socio-economic
19	Melamchi Diversion Scheme, SUP Inception Report - August 2003		Melamchi Drinking Water Development Project	2003	Managerial/Policy/ Legislation
20	Natural Environment, Local People and Tourism in Langtang National Park, Nepal	Kharel, F. R.	Natural Historical Museum (Nepal)	1996	Socio-economic
21	Natural Vegetation and Human Impacts in Langtang Valley, Nepal	Subedi, M.N.	ECOS	1996	Socio-economic
22	Nepal Agroforestry Foundation (NAF) Management of NTFPs and Agroforestry Promotion Project: Half Year Progress Report (July-December 2003)	NAF	NAF	2004	Managerial/Policy/ Legislation
23	Park-People Conflict in Langtang National Park, Nepal	Kharel, F. R.	Canterbury, New Zealand: Lincoln University	1994	Conflict
24	Recommended Tax Structure and Ecotourism Guidelines for Lodges and Tea Shops in Langtang National Park	Lama, W.B., Lama, G. and Poudel, D.	DNPWC	1996	Socio-economic
25	Report on Langtang National Park	Fox, J.L.	DNPWC	1974	Biodiversity
26	Socioeconomic Development and Conservation in Syabru and Langtang National Park, Central Nepal	Gurung, B.	Department of Sociology, T.U.	1988	Socio-economic
27	Traditional Resources Use and Problems in National Park, Nepal	Yonzon, P.B.	Parks, Peaks and People, The East West Center, Hawaii	1993	Socio-economic

3.1.3 Sagarmatha National Park

SN	Title Of Literature	Author	Name	Date	Area of Enquiry
1	A Report On Firewood Use In Sagarmatha National Park, Khumbu Region, Nepal	Sherpa, N.W.	DNPWC	1979	Conflict
2	A Survey Of Sagarmatha National Park For The Endangered Snow Leopard	Ahlborn, G. and Jackson, R.	Woodland Mountain Institute/DNPWC	1987	Biodiversity
3	Alternative Energy Sources For Sagarmatha National Park, Park Techniques	Coburn, B.		1982	Socio-economic
4	An Assessment Of Landscape Change In The Khumbu Region Of Nepal Using Repeat Photography	Byers, A.		1987	Biodiversity
5	An Inventory Of Birds Known To Be Found In The Sagarmatha National Park And Its Extension Area	Nepali, H.S.	DNPWC/Woodland Institute	1988	Biodiversity
6	Animal Husbandry And Grazing: A Conservation And Management Problem In Sagarmatha (Mt. Everest) National Park, Nepal	Bjønness, I. M.		1980	Conflict
7	Birds Of The Sagarmatha National Park	Fleming, R.L. Jr.	Sagarmatha National Park	1978	Biodiversity
8	Conservation In Khumbu: The Proposed Mt. Everest National Parks	Mishra, H.R.	National Park and Conservation Office	1973	Biodiversity
9	Conserving And Managing Biological Resources In Sagarmatha (Mt. Everest) National Park, Nepal	Sherpa, L.N.	East west Center, Honolulu	1988	Biodiversity
10	Construction And Development Control Codes, Khumbu Region	Gut, P.	National Park and Conservation Office	1977	Managerial/Policy/ Legislation
11	Deforestation As A Consequence Of Firewood Demand In Sagarmatha National Park Of Khumbu, Nepal	Basnet, K.	Tribhuvan University, Nepal	1992	Socio-economic
12	Ecological Conflict And Economic Dependency On Tourist Trekking In Sagarmatha (Mt. Everest) National Park, Nepal: An Alternative Approach To Park Planning	Bjønness, I. M.		1980	Conflict
13	Ecology Of The Himalayan Musk Deer In Sagarmatha National Park, Nepal	Kattel. B.	Colorado State University	1992	Biodiversity
14	Ecotourism, Conservation And Sustainable Development In The SNP And Solukhumbu District, Nepal	Rogers, P. and Aitchison, J.	IUCN Nepal	2000	Socio-economic
15	Effects of Modernization On The Khumbu Region Of Nepal: Changes In Population Structure, 1970-1982	Pawson, I.G. et al.	University of California	1984	Socio-economic

SN	Title Of Literature	Author	Name	Date	Area of Enquiry
16	Enduring Peaks And Changing Cultures: The Sherpas And Sagarmatha National Park	Weber, W.	University of Arizona, USA	1991	Socio-economic
17	Energy Alternatives For Sagarmatha National Park	Coburn, B.	KMTNC/ICIMOD	1985	Socio-economic
18	Establishment Of Khumbu National Park: Outline Project Proposal	Blower, J.H.	HMG/UNDP/FAO	1972	Managerial/Policy/ Legislation
19	External Economic Dependency And Changing Human Adjustment To Marginal Environment In The High Himalaya, Nepal			1983	Socio-economic
20	Forest And Watershed Condition In Sagarmatha National Park	Fearnside, T.		1984	Biodiversity
21	Forest Management: Sagarmatha National Park	Halkelt, L.M.	DNPWC	1981	Biodiversity
22	Himalayan Flora And Fauna Habitat In Sagarmatha National Park	Chapagai, D.	DNPWC	1989	Biodiversity
23	Impacts On A High Mountain Ecosystem: Recommendation For Action In Sagarmatha National Park	Bjønness, I. M.	DNPWC	1979	Biodiversity
24	Landscape Change And Man-Accelerated Soil Loss: The Case Of The Sagarmatha (Mt. Everest) National Park, Khumbu, Nepal	Byers, A.	Mountain Research and Development	1987	Biodiversity
25	Livestock And Landscape: The Sherpa Pastoral System In Sagarmatha (Mt. Everest) National Park, Nepal	Brower, B. A.	Department of Geography, University of California	1987	Socio-economic
26	Management Planning Considerations Of Sagarmatha National Park	Rushton, G.E.	DNPWC	1978	Managerial/Policy/ Legislation
27	Managing A Himalayan World Heritage Site	Coburn, B.	Nature and Resources	1983	Biodiversity
28	Mount Everest National Park: Sagarmatha Mother Of The Universe	Jefferies, M.	Seattle: The Mountaineers	1991	Socio-economic
29	Musk Deer In SNP	Kattel, V.	University of Arizona, USA	1990	Biodiversity
30	Nepal - Sagarmatha Forestry Report	Ledgard, N.	Forest Institute, New Zealand	1994	Managerial/Policy/ Legislation
31	Nepal - Sagarmatha, Forestry Report	Ledgard, N.	Forest Institute, New Zealand	1999	Managerial/Policy/ Legislation

SN	Title Of Literature	Author	Name	Date	Area of Enquiry
32	Notes On Entry Station, Visitor Centre, Kerosene Depot And Sagarmatha Pollution Control Committee: A Case Study Of Sagarmatha National Park In The Solukhumbu District Of Sagarmatha Zone And Recommendation For MBCP	Sherpa, A.R.	MBNPCA Project	1993	Socio-economic
33	Proposal For Forest Management Sagarmatha National Park	Speechly, H.T.	DNPWC	1976	Biodiversity
34	Proposed National Park In Khumbu District	Blower, J.H.	Ministry of Forest, Kathmandu	1971	Biodiversity
35	Report Of New Zealand Mission On Sagarmatha National Park	Lucas, P.H.C. et al	DNPWC	1974	Managerial/Policy/ Legislation
36	Report On Observations And Analysis Of The Grazing And The Water Quality Situation In Sagarmatha National Park	Fleming, W.	DNPWC	1978	Socio-economic
37	Sagarmatha Agro Forestry Project		WWF	2003	Socio-economic
38	Sagarmatha Community Agroforestry Project - Operational Plan	Bauer, K.	WWF	1995	Managerial/Policy/ Legislation
39	Sagarmatha National Park - Buffer Zone Management Plan (2003-2007) (Draft)		MFSC/DNPWC/SNP	2003	Managerial/Policy/ Legislation
40	Sagarmatha National Park Draft Management Plan	Lucas, P.H.C.	DNPWC	1976	Managerial/Policy/ Legislation
41	Sagarmatha National Park Management Strategy Framework	Shrestha, A.K. et al.	DNPWC/BCP	2000	Managerial/Policy/ Legislation
42	Sagarmatha National Park Working Paper: Implementation Status And Priorities	Sherpa, L.N.	DNPWC	1993	Managerial/Policy/ Legislation
43	Sagarmatha National Park: Maintenance And Display Development Plan for Entrance in Munja and Visitors Centre in Namche Bazaar	Junkov, M.	DNPWC	1987	Managerial/Policy/ Legislation
44	Sagarmatha National Park: Management Plan	Garatt, K.J.	HMG/New Zealand Cooperation Project	1981	Managerial/Policy/ Legislation
45	Sagarmatha National Park: The Impact Of Tourism In The Himalayas	Jefferies, B.		1982	Socio-economic
46	Sagarmatha National Park-Planning And Management Issues	Martin, H.C.	Australian Development Assistance Bureau	1984	Managerial/Policy/ Legislation
47	Sagarmatha Pollution Control Committee: Operational Plan		WWF	1993	Managerial/Policy/ Legislation

SN	Title Of Literature	Author	Name	Date	Area of Enquiry
48	Sagarmatha: Managing A Himalayan World Heritage Site	Coburn, B.		1984	Biodiversity
49	Saving Sagarmatha	Henrichsen, D., Lucas, P.H.C., Coburn, B. and Upreti, B.N.		1983	Biodiversity
50	Sherpa Of Khumbu: People, Livestock, And Landscape	Brower, B.	Oxford University Press	1991	Socio-economic
51	Sherpas: Reflection On Change In Himalayan Nepal	Fisher, J.F.	Oxford University Press	1990	Socio-economic
52	Snow Leopard Survey In Nepal, Sagarmatha (Everest) National Park	Jackson, R. and Alhborn, G.		1987	Biodiversity
53	SNP Management Plan 1979	Garatt, K.J.	Department of Land and Survey, New Zealand	1979	Managerial/Policy/ Legislation
54	Solid Waste Pollution Versus Sustainable Development In High Mountain Environment: A Case Study Of Sagarmatha National Park Of Khumbu Region, Nepal.	Basnet, K.	Tribhuvan University, Nepal	1993	Managerial/Policy/ Legislation
55	Some Notes On The Wild Ungulates Of The Sagarmatha National Park, Khumbu Himal (Nepal)	Lovari, S.		1990	Biodiversity
56	The Cultural Erosion In The High Country: A Study Of Management, Ecology, And Sherpa Culture In Sagarmatha National Park	Stern, M.	Cornell University, Department of Natural Resources, USA	1998	Socio-economic
57	The Energy Assessment Study Of Sagarmatha National Park And Chaurikharka VDC (Pharak) Area		WWF	1999	Socio-economic
58	The Road To Everest	Schilling, T.		1978	Socio-economic
59	The Sherpas Of Sagarmatha: The Effects Of A National Park On The Local People	Jefferies, B.	IUCN/Smithsonian Institute	1984	Conflict
60	The Sherpas Transformed: Social Change In A Buddhist Society Of Nepal	Furer-Haimendorf, C.V.	Sterling Publishers Private Limited	1984	Socio-economic
61	The Vegetation On The Route To Khumbu Glaciers, East Nepal	Rao, S.R.		1961	Biodiversity
62	The View Beyond The Park: Managing The Impacts Of Sagarmatha National Park And Its Tourism On The Adjoining Region Of Pharak, Nepal	Sherpa, M.N.	University of Wales, Aberystwyth, UK	2000	Socio-economic
63	Tourism And Environment In The Mt. Everest Region	Karam, P.P. and Mather, C.		1985	Socio-economic

SN	Title Of Literature	Author	Name	Date	Area of Enquiry
64	Tourism Development In Nepal - Case Study Khumbu	Cooper, M.P.	Department of Tourism, Kathmandu	1974	Socio-economic
65	Towards Sustainable Tourism In The Everest Region Of Nepal	Rogers, P, and Aitchison, J.	IUCN	1998	Socio-economic
66	Vegetation Of The Sagarmatha National Park	Schilling, A.D.	DNPWC	1977	Biodiversity
67	Vegetation Patterns on Mt. Everest as Influenced by Monsoon and Fohn,	Miehe, G.		1989	Biodiversity
68	Visitors Guide To Birds And Animals Of Sagarmatha National Park	Sherpa, M.N.	DNPWC	1986	Biodiversity

3.1.4 Rara National Park

SN	Title of Literature	Author	Publisher	Date	Area of Enquiry
1	Rara National Park Management Strategy Framework, November 1999.		DNPWC/PPP	2000	Managerial/Policy/ Legislation
2	Rara National Park	Upreti, B.N.	DNPWC	1989	Biodiversity
3	Lake Rara National Park Bird Survey	Barber, I.	DNPWC	1990	Biodiversity
4	Proposed Lake Rara National Park	Blower, J.H.	Ministry of Forest	1973	Biodiversity
5	Lake Rara National Park Management Plan (1976-1981)	Bolton, M.	UNDP/FAO	1976	Managerial/Policy/ Legislation
6	Birds and Other Wildlife at Lake Rara National Park, North West Nepal	Brearey, D.M. and Pitchard, D.E.		1985	Biodiversity
7	Notes on Birds Recorded in Lake Rara National Park, May 1985	Cox, J.	DNPWC	1985	Biodiversity
8	Some Limnological Study and Biological Data from Rara, A Deep Himalayan Lake in Nepal	Ferrow, W.	Nepal Research Center	1979	Biodiversity
9	A Short Survey of Lake Rara and Singa Khola Areas	Fox, J.I.	National Park and Conservation Office	1975	Biodiversity
10	Three New Species of the Cyprinoid Genus Schizothorax from Lake Rara, North Western Nepal	Terashima, A.		1984	Biodiversity

3.1.5 Shey Phoksundo National Park

SN	Title of Literature	Author	Publisher	Date	Area of Enquiry
1	A Wildlife Survey of the Shey Gompa Area	Schaller, G.B.	New York Zoological Society	1974	Biodiversity
2	Dolpa Birds	Fleming, R.L.Sr.	National Park and Conservation Office	1971	Biodiversity
3	Dolpa: The Hidden Paradise	Sakya, K.	Nirala Publication	1991	Biodiversity
4	Dolpa: The World Behind the Himalaya	Sakya, K.	Jore Ganesh Press	1978	Biodiversity
5	Field Study in Shey Phoksundo National Park	Prieme, E. and Okenebjerg, B	DNPWC	1992	Biodiversity
6	Natural Resources and Vegetation of Shey Phoksundo National Park, Dolpa	Sherpa, N.W.	DNPWC	1991	Biodiversity
7	Operational Plan: Shey Phoksundo National Park, Nepal	Sherpa, M.N.	Montana State University, USA	1992	Managerial/Policy/ Legislation
8	Pastureland and Livestock Grazing in Shey Phoksundo National Park, Dolpa	Mandal, P.	National Pasture and Fodder Research, Khumaltar	1990	Biodiversity
9	Plants Species Diversity in Relation to Grazing Pressure in 3 Alpine pastures, Shey Phoksundo National Park	Carpenter, C. and Klein, G.	WWF	1995	Biodiversity
10	Shey Phoksundo National Park		DNPWC	1987	Biodiversity
11	Socioeconomic Development and Tourism Survey in Shey Phoksundo National Park	Bajimaya, S.	DNPWC	1990	Socio-economic
12	SPNP and its BZ	DNPWC	DNPWC	2000	Socio-economic
13	SPNP Samrakchhan ko Prayasharu	Regmi, Y.	SPNP	2003	Managerial/Policy/ Legislation
14	Summary Report of Shey Phoksundo National Park, Dolpa	Upreti, B.N.	DNPWC	1988	Biodiversity
15	The Avifauna and Conservation Values of Shey Phoksundo National Park, Nepal	Prieme, E. and Okenebjerg, B	Fork Tail	1994	Biodiversity
16	The Hidden Valley of Dolpa	Sakya, K.	Nepal Nat. Consv. Soc.	1977	Socio-economic
17	Wildlife Survey of Shey Phoksundo National Park, Dolpa, West Nepal		NCRTC	1990	Biodiversity

3.1.6 Khaptad National Park

SN	Title of Literature	Author	Publisher	Date	Area of Enquiry
1	A Cursory Ecological Survey of Khaptad Area	Kattel, B.	Nat. Hist. Mus.	1981	Biodiversity
2	Biological and Cultural Diversity of Khaptad National Park	Choudhary, R.P.	TO-DAY	1996	Socio-economic
3	Khaptad National Park: An Account of Current Knowledge and Conservation Value	Inskipp,. C.	DNPWC	1988	Biodiversity
4	Khaptad National Park		DNPWC	1986	Biodiversity
5	Khaptad National Park Duty Travel Report 9/2/88-16/2/88	Jefferies, B.	DNPWC	1988	Managerial/Policy/ Legislation
6	Khaptad National Park Management Strategy Framework		DNPWC	2000	Managerial/Policy/ Legislation
7	Khaptad National Park Regulation 2044		Ministry of Law and Justice	1986	Managerial/Policy/ Legislation
8	Notes on Birds Recorded at Khaptad in 1989	Barbar, I. and Prescott, T.	DNPWC	1989	Biodiversity
9	Prefeasibility Report on Tourism Development in Khaptad Region		DEAN	1998	Managerial/Policy/ Legislation
10	The Ornithological Importance of Khaptad National Park, Nepal	Inskipp,. C.	Fork Tail	1989	Biodiversity

3.1.7. Royal Bardia National Park

SN	Title of Literature	Author	Publisher	Date	Area of Enquiry
1	A Brief Investigation into the Status of the Wild Elephant Population: Royal Bardia National Park.	Furaha KnVelde, P.	DNPWC	1996	Biodiversity
2	A Brief Report on Royal Bardia National Park	Yadav, R.P.		1991	Biodiversity
3	A Preliminary report on the extension of the Royal Bardia National Park in Banke Forest Division.	Yadav, R.P. and Shrestha, K.M.	DNPWC	1991	Biodiversity
4	A Profile of Royal Bardia National Park	Upreti, BN.	NPC, HMG/ IUCN	1992	Biodiversity
5	An Assessment of Crop Damage and Local Harassment by Wild Asian Elephant at Gola VDC		KMTNC	2000	Conflict
6	Analysis of Wildlife Habitat in Karnali-Bardia Wildlife Reserve	Dinerstein, E.	DNPWC	1976	Biodiversity

SN	Title of Literature	Author	Publisher	Date	Area of Enquiry
7	Annual Progress Reports/RBNP/PCP	RBNP/PCP	RBNP/ PCP, Nepal	2002	Managerial/Policy/ Legislation
8	Assessing Census in Royal Bardia National Park	Anderson, H.J. and Naess, K.M.	DNPWC	1993	Socio-economic
9	Bardia Conservation Project Report		NORAD/ANU/DNPWS/KMTNC	1993	Biodiversity
10	Bardia Conservation Research Programme, Progress Report 1990	Wegge, P., Jnawali, J. and Moe, S.R.	Agriculture University of Norway	1991	Managerial/Policy/ Legislation
11	Bardia Integrated Conservation Project (BICP), Royal Bardia National Park, Annual Report (Dec 1995 - Nov 1996)		WWF- Nepal Program	1996	Managerial/Policy/ Legislation
12	Beginning with Buffer zone management: A case study of Royal Bardia National Park, Nepal.	Bhatta, S. R.	Agricultural University of Norway	1994	Managerial/Policy/ Legislation
13	Biodiversity Inventory of the Royal Bardia National Park	Basnet, K.	DNPWC/WWF Nepal	1995	Biodiversity
14	Buffer zone management in Nepal. A case study in Royal Bardia National Park with emphasis on sustainable use of fuelwood and timber resources	Pradhan, N.M.B.	Agricultural University of Norway, Aas, Norway	1995	Socio-economic
15	Checklist of Birds of Royal Bardia Wildlife Reserve	Inskipp, C.	International Council for Bird Preservation	1982	Biodiversity
16	Diet and habitat use of greater Indian one-horned rhinoceros Rhinoceros unicornis and Asian elephant Elephus maximus during the dry season in Babai Valley, Royal Bardia National Park in Lowland Nepal	Fjellstad, J.I. and Steinhein, G.	Agricultural University of Norway	1996	Biodiversity
17	Distribution and Movement Pattern of Deer in Response to Food Quality and Manipulation of Grassy Habitat: A Case Study with Emphasis on Axis Deer (*Axis axis*) in Low Land Nepal	Moe, S.R.	Agriculture University of Norway	1994	Biodiversity
18	Ecological Studies of Blackbuck in Royal Bardial National Park	Bhandari, K., Dhakal, A., Nepal, R. and Shrestha, R.	WWF- Nepal Program	1992	Biodiversity
19	Effect of Forested Buffer zones on Park - People Relationships in Bardia National Park	Leisure, B. and Mehta, J.	Institute of Forestry, Pokhara	1993	Conflict
20	Effects of grazing, utilization and management on the grasslands in Royal Bardia National Park, Nepal	Karki, J.	Agricultural University of Norway	1997	Biodiversity

SN	Title of Literature	Author	Publisher	Date	Area of Enquiry
21	Floristic composition, biomass production and biomass harvest in the grassland of the Royal Bardia National Park, Nepal	Pokharel, S.K.	Agricultural University of Norway,	1993	Biodiversity
22	Habitat preference and food habitat of Barasingha (*Cervus duvauceli*) in Royal Bardia National Park	Pokharel, C.P.	Tribhuvan University	1997	Biodiversity
23	Integrating Conservation. A Community Approach to Conservation in Royal Bardia National Park, Nepal 2001	WWF	WWF- Nepal Program	2001	Managerial/Policy/ Legislation
24	Mid Term Review of NPL 0012 Bardia Research Project. RBNP	Rayamajhi, S. and Manandhar, M.D.	NORAD	2001	Biodiversity
25	Notes on Birds Recorded in Royal Bardia National Park, Nepal	Hallyday, J.B.	DNPWC	1992	Biodiversity
26	Operational Plan for the Royal Bardia National Park and its Buffer Zone (1997-2001): Main Document		DNPWC/WWF Nepal	1996	Managerial/Policy/ Legislation
27	Park People Conflict: An Estimate of Damage Caused by Wild Animals Adjacent to the Royal Bardia National Park, Nepal	Studsord, J.E.	DNPWC	1994	Conflict
28	Park People conflicts with especial emphasis on wildlife damages in Royal Bardia National Park: A case study from Neulapur VDC	Paudel, M.R.	Forestry at IOF Pokhara, Nepal.	2002	Conflict
29	Park-People Interaction: A Case Study of Thakurdwara Village Development Committee near Royal Bardia National Park	Nepal, R.C.	Institute of Forestry, Pokhara	1991	Conflict
30	Park-People Relationships: The case of Damages caused by Park Animals Around the Royal Bardia National Park	Studsord, J.E. and Wegge, P.	Environment Conservation	1995	Conflict
31	Plain Tales from the Grasslands: the Utilization of Natural Resources in Royal Bardia National Park, Nepal	Brown, K.	University of East Anglia, Norway	1995	Biodiversity
32	Poaching and Anti-poaching Activities in Royal Bardia National Park (1992-1995)				Conflict
33	Population ecology of greater one-horned rhinoceros (*Rhinoceros unicornis*) with particular emphasis on habitat preference, food ecology and ranging behaviour of a reintroduced population in Royal Bardia National Park in Lowland, Nepal.	Janwali, S.R.	Agricultural University of Norway	1995	Biodiversity

SN	Title of Literature	Author	Publisher	Date	Area of Enquiry
34	Problems and Prospects of Blackbuck Protection at Khairpur, Bardia	Subedi, B.R.	Institute of Forestry, Pokhara	1991	Biodiversity
35	Restocking Gharial Crocodile in Babai and Karnali Rivers.	Maskey, T.M.	Bardia Conservation Research Program	1991	Biodiversity
36	River Dynamics and Diversity of Avian and Mammal Fauna in Bardia National Park: An Attempt to Forecast the effects of Hydro Development	Bauer, J.J., Maskey, T. and Rast, G.	Ecological Society of Australia	1993	Biodiversity
37	Royal Bardia National Park		NPC/IUCN	1994	Biodiversity
38	Royal Bardia National Park		DNPWC	1989	Biodiversity
39	Royal Bardia National Park and Buffer zone Tourism plan 2001-2006	DNPWC/HMGN	DNPWC/ WWF Nepal Program	2002	Managerial/Policy/ Legislation
40	Royal Bardia National Park Buffer Zone Management Plan (2002-2007)		DNPWC	2001	Managerial/Policy/ Legislation
41	Royal Bardia National Park Buffer zone Management Plan (2058-2062 BS) - draft	RBNP	DNPWC	2000	Managerial/Policy/ Legislation
42	Royal Bardia National Park Management Strategy Framework, October 1998		DNPWC/Park People Program	2000	Managerial/Policy/ Legislation
43	Royal Bardia National Park: Summary Report		National Park and Conservation Office	1974	Biodiversity
44	Royal Bardia National Parks: At a Glance (Twenty-Five Years of Conservation)	RBNP	RBNP	2001	Managerial/Policy/L egislation
45	Royal Karnali Wildlife Reserve Management Plan	Bolton, M.	FAO, Rome	1976	Managerial/Policy/L egislation
46	Scope of Tourism in the Royal Bardia National Park	Neupane, G.P.	Institute of Forestry, Pokhara	1993	Socio-economic
47	Second Status Report of Nepal's Endangered Species - The Blackbuck of Bardia District	Dinerstein, E. and Singh, G.	National Park and Conservation Office	1975	Biodiversity
48	Socio-economic and Ecological Impact of Buffer Zone Development Program	Dhakal, BK.	Tribhuvan University	2002	Socio-economic
49	Socioeconomic Survey of the Buffer zone of the Royal Bardia National Park	Dhakal, N	DNPWC	1995	Socio-economic
50	Space and habitat use by small reintroduced population of greater one-horned rhinoceros in Royal Bardia National Park in Nepal- A preliminary report	Jnawali, S.R. and Wegge, P.	Zoological Society of San Diego.	1993	Biodiversity

SN	Title of Literature	Author	Publisher	Date	Area of Enquiry
51	Status and Food Habits of Nilgai (Boselaphus trangocamelus) in Royal Bardia National Park, Nepal	Khatri, TB.	Agricultural University of Norway	1993	Biodiversity
52	Status and Population of Swamp Deer (*Cervus Douvauceli*) in Bardia Wildlife Reserve	Bauer, J.J.	Tiger Paper	1990	Biodiversity
53	Status of Bengal Florican in Royal Bardia National Park, Western Lowland Nepal		KMTNC	1998	Biodiversity
54	Status of Ganges River Dolphins (*Platanista Gangetica)*in the Karnali, Mahakali, Narayani and Saptakoshi Rivers of Nepal in 1993	Smith, B.D., Regmi, U. and Sapkota, K.	Marine Mammal Science	1995	Biodiversity
55	Study of black buck population at Khairapur, Bardia district.	Bhatta, S.R.	IOF, Pokhara	1987	Biodiversity
56	Study on Gangetic Dolphin Conservation and Management at Karnali River, Royal Bardia National Park		KMTNC	2001	Biodiversity
57	The Effects of Forested Buffer Zones on the Park/People Relationship in Bardia National Park.	Leisure, B. and Mehta, J.	Institute of Forestry, Pokhara	1993	Conflict
58	The importance of Aquatic Vegetation for the Management of the Barasingha (*Cervus duvaceli*)	Moe, S.R.	DNPWC	1993	Biodiversity
59	Translocation of One Horned Rhinoceros, Chitwan to Bardia	Anstey, D.	KMTNC	1987	Biodiversity
60	Wildlife habitat mapping by using Geographical Information System (GIS) in the Karnali floodplain of Royal Bardia National Park at Lowland, Nepal.	Sharma, B.K.	Agricultural University of Norway	1999	Biodiversity

3.1.8 Makalu Barun National Park

SN	Title of Literature	Author	Publisher	Date	Area of Enquiry
1	A High Altitude wildlife Survey of Hongu Valley with Special Emphasis on Snow Leopard	Jackson, R. and Ahlborn, G.	DNPWC/TMI	1987	Biodiversity
2	A Preliminary Survey of Black Bear Status And Wildlife Crop Damage in the Makalu Barun Conservation Area	Lama, W.B.	DNPWC/Woodland Institute	1988	Biodiversity
3	A Survey on Wildlife and Pastoral System in the Hinku-Hongu Valleys, Nepal	Bauer, J.J. and Poudel, D.	DNPWC/FAO	1988	Biodiversity
4	Alpine Ecology in Barun Khola, Nepal	Grey-Wilson, C.	Kew Mag	1984	Biodiversity
5	Altitudinal Distribution and Tree Form of Rhododendron in the Barun Valley, East Nepal	Noshiro, S. and Suzuki, M.		1989	Biodiversity

SN	Title of Literature	Author	Publisher	Date	Area of Enquiry
6	An Overview of the Biological ecology of Makalu Barun National Park and Conservation Area of Snkhuwasabha District, Nepal	Carpenter, C.	San Fransico State University	1996	Biodiversity
7	Applied Database for Integrated Biodiversity Conservation in Nepal. Biodiversity of Makalu Barun National Park and Conservation Area		Woodland Mountain Institute/IUCN/DNPWC	1995	Biodiversity
8	Aspects of Wildlife Protection and utilization in the Makalu Barun Conservation Areas	Jackson, W.J., Nepali, H.S. and Sherpa, A.R.	DNPWC/Woodland Institute	1990	Biodiversity
9	Behavior study of Assamese monkeys (Macaca assamensis) of Makalu Barun Area, Nepal	Chalise, M.K.		1999	Biodiversity
10	Community Resources Management Component	Nepali, R.K., Sangam, K., Ramble, C. and Chapagain, C.	DNPWC/Woodland Institute	1990	Biodiversity
11	Conceptual Model for Activating User's Groups in the Makalu Barun Area	Nepali, R.K.	DNPWC/Woodland Institute	1992	Socio-economic
12	Estimation of Growing Stock and Sustainable Yield of Lokta Bark in Makalu Barun National Park and Conservation Area	Dhungana, A.	DNPWC/TMI	1995	Biodiversity
13	Farming System an Natural Resources Use in the Makalu Barun Conservation Area Project: A Vital Link for Survival	Joshi, N.P.	ICIMOD/FAO	1994	Biodiversity
14	Historic and Contemporary Human Disturbances in the Upper Barun Valley, Makalu Barun National Park and Conservation Area, East Nepal	Byers, A.	Mountain Research and Development	1996	Socio-economic
15	Impact of Rural Tourism on the Environment, Impact and Income in the Makalu Barun Area	Banskota, K. and Upadhyay, M.	DNPWC/Woodland Institute	1991	Socio-economic
16	Income Generation Through Production and Marketing of Handicrafts and Non Timber Product in the Makalu Barun National Park and Conservation Area Project	Nicholson, K.	MBNPCA Project	1994	Socio-economic
17	Local attitudes towards community based conservation policy and programmes in Nepal. A case study in the Makalu Barun CA	Mehta J.N. and Kellert, S.R.,		1998	Managerial/Policy/ Legislation
18	Makalu Barun Conservation Project, Nepal: Project Evaluation		Euroconsult, Arhem, Netherlands	1995	Managerial/Policy/ Legislation

SN	Title of Literature	Author	Publisher	Date	Area of Enquiry
19	Makalu Barun National Park and Conservation Area Project Document		GEF/UNDP	1993	Managerial/Policy/ Legislation
20	Makalu Barun National Park and Conservation Area: 1993-1994 Plan of Operation (with Projected References to June 1995 and December 1997)	Byers, A., Poudel, N. and Sharma, B.K.	DNPWC/Woodland Institute	1993	Managerial/Policy/ Legislation
21	Mountaineering of Mt. Makalu II and Scientific Studies in Eastern Nepal	Numata, M. (ed.)	Chiba University	1176	Socio-economic
22	Preliminary Report on Makalu Barun Nature Reserve	Mali, T.N. and Shah, S.	DNPWC	1987	Biodiversity
23	Socioeconomic Survey of Makalu Barun Conservation Area	Banskota, K., Sharma, B. and Upadhyay, M.	DNPWC/Woodland Institute	1992	Socio-economic
24	Status of Community Needs, Resources and Development: Sankhuwasabha District	Nepali, R.K. and Sangam, K.	DNPWC/Woodland Institute	1989	Socio-economic
25	Study of Geohydrology, Land use and Population of the Makalu Barun Project Area	Khanal, N.R.	DNPWC/Woodland Institute	1992	Socio-economic
26	Study of the Ecology of the Barun Valley with Particular Reference to Mammalian Fauna - A Habitat Analysis	Khadka, R.B.	RONAST	1988	Biodiversity
27	Task Force Review Meeting: The Makalu Barun Conservation Project. The Makalu Barun Conservation Project Working Paper Publication Series Report No. 3		DNPWC/Woodland Institute	1990	Managerial/Policy/ Legislation
28	Task Force Startup Workshop. The Makalu Barun Conservation Project Working Paper Publication Series Report No. 1	Davis, R.	DNPWC/Woodland Institute	1990	Managerial/Policy/ Legislation
29	The Makalu Barun National Park and Conservation Area Project Annual Report1994-95		DNPWC/Woodland Institute	1995	Managerial/Policy/ Legislation
30	The Makalu-Barun Conservation Project: annual Report		DNPWC/Woodland Institute	1993	Managerial/Policy/ Legislation
31	The Makalu-Barun National Park and Conservation Area Management Plan		DNPWC/TMI/MEECP	1990	Managerial/Policy/ Legislation
32	Threatened Wildlife, Crop and Livestock Depredation and Grazing in the Makalu Barun Conservation Area	Jackson, R.	DNPWC/Woodland Institute	1990	Conflict
33	Tourism Management and Socioeconomic Survey. Report 6, Prepared for Makalu Barun Conservation Project	Banskota, K. and Upadhyay, M.	DNPWC/Woodland Institute	1991	Socio-economic
34	Tourism Management for the Upper Barun Valley	Lama, W.B. and	DNPWC/TMI	1995	Socio-economic

SN	Title of Literature	Author	Publisher	Date	Area of Enquiry
		Sherpa, A.R.			
35	Traditional Livelihood System in the Makalu Barun Conservation Area, Nepal: A Case Study	Joshi, N.P.	University of Agriculture, Faisalabad, Pakistan	1995	Socio-economic

3.1.9 Shivapuri National Park

SN	Title of Literature	Author	Publisher	Date	Area of Enquiry
1	A Biological Survey of Shivapuri Integrated Watershed and Wildlife Reserve	Yonzon, P.B.	Shivapuri Integrated Watershed Development Project		Biodiversity
2	A Study of the Phyto -Ecology of Sundarijal and Adjoining Areas (Shivapuri Watershed and Wildlife reserve)	Joshi, A.L.	Snowy Mountain Engineering Corp. Ltd.	1991	Biodiversity
3	A Study on Small Scale Enterprises Development in Shivapuri Watershed and Wildlife Reserve	Shrestha, D.B.	Shivapuri Integrated Watershed Development Project, HMGN and FAO.	1993	Socio-economic
4	A Study on the Hydrology of Shivapuri Watershed Area	Bajracharya, R.M.	HMGN/FAO	1993	Biodiversity
5	Assessment of Wildlife Diversity and Crop Depredation in Shivapuri Watershed and Wildlife Reserve	Kattel, B.	Shivapuri Integrated Watershed Development Project, HMGN and FAO.	1993	Conflict
6	Changing Profile of Shivapuri, a Gender analysis Framework, Forests, Trees and People programme	Lama, K.V.	FAO	1993	Socio-economic
7	Conservation Farming. Shivapuri Integrated Watershed Development Project Technical Report No. 2	Jorgenson, I.	HMGN/FAO	1993	Biodiversity
8	Control of Wild Boar Population in the Shivapuri Area and a Design of a Capture Programme	Maillard, D., Kharel, F.R. and Kloosterman, H.	Shivapuri Integrated Watershed Development Project	1996	Conflict
9	Discussion Note on Shivapuri Management Plan		HMGN/FAO	1995	Managerial/Policy/ Legislation
10	Ecotourism Potential in Shivapuri	Bajracharya, P.	HMGN/FAO	1993	Socio-economic
11	Final Report on Participatory Planning For Shivapuri Management Plan	Lama, M.S.	HMGN/FAO	1995	Socio-economic
12	Forest Management and Agro-Forestry System in Shivapuri Watershed Area	Kadota, T. and Joshi, D.B.	SWMFPP, Kathmandu	1989	Biodiversity

SN	Title of Literature	Author	Publisher	Date	Area of Enquiry
13	Interim Report on Biodiversity Shivapuri Watershed and Wildlife Reserve	Shrestha, M.K.	Shivapuri Integrated Watershed Development Project, HMGN and FAO.	1992	Managerial/Policy/ Legislation
14	Resource Use Pattern in watershed area and its Environmental Implications	Pavitrra Subba Shrestha	Agriculture University of Norway	1996	Socio-economic
15	Shivapuri Integrated Watershed Development - Phase II, Follow up		Shivapuri Integrated Watershed Development Project.	1991	Managerial/Policy/ Legislation
16	Shivapuri Management Plan Part I: A Policy Framework for Participatory Management of Natural Resources, Protection and Development of the Shivapuri Area		Shivapuri Integrated Watershed Development Project, HMGN and FAO.	1995	Managerial/Policy/ Legislation
17	Shivapuri Watershed and Wildlife Reserve (Proposed Shivapuri National Park), Panimuhan, Budhanilkantha)		Shivapuri Watershed and Wildlife Reserve	2002	Biodiversity
18	Shivapuri Watershed Area	K.C., B.	HMGN/FAO	1993	Biodiversity
19	Shivapuri Watershed Management and Fuelwood Plantation Project: Project Document		Shivapuri Integrated Watershed Development Project.	1985	Managerial/Policy/ Legislation
20	Socioeconomic in Shivapuri Watershed and Wildlife Reserve	K.C., B.	Shivapuri Integrated Watershed Development Project, HMGN and FAO.	1993	Socio-economic
21	Study on Forest Vegetation Analysis and of Shivapuri Watershed and Wildlife Reserve	Amatya, D.B.	Shivapuri Integrated Watershed Development Project, HMGN and FAO.	1993	Biodiversity
22	Study on Land use of Shivapuri Area	Tamrakar, R.	HMGN/FAO	1993	Socio-economic
23	Study on Legal, Cultural, and Institutional Background in Shivapuri Watershed and Wildlife Reserve	Shrestha, C.L.	Shivapuri Integrated Watershed Development Project	1993	Socio-economic
24	Watershed Development Plan of the Shivapuri Project Area	Sthapit, K.M. and Shrestha, B.D.	HMGN/FAO	1986	Managerial/Policy/ Legislation

3.1.10 Royal Shuklaphanta National Park

SN	Title of Literature	Author	Publisher	Date	Area of Enquiry
1	A checklist of birds and mammals found in Royal Suklaphanta Wildlife Reserve	BCN		1998	Biodiversity
2	A Partial Checklist of the Birds of Suklaphanta Wildlife Reserve in Nepal	Schaaf, C.D., Rice, C., Fleming, R.L.Sr. and Jr.	DNPWC	1977	Biodiversity
3	A status report of Nepal's wild elephant population.	Velde, P.F.	WWF	1997	Biodiversity
4	An ecological survey of the Royal Karnali-Bardia Wildlife Reserve, Nepal. Part-II: Habitat/ animal interactions	Dinerstein, E.		1979	Biodiversity
5	Attitudes of local people about the extension program of Suklaphanta wildlife reserve.	Chand, C.B	IOF, Pokhara	1988	Conflict
6	Barasingha (*Cervus duvacelli*) in Shukla Phanta Wildlife Reserve, Nepal: Population Size and Trend	Henshaw. J.	DNPWC	1992	Biodiversity
7	Biodiversity and management of tall grassland in Nepal.	Peet, N.B.	University of East Anglia, Norwich.	1998	Biodiversity
8	Bristled grassbird (*Chaetornis striatus*) in Nepal.	Baral, H.S.		1997	Biodiversity
9	Conservation and Development Approaches in RSWR, Far west Nepal	Adhikary, T.R.	Resources Himalaya	2003	Biodiversity
10	Demography and habitat use by greater one-horned rhinoceros in Nepal.	Dinerstein, E. and Price, L.		1991	Biodiversity
11	Distribution and movement pattern of deer in response to food quality and manipulation of grassy habitat. A case study with emphasis on Axis deer (*Axis axis*) in Lowland Nepal.	Moe, S.R.	Agricultural University of Norway	1994	Biodiversity
12	Ecology and behaviour of the Northern Race of swamp deer (*Cervus duvauceli*) in the Suklaphanta Wildlife Reserve of Nepal	Schaaf, C.D.	Michigan University, Michigan	1978	Biodiversity
13	Finn's weaver (*Ploceus megarhynchus*) and Singing bush lark (*Mirafra cantillans*): Two new species for Nepal	Baral, H.S.		1998	Biodiversity
14	General report in the Royal Sukla Wildlife Reserve	Balson, E.E.		1973	Managerial/Policy/Legislation
15	Population Condition, Population Structure and Population Trend of Swamp Deer (*Cervus duvoceli duvoceli*) in Suklaphanta Wildlife Reserve, West Nepal	Ellenberg, H. and Bauer, J.J.	NORAGRIC	1988	Biodiversity
16	Population Size, Structure and Habitat Relations of the Barasingha in Shuklaphanta Wildlife Reserve, Nepal	Schaaf, C.D.	Michigan State University	1978	Biodiversity

SN	Title of Literature	Author	Publisher	Date	Area of Enquiry
17	Proceedings of 12th Warden's Conference at Royal Suklaphanta Wildlife Reserve		DNPWC	1996	Managerial/Policy/Legislation
18	Proposed Buffer Zone Management Plan 2003	DNPWC	DNPWC	2003	Managerial/Policy/Legislation
19	Results of preliminary survey of Bengal florican (*Houbaropsis bengalensis*) in Nepal, 1982	Inskipp, C. and Inskipp, T.	Cambridge University Press, Cambridge	1983	Biodiversity
20	Royal Shuklaphanta Wildlife Reserve Management Strategy Framework, November 1998		DNPWC/PPP	2000	Managerial/Policy/Legislation
21	Status of Ganges River Dolphins (*Platanista Gangetica)*in the Karnali, Mahakali, Narayani and Saptakoshi Rivers of Nepal in 1993	Smith, B.D., Regmi, U. and Sapkota, K.	Marine Mammal Science	2003	Biodiversity
22	Status, distribution and habitat preferences of Swamp francolin (*Francolinus gularis*) in Nepal	Baral, H.S.		1998	Biodiversity
23	Suklaphanta: A grassland reserve of international importance	Baral, H.S.		1997	Biodiversity
24	The effects of cutting and burning on grass quality and Axis deer (*Axis axis*) use of grassland in Lowland Nepal.	Moe, S.R. and Wegge, P.		1997	Biodiversity
25	The environment of Sukla Phanta: A case study report	Bhatta, D.D. and Shrestha, T.K.	Curriculum Development Centre, Tribhuvan University, Kathmandu	1997	Biodiversity
26	The hispid hare (*Caprolagus hispidus*).	Bell, D.J.; Oliver, W.L.R. and Ghose, R.K.	IUCN.	1990	Biodiversity
27	The management of tall grassland for the conservation of biodiversity and sustainable utilization	Peet, N.B.; Watkinson, A.R.; Bell, D.J. and Brown, K.		1997	Biodiversity
28	The pigmy hog (*Sus salvanius*)	Oliver, W.L.R. and Deb Roy, S.	IUCN	1993	Biodiversity
29	The Population Trend of Swamp Deer in Royal Shukla Phanta Wildlife Reserve	Mehta, J.N.	Natural History Museum	1987	Biodiversity
30	Vegetation Ecology of RSWR, Far west Nepal	Rijal, A.; Yonzon P	UNDP	2003	Biodiversity

3.1.11 Koshitappu Wildlife Reserve and Ramsar Site

SN	Title of Literature	Author	Publisher	Date	Area of Enquiry
1	A Census. Population Viability Assessment, and Translocation Recommendations for Wild Buffalo (Bubalus bubalis) in Nepal, 2000	Heinen, J. T. and G.R.Singh			Biodiversity
2	A Study of the Wild Water Buffalo (Bubalus bubalis) in Koshi Tappu Wildlife Reserve	Bhandari, M.		1994	Biodiversity
3	Action Plan For Koshi Tappu Wildlife Reserve		DNPWC	1995	Managerial/Policy/ Legislation
4	An Assessment of Crop Damage by Wild Animals and Depredation of the Wildlife due to Activities of Local People in Koshi Tappu Wildlife Reserve	Sharma, B.K.	Central Department of Zoology, Tribhuvan University	1996	Biodiversity
5	An assessment on crop damage by wild buffalo in the eastern part of Koshi Tappu Wildlife Reserve	Adhikari, K.	Central Department of Zoology, TU	1999	Conflict
6	An Interim Report for the Koshi Tappu Wildlife Buffalo/Human Interaction Project	Heinen, J.T.	DNPWC/USAID	1987	Conflict
7	An Interpretation and Education System for Koshi Tappu Wildlife Reserve and its Buffer zones		IUCN Nepal	1998	Socio-economic
8	An Inventory of Nepal's Terai Wetlands	Bhandari, B.	IUCN-Nepal, Wetland and Heritage Unit	1998	Biodiversity
9	Biodiversity Assessment of Terai Wetlands	BPP	HMG, DNPWC	1995	Biodiversity
10	Biodiversity of Koshi Tappu Wildlife Reserve and its Adjacent Area		WMI/IUCN-Nepal	1994	Biodiversity
11	Biodiversity of Koshi Tappu Wildlife Reserve and its Adjacent Areas: Applied database for integrated biodiversity conservation in Nepal		Woodlands Mountain Institute/IUCN/Nepal	1994	Biodiversity
12	Biodiversity Profile of Terai and Siwalik Physiographic Zones	BPP	HMG, DNPWC	1995	Biodiversity
13	Bird lists for Koshi Tappu and Koshi Barrage in mid October, 1987	Dolek, M.	DNPWC	1987	Biodiversity
14	Bird Observation in Koshi Tappu	Kund and Falk	DNPWC	1993	Biodiversity
15	Birds observed from Dharan to Koshi barrage, Sunsari Districts, Nepal, June 1995	Cox, J.	DNPWC	1995	Biodiversity

SN	Title of Literature	Author	Publisher	Date	Area of Enquiry
16	Birds of Koshi.	Baral, H. S.	Bird Conservation Nepal	2000	Biodiversity
17	Butterflies of Koshi Tappu Wildlife Reserve, 1999	Khanal, B.			Biodiversity
18	Changes in the Koshi River Bed	Kumar, O.P. and Mathur, V. K.	Central Board of Irrigation and Power, Govt. of India	1986	Biodiversity
19	Checklist of Birds of Koshi Tappu, January 1987-March 1988	Heinen, J.T.	DNPWC	1988	Biodiversity
20	Community Development and Biodiversity Conservation Through Bird Watching Tourism at Koshi Tappu Ramsar Site in Eastern Nepal	Singh, G.R.	Charles Stuart University	2001	Socio-economic
21	Comparison of census data for wild buffalo and domestic livestock (Buffalo and cow) in Koshi Tappu Wildlife Reserve.	Kushawa, H.	1986	1986	Biodiversity
22	Conservation Issues and Management Measures for Koshi Tappu Wildlife Reserve	Suwal, R.N.	IUCN	1994	Biodiversity
23	Crop Damage by Water Buffalo in Sugar Cane Fields	Gordon, S.	Wildlands Research Nepal Program, San Fransico State University	1987	Conflict
24	Diversity of Aquatic Macrophytes in the Koshi Tappu Wildlife Reserve and Surrounding areas, Eastern Nepal	Shrestha, P.	ECOS	1996	Biodiversity
25	Ecology of the Koshi River in Nepal-India (North Bihar): A Typical River Ecosystem	Sharma, U.P.	ECOS	1996	Biodiversity
26	Ecology, Status Appraisal Conservation and Management of Gangetic Dolphin (*Platinista gangeticus*) in the Koshi River of Nepal	Shrestha, T.K.	Fresh Water Biology	1993	Biodiversity
27	Elephant Breeding in Koshi Tappu Wildlife Reserve	Kindt, K.	Wildlands Research Nepal Program, San Fransico State University	1987	Biodiversity
28	Endangered Environment of Wild Buffalo of Koshi Tappu with Reference to Anthropoligical Impacts	Kherwar, P.K.	Central Department of Zoology, TU	1996	Biodiversity
29	Factors Threatening Wild Water Buffalo (In the Koshi Tappu Wildlife Reserve)	Ghimire, R.	WWF Nepal program	2000	Biodiversity
30	Faunal Biodiversity of Koshi Tappu Wildlife Reserve	Rajbhandari, S.L. and Nepali, H.S.	Applied Databases for Integrated Biodiversity Conservation in Nepal	1993	Biodiversity

SN	Title of Literature	Author	Publisher	Date	Area of Enquiry
31	Fence Damage and Illegal Land Usage: Koshi Tappu Wildlife Reserve	Evans, K.	Wildlife Research, Nepal program, San Francisco State University	1987	Conflict
32	Final Report for the Koshi Tappu Wild Buffalo-Human interaction Project	Heinen, J.T.	DNPWC/USAID	1988	Conflict
33	Fish Biodiversity of Wetland System of Koshi Tappu Wildlife Reserve and Adjacent Areas, Eastern Nepal	Shrestha, J.	Biodiversity Database Project/ Makalu Barun Conservation Are Project/DNPWC	1993	Biodiversity
34	Fish Survey in the Koshi Tappu Region	Palk, L.	Wildlands Research Nepal Program, San Fransico State University	1987	Biodiversity
35	Fish Survey in the Koshi Tappu Region	Lisa, P.	Wildlands Research Nepal Program, San Fransico State University	1987	Biodiversity
36	Flood Damage to Koshi Tappu Wildlife Reserve During Monsoon 1987, with Special Emphasis on Wild Buffalo loses	Bauer, J.J.	DNPWC	1987	Biodiversity
37	Foraging Behaviours of Open-Billed Storks in Koshi Tappu Wildlife Reserve	Eddy, H.	Wildlife Research, Nepal program, San Francisco State University	1987	Biodiversity
38	Habitat Analysis and Evaluation	De Vos, A. and Mosby, H. S.	The Wildlife Society Washington, D. C.		Biodiversity
39	Habitat evaluation and population estimation of Arna (*Bubalus arnee*) in Koshi Tappu Wildlife Reserve	Chaudhary, U.	Institute of Forestry	1999	Biodiversity
40	Institutions and capability in wetlands management in Nepal	Bhandari, B.		1994	Managerial/Policy/ Legislation
41	Koshi Tappu - A wildlife Reserve in Decline	Showler, D.	Oriental Bird Club Bulletin	1995	Biodiversity
42	Koshi Tappu Extension and Acquisition of Land: A Case Study	Bajimaya, S.	DNPWC	1995	Biodiversity
43	Koshi Tappu wetlands: Nepal's Ramsar Site	Sah, J.P.	IUCN	1997	Biodiversity
44	Koshi Tappu Wildlife Reserve (A Ramsar Site) management plan (2002-2007)		IUCN/PPP/Ramsar/DNPWC	2002	Managerial/Policy/ Legislation
45	Koshi Tappu Wildlife Reserve : Conservation Issues and	Suwal, R.N.	IUCN	1993	Conflict

SN	Title of Literature	Author	Publisher	Date	Area of Enquiry
	Management Measures				
46	Koshi Tappu Wildlife Reserve Management Strategy Framework.		DNPWC/PPP	1999	Managerial/Policy/ Legislation
47	Koshi Tappu Wildlife Reserve, Sunsari	Bhandari, B.	IUNC and Natural resources, Kathmandu	1992	Biodiversity
48	Koshi Tappu's treasure: Grassland or wetlands?	Sah, J.P.	ICIMOD	2000	Biodiversity
49	KTWR and Proposed BZ Resources Profile		DNPWC/PPP	2001	Socio-economic
50	Livestock Population Structure and its Physical Status in Koshi Tappu Wildlife Reserve	Gable, M.	Wildlife Research, Nepal program, San Francisco State University	1987	Conflict
51	New Seasonal and Range Records and Status updates for Birds in Koshi Tappu Wildlife Reserve and the Koshi Barrage, Nepal	Heinen, J. T.	Nat. Hist. Mus.	1987	Biodiversity
52	Park People Project Part III	Shah, G; Karmacharya. B; Karna, B	Nepal Forest Resources Institute	1999	Socio-economic
53	Park- People Relations in Koshi Tappu Wildlife Reserve, Nepal : A Socio-economic Analysis	Heinen, J.T.		1993	Socio-economic
54	Population viability and management recommendations for wild Water Buffalo (*Bubalus bubalis*)in Koshi Tappu Wildlife Reserve, Nepal	Heinen, J.T.	University of Michigan	1993	Biodiversity
55	Rare and New Bird Records for Koshi Tappu and Koshi Barrage for Winter and Spring	Heinen, J. T.	Nat. Hist. Mus.	1986	Biodiversity
56	Recommendations for Species and Habitat Management in Koshi Tappu Wildlife Reserve after Severe Monsoonal Flooding in 1987	Bauer, J.J.	DNPWC/FAO	1987	Biodiversity
57	Report on a Visit to Koshi Tappu Wildlife Reserve	Pellinck, E.	National Park and Wildlife Conservation Office, Kathmandu	1972	Biodiversity
58	Report on Koshi Tappu: A Reserve for Wild Arna	Upreti, B.N.	National Park and Wildlife Conservation Office, Kathmandu	1973	Biodiversity
59	Shifting of the Koshi River and its Impact on the Land Cover and the Land Use in Koshi Tappu, Nepal	Sah, J.P. and Suselo, T.B.	ECOS	1996	Biodiversity

SN	Title of Literature	Author	Publisher	Date	Area of Enquiry
60	Social Mobilization & Socio-economic Development in Buffer Zone and Nature Conservation in Parks and their Surrounds, Part III: Paschim Kushaha Site, Koshi Tappu Wildlife Reserve, Sunsari District, Eastern Nepal	Shah G.S., M.B. Karmacharya, B.K.Karna,	IFRI	1998	Socio-economic
61	Status and Conservation of Swamp Francolin Francolinus gularis in Koshi Tappu Wildlife Reserve, Nepal	Dahal, B.R.		2000	Biodiversity
62	Status and Distribution of the Wild Asian Buffalo (Bubalus bubalis) in Nepal	Dahmer, T. D.	University of Montana, Missoula, Montana	1978	Biodiversity
63	Status of Ganges River Dolphins (Platinista gangetica) in the Karnali, Mahakali, Narayani and Sapta Koshi Rivers of Nepal and India in 1993	Smith, B.D., Regmi, U. and Sapkota, K.	Marine Mammals Science	1994	Biodiversity
64	The Asiatic Buffalo of Koshi Tappu Region	Gupta, R.B. and Mishra, H.R.	Nepal Parks and Wildlife Conservation Office	1973	Biodiversity
65	The Cost and Benefit of Koshi Tappu Wildlife Reserve on Local Residents	Mishra, N.	Institute of Forestry	1986	Socio-economic
66	The role of the local people for sustainable conservation of Koshi Tappu Wetlands and its buffer zone		IUCN	1999	Socio-economic
67	The Wild Asian buffalo, *Bubalus bubalis* Linn. at Koshi Tappu Wildlife Reserve.	Dahmer, T. D.	National Park and Wildlife Conservation Office, Kathmandu	1976	Biodiversity
68	Waterfowl Study in Koshi Tappu Wildlife Reserve, Nepal	Seshan, S.L.	Wildlands Research Nepal Program, San Fransico State University	1987	Biodiversity
69	Wetland biodiversity in Nepal: A case study of Koshi Tappu Wildlife Reserve	Bhandari, B.	Public awareness and biodiversity in wetland in Asia, Ramsar Centre		Biodiversity
70	Wild Asian Buffalo (*Bubalus bubalis*)	Mishra, P. N.		1982	Biodiversity
71	Wildlife Conservation and Management in the Koshi Tappu Wildlife Reserve		Wildlife Research, Nepal program, San Francisco State University	1987	Biodiversity

3.1.12. Parsa Wildlife Reserve

SN	Title of Literature	Author	Publisher	Date	Area of Enquiry
1	A Report on Anti-Poaching Unit (APU) PWR, April 2001	Adhikari, T.R	PWR, Nepal	2001	Managerial/Policy/ Legislation
2	Animal Diversity of Parsa Wildlife Reserve, Nepal: A Preliminary Survey	Budha, R.B., Singh, R.L. and Chaudhary, R.P	Nat. His. Museum	1998	Biodiversity
3	Biological and Cultural Diversity of Parsa Wildlife Reserve	Chaudhary, R.P.	Institute of Biodiversity. Kathmandu	1995	Biodiversity
4	Food Habit, habitat Utilization and Conservation of Gaur (Bos gaurus gaurus) in Parsa Wildlife Reserve, Nepal	Chetri, M.	Central Department of Zoology, Tribhuvan University, and Kathmandu, Nepal	1999	Biodiversity
5	Indigenous Knowledge and Practices of NTFP's Management and Utilization by Local people in Parsa Wildlife Reserve and proposed Buffer zone area	Dhakal, R	HMG/DNPWC/ UNO/GEF, PPP, Biodiversity Conservation in Nepal Project, Kathmandu, Nepal	1999	Socio-economic
6	Management in Parsa wildlife reserve.	Majhi.N.I.	IOF, Pokhara	1988	Managerial/Policy/ Legislation
7	Management recommendations for the Chitwan tiger population. The Parsa extension and Bara hunting reserve	Smith , J.L.D. and Mishra, H.R.	Smithsonian Institution/World Wildlife Fund	1981	Biodiversity
8	Parsa Wildlife Reserve Management Strategy Framework, September 1998		DNPWC/PPP	1999	Managerial/Policy/ Legislation
9	PWR Management Plan (2058/59 - 2062/63) (Draft)		DNPWC		Managerial/Policy/ Legislation
10	Report on Parsa Wildlife Reserve	Neupane, G.P.	DNPWC	1995	Biodiversity

3.1.13 Dhorpatan Hunting Reserve

SN	Title of Literature	Author	Publisher	Date	Area of Enquiry
1	Status And Distribution of Cheer Pheasant in Dhorpatan Hunting Reserve	Subedi, P.	DNPWC	2003	Biodiversity
2	Blue Sheep Hunting in the Dhorpatan Hunting Reserve: A Long Term Lease Proposal	Wehausam, J.D. and et al	Nepal Wildlife Adventure	1989	Biodiversity
3	Dhorpatan Hunting Reserve		DNPWC	1988	Biodiversity
4	Problems and Prospects of Hunting Management in Dhorpatan Hunting Reserve	Baral, A.M.	Tribhuvan University, Nepal	2001	Biodiversity
5	Dhorpatan Hunting Reserve	Singh, G.R.		1997	Biodiversity
6	Report on Overall Assessment on Dhorpatan Hunting Reserve	Bajimaya, S., Baral Nagesh and Yadav, Lal Bihari	DNPWC	1990	Biodiversity

3.1.14 Annapurna Conservation Area

SN	Title of Literature	Author	Publisher	Date	Area of Enquiry
1	A Case Study of an Integrated Conservation and Development Project in Nepal		ACAP/KMTNC	1995	Socio-economic
2	A Popular Guide to the Birds and Mammals of Annapurna Conservation Area	Inskipp, C.	KMTNC	1989	Biodiversity
3	A Report on Mobile Lodge Management Training Held in Manang District, Nepal		KMTNC	1989	Socio-economic
4	A Study Report on Evaluation of Upper Mustang Conservation and Development Project		KMTNC	1995	Biodiversity
5	A Survey of Forest Biodiversity and the Manaslu Himal, Nepal	Hetts, Katharine C.	Duke University, Durham, North Carolina.	1994	Biodiversity
6	ACAP Socio-economic Survey Report of Lwang Sector		KMTNC	2001	Socio-economic
7	Agro-Forestry and Community Development Program		ACAP/KMTNC		Socio-economic
8	An Anthropological Study of Mothers' Group (Ama Tolee) in Conservation and Development Programs - A Case Study of Ghandruk Village, Ghandruk VDC		ACAP/KMTNC	2003	Socio-economic

SN	Title of Literature	Author	Publisher	Date	Area of Enquiry
9	An Investigation into the Effects and the Lives of the Women of Ghandruk in Western Nepal by their Involvement in the ACAP		KMTNC	1996	Socio-economic
10	An Overview of the Annapurna Conservation Area (ACAP/KMTNC).	Bajracharya, SB.			Managerial/Policy/ Legislation
11	Annapurna Conservation Area Operational Plan	Sherpa, M.N., Couborn, B. and Gurung, C.P.	KMTNC	1986	Managerial/Policy/ Legislation
12	Annapurna Conservation Area Project		KMTNC	2000	Managerial/Policy/ Legislation
13	Annapurna Conservation Area Project, Analysis and Evaluation of Project Activities in Tourism Impact Areas	Siemen, D. and Steinbach, T.	ACAP/KMTNC/Harvard University	1992	Managerial/Policy/ Legislation
14	Annapurna Conservation Area Project, Conservation Education	Gurung, C.P. and DeCoursey, M.	KMTNC	1988	Socio-economic
15	Annapurna Conservation Area Project: A Brief Introduction		KMTNC	1992	Managerial/Policy/ Legislation
16	Annapurna Conservation Area Project: Annual Progress Report (15th July 1993 - 14th July 1994)		KMTNC	1994	Managerial/Policy/ Legislation
17	Annapurna Conservation Area Project: Progress Report	Gurung, C.P.	KMTNC	1989	Managerial/Policy/ Legislation
18	Annapurna Conservation Area Project: Progress Report		KMTNC	1987	Managerial/Policy/ Legislation
19	Annapurna Conservation Area Project: Progress Report		KMTNC	1989	Managerial/Policy/ Legislation
20	Annapurna Conservation Area Project: Three Year Retrospective Progress Report (March 1986-December 1989)		KMTNC	1990	Managerial/Policy/ Legislation
21	Annapurna Conservation Area Proposal For Extension		KMTNC	2001	Managerial/Policy/ Legislation
22	Annapurna Conservation Area, Biodiversity Conservation Data Project: Final report		KMTNC	1994	Managerial/Policy/ Legislation
23	Annapurna Conservation Area: Management Plan		KMTNC	1997	Managerial/Policy/ Legislation

SN	Title of Literature	Author	Publisher	Date	Area of Enquiry
24	Annapurna Conservation Area: Nepal's New Approach to Protected Area Management	Bunting, B.W., Sherpa, M.N. and Wright, M.	The Arizona State University	1991	Biodiversity
25	Annapurna National Park: The Nepal Plan for Joining Human Values and Conservation of a Mountain Ecosystem	Bunting, B.W. and Wright, R.M.	KMTNC	1985	Managerial/Policy/ Legislation
26	Annapurna National Recreation Area	Sakya, K.	MOFSC		Socio-economic
27	Assessment of People Conflict in Lwang Sector of ACAP	Pandit, K.		2003	Conflict
28	Assessment of the role of women in water resources use in the Annapurna Conservation Area	Bhadra, C.; Karki B.S.	KMTNC	2002	Socio-economic
29	Biodiversity Conservation Data Project Final Report		ACAP/KMTNC	1994	Biodiversity
30	Bottom Up Versus Basic needs: Integrated Conservation and Development in the Annapurna and Michiru Mountain Conservation Areas in Nepal	Hough, J.L. and Sherpa, M.N.		1994	Socio-economic
31	Community Study Report for Ghandruk Village, Kaski, Nepal	Zaseybida, L.	KMTNC/TU	1987	Socio-economic
32	Conservation and Development in Annapurna Himal		KMTNC	1987	Socio-economic
33	Conservation and Sustainable Development: A case from Annapurna Conservation Area Project in Western Nepal	Gurung, C.P.		1989	Managerial/Policy/ Legislation
34	Conservation for Sustainable Development: The Annapurna Conservation Area Project	Mishra, H.R.	South Asia Journal	1989	Socio-economic
35	Conservation with Commitment Activities, Achievements and Constraints of the Year		KMTNC	1997	Socio-economic
36	Contribution to the Ferns of Annapurna - Dhaulagiri Range, Central Nepal	Vartak, V.D.	Nat. Hist. Soc.	1975	Biodiversity
37	Diet Analysis of Musk Deer (*Moschus chrysogaster*)		KMTNC	1991	Biodiversity
38	Diversity And Conservation Strategy Of Potential Medicinal Plants In Manang (Gyasumdo Valley)	Shrestha, K. K. and J.P. Sah	KMTNC/ACAP/TU	1995	Biodiversity
39	Ecological Conflicts and Economic Dependency on Tourist Trekkers in Annapurna Conservation Area	Yadav, V.K.	Institute of Forestry, Tribhuvan University	1991	Conflict
40	Floristic Composition of Summer Habitats and Dietary Relationships between Tibetan Argali (*Ovis ammon Hodgesoni*), Naur (*Pseudois nayaur*) and Domestic Goat (*Capra hircus*) in the Damodar Kunda Region of Upper Mustang in Nepal Himalaya		KMTNC	1997	Biodiversity

SN	Title of Literature	Author	Publisher	Date	Area of Enquiry
41	Floristic Study of Southern Annapurna Region	Kayastha, R.	KMTNC	1989	Biodiversity
42	Impact Of Alternative Energy Technology In Reducing Pressure On Forest Resources In Ghandruk And Contribution Of Tourist Expenditure To Local Economy In The Annapurna Area	Banskota, K. and B. Sharma	CREST, Kathmandu	1996	Socio-economic
43	Improved Water Use Technology: Improved Traditional Water Mills and Safe Drinking Water Station	Kushing, J.; Karki B.S.	KMTNC	2002	Managerial/Policy/ Legislation
44	Integrated Agriculture Development Program (IADP). Sikles: A Proposal for the Extension of IADP KMTNC/ACAP		Trans-Himalayan Aid Society, Canada	1996	Managerial/Policy/ Legislation
45	KMTNC's Experience with the ACAP on assessing the Environmental Impact in the Annapurna Conservation Area	Thakali, S.B.		1996	Biodiversity
46	Linking Biodiversity Conservation Community Development: Annapurna Conservation Area Project, Approach to Protected Area Management	Gurung, C.P.		1994	Socio-economic
47	Livestock Depredation in Several Villages of East Kaski District, Annapurna Conservation Area: A Rapid Appraisal	Shrestha, K.M., Richards, C., Gurung, M.K. and Ale, S.	KMTNC	1992	Conflict
48	Management of natural resources: An assessment of forest conservation program conducted by the Annapurna Conservation Area Project in Ghandruk VDC, Nepal	Rayamajhi, S.	Agricultural University of Norway	1994	Biodiversity
49	Mid-term Review of Upper Mustang Biodiversity Conservation Project	Rayamajhi, S., Manandhar, K.S.	KMTNC	2002	Managerial/Policy/ Legislation
50	Nettle Fibre in Annapurna Conservation Project Area: A Study of its Potentiality	Shrestha, R.B.	ACAP/KMTNC	1993	Biodiversity
51	New Approach in Protected Area Management		KMTNC	1996	Managerial/Policy/ Legislation
52	Obtaining Ecological Balance: Contemporary Local Resource Management Practices In The Annapurna Mid-Hill Zone	Bajracharya, S. B.	AIT. Bangkok	1993	Biodiversity
53	People's Participation in Conservation: Annapurna Conservation Area Project: A Case Study from Nepal	Gurung, C.P.	Malayan Nature Society	1990	Socio-economic
54	Population, Habitat Selection and Conservation of Himalayan Tahr in the Annapurna Sanctuary, Nepal		KMTNC	1995	Biodiversity
55	Recommendations for Waste Management For Recycling in		KMTNC	1994	Socio-economic

SN	Title of Literature	Author	Publisher	Date	Area of Enquiry
	the Upper Mustang Conservation and Development Area				
56	Recommendations for Waste Management For Recycling Plan for ACAP Ecotourism Development Project in the Ghalekharka-Sikles Region		KMTNC	1994	Managerial/Policy/ Legislation
57	Reducing Livestock Depredation in the Nepalese Himalaya: Case of the Annapurna Conservation Area	Jackson, R., Ahiborn, G., Ale, S., Gurung, D., Gurung, M., and Yadav, Y.	USAID	1994	Conflict
58	Rural Micro Hydro Electrification in the Annapurna Conservation Area: A Proposal for Funding Assistance			1994	Managerial/Policy/ Legislation
59	Shifting Cultivation: A Last Resort of Livelihood for the Poor, Landless and Marginal Farmers of the Annapurna area, Nepal	Shrestha, R.B.	ECOS	1996	Socio-economic
60	Snow Leopard (*Panthera uncia*) Predation of Livestock: An Assessment of Local Perceptions in the Annapurna Conservation Area, Nepal	Ohwl, J., Taylors, I.R. and Rogers, M.E.	Biological Conservation	1994	Conflict
61	Snow Leopard Conservation in Annapurna Region, Nepal		KMTNC	1995	Biodiversity
62	Strengthening Opportunities for Sustainable Trekking Tourism in Nepal With Reference to ACAP		KMTNC		Socio-economic
63	Sustainable Development: An Examination Of Ghandruk Village In The Annapurna Conservation Area Project	McNally, R	University College Dublin, UK	1996	Socio-economic
64	The Annapurna Project: A Proposal for Research and Development Planning for the Proposed Annapurna National Park, Nepal, Himalaya	Messerschimdt, D.A.	Washington State University	1984	Managerial/Policy/ Legislation
65	The Annapurna Region: Mountain Agriculture and Trekking Tourism. The Annapurna Conservation Area Project: A Pioneering Example of Sustainable Tourism	Gurung, C.P. and DeCoursey, M.		1994	Socio-economic
66	The Ecology and Conservation of the Snow Leopard (*Panthera uncia*) in the Annapurna Conservation Area, Nepal		KMTNC	1997	Biodiversity
67	The Economy of Mustang Lo-Manthang Region	Ojha, D.P.	TU	1986	Socio-economic
68	The Regeneration of the Tree species in the Annapurna Conservation Area Project and Agro-Forestry and Community Development Program in Lwang Area	Koch, R.G.	International Agricultural College Larenstein Velp, The Netherlands	1993	Biodiversity

SN	Title of Literature	Author	Publisher	Date	Area of Enquiry
69	Tree Species Utilized in Ghandruk	Saito, K.	KMTNC	1990	Biodiversity
70	Trekking Use Pattern and Perception of Users and Residents Towards Trekking Tourism in Annapurna Sanctuary Trail, Nepal	Shrestha, S.K.	University of Pertanian	1993	Socio-economic
71	Two Year Progress Report: Annapurna Conservation Area Project (Jan 1990-Dec 1991)		KMTNC	1992	Managerial/Policy/ Legislation
72	Two Year Retrospective Report 1996-1997		KMTNC	1999	Managerial/Policy/ Legislation
73	Upper Mustang Biodiversity Conservation Project: An Appreciative Participatory Planning and Action Approach to Upper Mustang Biodiversity Management		KMTNC	2001	Managerial/Policy/ Legislation
74	Upper Mustang Biodiversity Conservation Project: Enhancing Participatory Assessment Capacity in Rangeland Management and Livestock-Wildlife Interactions		ACAP/KMTNC	2001	Conflict
75	Upper Mustang Biodiversity Conservation Project: Quarterly Progress Report 2001		KMTNC	2001	Managerial/Policy/ Legislation
76	Upper Mustang Biodiversity Conservation Project: Quarterly Progress Report 2002		KMTNC	2002	Managerial/Policy/ Legislation
77	Upper Mustang Conservation Development Project Work Plan (1992-1993)		ACAP/KMTNC	1993	Managerial/Policy/ Legislation
78	Use of Alternative Energy by Local People (A case Study from ACAP 1994)		ACAP/KMTNC	1989	Socio-economic
79	Wildlife Habitat and Land use Practices in Lower Manang		ACAP/KMTNC	1995	Biodiversity
80	Women Empowerment and the Consumption of Firewood: A Case Study of five Nepali Villages		KMTNC	1997	Socio-economic
81	Women in Conservation and Development Progress Report		ACAP/KMTNC	1992	Socio-economic

3.1.15 Kangchenjungha Conservation Area

SN	Title of Literature	Author	Publisher	Date	Area of Enquiry
1	Annual Technical Progress Report 2002-2003		WWF	2002	Managerial/Policy/ Legislation
2	Kangchenjungha Guide and Hand Book	Thapa, R	AGCD	1999	Socio-economic

3	Survey of Kangchenjungha Area in Northwest Taplejung Districts of Nepal	Wegge, P.	WWF	1991	Biodiversity
4	Social, Cultural and Economic Conditions of the Proposed Kangchenjungha Conservation Area	Upreti, L.P.	WWF	1994	Socio-economic
5	Preliminary Assessment of the Wildlife Conservation Values of the Kangchenjungha Area	Sherpa, L.N.	WWF	1994	Biodiversity
6	On the Slopes of Kangchenjungha	Grey-Wilson, C.	Royal Botanical Gardens, Kew	1990	Biodiversity
7	Management Consideration in the Kangchenjungha Region, Nepal	DeCoursey, M., Sherpa, D.G. and Rondeau, R.	DNPWC	1995	Managerial/Policy/ Legislation
8	Report on the Ecology of the Kangchenjungha Region of Eastern Nepal	Carpenter, C. et al	WWF	1995	Biodiversity
9	Report on the Flora and Fauna of the Kangchenjungha region	Carpenter, C. et al	WWF	1995	Biodiversity
10	Report on the Flora and Fauna of the Kangchenjungha region	carpenter, C., Ghimire, S. and Brown, T.	WWF	1994	Biodiversity
11	Livelihood, Land and locla institutions: A Report on the Findings of the WWF Feasibility Study for the Conservation of the Kangchenjungha Area	Brown, T.	WWF	1994	Socio-economic
12	Feasibility Study for the Creation of Kangchenjungha Conservation Area: Project Proposal		DNPWC/WWF	1995	Biodiversity

3.1.16 Manaslu Conservation Area

SN	Title of Literature	Author	Publisher	Date	Area of Enquiry
1	Manaslu ko serofero		KMTNC	2003	Socio-economic
2	Manaslu ecotourism Development Project, Upper Gorkha		KMTNC	2001	Socio-economic
3	Manaslu Tourism Area Conservation and Development Plan, Pre-Planning Report		KMTNC	1994	Managerial/Policy/ Legislation
4	Manaslu Eco-Tourism Project, A Reconnaissance Survey Socioeconomic Status of Northern Gorkha		KMTNC	1994	Socio-economic

3.1.17 Common Across Protected Area

SN	Title of Literature	Author	Publisher	Date	Area of Enquiry
1	A Bibliography of the Biodiversity of Nepal (Protected Areas, Wildlife and Higher Plants)	Maskey, T. M. and Rajbhandary, K. B.	WWF	1997	Biodiversity
2	A Category of Protected Landscape approach to buffer zone management in Nepal	Budhathoki, P.		2003	Biodiversity
3	A review of conservation issues and programs in Nepal: From a single species focus towards biodiversity protection	Heinen, J. T. and Yonzon, P.	Mountain Research and Development	1994	Biodiversity
4	Administrative System of Nepal: From Tradition to Modernity	Agrawal, H.N.	Vikas Publication. New Delhi, India	1976	Managerial/Policy/ Legislation
5	An assessment of the representation of the terrestrial ecosystems in the protected areas system of Nepal	Biodiversity Profile Project	HMG/N/Government of the Netherlands/BPP	1995	Biodiversity
6	Annual Report 1992-1993 (Shrawan 2049 - Asadh 2050) DNPWC		DNPWC	1993	Managerial/Policy/ Legislation
7	Annual Report 1994-1995 (Shrawan 2051 - Asadh 2052)/ DNPWC		DNPWC	1995	Managerial/Policy/ Legislation
8	Annual Report 1995-1996 (Shrawan 2052 - Asadh 2053)/ DNPWC		DNPWC	1996	Managerial/Policy/ Legislation
9	Annual Report 1996-1997 (Shrawan 2053 - Asadh 2054)/DNPWC		DNPWC	1997	Managerial/Policy/ Legislation
10	Annual Report 1997-1998 (Shrawan 2054 - Asadh 2055)/DNPWC		DNPWC	1998	Managerial/Policy/ Legislation
11	Annual Report 1998-1999 (Shrawan 2055 - Asadh 2056)/DNPWC		DNPWC	1999	Managerial/Policy/ Legislation
12	Annual Report 2000-2001 (Shrawan 2057 - Asadh 2058)/DNPWC		DNPWC	2001	Managerial/Policy/ Legislation
13	Annual Report 2001-2002 (Shrawan 2058 - Asadh 2059)/DNPWC		DNPWC	2002	Managerial/Policy/ Legislation
14	Banjantu Palan, Prajanan tatha Anusandhan KaryaNiti		Ministry of Forest and Soil Conservation	2003	Managerial/Policy/ Legislation
15	Biodiversity Conservation in Nepal with Reference to Protected Areas. Protected Area Management in South Asia	Maskey, T. M.		2001	Biodiversity
16	Biodiversity Conservation Initiatives in and around Protected		DNPWC/PPP	1999	Biodiversity

SN	Title of Literature	Author	Publisher	Date	Area of Enquiry
	Areas				
17	Buffer Zone Management Guidelines, 1999		HMG/MFSC/DNPWC	1999	Managerial/Policy/ Legislation
18	Buffer Zone Regulations, 1996		DNPWC	1996	Managerial/Policy
19	Collaborative Management of Protected Areas in the Asian Region	Sharma, U.R.		1998	Managerial/Policy/ Legislation
20	Community Based Biodiversity Conservation Programme	Basnyat, M, Budathoki, P and Rayamajhi, S.	DNPWC	1998	Managerial/Policy/ Legislation
21	Consolidating Conservation through People's Participation		DNPWC/PPP/UNDP	2000	Socio-economic
22	Design of Proper Organizational Structure In Organization and Management Survey of DNPWC, 2003		DNPWC		Managerial/Policy/ Legislation
23	Economics of Protected Areas: A New Look at Benefit and Cost	Dixon, J.A. and Sherman, P.B.	Earchscan Publication Limited, London.	1990	Socio-economic
24	Emerging Issues in Legal and Procedural Aspect of Buffer zone Management with Case Study from Nepal	Hainen J.T. and Mehata J.N.	Journal of Environment and Development	2000	Managerial/Policy/ Legislation
25	Ghar Paluwa Hatti Byabasthapan Niti, 2060		Ministry of Forestry and Soil Conservation	2003	Managerial/Policy/ Legislation
26	Heart of the jungle: the wildlife of Chitwan, Nepal	Gurung K.K.		1983	Biodiversity
27	Himali Rastriya Nikunja Niyamabali, 2036		His Majesty Government of Nepal	1979	Managerial/Policy/ Legislation
28	Jaibik Bibidhata Abhilekha Tayar Garne Prakriya, 2060		MOFSC	2003	Managerial/Policy/ Legislation
29	Landscape Processes in the Churia Range Central Nepal	Gurung, H. and Khannal. U	The Himalayan Review Nepal Geographical Society.; Katmandu	1988	Biodiversity
30	Madhyabarti Kshetra Byabasthapan Niyamawali, 2053		HMG/N	1996	Managerial/Policy/ Legislation
31	Managing Protected Areas in the Tropics	MacKinnon, J. MacKinnon, K. Child, G. and Thorsel J.	IUCN, Gland Switzerland.	1986	Biodiversity
32	Master Plan for the Forestry Sector Nepal		HMGN/ADB/FINNIDA	1988	Managerial/Policy/ Legislation
33	National Conservation Strategy for Nepal: A Prospectus		HMGN/IUCN	1983	Managerial/Policy/

SN	Title of Literature	Author	Publisher	Date	Area of Enquiry
					Legislation
34	National Park and Wildlife Conservation Act, 1973 (with amendments to 1992)		Ministry of Law, Justice and Parliamentary Affairs.	1973	Managerial/Policy/ Legislation
35	National Parks and Wildlife Reserves of Nepal		DNPWC	1998	Biodiversity
36	Nature reserve of the Himalaya and the mountains of Central Asia		Oxford University Press, Oxford	1993	Biodiversity
37	Nepal Biodiversity Strategy		HMGN/MFSC	2002	Managerial/Policy/ Legislation
38	Nepal's Buffer Zone Management: A Sustainable Development Initiative	Uprety, B. K. and H. K. Uprety	PPP/UNDP	1995	Managerial/Policy/ Legislation
39	Nepal's biodiversity and protected areas: The 1997 protected area management workshop	Yonzon, P. and Heinen, J.	DNPWC/UNDP/Resources Nepal	1997	Biodiversity
40	Nikunja, Arakchaya wa Samrakchayan chhetra gair Sarakari wa Anya Santha lai Byabasthapan garna dine Niti ko Sambhandama Abalamban Garine Karya Prakriya		Ministry of Forest and Soil Conservation	2003	Managerial/Policy/ Legislation
41	On the Use of Goal-Oriented Project Planning for Protected Area Management in Nepal	Heinen and Rayamajhi	Oxford University Press	2001	Managerial/Policy/ Legislation
42	Organization Charts of the Protected Areas, 2003		DNPWC		Managerial/Policy/ Legislation
43	Park People Programme Annual Progress Report 1998		DNPWC/PPP	1998	Managerial/Policy/ Legislation
44	Park People Programme Annual Progress Report 1999		DNPWC/PPP	2000	Managerial
45	Park People Programme- Completion Report, 1994-2001		DNPWC/ PCP		Managerial/Policy/ Legislation
46	Participatory Biodiversity Conservation Initiatives in Nepal	Budhathoki, P.		2000	Socio-economic
47	People and Parks: Linking Protected Area Management with Local Communities	Wells, M. and Brandon, K.	The World Bank/ WWF/ USAID	1992	Conflict
48	Profile of the Terai / Siwalik Physiographic Zones.	BPP	DNPWC	1995	Biodiversity
49	Rainforest Buffer Zones: Guidelines for Protected Area Managers	Sayer, J.	Forest Conservation Programme. Gland, Switzerland: IUCN	1991	Managerial/Policy/ Legislation
50	Rastriya Nikunja tatha Banyajantu Samrakshan Ain, 2029		HMG/N	1973	Managerial/Policy/ Legislation

SN	Title of Literature	Author	Publisher	Date	Area of Enquiry
51	Sectoral Reports on Sustainable Development Agenda for Nepal (SDAN). Protected Areas of Nepal	Sharma, U.R.			Managerial/Policy/ Legislation
52	Socio-economic development initiatives in Buffer zone		DNPWC/PPP	1999	Socio-economic
53	Socio-economics of the people and extinction of species in protected areas in Nepal	Shrestha M. K.		1996	Socio-economic
54	Terai Shikar Reserves	Wegge, P.	DNPWC	1976	Managerial/Policy/ Legislation
55	The Environmental Education Strategy for Nepal	Bhuju, U.R.	Washington, DC: World Wildlife Fund USA	1990	Socio-economic
56	The Faunal Collapse of Large Mammals in the Reserves of the Nepalese Terai	Heinen, J. T.		1995	Biodiversity
57	The Principles and Practice of Buffer zones and Local Participation in Biodiversity Conservation	Wells, M.P. and Brandon, K.E.	Ambio	1993	Socio-economic
58	The Role of Buffer Zones in protected Areas: A Review and Synthesis of the Case for Nepal	Thagunna, S. S.	Canterbury, NZ: Lincoln University	1995	Managerial/Policy/ Legislation
59	Training Need Assessment and Training Plan for DNPWC		DNPWC/PCP	2003	Managerial/Policy/ Legislation
60	Wildlife conservation policies and strategies in the protected areas of Nepal	Sharma U. R.		1995	Managerial/Policy/ Legislation

3.1.18 Others related Documents

SN	Title of Literature	Author	Publisher	Date	Area of Enquiry
1	A Bibliography of the Biodiversity of Nepal (Protected Areas, Wildlife and Higher Plants)	Maskey, T. M. and Rajbhandary, K. B.	WWF	1997	Biodiversity
2	A Category of Protected Landscape approach to buffer zone management in Nepal	Budhathoki, P.		2003	Biodiversity
3	A Guide to the Birds of Nepal	Inskipp, C. and Inskipp, T.	Croom Helm, London, UK	1985	Biodiversity
4	A Himalayan Dream. In: People and Plants	Pratt, J.		1996	Socio-economic
5	A review of conservation issues and programs in Nepal: From a single species focus towards biodiversity protection	Heinen, J. T. and Yonzon, P.	Mountain Research and Development	1994	Biodiversity
6	Abundance of chital deer in the jungle of IRNR Hetauda	Upadhyaya, G. P.		1984	Biodiversity

SN	Title of Literature	Author	Publisher	Date	Area of Enquiry
	(Nepal}				
7	Administrative System of Nepal: From Tradition to Modernity	Agrawal, H.N.	Vikas Publication. New Delhi, India	1976	Managerial/Policy/ Legislation
8	An assessment of the representation of the terrestrial ecosystems in the protected areas system of Nepal		HMG/N/Government of the Netherlands/BPP	1995	Biodiversity
9	An Assessment of the Representation of the Terrestrial Ecosystems within the Protected Area System of Nepal		BPP/DNPWC	1996	Biodiversity
10	An enumeration of the flowering plants of Nepal	Hara, H. and Williams, L.H.J.	British Museum of Natural History, London	1979	Biodiversity
11	An enumeration of the flowering plants of Nepal	Hara, H. Chater, A.O. and Williams, L.H.J.	British Museum of Natural History, London	1982	Biodiversity
12	An enumeration of the flowering plants of Nepal	Hara, H., Stearn, W.T. and Williams, L.H.J.	British Museum of Natural History, London	1978	Biodiversity
13	An Inventory of Nepal's Insects (Protura-Odonata)			1997	Biodiversity
14	An Inventory of Nepal's Insects: Volume II (Lepidoptera)			1998	Biodiversity
15	An Inventory of Nepal's Insects: Volume III (Hemiptera, Hymenoptera, Coleoptera & Diptera)			2000	Biodiversity
16	Annual Report 1992-1993 (Shrawan 2049 - Asadh 2050) DNPWC		DNPWC	1993	Managerial/Policy/ Legislation
17	Annual Report 1994-1995 (Shrawan 2051 - Asadh 2052)/ DNPWC		DNPWC	1995	Managerial/Policy/ Legislation
18	Annual Report 1995-1996 (Shrawan 2052 - Asadh 2053)/ DNPWC		DNPWC	1996	Managerial/Policy/ Legislation
19	Annual Report 1996-1997 (Shrawan 2053 - Asadh 2054)/DNPWC		DNPWC	1997	Managerial/Policy/ Legislation
20	Annual Report 1997-1998 (Shrawan 2054 - Asadh 2055)/DNPWC		DNPWC	1998	Managerial/Policy/ Legislation
21	Annual Report 1998-1999 (Shrawan 2055 - Asadh 2056)/DNPWC		DNPWC	1999	Managerial/Policy/ Legislation
22	Annual Report 2000-2001 (Shrawan 2057 - Asadh 2058)/DNPWC		DNPWC	2001	Managerial/Policy/ Legislation
23	Annual Report 2001-2002 (Shrawan 2058 - Asadh 2059)/DNPWC		DNPWC	2002	Managerial/Policy/ Legislation

SN	Title of Literature	Author	Publisher	Date	Area of Enquiry
24	Annual Report 2002-2003 (Shrawan 2059 - Asadh 2056)/DNPWC		DNPWC	2003	Managerial/Policy/ Legislation
25	Banjantu Palan, Prajanan tatha Anusandhan KaryaNiti	Ministry of Forest and Soil Conservation		2003	Managerial/Policy/ Legislation
26	Barandadabhar Trail Site Result. 1980 -1986	Hawkins, T.	Silviculture Trails, U.K./ Nepal Forest Research Project, DOF	1986	Biodiversity
27	Big Game Shooting in the Indian Empire	Stockly, C. N.	Constable and Company Ltd., London	1925	Biodiversity
28	Biodiversity And the Ecosystem Approach in Agriculture, Forestry and Fisheries		FAO	2002	Biodiversity
29	Biodiversity assessment of forest ecosystems of the Central Midhills of Nepal		HMG/N/Government of Netherlands/BPP	1995	Biodiversity
30	Biodiversity Conservation in Nepal			1993	Biodiversity
31	Biodiversity conservation in Nepal	Shrestha T. B.		1992	Biodiversity
32	Biodiversity Conservation in Nepal with Reference to Protected Areas. Protected Area Management in South Asia	Maskey, T. M.		2001	Biodiversity
33	Biodiversity Conservation in Nepal: In Ecoregional Conflict-operation for Biodiversity Conservation in the Himalaya	Tiwari, NR	United Nations Development Programme, New York, NY 10017, USA	1998	Biodiversity
34	Biodiversity Conservation Initiatives in and around Protected Areas		DNPWC/PPP	1999	Biodiversity
35	Biodiversity Database of the Kingdom of Nepal	Shrestha T. B.	The Nature Conservancy and the World Resources Institute, IUCN	1994	Biodiversity
36	Biodiversity Profile of the High Mountains and High Himal Physiographic Zones		BPP/DNPWC/MoFSC	1995	Biodiversity
37	Biodiversity Profile of the Midhills Physiographic Zones		HMG/N/Government of Netherlands/BPP	1995	Biodiversity
38	Biodiversity profile of the Terai and Siwalik physiographic Zones		HMG/N/Government of Netherlands/BPP	1995	Biodiversity
39	Biodiversity: Management issues in Nepal	Thagunna, S. S		1996	Biodiversity

SN	Title of Literature	Author	Publisher	Date	Area of Enquiry
40	Buffer Zone Management Guidelines, 1999		HMG/MFSC/DNPWC	1999	Managerial/Policy/ Legislation
41	Buffer Zone Regulations, 1996		DNPWC	1996	Managerial/Policy/ Legislation
42	Collaborative Management of Protected Areas in the Asian Region	Sharma, UR.		1998	Managerial/Policy/ Legislation
43	Community Based Biodiversity Conservation Programme	Basnyat, M, Budathoki, P and Rayamajhi, S.	DNPWC	1998	Managerial/Policy/ Legislation
44	Conservation and human resources: Comment on four case studies from Nepal	Stone L.		1990	Conflict
45	Consolidating Conservation through People's Participation		DNPWC/PPP/UNDP	2000	Socio-economic
46	Curriculum for Human Resource Training on Conservation in Nepal		KMTNC/NCRTC	1994	Managerial/Policy/ Legislation
47	Decentralization Act of 1983 (with amendments)		Ministry of Law and Justice	1983	Managerial/Policy/ Legislation
48	Deforestation in the Food / Fuel Context : Historical and Political Perspective from Nepal	Bajracharya, D.	Mountain and Research Development	1983	Socio-economic
49	Design of Proper Organizational Structure In Organization and Management Survey of DNPWC, 2003		DNPWC		Managerial/Policy/ Legislation
50	Dictionary of Nepalese Plant Names	Shrestha, K.	Mandala Book Point, Kathmandu, Nepal	1998	Biodiversity
51	District Profile of Bardia District, 2001		District Development Committee, Bardia, Nepal	2001	Socio-economic
52	Draft bill on Access to Genetic Resources and Benefit Sharing in the Context of Implementing CBD in Nepal	Sharma, UR.		2001	Managerial/Policy/ Legislation
53	Economics of Protected Areas: A New Look at Benefit and Cost	Dixon, JA and Sherman, PB,	Earchscan Publication Limited, London.	1990	Socio-economic
54	Emerging Issues in Legal and Procedural Aspect of Buffer zone Management with Case Study from Nepal	Hainen JT and Mehata JN	Journal of Environment and Development	2000	Managerial/Policy/ Legislation
55	Enumeration of Amphibians and Reptiles of Nepal		His Majesty's Government of Nepal/ Biodiversity Profiles Project. Kathmandu	1995	Biodiversity
56	Enumeration of the Algae of Nepal		HMG/N/Government of	1995	Biodiversity

SN	Title of Literature	Author	Publisher	Date	Area of Enquiry
			Netherlands/BPP		
57	Enumeration of the amphibians and reptiles of Nepal	Shah, K. B.	HMG, DNPWC	1995	Biodiversity
58	Enumeration of the Fishes of Nepal		HMG/N/Government of Netherlands/BPP	1995	Biodiversity
59	Enumeration of the Lichens of Nepal		HMG/N/Government of Netherlands/BPP	1995	Biodiversity
60	Enumeration of the Mammals of Nepal		HMG/N/Government of Netherlands/BPP	1995	Biodiversity
61	Enumeration of the Spiders of Nepal		HMG/N/Government of Netherlands/BPP	1995	Biodiversity
62	Forest Act, 1993		Ministry of Law and Justice	1993	Managerial/Policy/ Legislation
63	Forest Rules, 1995		Ministry of Forests and Soil Conservation	1995	Managerial/Policy/ Legislation
64	Geology of Nepal	Sharma, C.K.	Educational Enterprises (P) Ltd. Kathmandu	1997	Biodiversity
65	Geology of the Nepal Himalayas	Ohta, Y. and Akiba, C.	Himalayan Committee of Hokkaido University, Sapporo, Japan	1973	Biodiversity
66	Ghar Paluwa Hatti Byabasthapan Niti, 2060	Ministry of Forestry and Soil Conservation		2003	Managerial/Policy/ Legislation
67	Hatching success and re-introduction of Gharial in Nepal	Singh, J.	IOF, Pokhara	1985	Biodiversity
68	Heart of the jungle: the wildlife of Chitwan, Nepal	Gurung K.K.		1983	Biodiversity
69	Himali Rastriya Nikunja Niyamabali, 2036		His Majesty Government of Nepal	1979	Managerial/Policy/ Legislation
70	Jaibik Bibidhata Abhilekha Tayar Garne Prakriya, 2060	Ministry of Forestry and Soil Conservation	MOFSC	2003	Managerial/Policy/ Legislation
71	KMTNC Annual Report 2001	Rijal, A; Rana, S	KMTNC	2001	Managerial/Policy/ Legislation
72	KMTNC Annual Report 2002	Rijal, A; Rana, S	KMTNC	2002	Managerial/Policy/ Legislation
73	Landscape Processes in the Churia Range Central Nepal	Gurung, H. and Khannal. U	The Himalayan Review Nepal Geographical Society.,	1988	Biodiversity

SN	Title of Literature	Author	Publisher	Date	Area of Enquiry
			Katmandu		
74	Large mammal conservation in Asia: The role of land use planning geographic information systems	Smith J. L. D., Mishra, H. R., and Wemmer, C.		1992	Biodiversity
75	Madhyabarti Kshetra Byabasthapan Niyamawali, 2053		HMG/N	1996	Managerial/Policy/ Legislation
76	Managing Protected Areas in the Tropics	MacKinnon, J, MacKinnon, K, Child, G and Thorsel J,	IUCN, Gland Switzerland.	1986	Biodiversity
77	Master Plan for the Forestry Sector Nepal		HMGN/ADB/FINNIDA	1988	Managerial/Policy/ Legislation
78	Master Plan for the Forestry Sector Nepal: Human Resources Development Plan		HMG/MFSC	1988	Managerial/Policy/ Legislation
79	Master Plan for the Forestry Sector Nepal: Plan for the Conservation Ecosystems and Genetic Resources		HMGN/MFSC	1988	Managerial/Policy/ Legislation
80	Master Plan for the Forestry Sector, Nepal: Forest Land Use, Forest Management and Supply of Major Forest products		HMGN/FAO/DANNIDA	1987	Managerial/Policy/ Legislation
81	Medicinal Plants and Traditional Medical Practices in the Eastern Parts of Parsa District, Nepal	Yadav		1999	Socio-economic
82	National Conservation Strategy for Nepal: A Prospectus		IUCN	1983	Managerial/Policy/ Legislation
83	National Implementation of the Convention on Biological Diversity: Policy and Legislative Requirements		IUCN	1998	Managerial/Policy/ Legislation
84	National Park and Wildlife Conservation Act, 1973 (with amendments to 1992)		Ministry of Law, Justice and Parliamentary Affairs.	1973	Managerial/Policy/ Legislation
85	National Parks and Wildlife Reserves of Nepal		DNPWC	1998	Biodiversity
86	National Register of Medicinal Plants		HMG/IUCN Nepal	2000	Biodiversity
87	Natural Resources Conflict Management Case Studies and Analysis of Power Participation and Protected Areas	Castro, P; Nelson, E.	FAO	2002	Conflict
88	Nature reserve of the Himalaya and the mountains of Central Asia		Oxford University Press, Oxford	1993	Biodiversity
89	Nepal Ain Sangraaha (Nepal Acts Collection)		Ministry of Law and Parliamentary Affairs	1994	Managerial/Policy/ Legislation
90	Nepal Biodiversity Strategy		HMGN/MFSC	2002	Managerial/Policy/

SN	Title of Literature	Author	Publisher	Date	Area of Enquiry
					Legislation
91	Nepal Country Report on Biological Diversity		IUCN	1999	Biodiversity
92	Nepal Environmental Policy and Action Plan, Integrating Environment and Development		Environment Protection Council	1993	Managerial/Policy/ Legislation
93	Nepal ka Samrakchhan Chhetra		DNPWC	2003	Biodiversity
94	Nepal's Buffer Zone Management: A Sustainable Development Initiative	Uprety, B. K. and H. K. Uprety	PPP/UNDP	1995	Managerial/Policy/ Legislation
95	Nepal's Tourism: Uncensored Facts	Chand Diwaker	Pilgrims Publications. Kathmandu and Banarasi	2000	Socio-economic
96	Nepal's biodiversity and protected areas: The 1997 protected area management workshop	Yonzon, P and Heinen, J	DNPWC/UNDP/Resources Nepal	1997	Biodiversity
97	Nepal's Forest Birds: Their Status and Conservation	Inskipp, C.	Council for Bird Preservation	1989	Biodiversity
98	Nikunja, Arakchaya wa Samrakchayan chhetra gair Sarakari wa Anya Santha lai Byabasthapan garna dine Niti ko Sambhandama Abalamban Garine Karya Prakriya	Ministry of Forest and Soil Conservation		2003	Managerial/Policy/ Legislation
99	On the Use of Goal-Oriented Project Planning for Protected Area Management in Nepal	Heinen and Rayamajhi	Oxford University Press	2001	Managerial/Policy/ Legislation
100	Opportunities for investment in biodiversity conservation in Nepal		HMG/N/Government of Netherlands/BPP	1995	Socio-economic
101	Organization Charts of the Protected Areas, 2003		DNPWC		Managerial/Policy/ Legislation
102	Park People Programme Annual Progress Report 1998		DNPWC/PPP	1998	Managerial/Policy/ Legislation
103	Park People Programme Annual Progress Report 1999		DNPWC/PPP	2000	Managerial/Policy/ Legislation
104	Park People Programme- Completion Report, 1994-2001		DNPWC/ PCP		Managerial/Policy/ Legislation
105	Participatory Biodiversity Conservation Initiatives in Nepal	Budhathoki, P.		2000	Socio-economic
106	Pasture Lands Nationalization Act, 1974 A.D.		Ministry of Law and Justice	1974	Policy/Legislation
107	PCP Annual Report		PCP	2002	Managerial
108	People and Parks: Linking Protected Area Management with Local Communities	Wells, M. and Brandon, K.	The World Bank/ WWF/ USAID	1992	Conflict
109	Population Census, 1991: Social Characteristics Tables		Central Bureau of Statistics	1993	Socio-economic

SN	Title of Literature	Author	Publisher	Date	Area of Enquiry
110	Problem of wildlife conservations in Nepal	Shrestha, P.B.	IOF,pokhara	1984	Biodiversity
111	Profile of the Terai / Siwalik Physiographic Zones.		BPP/DNPWC	1995	Biodiversity
112	Profiles of Programs/Projects under Terai Arc Landscape Project	Sigdel, H	WWF	2002	Managerial/Policy/ Legislation
113	Protected Area Management In South Asia		DNPWC/IUCN	2001	Managerial/Policy/ Legislation
114	Rainforest Buffer Zones: Guidelines for Protected Area Managers	Sayer, J.	Forest Conservation Programme. Gland, Switzerland: IUCN - The World Conservation Union	1991	Managerial/Policy/ Legislation
115	Rastriya Nikunja tatha Banyajantu Samrakshan Ain, 2029		HMG/N	1973	Managerial/Policy/ Legislation
116	Red data book of the Fauna of Nepal		HMG/N/Government of Netherlands/BPP	1995	Biodiversity
117	Rodent and its damage in plantation.	Chaudary,S.P.	Iof, Pokhara	1986	Biodiversity
118	Role of Tourism Education in Poverty Alleviation - A Sustainable Approach	Sharma, C.		2003	Socio-economic
119	Sectoral Reports on Sustainable Development Agenda for Nepal (SDAN). Protected Areas of Nepal	Sharma, UR.			Managerial/Policy/ Legislation
120	Self Study Manual on Watershed Management Extension	Bhuju, U.R.	Regional Watershed Project, UNDP, FAO	1991	Managerial/Policy/ Legislation
121	Social Behavior study of common Peafowl	Pandey,M.B.	IOF, Pokhara	1984	Biodiversity
122	Socio-economic development initiatives in Buffer zone		DNPWC/PPP	1999	Socio-economic
123	Socio-economics of the people and extinction of species in protected areas in Nepal	Shrestha M. K.		1996	Socio-economic
124	Statistical Yearbook		Central Bureau of Statistics	2001	Socio-economic
125	Terai Shikar Reserves	Wegge, P.	DNPWC	1976	Managerial/Policy/ Legislation
126	The Environmental Education Strategy for Nepal	Bhuju, U.R.	Washington, DC: World Wildlife Fund USA	1990	Socio-economic
127	The Faunal Collapse of Large Mammals in the Reserves of the Nepalese Terai	Heinen, J. T.		1995	Biodiversity
128	The Principles and Practice of Buffer zones and Local	Wells, MP. and	Ambio	1993	Socio-economic

SN	Title of Literature	Author	Publisher	Date	Area of Enquiry
	Participation in Biodiversity Conservation	Brandon, KE.			
129	The Role of Buffer Zones in protected Areas: A Review and Synthesis of the Case for Nepal	Thagunna, S. S.	Canterbury, NZ: Lincoln University	1995	Managerial/Policy/ Legislation
130	Tiger and other Game	Stewart, A. E.	Longmans, Green Ltd., London	1927	Biodiversity
131	Topological Changes with Time in the Plan form of the Koshi river in north Bihar and Nepal	Gupta, N. C., Prakash, B. and Singhal, B. B. S.	University of Roorkee	1980	Biodiversity
132	Training Need Assessment and Training Plan for DNPWC		DNPWC/PCP	2003	Managerial/Policy/ Legislation
133	Wildlife conservation policies and strategies in the protected areas of Nepal	Sharma U. R.		1995	Managerial/Policy/ Legislation
134	WWF in Nepal: Three Decades of Partnership in Conservation (1967-2000)		WWF Nepal Program	2000	Managerial/Policy/ Legislation
135	WWF Strategic Plan 2002-2006		WWF	2001	Managerial/Policy/ Legislation

3.2 Wetland Sites

3.2.1 Ghodaghodi Tal Ramsar Site

SN	Title of Literature	Author	Publisher	Date	Area of Enquiry
1	A Checklist of Birds Recorded at Ghodaghodi Tal	Baral, H.S. and Mills D.	Bird Watching Club, Kathmandu, Nepal	1993	Biodiversity
2	A Checklist of Birds Recorded at Ghodaghodi Tal	Lalchan, L.J.	DNPWC	1990	Biodiversity
3	A Checklist of Birds Recorded at Ghodaghodi Tal	Manandhar, R. and Satyal, K.R.	Bird Watching Club, Kathmandu, Nepal	1987	Biodiversity
4	A Checklist of Birds Recorded at Ghodaghodi Tal and Nakhrodi Tal	Suwal, R.N. and Shrestha, M.K.	DNPWC	1988	Biodiversity
5	A Detailed Checklist of Birds Recorded at Ghodaghodi Tal	Baral, H.S.	DNPWC	1992	Biodiversity
6	A Supplementary Checklist of Birds Recorded at Ghodaghodi Tal	Baral, H.S. and Mills D.	Bird Watching Club, Kathmandu, Nepal	1992	Biodiversity
7	Ghodaghodi Lake Conservation Project II		IUCN	2001	Biodiversity
8	Ghodaghodi Lake System-A National Ramsar: A Report to the	Baral, H.S.	Nepal Bird Watching Club	1993	Biodiversity

	Asian Wetland Bureau				
9	Preliminary Observations at Ghodaghodi Tal	Bhandari, B.	IUCN	1992	Biodiversity
10	Study on the Biodiversity of the Lake, a Proposed Ramsar Site and the Socioeconomic of the Lake Area, Western Lowland Nepal	K.C, S.B.	KU	2003	Biodiversity
11	The Ghodaghodi Tal Conservation Area: A Community Centered Management Plan		IUCN	1998	Managerial/Policy/ Legislation
12	Ghodaghodi Tal Kshetrako Dirghakalin Samrakchhan Yozana		District Forest Office, Kailali	2000	Managerial/Policy/ Legislation
13	Godhaghodi Simsar Kshetra: Ek Janakari		IUCN		Biodiversity
14	A Brief Concept of Project on Management of Wetland Biodiversity and Ecotourism in Far-western Region of Nepal		Kailali Chamber of Commerce and Industry Dhangadi, Kailali	2003	Managerial/Policy/ Legislation
15	Ramsar Information Sheet on Ramsar Wetlands (RIS): Ghodaghodi Tal			2002	Biodiversity

3.2.2 Bishazari Tal Ramsar Site

SN	Title of Literature	Author	Publisher	Date	Area of Enquiry
1	A study on conservation of Beesh Hazar Tal	Bhandari, B.	IUCN	1998	Biodiversity
2	Beeshazari Tal Management Plan		IUCN	1998	Managerial/Policy/ Legislation
3	Ramsar Information Sheet on Ramsar Wetlands (RIS): Bishazari Tal			2002	Biodiversity

3.2.3 Jagadishpur Reservoir Ramsar Site

SN	Title of Literature	Author	Publisher	Date	Area of Enquiry
1	Integrated Development Plan, Niglihawa Village Development Committee, Kapilvastu		NATURE, Butwal	2000	Managerial/Policy/ Legislation
2	Ramsar Information Sheet on Ramsar Wetlands (RIS): Jagadishpur Reservoir			2002	Biodiversity

3.1.4 Other Wetland Sites

SN	Title of Literature	Author	Publisher	Date	Area of Enquiry
1	A Directory of Asian Wetlands	Scott, D. A. (ED).	IUCN	1989	Biodiversity
2	An inventory of Nepal's Terai Wetlands		IUCN	1998	Biodiversity
3	Awareness and community involvement in wetlands management	Pradhan, G.B.N.; Shrestha, B.C.		1994	Socio-economic
4	Biodiversity assessment of Terai wetlands	Verheugt, W.J.M.	HMG/N/Government of Netherlands/BPP	1995	Biodiversity
5	Birds of Nepal: Field ecology, natural history and conservation volume I	Shrestha, T.K.	Mrs. Bimala Shrestha	2000	Biodiversity
6	Checklist of Nepalese wetland birds	Suwal, R.	IUCN		Biodiversity
7	Conservation and development plan of Lekhnath Muncipality volume II	Oli, K.P.	IUCN		Socio-economic
8	Conservation and development: The sustainable use of wetland	Maltby, E.; Dugan, P.J.; Lefeuvre, J.C.	IUCN		Managerial/Policy/ Legislation
9	Conservation and management issues of wetlands in Nepal	Shrestha, M.K.	Government of India/Ramsar Convention Bureau	1995	Socio-economic
10	Conservation and sustainable use of wetlands in Nepal		IUCN	2002	Biodiversity
11	Conservation and sustainable use of wetlands in Nepal - IUCN Proposal		IUCN	2003	Managerial/Policy/ Legislation
12	Conservation and sustainable use of wetlands in Nepal - Project Brief		IUCN	2002	Managerial/Policy/ Legislation
13	Conservation and sustainable use of wetlands in Nepal - Project Brief		IUCN	2003	Managerial/Policy/ Legislation
14	Convention on wetlands of international importance especially as waterfowl habitat		IUCN	1982	Managerial/Policy/ Legislation
15	Directory of Wetlands of International Importance		Ramsar Convention Bureau, Gland, Switzerland	1990	Biodiversity
16	Doing education at wetland sites: Examples and modalities from Asia	Bhandari, B.; Abe, O.; Takahashi, M.; Nakahata, A.(eds.)	Institute for Global Environmental Strategies (IGES)	2003	Socio-economic

SN	Title of Literature	Author	Publisher	Date	Area of Enquiry
17	Ecotourism wetlands, sustainable livelihoods and biodiversity conservation: Some lessons in policy making and practice from case studies on national nature reserves	Mukherjee, N. ; Mukherjee, A.	Responsible Ecological Social Tours Project (REST)	2002	Socio-economic
18	Gender equity integration in design of project on conservation and sustainable use of wetland in Nepal	Tamrakar, N.; Jha, C.		2002	Socio-economic
19	Habitat ecology of the Mai Pokhari wetlands in Nepal and management plan for survival of the Himalayan Newt, Tylototriton verrucosus	Shrestha, T.K.	ELSEVIER	1994	Biodiversity
20	Institutions and capability in wetlands management in Nepal	Bhandari, B.	IUCN /Nepal, Heritage and Biodiversity Conservation Programme	1994	Socio-economic
21	Issue papers on Nepal's wetlands 1992 to 1998	Bhandari, B.	IUCN	1998	Biodiversity
22	Large waders and wetlands of Terai: A survey report	Suwal, R.N.; Shrestha, M.K.	KMTNC	1992	Biodiversity
23	Legal aspects of wetlands conservation	Belbase, N.		1993	Managerial/Policy/ Legislation
24	Let us keep our wetlands healthy	Bhandari, B.B.	Institute for Global Environmental Strategies (IGES)	2003	Socio-economic
25	Limnological investigation of Gosainkunda Lake and impact of Janaipurnima festival	Shrestha, R.R.	ENPHO	1995	Biodiversity
26	Limnological reconnaissance of water bodies in central and southern Nepal	Jones, J. R., Knowlton, M.F. and Swar, D. B.	Hydrobiological	1989	Biodiversity
27	Limnological survey of Devi Tal wetland, Chitwan	McEachern, P.	IUCN		Biodiversity
28	Limnology and the national wetlands survey	McEachern, P.	IUCN /Nepal, Heritage and Biodiversity Conservation Programme	1994	Biodiversity
29	National parks and protected area management: Nepal Wetland Management and Construction-RCNP-East Machan Wildlife Resort	Bauer, J.J.; Bauer, S.	UNDP/FAO	1988	Managerial/Policy/ Legislation
30	National wetland database (A rapid reconnaissance survey of 163 wetland sites of Nepal's Terai)	Bhandari, B.	IUCN	1996	Biodiversity
31	Nepalma simsar chhetra samrachanka sambhabana ra chunauti	Belbase, N.; Bhattarai, C.	Pro Public	2001	Managerial/Policy/ Legislation

SN	Title of Literature	Author	Publisher	Date	Area of Enquiry
		C.			Legislation
32	Participatory conservation plan for Gaindahawa Tal Rupandehi		IUCN	1998	Managerial/Policy/ Legislation
33	Present status of wetland distribution and its preservation in Nepal	Shrestha, R.L.; Nepali, H.S. (Kazi)	The International Waterfowl Research Bureau	1987	Biodiversity
34	*Rastriya Simsar Niti* 2059 (National Wetland Policy 2003)		MoFSC	2060	Managerial/Policy/ Legislation
35	Resource materials: National workshop on wetlands management in Nepal		NCS Implementation Project	1993	Biodiversity
36	Restoration of wetlands in Lumbini	Bhandari, B.	IUCN		Biodiversity
37	River systems, hydrodevelopment and the species crisis in the terai	Bauer, J.J.; Maskey, T.M.; Rast, G.	IUCN /Nepal, Heritage and Biodiversity Conservation Programme	1994	Biodiversity
38	Safeguarding wetlands in Nepal	Bhandari, B.; Shrestha, T.B.; McEachern, J.	IUCN	1994	Biodiversity
39	Summary status of Nepal's Ramsar site		IUCN	1994	Biodiversity
40	The current status of wetlands in Nepal	Bhandari, B.	IUCN	1992	Biodiversity
41	The status of Nepal's wetlands in the Terai	Bhandari, B.	IUCN Nepal	1996	Biodiversity
42	Wetland Action Plan	Bhandari, B.; Belbase, N.; Shrestha, N.	IUCN		Managerial/Policy/ Legislation
43	Wetland biodiversity in Nepal: A case study of Koshi Tappu Wildlife Reserve	Bhandari, B.	Indian Environmental Society	1998	Biodiversity
44	Wetland conservation: A review of current issues and required action	Dugan, P.J. (ed.)	IUCN	1990	Managerial/Policy/ Legislation
45	Wetland fauna in Nepal	Shrestha, T.K.	IUCN, Heritage and Biodiversity Conservation Programme	1994	Biodiversity
46	Wetlands and fisheries: Prospects and constraints	Rajbanshi, K.G.; Gurung, T.B.	IUCN, Nepal, Heritage and Biodiversity Conservation Programme	1994	Biodiversity
47	Wetlands conservation and management	Manandhar, L.;	IUCN, Nepal, Heritage and	1994	Biodiversity

SN	Title of Literature	Author	Publisher	Date	Area of Enquiry
		Shrestha, K.M.	Biodiversity Conservation		
48	Wetlands management in Nepal	Shrestha, T.B.; Bhandari, B. (comp.)	NCS Implementation project	1992	Managerial/Policy/ Legislation
49	Wetlands of Kathmandu Valley: Inventory and management strategy (final report)	Joshi, S.D.; Chaudhary, R.P.; Shrestha, P.B.	MOPE	2001	Managerial/Policy/ Legislation
50	Wetlands of the Nepal's lowlands meeting Ramsar criteria	Maskey, T.M.; Suwal, R.; Verheugt, W.J.M.		1995	Biodiversity
51	Wise use of wetland resources: Lessons drawn from selected wetland sites of Nepal's Terai	Bhandari, B.	IUCN		Socio-economic

Annex 3
Review of Protected Areas

Contents

1 Background

This study on Poverty Reduction through Sustainable Management of Protected Areas and Wetlands in Nepal: Processes, Modalities, Impacts and Identification of areas for Future Support was commissioned to Center for Natural Resource Analysis, Management, Training and Policy Research (NARMA) Consultancy (Pvt) Limited by Japan International Cooperation Agency Nepal (JICA-Nepal). The main objective of the study was to make a comprehensive review of biodiversity in Protected Areas (PAs) and Wetland Sites (WSs) of economic and conservation importance in Nepal and thereby identify feasible areas for Japan Nepal future cooperation in this sub-sector for participatory biodiversity conservation and poverty reduction. The study spanning over five months became effective from November 2003.

An Inception Report was submitted to JICA Nepal outlining the detail study methodology which was revised based on comments and suggestions received from several stakeholders during a half-day consultation meeting organized in the Department of National Parks and Wildlife Conservation (DNPWC) on 28 November 2003[1]. Following the agreed methodology, review analysis of PAs and WSs was carried out at two levels. At the first level, the study prepared and documented all studies/documents conducted/pr prepared in all the 16 PAs and 10 priority WSs of Tarai (Annex 2 presents the findings fron the first level review). Later on all the 16 PAs and 10 WSs are analyzed in terms of their focus / coverage (biodiversity, socio-economic, conflict, managerial and policy/legislation aspects) using the Significance, Achievement, Lesson learnt, Gap, Obstacle, Commitment (SALOGC) approach. This annex is devoted to present the review analysis of 16 PAs. Presentation in this annex is organized into three main sections. With the brief presentation of background in this section, section 2 is devoted to the presentation of review findings and the third section in the presentation of detail review of the each protected area.

2 An Overview of Review Findings

2.1 Protected Areas of Nepal

Nepal embarked upon a modern era of wildlife conservation with the enactment of NPWCA, 1973. The clause 3 of this Act empowers HMG/N to establish PAs such as NP, WR, HR, CA and BZ with four boundaries in any part of the kingdom through a gazette notification. Likewise, the Act allows the government to withdraw from the PAs, to hand over the ownership or change the boundaries through similar notifications. At present, PAs in Nepal include nine NPs, three WRs, one HR and three CAs and six BZs covering an area of 26,970 sq km or 18.32 percent of the country's total area. Table 1 presents on PAs of Nepal.

Table 1: Protected Areas of Nepal

Protected Areas	Area sq km	Physio-graphic regions	Significance
A. National Parks			
1. Royal Chitwan National Park	932	Terai	World Heritage, Tourists destination, Famous for Greater One-horned Rhino, Tiger, Bison, Gharial, Migratory birds and Elephant and Crocodile Breeding Centers, Ranital, Bishazari Tal, other wetlands, .Narayani and Rapti rivers, Bikram Baba's temple & Valmiki Ashram and other cultural sites, connected with Valmiki Tiger Reserve in India
2. Royal Bardia	968	Terai	Habitat for threatened species like tiger, sloth bear,

[1] Appendix 1 presents the list of participants attending the meeting and Appendix 2 presents the summary of discussions and comments and suggestions made.

Protected Areas	Area sq km	Physio-graphic regions	Significance
National Park			swamp deer hispid hare, elephant, dolphin, black buck, mugger, gharial; second population of rhinos, Karnali and Babai rivers, Thakurdwara shrine, key landscape of TAL indirectly linked with Katarniaghat Wildlife Sanctuary in India
3. Khaptad National Park	225	Mid-hills	Unique landscape of rolling plateau with grasslands, encompasses may religious sites, temples and Khaptad lake.
4. Shivapuri National Park[2]	144	Mid-hills	Major watershed providing drinking water to Kathmandu. Rich in bird species and plants. Only walled PA in Nepal. Habitat for relict Himalayan dragonfly.
5. Makalu Barun National Park[3]	1,500	Mountains	Provides ecological support to Mt Everest Ecosystem. Habitat for threatened species of black bear, red panda, musk deer, 25 species of rhododendrons, linked with Qomolongma Nature Preserve in Tibet (China)
6. Shey-Phoksundo National Park	3,555	Mountains	The largest national park in the country, and represents the Trans-Himalayan ecosystem, home to snow leopard and musk deer, Phoksundo lake, local people inhabit the park, proposed World Heritage Site for its cultural significance.
7. Langtang National Park	1,710	Mountains	The local people inhabit the park. Encompassing an altitudinal range of over 6,450m, the LNP is distinguished as having one of the greatest altitudinal ranges within its boundaries among the PAs. Famous for Red panda, linked with Qomolongma Nature Preserve in Tibet (China), religious shrines like Gosainkund
8. Sagarmatha National Park	1,148	Mountains	A World Heritage Site, Mount Everest (highest peak 8,848m) and other peaks and glaciers, 10 species of rhododendron, Sherpa settlements. linked with Qomolongma Nature Preserve in Tibet (China)
9. Rara National Park	106	Mountains	The smallest National Park in the country, only park in the country established by complete evacuation of local people. Established to maintain the natural beauty of Rara Lake and protect it from sedimentation and other adverse impacts of human activities. Habitat for leopards, red panda. impeyjans & musk deer
B. Wildlife and Hunting Reserves			
1. Koshitappu Wildlife Reserve	175	Terai	Refuge for last remaining population of wild buffalos (below 150), Rich in water fowl & other birds, Koshi river, First Ramsar site of Nepal.
2. Royal Shuklaphanta Wildlife Reserve	305	Terai	Extensive grassland (*phanta*) and forest, Mahakali river, largest pool of swamp deer ca 2000, tiger, rhino, elephant, python, monitor lizard, cobra
3. Parsa Wildlife Reserve	499	Terai	Eastern extension of RCNP, Representative Churia ecosystem. Conservation of *char- kose jhadi* wild elephant and gaur, tiger; Kailash parbat (shiva temple)
4. Dhorpatan Hunting	1,325	Mid-hills	The only hunting reserve in the country and

[2] Established in 1976 as a Shivapuri Watershed and Wildlife Reserve, and designated as NP in 2002
[3] Strict Nature Reserve set aside for the scientific study

Protected Areas	Area sq km	Physio-graphic regions	Significance
Reserve			renowned for blue sheep (*Pseudois nayaur*)
C. Conservation Areas			
1. Annapurna Conservation Area	7,629	Mountains	Habitat representing Trans-Himalayan and mountain ecosystems, highest and lowest rainfall area, home to snow leopard, musk deer, pheasants; Muktinath and other shrines
2. Kangchenjungha Conservation Area	2,035	Mountains	Habitat for snow leopard, musk deer; rhododendrons, Himalayan larch, some of the world's largest glaciers, opportunity for tri-national peace park linking Qomolongma Nature Preserve in Tibet (China) and Kangchenjungha Biosphere Reserve in Sikkim (India).
3. Manaslu Conservation Area	1,663	Mountains	Habitat for snow leopard, grey wolf, musk deer, blue sheep & Himalayan tahr
D. Buffer Zones			
1. Royal Chitwan NP	750	Terai	See RCNP
2. Royal Bardia NP	328	Terai	See RBNP
3. Makalu Barun NP	830	Mountains	See MBNP
4. Langtang NP	420	Mountains	See LNP
5. Shey Phoksundo NP	449	Mountains	See SPNP
6. Sagarmatha NP	275	Mountains	See SNP
Total	26,970		

Source: MoFSC, 2002

2.2 Programme Administration, Management Modalities and People's Participation

Across the PAs, five different modalities of programme administration and four modalities of management were observed. Table 2 summarizes these along with level of participation.

Table 2: Administrative and programme management modalities across PAs and WSs

Protected Areas/Wetland Sites	Administrative modality (*)					Programme modality (**)				Level of participation (1)
	1	2	3	4	5	1	2	3	4	
Royal Chitwan National Park	✓								✓	M
Langtang National Park	✓							✓		M
Sagarmatha National Park	✓							✓		M
Rara National Park		✓						✓		L
Shey Phoksundo National Park	✓							✓		M
Khaptad National Park		✓						✓		L
Royal Bardia National Park	✓								✓	M
Makalu Barun National Park			✓			✓				M
Shivapuri National Park		✓				✓				L
Royal Shuklaphanta Wildlife Reserve		✓							✓	L
Koshitappu Wildlife Reserve		✓						✓		L
Parsa Wildlife Reserve		✓						✓		L
Dhorpatan Hunting Reserve				✓		✓				L
Annapurna Conservation Area					✓		✓			H
Kangchenjungha Conservation Area			✓					✓		H
Manaslu Conservation Area					✓		✓			H
Wetland Sites										NA

* Implies five administrative modalities explained above, and

** Implies the four programme management modalities explained below

Level of people participation was assessed in terms of involvement of the people in PA management. Level of participation and people's role in decision-making differed with the type of PA. Higher level of participation was observed in 3 PAs (ACA, KCA and MCA) as they are managed under the Conservation Area Regulations. The medium level of participation was observed in 6 PAs (RCNP, RBNP, SPNP, LNP, MBNP and SNP) as these PAs are managed as per the BZ policy. Low level of participation was observed in 7 PAs, which included (ShNP, RNP, KNP, PWR, KWR, RSWR and DHR). **Annex 6** provides further details on implementation modalities.

2.3 Major Obstacles in Protected Area Management

A number of obstacles have been reported in the management of PAs across the country. These are summarized in Table 3. Several obstacles reported in each PAs are summarized in next section.

Table 3: Major obstacles/threats reported in the management of Protected Areas

Areas of Inquiry	Major Obstacles	
Biodiversity	• Alien species invasion • Flood • Grassland succession • Inbreeding • Natural and intentional forest fire • Over fishing • Pollution • Uncontrolled and competitive grazing • Vandalism during resources extraction • Wetland conversion/invasion • Wetland poisoning	• Changing course of river • Cross breeding with domestic livestock • Geophysical barrier • Haphazard stone/sand quarrying around park • High human pressure on park resources • Illegal harvesting of NTFPs • Inadequate number of water holes • Landslide/erosion • Poaching • Problems in elephant and rhino management • Smaller size of the PA • Unclear management zones • Wildlife movement outside park boundary
Socioeconomic issues	• Existence of roads and industry near the PA • High tourist flow • Inadequate forest resources outside the PA • Ineffective coordination with DDC and VDCs • Low literacy rate • Low public awareness • Poor infrastructures like trails, bridges and schools • Poverty • Settlements inside PA	• Boundary dispute • Closer to the city or airport • High inflow of immigrants • Low involvement of women in decision making • Maoist insurgency and political instability • Open access • Poor health and sanitation facility • Remoteness • Uncontrolled growth of hotels and lodges • Unemployment of youth
Managerial aspects	• Inadequate field staff • Inadequate incentives for field staff • Inadequate trained and skilled human resources • Limited fire fighting capacity	• Inadequate support programmes like agricultural, forestry, livestock improvement • Inadequate communication equipment • Inadequate security posts • Low level of resources

Areas of Inquiry	Major Obstacles	
Policy/ Legislation	• Existing Acts and Regulations do not address aquatic life and Ramsar Sites sufficiently • Policy to bridge Ramsar Site and PAs more pertinent to KWR and RCNP • Unclear institutional mandate for Ramsar Site management	• Anti-poaching and anti vandalism strategy not updated • Less practical management regulation • Not effective enforcement of IEE and EIA • Poor monitoring and evaluation • Inadequate coordination among authorities and organizations

* The case of wetland is irrelevant for lack of any significant management efforts made so far.

2.4 Major Gaps in Protected Area Management

A number of gaps have been reported in the management of PAs across the country. These are summarized in Table 4. As in the case of obstacles, several of gaps reported in each PAs are summarized in next section.

Table 4: Major gaps reported in the management of Protected Areas

Area of Inquiry	Major Gaps	
Biodiversity	• Absence of zoning of PA • Inadequate visioning and planning for conservation of species • Wildlife corridor not existing	• Inadequate promotion of game hunting • Inadequate research and monitoring • Inventory of major flora, fauna including NTFP not being carried out
Socioeconomic	• Inadequate conservation awareness	• Inadequate documentation of indigenous knowledge
Managerial	• Absence of umbrella management council • Inadequate coordination among authorities and organizations • MIS lacking in implementation • Opportunity cost of overlooked drift wood and NTFP	• Absence of Management Plan • Institutional framework for tourism development not existing • Management Plans not endorsed in 7 PAs • Need to revise management plans in several PAs • Proposed extension not implemented in case of RBNP
Policy/Legislation	• Buffer zone not declared yet in 3 PAs although ad-hoc UCs and UGs have been formed • CITES bill not endorsed yet • Inadequate implementation mechanism for EIA • Insufficient legislation pertaining to endangered plant species • Need revision in Schedule I of NPWCA, 1973 • No specific legal provisions in Acts and Regulations for recently formulated polices • No specific policies on compensation for damages/causalities by problem animals • Tourism plan not formulated in several PAs and plans prepared but not endorsed in 3 PAs	• Appropriate research protocol to be formulated • Code of conduct for building construction in WHS not found • Endorsement of antipoaching strategy not yet done • Hunting Reserve Regulation/Guideline not framed • Ineffective tourism policy • Policy on harvesting and marketing of medicinal plants lacking • Policy on landscape level management and biological corridors yet to be made clear • Policy on management of orphan animals lacking • Review of current legislation and policies • Tri-national peace park policy not formulated (KCA)

2.5 Major Lessons Learned from Protected Area Management

The lessons learned from the management of PAs from the review of PA related documents are summarized in Table 5 by areas of inquiry. As is evident from the table, several of the reported lessons are similar across the PAs. Next section highlight lessons leaned under each PA.

Table 5: Major lessons learned in the management of PAs

Area of Inquiry	Major Lessons Learned
Biodiversity	• Alternate resources especially grazing land is necessary • Emphasis on landscape approach for management of mega species • Habitat improvement through weed elimination and indigenous grass species plantation • Improper burning of grasslands cause changes in its composition • Increasing pressure on the wetlands may lead to exhaustion of the resources • Rotational cutting and control burning of grasslands during dry season should be practiced • Smaller wooded grassland and *phantas* should be created within the surrounding *sal* forests • The topographically rugged and relatively open boundary are causes of poaching
Socio economic issues	• Abundantly available resources can be used to enhance local economy • Direct and visible benefits are motivating factors for changing people attitude towards conservation • Eco-tourism is important for sustainable revenue generation • Local culture is a promoting factor for conservation • Public humiliation, imprisonment and financial punishment are effective for poaching control • UGs are the most appropriate and effective grassroots organizations to independently shoulder local initiatives in the BZs
Managerial aspects	• Provision of BZ is essential for park management • Concerted efforts of multiple organizations generates synergy in poverty alleviation • Highly ambitious and short duration tourism project is ineffective • ICDP is replicable with community participation • There should be manageable number of UGs/UCs for their sustainability • Needs sound database system • Provision of innovative training and education opportunities to local people is helpful in conservation • Staff security is necessary for effective management • Well organized CBOs are important for extraction of benefit from the PAs
Policy/ Legislation	• Pollution control is possible by the joint efforts and by policy implementation • Required separate management strategies for wildlife reserve and Ramsar site viz in the case of KWR • Specific species action plans essential for important species
Conflict	• A clear demarcation is necessary to minimize land use conflicts in the BZ • Political support is important for the effective PA management

2.6 Impact on Biodiversity Conservation and Poverty Reduction

Assessed impact of different programmes implemented in PAs following different implementation modalities on biodiversity conservation and poverty reduction using a set of proxies is presented in Table 12. The impacts on biodiversity are judged based on observed/reported changes in the number of PA specific symbolic species. Review findings indicated positive contribution of PA management towards the biodiversity conservation as has been evident from increased population and sightings of symbolic species in all the PAs, irrespective of their type. For example, tiger populations have increased in PWR, RCNP, RBNP and RSWR; rhino populations in RCNP and RBNP; Arna and birds

in KWR; musk deer in SNP and all mountains PAs; and leopard, wild boar and black bear in the PAs across the country.

In the absence of specific studies carried out to assess the poverty impacts of programmes implemented in PAs, a number of proxy indicators were used to measure the poverty impacts. These included levels of community development activities carried out outside PAs, park revenue flow back to the community and presence of poverty related projects. The community development activities carried differed with the type of the PAs, age of the PAs, significance of PAs and presence of conservation partners. In case of community development, 6 PAs (ACA, KCA, MCA, RCNP, SNP and RBNP) were rated high; 5 PAs (LNP, SPNP, RSWR, KWR and PWR) were rated medium and 5 PAs (RNP, MBNP, KNP, ShNP and DHR) were rated low.

Table 6: Contribution of protected area in biodiversity conservation and poverty reduction

Protected Areas/ Wetland Sites	Biodiversity conservation Increase in populations/ sightings of wildlife	Poverty reduction		
		Community development	Park Revenue flow to the Community	Poverty Related Project
Protected Areas				
Royal Chitwan National Park	Rhino, Tiger, Ungulate	High	Medium	High
Langtang National Park	Red Panda, Musk deer, Snow Leopard, Assamese Monkey	Medium	Medium	Medium
Sagarmatha National Park	Musk Deer, Snow Leopard, Red Panda, Wolf, Himalayan Tahr	High	Medium	High
Rara National Park	Black Bear, Wild Boar	Low	Low	Medium
Shey Phoksundo National Park	Snow Leopard, Musk Deer, Blue Sheep	Medium	Medium	Medium
Khaptad National Park	Leopard, Black Bear	Low	Low	Medium
Royal Bardia National Park	Rhino, Tiger, Elephant, Ungulate	High	Medium	High
Makalu Barun National Park	Black Bear, Wild Boar	Low	Medium	Low
Shivapuri National Park	Leopard, Wild Boar	Low	Low	Medium
Royal Shuklaphanta Wildlife Reserve	Swamp Deer, Tiger, Ungulate	Medium	Low	Medium
Koshitappu Wildlife Reserve	Bird, *Arna*	Medium	Low	Medium
Parsa Wildlife Reserve	Tiger, Ungulate	Medium	Low	Medium
Dhorpatan Hunting Reserve	Blue Sheep, Deer	Low	Low	Low
Annapurna Conservation Area	Snow Leopard, Black Bear	High	High	High
Kangchenjungha Conservation Area	Snow Leopard, Blue Sheep	High	High	High
Manaslu Conservation Area	Snow Leopard, Blue Sheep	High	High	High

Flow back of park revenue to local community is reported to have direct impact on poverty reduction because these amounts are utilized for the community development and income generating activities. Level of flow back of the park revenue to the community differed with the type of the PAs and the prevailing management modality. Revenue flow back to the community was high in 3 PAs (ACA, MCA and KCA) because 100 percent of park revenue was diverted to the community as per the Conservation Area policy. Similarly, revenue flow back was medium in 6 PAs (RCNP, LNP, SNP, SPNP, MBNP and RBNP) as these PAs have delineated BZ under which 30 to 50 percent of park incomes are invested for the socio-economic upliftment of the people living in the BZ. Remaining 7 PAs (ShNP, RNP, KNP, RSWR, KWR, PWR and DHR) have yet no system for diverting park revenue back to the community.

Last indicator used to assess the impacts of PAs management on poverty reduction was the presence of the poverty focus projects aimed directly either to reduce the poverty or improve the livelihoods of the people. Broadly, existence of the poverty related projects was classified into three groups on the basis of number of projects directly related to poverty reduction. Six PAs (ACA, KCA, MCA, RCNP, RBNP and SNP) were included under high category as these PAs had high number of donor assisted/conservation partner programme on poverty reduction. Seven PAs (RNP, KNP, RSWR, KWR, PWR, LNP and SPNP) were included under the medium category because these were being supported either by UNDP funded PCP programme or by WWF programme or by both. Last 3 PAs (ShNP, MBNP and DHR) were included under low category, as these PAs had neither donor programmes nor conservation partners supported programmes.

3. Protected Area Specific Review Findings

3.1 Royal Chitwan National Park

Background

Area: National Park 932 sq km and Buffer zone (BZ) 750 sq km (DNPWC, 2002a)
Districts: Chitwan, Nawalparasi, Parsa and Makwanpur encompassing 35 Village Development Committees (VDCs) and 2 municipalities (DNPWC, 2001a)
Year(s): Established in 1973 as the first National Park, Royal approval granted in 1970/71, extended from 544 to 932 sq km in 1977, World Heritage Site in 1984, BZ declared in 1997 (DNPWC, 2002a)
IUCN Management Category: II, VI

3.1.2 Significance

Significance attempts to review and analyze the background information, which illustrates the situation and importance of the protected areas. The significance aspects cover five areas of inquiry, which includes biological, socio-economic, conflict, managerial, and policy and legislations as suggested in study framework.

Biological aspects cover the species and habitat including the ecosystem's description, conservation and management. They are as follows:

- Seven types of ecosystem have been identified which include Tropical Hill Sal forest, Sal forest in inner valleys, Tropical Riverian forest, Khair-Sisso Riverian forest, Pseudo steppe with Graminae, Terai Tropical Sal forest, Terai cultivated land (BPP, 1995a)
- 919 species of flora have been recorded from the park and harbors endangered species like *Cyathea spinosa* (Tree fern), *Cycas pectinata* (Cycas), *Pandanus furcatus* (Screw pine) and several other orchids. (Shakya et al, 1997)
- 43 species of mammals (CEDA, 2003), 450 species of birds and 100 species of reptiles/amphibians have been recorded from the park (BPP, 1995a)
- 26 species of mammals found in RCNP are protected by Convention of International Trade of Endangered Species of Wild flora and fauna (CITES)
- 13 species of mammals, 6 bird species, 3 reptiles are endangered and protected under the Appendix I of National Park Wildlife Conservation Act (NPWCA), 1973
- 3 symbolic species of RCNP are Greater one-horned rhinoceros (*Rhinoceros unicornis),* Royal Bengal tiger (*Panthera tigris tigris*), and Asiatic elephant (*Elephas maximus*)
- Maskey frog (*Tomopterna maskeyi*) is the endemic species of the park (DNPWC, 2001a).

Socio-economic aspects cover vulnerability, livelihood and cultural heritage linked to biodiversity conservation and poverty reduction. They are as follows:

- The average poverty rank of RCNP is calculated at 39.3 which fall under the less poor category of poverty rating scale (ICIMOD, 1998).
- Flooding in the Rapti and Narayani Rivers and causing property damage regularly

- 242,000 people from 36,193 Households (HHs) are settled around the park's BZ (DNPWC, 2001b).
- Average annual visitors of RCNP were 79,258 since 2000 (DNPWC, 2002a).
- Cultural sites in RCNP are Bikram Baba, Chitrasari, Panch Pandav, and Balmiki Asram / Triveni Ghat (IUCN, 1997)
- Large number (above 25,000) of pilgrims visited annually to the religious shrines located in the RCNP

Conflict aspects cover the issues arising from the interaction of park-people, policy, organizations and people-people. They are as follows:

- Conflicts due to people reported are poaching, revenge killing, communicable diseases/related to grazing, poisoning of wetlands, disturbances, illegal collection of forest products, etc.
- Rhino mortality in the fiscal year 2002-2003 reached 58 individuals (50 in Chitwan and 8 in Bardia) out of which 37 were killed by poachers, 18 met natural deaths, and 3 killed by tigers, and one undetermined, as elaborated in the DNPWC's annual report for the year 2002-2003.
- Conflicts due to park reported are human causalities, human injury, livestock depredation, crop raiding, property damage, etc.
- Threats related to habitat and wildlife in RCNP includes alien species invasion, development infrastructure, tourism garbage, industrial pollutions, natural hazards etc.

Managerial aspects cover the program implementation process and modality of various organizations to support biodiversity conservation and poverty reduction. They are as follows:

- Headed by the Chief Warden, RCNP has 277 staff positions of which 7 are gazetted and 270 are non gazetted staffs (Pers. Com. DNPWC)
- Royal Nepalese Army (RNA) joined the park with the sole responsibility of law enforcement and current strength of RCNP is one battalion of 792 infantrymen (Pers. Com. DNPWC).
- Average annual revenue generated by the park in the last three year was Rs48 million (Annual revenue in 2000, 2001 and 2002 were Rs74,303,000, Rs38,887,000, Rs30,831,000 respectively) (DNPWC 2000a, DNPWC 2001b, DNPWC 2002a, DNPWC 2003a)
- Average allocated annual budget for RCNP since 2000 was Rs133.7 million (Annual budget in the year 2000, 2001 and 2002 were Rs11,509,000, Rs14,579,000, Rs14,025,000 respectively) (DNPWC 2000a, DNPWC 2001c, DNPWC 2002a, DNPWC 2003a)
- Currently 7 funding agencies/donor communities are working in RCNP, which include UNDP, GEF, UNF, KMTNC, WWF, SNV and DFID
- Possible partners would be UNDP, KMTNC, WWF, Buffer Zone Management Committee (BZMC), local Non Governmental Organizations (NGOs), etc.
- Samudayik Bikash tatha Hariyali Aayojana's (SABIHAA) Ward Conservation Committee (WCC) model can be integrated in the BZ system to organize hundreds of Buffer Zone User Groups (BZUGs) into a manageable size first at the ward level and then at the VDC level. It will require redefinition of the BZ boundary to encompass all wards of a VDC, and reorganizing or forming Buffer Zone User Committees (BZUCs) at the entire VDC level[4].
- Replication of Poor People, Occupational caste and Women's Empowerment for Resource management Program (POWER) group as promoted by SABIHAA will enhance empowerment process. However, modifications may be required to reflect the local situations.

Policy and legislation aspects includes international, national and cross cutting policies and legislations concerning biodiversity conservation in Protected Areas (PAs) and Wetland Sites (WSs). They are as follows:

- UNESCO recognized RCNP as World Heritage Site in 1984 due to its high biodiversity and maintaining ecological processes ecosystems of international significance (DNPWC 2001a)

[4] For example, all the 37 VDCs touching the RCNP should be brought under the BZ system, and the current number of 21 BZUCs should be reorganized into 37 BZUCs in conformity with VDCs.

- Recognized as a major tiger conservation unit under the Global Tiger Forum
- Bishazari Tal within the BZ has been designated as Ramsar site (DNPWC 2001c)
- Recognized as the "best managed" park at the 5th World Park Congress held in Johannesburg, South Africa in September 2003.

3.1.3 Achievements

The main biological achievements made in the RCNP are as follows:

- About 50 ha of grassland, and 2 wetlands are rehabilitated every year since 1996
- Among the wetlands found in RCNP, Devital and Lamital have been restored
- The park area was extended from 544 sq km to 932 sq km in 1977 (DNPWC 2001a)
- Rhino population increased from 446-466 in 1994 to 544 in 2000 at the rate of 3.38. The rhino count was initiated in 1994 by a team of Nepalese experts.
- Translocation of 83 rhinos was successfully accomplished from RCNP to Royal Bardia National Park (RBNP) and 4 to Royal Suklaphanta Wildlife Reserve (RSWR) from 1986 to 2003, as tabulated in the Department of National Park and Wildlife Conservation (DNPWC)'s annual report 2002-2003.
- 24 have been gifted to various countries including 2 rhinos to Japan in 2001 (DNPWC 2001c)
- Tiger population increased from 46 in 1977 to 110 in 1995 (DNPWC 2001a).
- Radio collaring of tiger, rhino, sloth beer and some ungulates has already been commenced in the early period of the park management, and camera trap and pug marks method of tiger monitoring is continuing. Radio collaring of tiger was initiated under the tiger research works supported by the Smithsonian Institution.
- Populations of *gharial* (> 500 released) and sloth bear (about 250) increased significantly (DNPWC 2001c)

The main socio-economic achievements made in the RCNP are as follows:

- 6 out of 10 cooperatives of community savings and credit scheme registered.
- Cumulative community saving reached up to Rs 28,731,096 of which the share of male members is 53% and the share of female members is 47%.
- About 2,467 people are employed through tourism enterprise, which is 1.1% of total population (223,260) (DNPWC, 2001a).
- RCNP has a quite large number of local groups, which include one Buffer Zone Management Committee (BZMC), 21 UCs (initially the number was 37) and 1,541 UGs. Five years of BZ implementation successfully completed and at the same time second management committee has also been elected in 2002.
- 36.7% of HHs have irrigation facilities and 36.2% have access to safe drinking water which also include 7.7% of HHs using water from well and only 21.8% of total HHs have toilet for safe defecation.
- A total of 16 buffer zone community forests (BZCFs) handed over to BZ community.
- Women participation in UG encouraging. Until 2002, altogether, 47,793 UG members consisting of 24,282 men (51%) and 23,504 women (49%).
- Out of a total of 36,193 HHs, 40.8% of total HHs collects grass from community forest (CF) and 21% of total HHs collects grass from the Park. Grass and thatch collection is taking place for 7 days a year instead of 15 days in the beginning. Revenue generation from issuing grass and thatch permit by the park in 1998/99 was Rs422,805 (CEDA, 2003).

The main conflict mitigating achievements made in the RCNP are as follows:

- 11 Anti-poaching Units have been formed to deter poaching activities.
- Hoteliers have contributed for anti-poaching operations by donating vehicles as well as cash to the park office.
- Number of poachers have been arrested and sentenced.
- International Trust for Nature Conservation (ITNC), World Wildlife Fund (WWF) and individuals as well as other organizations have contributed for the anti-poaching operations.

- Rhino poaching was nil in 1996 with the massive anti-poaching and public awareness programs
- Community compensation scheme has been realized to provide compensation for crop and livestock damaged by wildlife.
- 4 people were killed by wildlife in 2002/03 compared to 13 in 2001/02 (DNPWC, 2001c; DNPWC, 2002a; DNPWC, 2003a).
- 1 rhino died due to natural causes in 2002/03 compared to 2 in 2001/02

The main managerial achievements made in the RCNP are as follows:

- Participatory Conservation Program (PCP), May 2002 – April 2004, in continuation to the Park People Program (PPP) supported by United Nations Development Program (UNDP)
- Terai Arc Landscape (TAL) Program (2001-2006) supported by WWF
- Biodiversity Support Program for Siwaliks and Terai (BISEP-ST) supported by the Netherlands Government (SNV)
- Tiger/Rhino Conservation Project (TRCP) (2001-2004) supported by Global Environment Facility (GEF), United Nations Foundations (UNF), UNDP through King Mahendra Trust for Nature Conservation (KMTNC)
- Chitwan Habitat Restoration Project (initiated since July 2002) supported by the US National Fish and Wildlife Foundation, and Save the Tiger Fund through KMTNC
- Two Captive Breeding Programs such as the elephant breeding center at Khorsor since 1985 and the *gharial* breeding center at Kasara since 1978. The elephant breeding center was established with the 16 domesticated elephants received from India in an exchange for 4 rhinos. There are muggers crocodile in the crocodile-breeding center where breeding of turtle has also been initiated.
- The main achievements so far include development of basic infrastructures (e.g. 310 km road/trail) creation of park protection unit with 37 field posts.
- RCNP has become a regional training and research ground for biodiversity conservation and community development.
- There are 7 concessionaires operating lodges/tented camps and other tourism activities in the park

The main achievements made in policy/legislation aspect in the RCNP are as follows:

- Managed within the framework of a RCNP Regulation 1974.
- Management plan (2001-05) prepared upon consultation with the community with dual aims of conserving biodiversity and community development. The plan has been approved by the government.
- Proposal for reintroduction of swamp deer and water buffalo prepared.
- Formulation of Species Action Plan for tiger (approved), and rhino
- Formulation of policies on domestic elephant management and wildlife species farming in support of the species conservation

3.1.4 Lessons learned

The main biological lessons learned from RCNP are as follows:

- Habitat improvement through weed elimination with indigenous grass species such as *Saccharum spontaneum* increases habitat preferred by rhino
- Management of short grass community such as *Imperata cylindrica* will increase landscape diversity, increase thatch supplies, allow for better fire control and increase wildlife population
- Haphazard burning of the grasslands causes fire resistant tree species to colonize and change the composition of savanna type vegetation in some of the grasslands in the park.
- Specific species action plans are essential for important species.
- Greater thrust should be given on landscape approach for the management of the mega species such as tiger, rhino and elephant.

The socio-economic lessons learned form RCNP are as follows:

- UCs number should be manageable to be sustainable and viable.
- UGs are the most appropriate and effective grassroots organizations to independently shoulder local initiatives in the BZs.
- The 30-50 percent revenue plough back and the saving credit scheme in the BZ has been a strong binding factor in mobilizing communities

The lessons learned to resolve conflicts are as follows:

- Ignoring the dependence of local people on park resources for their subsistence and instead emphasizing law enforcement aggravate conflicts between local people and park managers
- Local residents' participation is vital at all levels of the biodiversity project cycle, including the key stages of planning, implementation, and monitoring.
- Direct and visible benefits are the motivating factors to change people's attitude towards wildlife conservation.
- The economic incentives created from tourism help to decrease pressure on the park because when people are economically well-off they will be able to afford alternatives.

3.1.5 Obstacles

The major biological obstacles faced in RCNP are:

- Forest fire (both natural and intentional) causes serious damage to habitats changing their floral and faunal composition
- Wetland conversion with debris deposition, poor decomposition, siltation and eutrophication (DNPWC, 1999a)
- Using poison for fishing causes disturbances in the entire wetland habitat
- Annual flooding in the main rivers (Narayani and Rapti) caused devastating effects along their banks.
- Vandalism during annual *khar-khadai* incidences of timber theft, fire and theft of animal and their parts
- Invasion by alien species such as, water hyacinth and *Meconia chinensis, Lantana camara, Michenia macrantha* and *Eupatorium* species completely displace the shrub and underground vegetation of the terrestrial habitat
- Grassland succession with unpalatable species of grass and weed (*Pogostemon* and *Eupatorium*) as well as trees (*Simal, sissoo, khair)*
- Encroachment by tall grasses displace short grasses like *Imperata cylindrical*
- Over fishing is a serious problem that has negative bearing on habitat (DNPWC, 1999a)

The socio-economic obstacles faced in RCNP are as follows:

- There is high human pressure on the park resources (especially for thatch grass, firewood, logs, NTFPs) from the adjoining BZ villages, because of a large number of immigrants and of course high population growth (3.2%).
- Low level of literacy (59%) have caused problem for effective management.
- Poverty, lack of subsistence livelihood opportunity and high dependency on the protected biodiversity resources
- Pollution by expanding 8 major industries of breweries, distilleries and paper as well as urbanization in the BZ and surrounding areas release solid waste and industrial effluent in the major river system. The production capacity of the Bhrikuti pulp and paper mill has been doubled.
- Sewerage discharge of the municipalities (Bharatpur and Tandi) and villages along the Narayani and Rapti River

The major managerial obstacles faced in RCNP are as follows:

- Inadequate number of field staff is a major obstacle in the effective management of the park. The guard posts have been reduced from the earlier 34 to 8.
- Inadequate incentives for field staff allocated for wildlife conservation.

- Most of the 10 animal orphanages in different locations of the park are not functioning due to lack of funds
- Unplanned development activities in and around the park such as Kasara bridge over the Rapti River, diversion of the Rapti river, Bhanisalotan hydroelectric dam and others. The location of the concessionaire hotels and their modern facilities in prime wildlife habitat inside the park also hampers species conservation. Proposed high tension electricity line may pose an obstacle if it passes through the park as planned.
- Ongoing insurgency and the security issues pose obstacles in the regular patrolling and management works in the park and the BZ.

3.1.6 Gaps

The biological gaps in RCNP are identified as follows:

- The research needs or priority for specific species and habitats of RCNP have not been well identified
- Very little knowledge about aquatic habitats that are believed to be fairly rich
- Demand of total digestible nutrient of grassland surpasses the supply indicating that the population of herbivores far exceeds the carrying capacity (DNPWC 2001a)
- Grassland areas are not regularly maintained (e.g. regular grass cutting/plowing)
- Unplanned development activities like haphazard growth of tourism enterprises, industrial pollution due to gap in zoning of the park areas.
- Absence of fish ladder in Narayani River dam
- Indigenous knowledge on species (flora and fauna) needs to be documented.
- Research and monitoring gaps in the small mammals and the aquatic life except *gharial*
- Endangered species such as swamp deer, wild buffalo, four horned antelope and the other species like blue bull (*nilgai*) that were supposed to exist may have been lost due to short sighted vision of the planning
- The Schedule I of NPWCA 1973 need to be revised from the biological perspective. The amphibians, fish or invertebrates are not legally protected in Nepal (DNPWC/PCP, 2002). There is a need to review and amend the RCNP regulations to reflect the obligations made in the conventions pertinent to the world heritage sites and Ramsar sites.
- The river bank cutting by the Rapti river is another major problem faced in the park management. The river keeps on changing its course and thus affecting the park boundary.

The socio-economic gaps in RCNP are as follows:

- Economic impact of tourism on HH income is reported very low with less than 2% of the local people employed directly by tourism sector.
- Lack of institutional framework where local community can be involved in tourism development.
- Due to lack of implementing mechanism for the EIA, the watercourses entering into the park are constantly polluted by the industries (distilleries, beer factories, bottlers, steel factory & paper mill).
- No tourism in the southern sector of the park, particularly in Bagai/Madi sector. Four VDCs of Madi valley is excluded from major tourism opportunities.

The gaps pertinent to managerial aspect are as follows:

- Infrastructure and logistics are inadequate for effective species and habitat research and management
- Trained human resource for species and habitat management has been always in short supply
- Inadequate coordination between warden, protection unit, District Forest Office (DFO) and people
- Inadequate coordination among relevant agencies and between UGs and UCs
- The database system lacks for the management of habitat and species
- Poor linkage between research findings and implementation
- No fire fighting team and the existing number of fire watchtowers is inadequate

The gaps pertinent to policy/legislation are as follows:

- There are obstacles in implementing the recently formulated policies such as wildlife farming, since there are no specific legal provisions in the current acts and regulations.
- International commitments pertinent to CITES implementation such as trans-boundary cooperation between Nepal and India on the control of illegal wildlife trade has not yet been satisfactorily achieved, since the CITES bill has not been endorsed.
- There are no specific policies on compensation for wildlife damages and causalities caused by problem animals
- The traditional rights-of-way of the people in the Madi valley have been considered, but the confusion over the operation of the Kasara bridge has not yet been resolved.
- The NPWCA 1973, RCNP Regulations 1974 and BZ Management Regulations 1996 need to be revised to address the issues of pollution in the rivers bordering the park namely the Narayani, Rapti and Reu
- There is a policy gap in the regulations of the increasing number of visitors and their activities, and operations of hotels/lodges in and around the RCNP.
- The Draft Tourism Plan for RCNP has not yet been endorsed by His Majesty Government of Nepal (HMG/N)
- There is a policy gap in the management of the orphan animals.
- There is no clear policy on the landscapes level management and biological corridors that link RCNP with other PAs, for example, Barandabhar forest corridor.
- RCNP does not have a defined strategy of anti-poaching operations that involves the park management, protection units and the local communities. The draft strategy on anti-poaching has not yet been endorsed.
- Research protocol is essential for RCNP from the conservation and management point of view. Such protocols should ensure linkage between research findings and park management.
- Currently no legislations exist covering endangered plants in the country despite the availability of distributional data for several groups that are commercially exploited

3.1.7 Commitment

The major commitments pertinent to RCNP are reflected in the international conventions and agreements that Nepal has been affiliated to, such as:

- Ramsar Convention on Wetlands of International Importance especially as Waterfowl Habitat 1971
- WHC: Convention Concerning the Protection of the World Cultural and Natural Heritage 1972
- CITES: Convention on International Trade in Endangered Species of Wild Fauna and Flora 1975
- Convention on Biological Diversity 1992
- Membership from IUCN
- TAL: Terai Arc Landscape initiated to restore and maintain critical forest corridors and remove bottle necks connecting 4 PAs of Nepal and 7 PAs of India
- Identified as a tiger conservation unit under the Global Tiger Forum
- Transboundary cooperation with India in respect to anitpoaching, wildlife monitoring and exchange of information and knowledge, and linkage with Valmiki Tiger Reserve in India.

The major national commitments pertinent to RCNP includes

- Promote conservation of cultural heritage (tangible and intangible) through public awareness and participation
- Promote eco-tourism to uplift the standard of living of local people as well as for the conservation of the environment (all)
- Promote women, *dalit*, and poor in participatory development process
- Promote trans-boundary cooperation for the eco-regional conservation
- Implementation of the comprehensive Management Plan for BZ and the park.

- Implementation of the Species Action Plan for Tiger (approved), Rhino (final draft prepared) and Elephant (management of domestic elephants)
- Establish Biodiversity Conservation Center to be developed as a Regional Center for Research and Training for biodiversity conservation and livelihoods upliftment.
- Develop RCNP as a gene pool of Rhino, tiger and crocodile for providing genetic resources to other protected areas.
- Reintroduce other endangered species that were once found in RCNP such as swamp deer and wild water buffalo.
- Implement Greater Chitwan Conservation Plan that has been made with a view to incorporate trans-boundary issues.

The local commitments pertinent to RCNP includes

- 30-50% of the park revenues from the Park are used for development projects benefiting local communities.
- Regulation and guidelines for park management and BZ management.
- Community based eco-tourism development e.g. Bagmara, Kumroj, and Dibyapuri
- Biological corridor management through CF.
- Strengthen BZ by affiliating with the BZ networking forum

3.2 Langtang National Park

3.2.1 Background

Area: National park 1,710 sq km and
BZ 420 sq km (DNPWC, 2001d)
Districts: Rasuwa, Nuwakot and Sindhupalchowk encompassing 26 VDCs (DNPWC, 2001d)
Year(s) Established in 1976 and Royal approval granted as the first Himalayan National Park in 1970/71 and BZ was declared in 1998 (DNPWC, 2001d; DNPWC, 2002a).
IUCN Management Category: II, VI

Significance
Biological aspects cover the species and habitat including the ecosystem's description, conservation and management.

- 18 types of ecosystem have been identified which include glaciers, snow, rock, pastures and common land, mesohygrophile rhododendron, mesohygrophytic juniper shrub lands, upper alpine rhododendron, upper sub alpine rhododendron shrub land, lower sub alpine Fir forest, lower sub alpine forest etc (BPP, 1995b).
- 3689 species of flora have been recorded from the park (Shakya *et al.*, 1997)
- 46 species of mammals, 345 species of birds, 11 species of herpetofauna and 30 fish species have been recorded from the park (DNPWC, 2003b)
- 19 species of mammals found in LNP are protected by CITES
- 12 species of mammals, 2 bird species are endangered and protected under the Appendix I of NPWCA, 1973
- 15 endemic species of flowering plant have been recorded from the park such as *Rhodondendron cownianum, R. lowndesii, Larix nepalensis* (Shrestha and Joshi, 1998).
- 4 symbolic species of LNP are snow leopard (*Uncia uncia*), Clouded leopard (*Pardofelis nebulosa*), musk deer (*Moschus chrysogaster*) and Red Panda *(Ailurus fulgens)*

Socio-economic aspects cover vulnerability, livelihood and cultural heritage linked to biodiversity conservation and poverty reduction.

- The average poverty rank of LNP is calculated at 21.0 which fall under the poor category of poverty rating scale (ICIMOD, 1998).
- 54,326 people from 10,509 HHs are settled around the park's periphery (LNP, 2003).

- Average annual visitors of LNP are 8,510 since 2000 (DNPWC, 2003a).
- Cultural sites inside LNP are Dhunche Ghyang, Gosaikunda, Rasuwa Gadi, Chilime Hot Spring, Getlang Temple, Goljung, Guppa Monastery, Ngonga Chugla Khang Monastery, Samden Nagched Gumba, Tashi Ghyang, Bhairab kunda, Helambu, Tarke Ghyang, Melamchi Ghyang, Thakan Gumba, Betarabati (IUCN, 1997)
- Large number (Above 25000) of pilgrims visited annually to the religious shrines located in the LNP.

Conflict aspects cover the conflict arising from the interaction of park-people, policy, organizations and people-people.

- Conflicts due to people reported are poaching, revenge killing, illegal harvest of NTFP, disturbances, communicable diseases related to grazing, etc.
- Conflicts due to park reported are human causalities, human injury, livestock depredation, crop raiding, etc.
- Threats related to habitat and wildlife in LNP includes human settlement inside the park, development infrastructure, tourism garbage, natural hazards, loss of panda habitat, cheese factory etc.

Managerial aspects cover the program implementation process and modality of various organizations to support biodiversity conservation and poverty reduction.

- Headed by the Chief Warden, LNP has 76 staff positions of which 2 are gazetted and 74 are non gazetted staffs (Pers. Com. DNPWC).
- RNA joined the park with the sole responsibility of law enforcement and its strength is 478 infantrymen (Pers. Com. DNPWC).
- Average annual revenue generated by the park in the last three year was Rs5,969,000 (Annual revenue in 2000, 2001 and 2002 were Rs8,550,000, Rs4,491,000, Rs4,866,000 respectively)
- Average allocated annual budget for LNP since 2000 was Rs7,787,000 (Annual budget in the year 2000, 2001 and 2002 were Rs6,100,000, Rs9,592,000, Rs7,670,000 respectively)
- Currently 4 funding agencies/donor communities through two projects are working in LNP, which includes Tourism for Rural Poverty Alleviation Project (TRPAP) supported by UNDP, SNV, Department for International Development (DFID) of UK and Melamchi Water Supply Project supported by Norwegian Agency for Development (NORAD), World Bank
- Possible partners would be TRPAP, Melamchi Project, BZMC, local NGOs etc.
- SABIHAA's WCC model can be integrated in the BZ system to organize hundreds of BZ User Groups into a manageable size first at the ward level and then at the VDC level. It will require redefinition of the BZ boundary to encompass all wards of a VDC, and reorganizing or forming BZUCs at the entire VDC level.
- Replication of POWER group as promoted by SABIHAA will enhance empowerment process. However, modifications may be required to reflect the local situations.

This includes international, national and cross cutting policies and legislations concerning biodiversity conservation in PAs

- Managed the park through people oriented approach as per the Himalayan National Park Regulation, 1979

Achievements

The major achievements made in the LNP are as follows:

- Species Action Plan for Snow Leopard has been made
- Research on Red Panda has been done
- Survey of ethnobotany has been done
- Research on Assamese monkey has been done
- Management Plan for BZ has been prepared and endorsed in 2003
- Restoration of Rasuwa Gadi, Gosainkunda and Panch Pokhari has been done

- TRPAP is working in the BZ for the conservation of the park
- 1981 local people participated in different activities organized by TRPAP
- Handed over 78 forest patches, 11132.61 ha to local users as CF which benefits about 9105 HHs (DNPWC, 2001d).
- Handed over of 3 forest patches as religious forests which benefits about 199 HHs (DNPWC, 2001d).
- Management Plan (1977-82) was prepared by Durham University Himalayan Expedition in conjunction with HMG/UNDP/Food and Agriculture Organization (FAO) Project Nep/72/002

Lessons Learned

The main lessons learned are as follows:

- Inadequate public participation
- Highly ambitious and short duration UNDP's Quality Tourism Project was the major reason for not achieving the expected result
- Participatory model is more realistic for effective conservation than strict protection.
- A rigid and system based holistic management plan is utmost for the successful management of the park resources.
- Eco-tourism is important for revenue generation while at the same time maintaining the environmental quality of the park.
- UGs are the most appropriate and effective grassroots organizations to independently shoulder local initiatives in the BZ

Obstacles

Some of the obstacles include

- Neglected in terms of provision of basic infrastructure such as trials and bridges, agriculture, forestry and livestock improvement programs. School and health facilities are also poor and inadequate in the area (DNPWC, 2000b).
- Low public awareness
- High human dependency on natural resources with the increase in the population pressure thereby increasing forest encroachment
- Existence of road network and industry near the park
- Inadequate forest resource management outside park
- Ineffective coordination between park authority and the District Development Committees (DDCs)/VDCs
- Tourism has been the chief source for pollution related problems. The garbage thrown by the tourist during trekking is causing land as well as water pollution (DNPWC, 2000b)
- Human causality by wildlife was 1 in 2002/03 where as nil in 2001/02 (DNPWC, 2002a; DNPWC 2003a).
- The two cheese factories operating in Kyangjing and Chandanbari, mineral water factory at Dhunche, and hydropower stations at Syabrubesi have impacts on the local environment (DNPWC, 2001d)
- The large area and rugged terrain are obstacles for effective administration of the park. For example, Helambu area is several days walk from the park headquarters at Dhunche (DNPWC, 2000b).
- Haphazard landing of helicopters has created problems in the park.
- Crop damage by wild boar is a major problem creating conflicting situation between the park authority and the local people (DNPWC, 2000b)

Gaps

The gaps identified in LNP are as follows:

- Inadequate information on Gosainkunda and other lakes in LNP
- Lack of long term wetland conservation policy
- Absence of revised park management plan (last management plan for 1977-1982).

- Ineffective enforcement of IEE and EIA
- Some works have already been initiated in the project area, there are gaps in many aspects, especially ethnography, trade relations, grazing rights, ritual complexes, land tenure systems

Commitments
The major commitments pertinent to LNP are reflected in the international conventions and agreements that Nepal has been affiliated to, such as:

- CITES: Convention on International Trade in Endangered Species of Wild Fauna and Flora 1975
- Convention on Biological Diversity 1992
- Membership of IUCN
- Transboundary cooperation with the Tibetan Autonomous Region of China in respect to anitpoaching, wildlife monitoring and exchange of information and knowledge, and linkage with Qomolongma Nature Preserve in Tibet

The major national commitments pertinent to LNP includes

- Promote conservation of cultural heritage (tangible and intangible) through public awareness and participation.
- Promote eco-tourism to uplift the standard of living of local people as well as for the conservation of the environment
- Promote women, *dalit*, and poor in participatory development process
- Promote trans-boundary cooperation for the eco-regional conservation
- Implement comprehensive Management Plan
- Declare protected areas as garbage free zone.
- Promote alternative energy
- Implement Snow Leopard Action Plan.

The local commitments pertinent to LNP includes

- Rational use of 30-50% of the park revenues for projects benefiting local communities.
- Regulation and guidelines for park management and BZ management.
- Community based eco-tourism development.
- Strengthen BZ by affiliating with the BZ networking forum

3.3 Sagarmatha National Park

3.3.1 Background

Area: National park 1,148 sq km and BZ 275 sq km
Districts: Sagarmatha encompassing 3 VDCs (2 inside the park and one adjoining the park)
Year(s) Established in 1976 and declared as World Heritage Site in 1979 and BZ declared in 2002
IUCN Management Category: II, VI

Significance
Biological aspects cover the species and habitat including the ecosystem's description, conservation and management.

- 8 types of ecosystem have been identified which include Juniper forest, Glaciers snow rocks, Meadows (Mat patches), Sparsely vegetated rocks and screes, Meadows and common lands, Mesogryphytic Juniper scrubland, Upper sub-alpine rhododendron shrub lands, Open and dry montane blue pine (BPP, 1995c).
- 1,074 species of flora have been recorded from the park (Shakya et.al., 1997).
- 26 species of mammals, 162 species of birds and 13 species of reptiles/amphibians have been recorded from the park (DNPWC, 2003c).
- 11 endemic species of flowering plant have been recorded from the park (MoFSC, 2002)

- 13 species of mammals found in SNP are protected by CITES
- 6 species of mammals, 2 bird species are endangered and protected under the Appendix I of NPWCA, 1973
- Symbolic species of SNP are snow leopard (*Uncia uncia*), musk deer (*Moschus chrysogaster*), Red Panda (*Ailurus fulgens*)
- Gokyo and other high altitude lakes

Socio-economic aspects cover vulnerability, livelihood and cultural heritage linked to biodiversity conservation and poverty reduction.

- The average poverty rank of SNP is calculated at 43.0 which fall under poor category of poverty rating scale (ICIMOD, 1998)
- 5869 people from 1288 HHs are settled inside and around the park's periphery (DNPWC, 2003c).
- Average annual visitors of SNP is 20,987 since 2000 (DNPWC, 2001c).
- Cultural sites inside SNP include the peaks such as the Sagarmatha, Khumbila, Amadablam, glacial lakes like Gokyo, Dudh kunda, and the monasteries like Dechhenchhokor, Pangboche, Pemachyoling, Tengboche and Thame
- Moderate numbers (10,000-25,000) of pilgrims visited annually to the religious shrines located in the SNP

Conflict aspects cover the conflict arising from the interaction of park-people, policy, organizations and people-people.

- Conflicts due to people reported are poaching, illegal collection of forest products, deforestation etc.
- One wildlife was poached during 2002/03 (DNPWC, 2001c).
- Conflicts due to park reported are human injury, crop raiding etc.
- Threats related to SNP includes cultural erosion, heavy tourism pressure causing waste disposal problem, habitat loss, natural hazards, development infrastructures, etc.

Managerial aspects cover the program implementation process and modality of various organizations to support biodiversity conservation and poverty reduction.

- Headed by the Chief Warden, SNP has 38 staff positions of which 1 are gazetted and 37 are non gazetted staffs (Pers. Com. DNPWC).
- Royal Nepalese Army joined the park with the sole responsibility of law enforcement and current strength of SNP is one company with 239 infantrymen (Pers. Com. DNPWC).
- Average annual revenue generated by the park in the last three year was Rs12.5 million (Annual revenue in 2000, 2001 and 2002 were Rs15,440,000, Rs11,335,000, Rs10,819,000 respectively) (DNPWC, 2000a; DNPWC 2001c; DNPWC 2003a).
- Average annual allocated budget for SNP since 2000 was Rs4,791,000 (Annual budget in the year 2000, 2001 and 2002 were Rs4,147,000, Rs5,079,000, Rs5,147,000 respectively)
- Currently 6 funding agencies/donor communities are working in SNP, which includes UNDP, SNV, DFID, Eko-Himal, Himalayan Trust and WWF.
- Possible partners would be WWF, BZMC, local NGOs etc.
- EvK2 CNR, a research station at Lobuche, has been established for high altitude climatic study.
- A management plan was prepared in 1981 by HMG and the New Zealand Government. A new management plan is being revised under the TRPAP.
- The tourism facilities in SNP include Syangboche airstrip (good for only small aircrafts such as *Pilatus porter*), Lukla airport for small aircrafts such as twin otters, hotels and lodges, communication facilities, electricity supplied with mini and micro hydro stations
- SABIHAA's WCC model can be integrated in the BZ system to organize hundreds of BZ User Groups into a manageable size first at the ward level and then at the VDC level. It will require redefinition of the BZ boundary to encompass all wards of a VDC, and reorganizing

or forming BZ User Committees at the entire VDC level. Already all the 3 VDCs are included in the BZ in SNP.

- Replication of POWER group as promoted by SABIHAA will enhance empowerment process. However, modifications may be required to reflect the local situations.

This includes international, national and cross cutting policies and legislations concerning biodiversity conservation in PAs and wetlands

- Managed the park through people oriented approach as per the Himalayan National Park Regulation, 1979 (DNPWC, 2003c).
- Manage as a UNESCO listed World heritage Site in 1979 because of its unique natural landscape and biodiversity (DNPWC, 2003c).

Achievements

The major achievements made in the SNP are as follows:

- First National Park in Nepal to be accredited to WHS in 1979 for its exceptional area with dramatic mountains, glaciers and deep valleys, dominated by Mount Everest, the highest peak in the world (8,848 metres).
- Arrested 23 person for conducting illegal activities inside SNP in 2001-2002 (DNPWC 2001c; DNPWC 2002a)
- Increased population of Himalayan Tahr, Red Panda, Musk deer, Wolf and Snow leopard (DNPWC, 2003c).
- Declared BZ in January 2002 (DNPWC, 2003c).
- Management plan of BZ is drafted
- Training need assessment of park authorities is completed
- Park management modality is under revision (DNPWC, 2003c).
- Considered as a focal park for eco-regional complex connecting Langtang NP via proposed Gaurisankar area Makalu Barun NP and proposed Tinjure-Milke Conservation Area and the Qomolongma Nature Preserve in Tibet.
- Effective implementation of pollution free policy
- Decreased level of pollution and its trend
- Level of community awareness high in maintaining the quality of WHS e.g. protests against the proposed expansion of Syangboche airstrip, renovation of major monasteries, and proposal for corpse incineration using electricity.
- Increased social facilities such as trail improvement, drinking water, garbage management, electricity, etc.
- Completed survey of all the potential micro hydro site in the BZ
- Provided appropriate alternative source of energy such as hydroelectricity, solar heating system or kerosene oil were initiated and improved stove for saving energy and reduced use of fuel wood collection (WWF, 2003a).
- Establishment of kerosene depot is one of the major achievements in SNP
- Almost all goats were evacuated (a decade ago) from the park because of its negative impact on conservation
- Poaching and illegal killing of animal by local Sherpa peoples is almost non- existent because of religious value of non-violence among Sherpas
- 46% of total HHs are involved in trekking business (DNPWC, 2003c).
- Habitat Management and Improvement was carried out initiated in the park by establishing plant nursery and reforesting the barren lands in the vicinity of Namche Bazaar
- Major research conducted at SNP during last 3 years include community land management, crop damage by Himalayan Tahr, forest management outside park, EIA study of herpetofauna, landscape management, conservation governance
- Plantation over 151 ha with the help of Himalayan Trust
- 230,731 kg of garbage cleaned from the region in the F/Y 2001/2002 (DNPWC, 2003c).
- BZUGs and 3 BZUCs formed

- The major projects/programs that are in operation in SNP at present are:
- TRPAP supported by DFID, SNV and UNDP
- Sagarmatha Community Agroforestry Project (1996-2002) is jointly implemented by DNPWC and WWF Nepal Program. The project is focused on people's participation in sustainable natural resource management. Forest nursery establishment, plantation, local capacity enhancement and conservation awareness are the major activities of the project (WWF, 2003a).
- Sagarmatha Pollution Control Committee with the support of WWF, Himalayan Adventure Trust of Japan (HAT-J) and NTBare working for the solid waste management of SNP (WWF, 2003a).

Lessons Learned

The main lessons learned are as follows:

- Park's pristine biodiversity can be effectively conserved by developing effective management plan with the cooperation and participation of local community
- People's participation can not be achieved until local people realize benefit of the National Park and its implication in improvement of their livelihood,
- Local culture is a promising factor for conservation such as *Singhe-nawa*.
- Conservation awareness is vital for the success of sustainable park management
- Pollution control is possible by the joint effort and policy enforcement. Bottle ban is a fine example of how government and the people work together for clean environment.

3.3.5 Obstacles

Obstacles identified in the park include

- Haphazard stone quarrying around the park causing the problems of landslide
- Uncontrolled growth in lodge and hotels. Inflow of immigrants and corresponding increase in demand of timber, fuel wood and other forest products have posed a serious pressure on natural resources within park and its periphery
- Ineffective patrolling due to lack of communication equipment, inadequate security posts, staff incentives and facilities and geophysical barrier
- Revenue generation is decreasing in recent years due to decrease in number of tourists which is attributed mainly due to Maoist insurgency and political instability in the country
- 2 wildlife died due to natural causes in 2002/03

3.3.6 Gaps

The gaps identified in SNP are as follows:

- Processes and systems of IEE and EIA not are not carried out effectively
- Lacks code of conduct for building construction.
- Though SNP is one of the most studied mountain parks of Nepal; however, data and reports are not easily available and MIS and data are not effectively managed.

3.3.7 Commitments

The major commitments pertinent to SNP are reflected in the international conventions and agreements that Nepal has been affiliated to, such as:

- WHC: Convention Concerning the Protection of the World Cultural and Natural Heritage 1972
- CITES: Convention on International Trade in Endangered Species of Wild Fauna and Flora 1975
- Convention on Biological Diversity 1992
- Membership from IUCN
- Transboundary cooperation with Tibetan Autonomous Region of China in respect to anitpoaching, wildlife monitoring and exchange of information and knowledge, and linkage with Qomolongma Nature Preserve.

The major national commitments pertinent to SNP includes

- Promote conservation of cultural heritage (tangible and intangible) through public awareness participation
- Promote eco-tourism to uplift the standard of living of local people as well as for the conservation of the environment
- Promote women, *dalit*, and poor in participatory development process
- Promote trans-boundary cooperation for the eco-regional conservation
- Develop comprehensive Management Plan of the Park.
- Declare all Himalayan Protected areas as garbage free zone.
- Promote alternative energy.
- Implement Snow Leopard Action Plan.

The local commitments pertinent to SNP includes

- Community based eco-tourism development. (DNPWC, 2003c)

3.4 Rara National Park

3.4.1 Background

Area: National park 106 sq km and
BZ proposed 158 sq km (MoFSC, 2002)
Districts: Mugu and Jumla encompassing 9 VDCs (proposed as BZ) (DNPWC, 2001c)
Year(s) Established in 1976 and is the smallest National Park (DNPWC, 2001c).
IUCN Management Category: II

3.4.2 Significance

Biological aspects cover the species and habitat including the ecosystem's description, conservation and management.

- Symbolic species of RNP are snow leopard (*Uncia uncia*), musk deer (*Moschus chrysogaster*), Red Panda (*Ailurus fulgens*)
- 8 types of ecosystem have been identified which include Mixed Blue Pine Oak Forest, Blue Pine Scrub forest, Mountain Oak Forest, Fir Forest, Deciduous Board Leave Forest (BPP, 1995c)
- 1070 species of flora and have been recorded from the park (Shakya et.al., 1997).
- 16 endemic flowering plants have been recorded from the park (MoFSC, 2002)
- 51 species of mammals, 214 species of birds, 2 species of reptiles/amphibians and 3 species of fish have been recorded from the park (BPP, 1995c)
- 26 species of mammals found in RNP are protected by CITES
- 8 species of mammals, 2 bird species, are protected under the Appendix I of NPWCA, 1973
- Symbolic species of RNP are snow leopard (*Uncia uncia*), musk deer (*Moschus chrysogaster*), Red Panda (*Ailurus fulgens*), Himalayan Black Bear (*Ursus selenarctos thibetanus*), Himalayan Tahr (*Hemitragus jemalhicus*)
- Rara lake hosts snow trout *(Schizothoraz oreinus sinutaus),* the only fish recorded in the lake.

Socio-economic aspects cover vulnerability, livelihood and cultural heritage linked to biodiversity conservation and poverty reduction.

- The average poverty rank of RNP is calculated at 18.5 which fall under the very poor category of poverty rating scale (ICIMOD, 1998).
- 9,378 people from 1,563 HHs live in the park's periphery (CBS, 2001).
- Some 600 people who are residents of two villages Rara and Chapru are moved out in 1976 and were resettled in Bardia district in Western Terai
- Average annual visitors of RNP is 34 since 2000
- Cultural sites inside RNP are Bhagbati Temple, Chapru Mosta (IUCN, 1997).

- Very few numbers of pilgrims visited annually to the religious shrines located in the RNP

Conflict aspects cover the conflict arising from the interaction of park-people, policy, organizations and people-people.

- Conflicts due to people reported are poaching, revenge killing, firewood collection, medicinal plant collection, etc.
- Conflicts due to park reported are human injury, crop damage, etc.
- Threats related to habitat and wildlife in RNP includes habitat loss due to illegal collection of forest products

Managerial aspects cover the program implementation process and modality of various organizations to support biodiversity conservation and poverty reduction.

- Headed by the Warden, RNP has 28 staff positions of which 1 are gazetted and 27 are non gazetted staffs (Pers. Com. DNPWC)
- RNA joined the park with responsibility of law enforcement and current strength of RNP is one company with 239 infantrymen. (Pers. Com. DNPWC)
- Average annual revenue generated by the park in the last three year was Rs77,700 (Annual revenue in 2000, 2001 and 2002 were Rs100,000, Rs74,000, Rs59,000 respectively) . (DNPWC, 2000a; DNPWC, 2001c; DNPWC, 2002a)
- Average allocated annual budget for RNP since 2000 was Rs3,544,000 (Annual budget in the year 2000, 2001 and 2002 were Rs3,417,000, Rs3,441,000, Rs3,744,000 respectively) . (DNPWC, 2000a; DNPWC, 2001c; DNPWC, 2002a)
- Currently 2 funding agencies/donor communities are working in RNP, which includes UNDP and SNV
- Possible partners would be UNDP, local NGOs, etc.
- SABIHAA'S WCC model can be integrated in the BZ system to organize BZUGs first at the ward level and then at the VDC level. It will require declaration of BZ to encompass all wards of a VDC, and forming BZUCs at the entire VDC level. This approach will bring consistency between BZ, Local Self Governance Act (LSGA) and SABIHAA.
- Replication of POWER group as promoted by SABIHAA will enhance empowerment process. However, modifications may be required to reflect the local situations.

This includes international, national and cross cutting policies and legislations concerning biodiversity conservation in PAs and wetlands

- Managed the park through people oriented approach as per the Himalayan National Park Regulation, 1979

Achievements

The major achievements of RNP are

- A BZ of 158 sq km has been proposed
- PPP has continued its program in the form of PCP in the BZ and park
- Airport at Talcha has come into operation
- Crop damage by wild boar has been reduced using 5 km long stone wall
- RNP has been selected as eco-tourism destination
- A trail along Rara Lake has been developed for tourism promotion and patrolling
- Population of symbolic species has increased.
- Boating service in the lake has been facilitated
- Park management strategy framework has been prepared

3.4.4 Lessons Learned

The major lessons learned in RNP as follows.

- Displacement of indigenous people is not a panacea for park management
- It is very difficult to promote Income Generating Activities (IGAs) in a resource poor and remote area

- Relocation of mountain dwellers to Terai lowland was very difficult for them to adapt in the new environment

3.4.5 Obstacles

The major obstacles faced in management and conservation of RNP as follows

- Uncontrolled grazing is one of the prime obstacles
- Lack of adequate staff for park management
- Remoteness of the park
- Degradation in the physical condition of the lake due to garbage, draining and tree felling park
- Decrease in pastureland due to forest succession park
- Invasion of the alien species in the park
- Difficulty in patrolling due to geophysical barriers park (DNPWC, 2000d)

3.4.6 Gaps

The main gasps identified in RNP are

- Existing Management Plant has not been updated from years.

3.4.7 Commitments

The major commitments pertinent to RNP are reflected in the international conventions and agreements that Nepal has been affiliated to, such as:

- CITES: Convention on International Trade in Endangered Species of Wild Fauna and Flora 1975
- Convention on Biological Diversity 1992
- Membership from IUCN

The major national commitments pertinent to RNP includes

- Promote conservation of cultural heritage (tangible and intangible) through public awareness and participation
- Promote eco-tourism to uplift the standard of living of local people as well as for the conservation of the environment
- Promote women, *dalit*, and poor in participatory development process
- Develop comprehensive Management Plan of the Park.
- Declare all Himalayan Protected areas as garbage free zone.
- Promote alternative energy.
- Implement Snow Leopard Action Plan.
- Letter of intent issued to KMTNC for management under the policy of handing over management responsibility to non-government or other organizations

The local commitments pertinent to RNP includes

- Community based eco-tourism development
- Propose for development of surrounding area as BZ as per the BZ development guideline

3.5 Shey Phoksundo National Park

3.5.1 Background

Area: National park area of 3,555 sq km and
BZ area of 413 sq. km (DNPWC, 2002a)

Districts: Mugu and Dolpa encompassing 11 VDCs with few VDCs inside the park area (DNPWC, 2003a).

Year(s): Established in 1984 and is the biggest National Park representing the Trans-Himalayan ecosystem. BZ declared in 1998 (DNPWC, 2003a).

IUCN Management Category: II, VI

3.5.2 Significance

Biological aspects cover the species and habitat including the ecosystem's description, conservation and management.

- 21 different types of ecosystem have been identified which include open and dry mountain blue Pine forest, Juniper forest, Cyprus forest with Dwarf barberry, Mountain oak forest, High attitude cushion plant formation, Xerophytes mat Patches, Glaciers, Snow level etc (BPP, 1995c).
- 1579 species of flora have been recorded from the park (Shakya *et al.*, 1997).
- 32 species of mammals, 200 species of birds, 6 species of reptiles/amphibians have been recorded from the park (Regmi, 2003).
- 19 species of mammals found in SPNP are protected by CITES.
- 10 species of mammals, 2 species of birds are endangered and protected under the Appendix I of NPWCA, 1973.
- 30 endemic species of flowering plant have been recorded from the park (MoFSC, 2002)
- Supports prime habitat for the highest number of snow leopard (*Uncia uncia*), Tibetan wolf, musk deer *(Moschus chrysogaster)*, blue sheep (Regmi, 2003)
- Harbors one of the highest number of rare, endangered, epidemic and medicinal plants in Nepal (Regmi, 2003)
- The Phoksundo Lake forms a major landmark of the park.
- It is the largest National Park of Nepal.

Socio-economic aspects cover vulnerability, livelihood and cultural heritage linked to biodiversity conservation and poverty reduction.

- The average poverty rank of SPNP is calculated at 21.2 which fall under the very poor category of poverty rating scale (ICIMOD, 1998).
- 9185 people from 2310 HHs are settled around the park's periphery.
- Average annual visitors of SPNP are 254 since 2000.
- Cultural sites inside SPNP are Shey Gumba, Chowa Monastery, Lakhan Monastery, Namgyal lakhang Monastery, Nangsar Monastery, Negung Monastery, Mamoli Monastery, Phoksundo Lake also called Limo Taal, Samling Gumba, Sunjor Gumba, Tripurasundari Temple, Yangsher Monastery, Dolphu Gumba, Dhungkhang Gumba, Sangatchwaeling Monastery
- Boasts a rich traditional Bongpo culture and the world famous Shey Gompa.
- Place of *Amchi* tradition of traditional Tibetan healers using medicinal plants.
- Possessions of firearms in these regions signify social status, and many HHs have guns.
- Very few number of pilgrims visit annually to the religious shrines located in the SPNP.
- Most remote area of Nepal with the lowest population density.
- About 3,200 people live inside the park and 10,000 in its BZ.

Conflict aspects cover the conflict arising from the interaction of park-people, policy, organizations and people-people.

- Conflicts due to people reported are poaching, revenge killing, and illegal harvest of NTFP.
- Conflicts due to park reported are human injury, livestock depredation, crop raiding.
- Threats related to habitat and wildlife in SPNP includes remoteness, lack of staff and guard post and habitat loss etc.
- Recently, all the guard posts and park headquarters have been destroyed by the present conflict.

Managerial aspects cover the program implementation process and modality of various organizations to support biodiversity conservation and poverty reduction.

- Headed by the Warden, SPNP has 45 staff positions of which 1 is gazetted and 44 are non gazetted staffs (Pers. Com. DNPWC).
- RNA joined the park with the sole responsibility of law enforcement and its strength is 239 infantrymen (Pers. Com. DNPWC).

- Average annual revenue generated by the park in the last three year was Rs278,000 (Annual revenue in 2000, 2001 and 2002 were Rs194,000, Rs481,000, Rs159,000 respectively).
- Average allocated annual budget for RCNP since 2000 was Rs5,539,000 (Annual budget in the year 2000, 2001 and 2002 were Rs5,253,000, Rs5,445,000, Rs5,919,000 respectively).
- Currently 4 funding agencies/donor communities are working in SPNP under two projects namely Northern Mountain Conservation Project funded by WWF and TRPAP funded by UNDP, SNV and DFID.
- Possible partners would be WWF, BZMC, local NGOs etc.
- SABIHAA's WCC model can be integrated in the BZ system to organize hundreds of BZ User Groups into a manageable size first at the ward level and then at the VDC level. It will require redefinition of the BZ boundary to encompass all wards of a VDC, and reorganizing or forming BZUCs at the entire VDC level.
- Replication of POWER group as promoted by SABIHAA will enhance empowerment process. However, modifications may be required to reflect the local situations.

This includes international, national and cross cutting policies and legislations concerning biodiversity conservation in PAs and wetlands

- Managed the park through people oriented approach as per the Himalayan National Park Regulation, 1979
- Proposed as the World Heritage Site because of its unique flora and fauna and traditional culture

3.5.3 Achievements

Following are the major achievements seen in the Shey Phoksundo National Park:

- Tourism plan of the Park has been prepared.
- Management plan of the Park has been prepared.
- BZ has been declared in the area.
- Snow leopard Action Plan has been made
- Snow Leopard Management Committee has been formed and Rangeland Management Committee has been formed
- SPNP has been proposed as the World Heritage Site
- Second Phase of the Northern Mountain Conservation Project is under implementation.
- 6 people were arrested by park authority between 1999 and 2000 for conducting illegal activities inside the park.
- People Plant Initiative Project of WWF was successfully completed.
- Several Gombas have been renovated in the park.
- A total of 16 eco-clubs are working in the area.
- A total of 17 UCs have been formed.
- DNPWC Annual Report (1999-2003) mentions that there were several researchers carried out both at an institutional as well as individual level.
    - 3 researches were conducted between 1999 and 2000, all of which were related to plants. One of the studies was focused on Medicinal plant management of the SPNP. Another related to Pastoralist and rangeland Management of the area while the last one was focused on ritual performed in medicines.
    - 2 researches were conducted between 2001 and 2002 among which one was related to BZ Management of Tripurakot while the other was related to *Amchis* knowledge on medicinal plants.
    - 1 research was conducted between 2002 and 2003, which related to flora of Dolpa.
- Increasing human resource development skill and capacity of the communities has been observed in the area (WWF, 2003b).
- Positive change in the attitude of the people on education, basic health care, hygienic living and conservation has been seen in the area (WWF, 2003b).

3.5.4 Lessons Learned

Lesson learnt from the management of SPNP are

- The biological, cultural and natural significance of the area can be capitalized on as a tourist destination.
- Abundant availability of medicinal value herbal plants can be harvested in a sustainable manner to enhance the local economy.
- The community's' social solidarity and participatory culture can prove to be instrumental for mobilizing peoples' participation.
- *Amchi* tradition has a direct relationship with NTFP conservation and IGA.

3.5.5 Obstacles

The major obstacles faced in management and conservation of SPNP are as follows:

- Remoteness is the major problem in the area due to which the Park has been devoid of several development activities.
- Geophysical characteristics of the park make it difficult to launch development programs.
- There is a high grazing competition between blue sheep and livestock.
- Illegal harvesting of medicinal plants is a major problem in the area.
- Poor health condition is seen in the area due to lack of proper drinking water facilities, lack of proper sanitation and toilet construction.

3.5.6 Gaps

The gaps identified in SPNP area

- *Amchis* knowledge has not been harnessed in the park.
- Despite of having high potentials in medicinal plant resources, the park lacks specific policy on its harvesting and marketing.
- No researches in the area were recorded by DNPWC in the year 2000-2001.

3.5.7 Commitments

The major commitments pertinent to SPNP are reflected in the international conventions and agreements that Nepal has been affiliated to, such as:

- CITES: Convention on International Trade in Endangered Species of Wild Fauna and Flora 1975
- Convention on Biological Diversity 1992
- Membership from IUCN
- Proposed to inscribe as a World Heritage Site.

The major national commitments pertinent to SPNP include

- Promote conservation of cultural heritage (tangible and intangible) through public awareness and participation.
- Promote eco-tourism to uplift the standard of living of local people as well as for the conservation of the environment.
- Promote women, *dalit*, and poor in participatory development process.
- Comprehensive Management Plan for BZ and the Park.
- Declare all Himalayan Protected areas as garbage free zone.
- Promote alternative energy (To all mountain protected areas).
- Implement Snow Leopard Action Plan.
- Letter of intent issued to KMTNC for management under the policy of handing over management responsibility to non-government or other organizations.

The local commitments pertinent to SPNP includes

- Community based eco-tourism development

3.6 Khaptad National Park

3.6.1 Background

Area: National park 225 sq km and
BZ proposed
Districts: Bajhang, Bajura, Doti and Achham encompassing 22 VDCs in the proposed BZ (DNPWC/PCP, 2002).
Year(s) Established in 1984 on the advice of regions remarkable Hindu Holy man Khaptad Baba
IUCN Management Category: II

3.6.2 Significance

Biological aspects cover the species and habitat including the ecosystem's description, conservation and management.

- 8 types of ecosystem have been identified which include Mixed hygrophytic Oak-Rhododendron forest, Mixed chirpine oak forest, Mesophytic monatane Oak Rhododendron forest, Colnian oak forest, Chirpine forest with grasses and Ingel harpia, *Larix nepalensis* riverine forest, Mixed oak-laurels forest with shrubs, Mesophytic fir forest with oak and rhododendron (BBP, 1995b; BPP, 1995c).
- 567 species of flora have been recorded from the park (Shakya et.al, 1996).
- 21 species of mammals and 266 species of birds have been recorded from the park (CEDA, 2003).
- 4 flowering endemic plant species have been recorded from the park (Shrestha and Joshi, 1996).
- 11 species of mammals found in KNP are protected by CITES
- 2 species of mammals, 2 bird are protected under the Appendix I of NPWCA, 1973
- Symbolic species of KNP are Common Leopard (*Panthera pardus*), Himalayan Black bear (*Selenarctos thibetanus*), Wild Dog (*Cuon alpinus*), Musk deer (*Moschus chrysogaster*), Himalayan Tahr (*Hemitragus jemalhicus*)

Socio-economic aspects cover vulnerability, livelihood and cultural heritage linked to biodiversity conservation and poverty reduction.

- The average poverty rank of KNP is calculated at 8.5, which fall under very poor category of poverty rating scale (ICIMOD, 1998).
- 52,732 people from 2674 HHs are settled around the park's periphery.
- Average annual visitors of KNP is 26 since 2000
- Cultural sites inside KNP are Tribeni, Sahasra linga, Ganesh Temple, Nagdhunga, Kedardhunga, Khaptad daha (IUCN, 1997).
- Large number (10,000 – 25,000) of pilgrims visited annually to the religious shrines located in the KNP

Conflict aspects cover the conflict arising from the interaction of park-people, policy, organizations and people-people

- Conflicts due to people reported are poaching, revenge killing, illegal collection of forest products etc.
- Conflicts due to park reported are human causalities, human injury, crop raiding, etc.
- Threats related to habitat and wildlife in KNP includes habitat loss, natural hazards, fire in chirpine forest etc.

Managerial aspects cover the program implementation process and modality of various organizations to support biodiversity conservation and poverty reduction (DNPWC/PCP, 2003).

- Headed by the Warden, KNP has 31 staff positions of which 1 is gazetted and 30 are non gazetted staffs (Pers. Com. DNPWC).

- RNA joined the park with the sole responsibility of law enforcement and current strength of KNP is 239 infantrymen in one company (Pers. Com. DNPWC).
- Average annual revenue generated by the park in the last three year was Rs50,300 (Annual revenue in 2000, 2001 and 2002 were Rs94,000, Rs35,000, Rs22000 respectively)
- Average allocated annual budget for KNP since 2000 was Rs3,504,000 (Annual budget in the year 2000, 2001 and 2002 were Rs3,302,000, Rs3,641,000, Rs3,570,000 respectively)
- Currently 1 funding agencies/donor communities are working in KNP, which includes UNDP
- Possible partners would be UNDP, local NGOs etc.
- SABIHAA'S WCC model can be integrated in the BZ system to organize BZ User Groups first at the ward level and then at the VDC level. It will require declaration of BZ to encompass all wards of a VDC, and forming BZ User Committees at the entire VDC level. This approach will bring consistency between BZ, LSGA and SABIHAA.
- Replication of POWER group as promoted by SABIHAA will enhance empowerment process. However, modifications may be required to reflect the local situations.

3.6.3 Achievements

The major achievements of KNP are as follows:

- Separate KNP Regulation has been formulated in 2044
- BZ of KNP has been proposed (DNPWC, 2002a).
- After the phase out of Park People Program, another program PCP was started as a consolidation (DNPWC/PCP, 2002).
- Ad Hoc BZMC, BZUC and BZUG has been formed (DNPWC/PCP, 2002).
- Five people involved in illegal activities were arrested in 2000-2001(DNPWC, 2003a).
- Park management strategy framework has been prepared

3.6.4 Lessons Learned

The main lessons learned from this park are as follows:

- BZ is essential for park management since the local people have stake in the park.
- Potentials of vested interest group's knowledge on NTFP collection, pastoralism, poaching etc can be harnessed and mobilized for effective biodiversity conservation and income generation.

3.6.5 Obstacles

The major obstacles faced in KNP are:

- The Inadequate development of CF outside the NP (DNPWC, 2000e).
- Inadequate conservation awareness programs leading to the inefficient and ineffective habitat management and biodiversity conservation (DNPWC, 2000e).
- Inadequate equipment, inadequate budget, lack of training programs to park staff (DNPWC, 2000e).
- Excessive and uncontrolled grazing and shifting cultivation
- Illegal exploitation of park resources (DNPWC, 2000e).
- The pollution on the aquatic habitat (Tribeni and Khaptad daha) during the fair (HMG, 1997).
- Poor infrastructures and logistics (e.g. fire lines) (DNPWC, 2000e).
- Inadequate coordination among warden, protection unit, forest office, people, relevant agencies and between UGs and UCs (DNPWC/PPP, 1999).
- Poaching is a major problem for species conservation (DNPWC, 2000e).
- Poor Conservation Education and awareness programs (DNPWC, 2000e).

3.6.6 Gaps

The gaps identified in KNP are as follows:

- BZ is not yet declared
- Management plan of KNP has not been prepared
- Inadequate logistics for law enforcement, monitoring and research

- Planning of the park hasn't been a paragon.
- Lack of scientific data and MIS
- Gap in revenue and expenditure

3.6.7 Commitments

The major commitments pertinent to KNP are reflected in the international conventions and agreements that Nepal has been affiliated to, such as:

- CITES: Convention on International Trade in Endangered Species of Wild Fauna and Flora 1975
- Convention on Biological Diversity 1992

The major national commitments pertinent to KNP includes

- Promote conservation of cultural heritage (tangible and intangible) through public awareness and participation
- Promote eco-tourism to uplift the standard of living of local people as well as for the conservation of the environment
- Promote women, *dalit*, and poor in participatory development process
- Prepare comprehensive Management Plan of the park.
- Letter of intent issued to KMTNC for management under the policy of handing over management responsibility to non-government or other organizations

The local commitments pertinent to KNP includes

- Community based eco-tourism development
- Maintain KNP as smoking free and no alcohol zone
- Propose for development of surrounding area as BZ as per the BZ development guideline

3.7 Royal Bardia National Park

3.7.1 Background

Area: National park 968 sq km and
328 sq. km BZ area (DNPWC, 2001e)

Districts: Bardia, Banke encompassing 17 VDCs in the BZ (DNPWC, 2001f), and proposed BZ extension in Surkhet

Year(s) Established in 1976 as wildlife reserve and it was extended later and declared national park in 1988(DNPWC, 2001e).

IUCN Management Category: II, VI

3.7.2 Significance

Biological aspects cover the species and habitat including the ecosystem's description, conservation and management.

- 7 types of ecosystem have been identified which include Tropical hill sal forest, Terai subtropical sal forest, Upper siwlik chirpine oak forest, Siwalik chirpine forest, Khair sisoo riverine forest, Terai cultivated areas, Bhabar light Sal forest (BPP, 1995a).
- 839 species of flora have been recorded from the park (Shakya et.al., 1997).
- 53 species of mammals, 400 species of birds, 25 species of reptiles/amphibians and 125 species of fishes have been recorded from the park (DNPWC, 2001e)
- 22 species of mammals found in RBNP are protected by CITES
- 13 species of mammals, 5 bird species, 3 reptiles, are endangered and protected under the Appendix I of NPWCA, 1973
- Symbolic species of RBNP are Royal Bengal Tiger (*Panthera tigris*), and Asian Elephant (*Elephas maximus*), Black Buck (*Antelope cervicapra*)

Socio-economic aspects cover vulnerability, livelihood and cultural heritage linked to biodiversity conservation and poverty reduction.

- The average poverty rank of RBNP is calculated at 36.2, which fall under poor category of poverty rating scale (ICIMOD, 1998).
- 144,508 people from 23,609 HHs are settled around the park's periphery (CBS, 2001).
- Average annual visitors of RBNP are 8,515 since 2000 (DNPWC, 2001f).
- Cultural sites around RBNP include Thakurdwara temple (DNPWC, 2001f).
- Large number (10,000- 25,000) of pilgrims visited annually to the religious shrines located in the RBNP
- There is one tourist lodge concessionaire
- There is a visitor center at Thakurdwara, and Research and Training Center for Protected Areas (RTCPA) at the Lalmati complex
- There is a single tower bridge over the Karnali river at the west entrance of the park on the east west highway

Conflict aspects cover the conflict arising from the interaction of park-people, policy, organizations and people-people.

- Conflicts due to people reported are poaching, revenge killing, communicable diseases/related to grazing, poisoning of wetlands in PA, disturbances, in breeding, illegal collection of forest products. etc.
- Conflicts due to park reported are human causalities, human injury, livestock depredation, crop raiding, property damage, etc.
- Threats related to habitat and wildlife in RBNP includes alien species invasion, development infrastructure, natural hazards, habitat loss, irrigation canal through the park, East-West highway through the park, Babai irrigation diverts water, proposed Bhurigaon-Telpani road etc.

Managerial aspects cover the program implementation process and modality of various organizations to support biodiversity conservation and poverty reduction.

- Headed by the Chief Warden, RBNP has 130 staff positions of which 3 are gazetted and 127 are non-gazetted staffs (Pers. Com. DNPWC).
- RNA joined the park with the sole responsibility of law enforcement and current strength of RBNP is 478 infantrymen in two companies (Pers. Com. DNPWC).
- Average annual revenue generated by the park in the last three year was Rs 5,659,000 (Annual revenue in 2000, 2001 and 2002 were Rs9,822,000, Rs4,378,000, Rs2,777,000 respectively) (DNPWC, 2000a; DNPWC, 2001c; DNPWC, 2002a).
- Average allocated annual budget for RBNP since 2000 was Rs8,710,000 (Annual budget in the year 2000, 2001 and 2002 were Rs7,813,000, Rs8,283,000, Rs9,035,000 respectively) (DNPWC, 2000a; DNPWC, 2001c; DNPWC, 2002a).
- Currently 4 funding agencies/donor communities are working in RBNP, which includes UNDP, KMTNC, WWF, and CARE
- Possible partners would be UNDP, WWF, BZMC, local NGOs etc.
- SABIHAA's WCC model can be integrated in the BZ system to organize hundreds of BZ User Groups into a manageable size first at the ward level and then at the VDC level. It will require redefinition of the BZ boundary to encompass all wards of a VDC, and reorganizing or forming BZ User Committees at the entire VDC level.
- Replication of POWER group as promoted by SABIHAA will enhance empowerment process. However, modifications may be required to reflect the local situations.

This includes international, national and cross cutting policies and legislations concerning biodiversity conservation in PAs and wetlands

- Recognized RBNP's Extension as Gift to the Earth
- Recognized as a major tiger conservation unit by Global Tiger Forum,

3.7.3 Achievements

The major achievements in RBNP are given below:

- A BZ of area 327 sq km was declared in 1996 (DNPWC, 2001f)
- An area of 893 sq km has been proposed for extension of park in line with Gift to the Earth
- Habitat management activities such as unpalatable vegetation uprooting, seasonal cutting and burning of tall grasses, water hole construction and traffic control system have been adopted
- RBNP has second largest population of Rhino (DNPWC, 2001e).
- Anti-poaching activities have been successfully conducted
- The black buck population at Khairapur increased to reach a total of 177 during early 1990s and is over 100 at present
- A total of 58 rhinoceros that were released in two different sites (Karnali floodplain and Babai valley) of the park have now 73 (DNPWC 2001e).
- 50 wild elephants entered Nepal after 1993 from the Indian Boarder have now established permanent residency in the park (DNPWC, 2001e).
- Implementation of action plans for Rhino, Tiger and domestic elephant
- A separate regulation for RBNP has been enacted
- Tourism Plan and BZ Management Plan has been prepared (DNPWC, 2001f), and park management strategy framework has also been prepared
- Coordination among various donors such as WWF, CARE, NORAD and UNDP has been made in implementing several projects
- Several researches since 1999 has been done in the park with focus on nilgai, gharial, dolphin, black buck ecology, fisheries, ethnobotany, forest resources sustainability, agro-forestry, corridor mapping, corridor socio economy, PPP impact and few others (DNPWC/PCP, 2002).
- From 2057 Baishakh to 2060 Ashadh, 7 plots of agroforestry with an area of 1,581.6 ha of 2,137 HHs were benefited
- Park community health center has been established at Thakurdwara
- Number of tourists visiting the park is increasing at a rate of 14% per annum.
- 23 poachers and illegal dealers have been taken action between 2002 and 2003 (DNPWC, 2002a).
- Endowment funds like Rahat Kosh, Apatkalin Kosh and Chetipurti Kosh have been established to compensate injuries and loss of life, livestock depredation and property (mainly building) damage caused by wild animals (DNPWC, 2001f).

3.7.4 Lessons Learned

The major lessons learned in RBNP are:

- The woody vegetation of open phantas should annually be removed and cutting of grass should be done twice a year; January by local people and after June by Park authority
- Recent research suggests that rotational cutting and patch burning of grasslands in Terai areas spread over a longer time during the dry season should be practiced and smaller wooded grassland and *phantas* should be created within the surrounding of *sal* forest
- A clear demarcation is necessary to minimize land use conflict in the BZ (DNPWC, 2000f)
- The topographically rugged and relatively open northern boundary of the park is the prime reason for increased incidences of poaching of endangered and rare species (DNPWC, 1997)
- It has been indicated that the southern park (Thakurdwara) of RBNP harbours probably highest density of Tiger and its prey base in Asia (DNPWC, 2001e).
- In order to make local initiatives sustainable in the BZ, sound database system of UGs, BZ and park resources with strengthened local ownership is inevitable.
- Community mobilization is important not only for establishment of trench, barbed wire fence and bio-fence to control crop damage by wildlife but also for their maintenance
- An example Consorted efforts of multiple organizations generates synergy results in poverty alleviation

3.7.5 Obstacles

The prime obstacles experienced in RBNP are listed below

- Gradual encroachment by tree species along the boundary of grassland in all grasslands is prevalent in RBNP
- Illegal collection of forest resources are among the serious threats for conserving park's biodiversity
- Use of agro-chemicals in farm land has also caused poisoning of the wetland ecosystem has detrimental effect on the aquatic biota
- The narrow belt of forest stretch between RBNP and Katarniaghat Wildlife Reserve in India is severely degraded due to over grazing by encroachment of forest area for agriculture expansion
- Development infrastructure due to highway, Irrigation Channel, Hi tension.
- Alien species invasion
- Poaching and illegal medicinal plants collection frequently occur
- Wildlife movement outside the park boundary
- A large number of immigrants and of course high population
- Proposed Karnali High Dam and Bheri Karnali water scheme could be a problem.
- Proposed Bhurigaon-Telpani road.
- 7 Rhinos were poached during 2002/03 compared to 1Rhino in 2001/02
- 2 wildlife were poached during 2002/03
- 2 tiger died due to natural causes in 2002/03
- 7 other wildlife died due to natural causes in 2002/03 compared to 3 in 2001/02

3.7.6 Gaps

The major gaps observed in RBNP are:

- Most of the diversity in ecosystems within the park has not been studied yet
- Every year a large quantity of driftwood is washed away by Karnali and other rivers. however, no such prudent mechanism exists to stop and trap the opportunity
- A detail study on impact of thatch collection should be conducted to find out the effects of this practice
- Poor management information system
- A proper evaluation system which evaluates the work being carried out by the projects and park of the status of biodiversity is lacking in the park
- Research on wild animals such as pangolin, hyena, four horned antelope, samber, rattel. hispid hare, reptiles, turtles, birds and insects are lacking
- Exists gap in promotion of healthy agricultural system in the BZ
- Proposed extension area as committed in Gift to the Earth has not implemented
- The park does not have sufficient infrastructures including range posts, guard posts and those present are in need of repair and maintenance

3.7.7 Commitments

The major commitments pertinent to RBNP are reflected in the international conventions and agreements that Nepal has been affiliated to, such as:

- CITES: Convention on International Trade in Endangered Species of Wild Fauna and Flora 1975
- Convention on Biological Diversity 1992
- Membership from IUCN
- Identified as a tiger conservation unit under the Global Tiger Forum
- TAL: Terai Arc Landscape initiated to restore and maintain critical forest corridors and bottle necks connecting 4 PAs of Nepal and 7 PAs of India
- Transboundary cooperation with India in respect to antipoaching, wildlife monitoring and exchange of information and knowledge, and linkage with Katarniaghat Wildlife Sanctuary in India.

The major national commitments pertinent to RBNP includes

- Extend RBNP to include 893 sq km to the east as a part of commitment under the gift to the earth in favor of WWF's Living Planet Campaign in November 2000.
- Promote conservation of cultural heritage (tangible and intangible) through public awareness and participation
- Promote eco-tourism to uplift the standard of living of local people as well as for the conservation of the environment
- Promote women, *dalit*, and poor in participatory development process
- Promote trans-boundary cooperation for the eco-regional conservation
- Comprehensive Management Plan for BZ and the Park, and a separate tourism plan.
- Implementation of species action plans for Tiger, Rhino and domestic elephant
- Develop as RTCPA
- Develop RBNP as a gene pool of black buck for providing genetic resources to other protected areas.
- Creation of meta population of Rhino

The local commitments pertinent to RBNP includes

- 30-50% of the park revenues from the Park are used for development projects benefiting local communities.
- Regulation and guidelines for park management and BZ management.
- Community based eco-tourism development
- Biological Corridor Management through CF.
- Strengthen BZ by affiliating with the BZ networking forum
- Identified as a learning site for the PALnet (webpage).

3.8 Makalu Barun National Park

3.8.1 Background

Area: National park 1,500 sq km, and BZ 830 sq km (MoFSC, 2002)
Districts: Solukhumbu and Sankuwasabha districts encompassing 12 VDCs in the BZ (DNPWC, 2001c)
Year(s) Established in 1991 and Conservation Area converted into BZ in 1999. The park is the first park adjacent to an inhabited conservation area (MoFSC, 2002).
IUCN Management Category: I, II, VI

3.8.2 Significance

Biological aspects cover the species and habitat including the ecosystem's description, conservation and management.

- 20 types of ecosystem have been identified which include Tropical hill sal forest in large valleys, Mountain oak forest, Deciduous mixed broadleaf forest, Mixed broad leaved forest. *Dafniphyllum himalayense* forest, Colinian oak mixed broad leaved forest, Deciduous broad leaf forest, Hygrophytic forest with *Castanopsis tribuloides* and *Schima wallichii*. *Castanopsis indica* hygrophyte forest, *Schima wallichii* - *Pinus roxborghii* mesohygrophyte forest etc (BPP, 1995c).
- 3073 species of flora have been recorded from the park (Shakya *et al.*, 1997)
- 88 species of mammals, 440 species of birds, reptiles/amphibians 59 species and fishes 78 species have been recorded from the park (TMI/IUCN, 1995)
- 7 species of endemic flowering plants have been recorded in the area (MoFSC, 2002)
- 24 species of mammals found in MBNP are protected by CITES
- 11 species of mammals, 3 bird species are protected under the Appendix I of NPWCA, 1973
- Symbolic species of MBNP are snow leopard (*Uncia uncia*), musk deer (*Moschus chrysogaster*), Himalayan Black Bear

- Mt Makalu is the major landmark of the park. The Makalu base camp and the Mera peak are the popular trekking routes.

Socio-economic aspects cover vulnerability, livelihood and cultural heritage linked to biodiversity conservation and poverty reduction.

- The average poverty rank of MBNP is calculated at 53.2, which fall under the poor category of poverty rating scale (ICIMOD, 1998).
- 33,281 people from 6,765 HHs are settled around the park's periphery.
- Average annual visitors of MBNP is 406 since 2000
- Cultural sites inside MBNP are 7 Gumbas located inside the MBNP
- Few numbers (Less than 10,000) of pilgrims visited annually to the religious shrines located in the MBNP (IUCN, 1997).

Conflict aspects cover the conflict arising from the interaction of park-people, policy, organizations and people-people.

- Conflicts due to people reported are poaching, revenge killing, illegal harvest of NTFP, disturbances etc.
- Conflicts due to park reported are human injury, livestock depredation, crop raiding, etc.
- Threats related to habitat and wildlife in MBNP includes alien species invasion, natural hazards, loss of habitat, encroachment, slash and burn agriculture etc.

Managerial aspects cover the program implementation process and modality of various organizations to support biodiversity conservation and poverty reduction.

- Headed by the Chief Warden, MBNP has 63 staff positions of which 5 are gazetted and 58 are non-gazetted staffs (Pers. Com. DNPWC).
- Only national park in Nepal without the RNA deployed for protection.
- Average annual revenue generated by the park in the last three year was Rs163,000 (Annual revenue in 2000, 2001 and 2002 were Rs314,000, Rs44,000, Rs131,000 respectively) (DNPWC, 2000a; DNPWC, 2001c; DNPWC 2003a).
- Average allocated annual budget for MBNP in the last three years was Rs6,554, 000 (Annual budget in the year 2000, 2001 and 2002 were Rs6,057,000, Rs7,050,000, Rs6,555,000 respectively)
- Currently 2 funding agencies/donor communities are working in MBNP, which includes TMI and Eco - Himal
- SABIHAA's WCC model can be integrated in the BZ system to organize hundreds of BZ User Groups into a manageable size first at the ward level and then at the VDC level. It will require redefinition of the BZ boundary to encompass all wards of a VDC, and reorganizing or forming BZ User Committees at the entire VDC level.
- Replication of POWER group as promoted by SABIHAA will enhance empowerment process. However, modifications may be required to reflect the local situations.

3.8.3 Achievements

The major achievements made so far in the MBNP are as follows:

- Detail survey and research of the park has been made such as environmental relations, temporal dynamics, spatial diversity of habitats, communities and species along mountain transects. For instance some of the researches carried out in the park can be summarized as follows:
- Research on Biodiversity Conservation BZCF and Small Scale Enterprise were carried out during 2000-2001 (DNPWC, 2001c).
- Research on Biodiversity conservation and Rituals were carried out during 2001-2002 (DNPWC, 2002a).
- Park has been managed and protected without the involvement of RNA.
- NTFPs have been successfully grown and marketed.

- A considerable number of research projects have already worked in the area for improved management of park resources.
- BZ has been declared in 1999.
- Traditional resource management systems such as community-control led grazing and forest guardianship is being strengthened and low-level technologies are being introduced where appropriate.
- The establishment of Nepal's first Grazing User Group at Lamaden in 1996 laid the groundwork for the proposed establishment of up to a dozen more Grazing UGs.
- The construction and installation of emergency safety shelters, trail markers, and improvements to unsafe trails and bridges to minimize accidents and deaths among tourists, support staff and local users.
- "Pack It In and Pack It Out" policy has been effective for reduction of the refuse (including tins and cans) disposals along the routes to some extent.

3.8.4 Lessons Learned

The major lessons learned so far are as follows:

- Culture has been known as the promoting factor for conservation of valuable park resources.
- NTFP can be a good source of income for the park people in MBNP (DNPWC, 1990).
- Provision of innovative training and education opportunities to local people helps to sustain their livelihood in ways harmonious with biodiversity protection.
- The implementation of conservation project in MBNP in past have shown that conservation requires a closer participation and cooperation with local people (DNPWC, 1990).
- Attempt to conserve and promote the cultural heritage of local ethnic groups in the park area creates favorable conditions to keep up indigenous traditions and heritage in the country.
- Institution of local users group and their sustainability is a must for the management of the scarce natural resources in the park.

3.8.5 Obstacles

The major obstacles identified in the park are as follows:

- High human dependency on natural resources. Over 85 percent of the HHs are dependent on park resources. Increasing dependency on natural resources, slash-and-burn, degraded agriculture and rangeland conditions, etc. are the major problems in this park.
- Increasing number of poor and unemployed youths in the region obviously pose serious threat to the limited park resources.
- Physical facilities and infrastructures are in poor condition in spite of the financial support from the government and from local people.
- Extremely undulated and complex topography and remoteness
- Despite the crucial role of female in economic and social activities, their position in economic and social sector decision-making is quite low and negligible.
- Low level of literacy (27%) have caused problem for the effective management of park and BZ in MBNP.
- Landslides, erosion, flooding, etc. cause severe damage to the park property including infrastructures.
- The herders especially from Rai community trap many wild animals for meat purpose. Musk deer and Himalayan black bear are being depleted due to their high commercial value.
- Forest fire and overgrazing are serious threats to biodiversity. Unproductive livestock are also seen illegally grazing quite frequently in and around the park.
- Crop raiding by black bear is common.
- Illegal exploitation of park resources is one of the great threats to the habitat.
- Littering along the trails and campsites. With the continued dumping of non-biodegradable garbage this area could become another "garbage trail" in the near future (DNPWC/TMI, 1996).

- Exotic weeds like Banmara (*Eupatorium odoratum*) in lower areas and *E. adenophorum* in the higher area are quickly invading the natural habitats and replacing the indigenous species.
- Fire is a major problem in the area.
- Marketing is a major gap for the locally prepared made of *Allo* fiber

3.8.6 Gaps

The major gaps with regard to MBNP management are as follows:

- Gap in income generating policy formulation and implementation.
- Appropriate policy for motivating local people for biodiversity conservation such as effective revenue sharing scheme is lacking.
- There are socio-cultural study gaps in many aspects, especially ethnography, trade relations, grazing rights, ritual complexes, land tenure systems, etc.
- Regular monitoring and inventory of threatened species is insufficient such as clouded leopard, snow leopard, golden cat, spotted linsang, red panda and musk deer (TMI/IUCN, 1995).
- Lack of ethno-botanical studies to document and substantiate traditional use of plants and systematic inventory of crop germplasm.
- There is wide gap in the formulation and updating of BZ management plan in MBNP. Information are old, lack of annual progress report, no continuity in the study and research after phase out of GEF biodiversity project in 1990s.
- Tourism is highly concentrated in eastern and western parts whereas it is almost non-existent in other parts of the area.
- Research gap for analyzing the carrying capacity of MBNP & BZ for regulation of the population size of the wildlife.
- Database and information system on the bufferzone have not been adequately established.

3.8.7 Commitments

The major commitments pertinent to MBNP are reflected in the international conventions and agreements that Nepal has been affiliated to, such as:

- CITES: Convention on International Trade in Endangered Species of Wild Fauna and Flora 1975
- Convention on Biological Diversity 1992 and Membership from IUCN
- Transboundary cooperation with Tibetan Autonomous Region of China in respect to anitpoaching, wildlife monitoring and exchange of information and knowledge, and linkage with Qomolungma Nature Preserve in Tibet.

The major national commitments pertinent to MBNP includes

- Promote conservation of cultural heritage (tangible and intangible) through public awareness and participation
- Promote eco-tourism to uplift the standard of living of local people as well as for the conservation of the environment
- Promote women, *dalit*, and poor in participatory development process
- Promote trans-boundary cooperation for the eco-regional conservation
- A comprehensive management plan for the park exists
- Management Plan for BZ is under preparation
- Declare all Himalayan Protected areas as garbage free zone.
- Promote alternative energy.
- Implement Snow Leopard Action Plan.
- Intended for handing over management responsibility to non-government or other organizations

The local commitments pertinent to MBNP include:

- 30-50% of the tourism revenues from the Park are used for development projects benefiting local communities.

- Regulation and guidelines for park management and BZ management.
- Community based eco-tourism development
- Strengthen BZ by affiliating with the BZ forum

3.9 Shivapuri National Park

3.9.1 Background

Area: National park 144 sq km and BZ conceived (not yet proposed) (FAO/HMG, 1995).
Districts: Kathmandu, Nuwakot and Sindhupalchowk districts with 23 VDCs adjoining the park zone
Year(s) Established in 1976 as watershed and wildlife reserve and was gazetted as National Park in 2002
IUCN Management Category: II

3.9.2 Significance

Biological aspects cover the species and habitat including the ecosystem's description, conservation and management.

- 5 types of ecosystem have been identified which include Mountain Oak, Collinean oak mixed board leaf forest, *Schima wallichi, Castanopsis indica* hygrophytic forest, *Schima wallichi, Pinus roxburgii* mesogrophytic forest, *Pinus roxburgii* xerophytic forest (BBP, 1995b).
- 2,122 species of flora have been recorded from the park (Shakya et al. 1997).
- 19 species of mammals and 177 species of birds have been recorded from the park (DNPWC, 2002a).
- 16 species of endemic flowering plants have been recorded in the area (MoFSC, 2002)
- 11 species of mammals found in ShNP are protected by CITES
- 4 species of mammals, 1 bird species are protected under the Appendix I of NPWCA, 1973

Socio-economic aspects cover vulnerability, livelihood and cultural heritage linked to biodiversity conservation and poverty reduction.

- The average poverty rank of ShNP is calculated at 39.37 which fall under the poor category of poverty rating scale (ICIMOD, 1998).
- 95,837 people from 18,235 HHs are settled around the park's periphery (FAO/HMG, 1996).
- 37,232 visitors visited this park in 2002
- Cultural sites inside ShNP are Bagdwar, Bishnu Dwar, Sundari Jaal, Manichur, Bajrayogini, Shivapuri Baba Ashram, Budalinkantha, Khaptad Bada Samadhi, Shivapuri Lake, Nagi gumba (IUCN, 1997).
- Large numbers of pilgrims visited annually to the religious shrines located in the ShNP

Conflict aspects cover the conflict arising from the interaction of park-people, policy, organizations and people-people.

- Conflicts due to people reported are revenge killing, firewood, fodder & manure collection, over grazing.
- Conflicts due to park reported are human injury, crop raiding, property damage etc.
- Threats related to habitat and wildlife in ShNP includes alien species invasion, tourism garbage disposal etc.

Managerial aspects cover the program implementation process and modality of various organizations to support biodiversity conservation and poverty reduction.

- Headed by the Chief Warden, ShNP has 55 staff positions of which 4 are gazetted and 54 are non gazetted staffs (Pers. Com. DNPWC).
- RNA is present in the park with a responsibility of protection and its strength is 478 infantrymen in two companies (Pers. Com. DNPWC).

- Average annual revenue generated by the park in the last two years was Rs1,262,000 (Annual revenue in 2001 and 2002 were Rs1,800,000, Rs1,986,000 respectively) (DNPWC, 2001c; DNPWC, 2002a).
- Annual budget allocated for management of ShNP in 2002 was Rs. 56,25,000 (DNPWC, 2002a).
- Currently none of the funding agencies/donor communities are working in ShNP
- SABIHAA'S WCC model can be integrated in the BZ system to organize BZ User Groups first at the ward level and then at the VDC level. It will require declaration of BZ to encompass all wards of a VDC, and forming BZ User Committees at the entire VDC level. This approach will bring consistency between BZ, LSGA and SABIHAA.
- Replication of POWER group as promoted by SABIHAA will enhance empowerment process. However, modifications may be required to reflect the local situations.

3.9.3 Achievements

The major achievements in ShNP are given below

- Shivapuri was upgraded from Wildlife Reserve to National Park in 2002 (Falgun 2058 BS).
- Population of wild boar has increased tremendously
- Over 115 illegal collectors and poachers were arrested in 2002 – 2003 (DNPWC, 2002a; DNPWC, 2003a)
- Stone wall boundary of 111 km has been constructed around the park which has been proved to be very effective in limiting the park and outside park access
- Re-vegetation by natural regeneration and plantation has been done
- Water discharge capacity has increased (generates One Million cubic liter of water per day)
- Construction of 90 km road and its management
- Researches on mammal diversity, wildlife human interaction, Sundarijal Reservoir, pre-post park situation has been done since 1999 to 2003 (DNPWC, 2000a; DNPWC, 2001c; DNPWC, 2002a; DNPWC, 2003).

3.9.4 Lessons Learned

The lessons learned in ShNP are as follow:

- Conservation is not possible with fence and fine approach and thus the stone wall fence has been broken in more than 100 places

3.9.5 Obstacles

The major obstacles came across in the park are:

- The build-up of biomass creates a severe fire hazard during the dry season, mainly along the southern slopes of Shivapuri and could become more severe if it starts at low altitudes (FAO/HMG, 1996).
- Land degradation due to steepness of the land, and the intensity of the rain occurs
- Relatively small area surrounded by intensively used areas creates difficulty in preserving the bigger mammals (as barking deer, leopard, the black bear)
- Air pollution from Kathmandu city may pose harmful affects to the avian fauna of the place
- Illegal collection of forest product
- Crop damage by wild boar and monkeys
- Forest resources mainly in the form of fuel wood have been overexploited to meet the local demands as well as requirements of tourists in the urban area

3.9.6 Gaps

The main gaps perceived in ShNP are

- BZ has been conceived but not yet proposed
- Lack of management information system

3.9.7 Commitments

The major commitments pertinent to ShNP are reflected in the international conventions and agreements that Nepal has been affiliated to, such as:

- CITES: Convention on International Trade in Endangered Species of Wild Fauna and Flora 1975
- Convention on Biological Diversity 1992
- Membership from IUCN

The major national commitments pertinent to ShNP includes

- Develop ShNP as a national level conservation education center
- Promote conservation of cultural heritage (tangible and intangible) through public awareness and participation.
- Promote eco-tourism to uplift the standard of living of local people as well as for the conservation of the environment
- Promote women, *dalit*, and poor in participatory development process
- Revise the comprehensive Management Plan that exists for the watershed and wildlife reserve
- Declare all Himalayan Protected areas as garbage free zone.
- Promote alternative energy
- Letter of intent issued to KMTNC for management under the policy of handing over management responsibility to non-government or other organizations

The local commitments pertinent to ShNP includes

- Community based eco-tourism development
- Propose for development of surrounding area as BZ as per the BZ development guideline
- Proposed for separate regulations for the park

3.10 Royal Shuklaphanta Wildlife Reserve

3.10.1 Background

Area: Wildlife Reserve has now been extended to 305 sq. km and BZ proposed 153 sq km (MoFSC, 2002).

istricts: Kanchanpur district with 11 VDCs adjoining the park is proposed as BZ (MoFSC, 2002).

Year(s) Established in 1976 as Royal Shuklaphanta Wildlife Reserve with 155 sq km and was gazetted to protect the largest herd of Swamp Deer (DNPWC, 2000g).

IUCN Management Category: IV

3.10.2 Significance

Biological aspects cover the species and habitat including the ecosystem's description, conservation and management.

- 3 types of ecosystem have been identified which include Khair-Sisso riverine forest, Terai cultivated areas, Terai subtropical Sal forest (BBP, 1995a).
- 700 species of flora have been recorded from the reserve (Shakya, et. al, 1997).
- 43 species of mammals, 349 species of birds, 12 species of reptiles/amphibians and 24 species of fishes have been recorded from the reserve (DNPWC, 2003a).
- 18 species of mammals found in RSWR are protected by CITES
- 10 species of mammals, 3 bird species, s reptiles, are protected under the Appendix I of NPWCA, 1973
- Symbolic species of RSWR are Swamp deer (*Cervus duvaucelli*), Royal Bengal Tiger (*Panthera tigris*), and Asiatic Elephant (*Elephas maximus*), Hispid hare (*Caprolagus hispidus*), Bengal florican

Socio-economic aspects cover vulnerability, livelihood and cultural heritage linked to biodiversity conservation and poverty reduction.

- The average poverty rank of RSWR is calculated at 59.0 which fall under less poor category of poverty rating scale (ICIMOD, 1998).
- 239,111 people from 14,924 HHs are settled around the reserve's periphery (CBS, 2001).
- Average annual visitors of RSWR are 853 since 2000 (DNPWC 2000a).
- Cultural sites inside RSWR are Singhpal in Singhpur, Rani Tal, Siddha Asram, Salgoudi Tal (IUCN, 1997).
- Large number (10,000- 25000) of pilgrims visited annually to the religious shrines located in the RSWR (IUCN, 1997).

Conflict aspects cover the conflict arising from the interaction of reserve-people, policy, organizations and people-people.

- Conflicts due to people reported are poaching, revenge killing, communicable diseases/related to grazing, poisoning of wetlands in PA, disturbances, etc.
- Conflicts due to reserve reported are human causalities, human injury, livestock depredation, crop raiding, property damage, etc.
- Threats related to habitat and wildlife in RSWR includes alien species invasion, development infrastructure, natural hazards, habitat loss, industries etc.

Managerial aspects cover the program implementation process and modality of various organizations to support biodiversity conservation and poverty reduction.

- Headed by the Chief Warden, RSWR has 76 staff positions of which 2 are gazetted and 74 are non gazetted staffs (Pers. Com. DNPWC).
- RNA is present in the park with a responsibility of protection and its strength is 239 infantrymen in one company (Pers. Com. DNPWC).
- Average annual revenue generated by the reserve in the last three year was Rs1,534,000 (Annual revenue in 2000, 2001 and 2002 were Rs2,419,000, Rs1,553,000, Rs631,000 respectively) (DNPWC, 2000a; DNPWC, 2001c; DNPWC, 2002a).
- Average allocated annual budget for RSWR since 2000 was Rs4,952,000 (Annual budget in the year 2000, 2001 and 2002 were Rs4,253,000, Rs4,699,000, Rs5,905,000 respectively) DNPWC, 2000a; DNPWC, 2001c; DNPWC, 2002a).
- Currently 3 funding agencies/donor communities are working in RSWR, which includes UNDP, KMTNC, and WWF
- Possible partners would be UNDP, WWF, and local NGOs etc.
- SABIHAA'S WCC model can be integrated in the BZ system to organize BZ User Groups first at the ward level and then at the VDC level. It will require declaration of BZ to encompass all wards of a VDC, and forming BZ User Committees at the entire VDC level. This approach will bring consistency between BZ, LSGA and SABIHAA.
- Replication of POWER group as promoted by SABIHAA will enhance empowerment process. However, modifications may be required to reflect the local situations.

3.10.3 Achievements

The major achievements of RSWR are

- Declared as a Wildlife Reserve with an area of 155 sq km in 1976.
- Reserve area extended to 305 km^2 in the late 1980s
- Protecting the last remaining herd of Swamp deer (*Cervus duvaucelli*) and well-managed population of Swamp deer
- An area of about 152 sq km lying adjacent to the reserve has been proposed for BZ
- 95 ha of grassland have been managed
- 6 water holes, 22 km trench and 10 km of barbed wire fence have been maintained
- 3 machans, 22 km of fire lines were constructed (DNPWC, 2003d).
- 2 Tals (wetlands) have been rehabilitated (DNPWC, 2003d).

- Implemented different kinds of activities for the management of the grasslands within RSWR, such as construction and clearing of access roads, regular burning, ploughing, and construction of water holes (DNPWC, 2003d).
- Prepared a management Strategy Framework in 2000 (DNPWC, 2003d).
- Plan of translocating 10 more rhinos from Chitwan which may enable Nepal to establish a third viable population of one horned Rhino in RSWR (DNPWC, 2002a).
- High density of tiger population in area
- Regular monitoring of tiger population using camera trap method is being conducted.
- Carried out research on tiger and small mammals
- 2 poaching units established in order to control the poaching and illegal killing of wild animals (DNPWC, 2003d)..
- Nominated as site for MIKE (Monitoring of Illegally Killed Elephants) by CITES to monitor the illegal killing of the elephants
- Formulated Tiger Conservation Action Plan to increase the number of breeding tigers
- 422 UGs has been formed (DNPWC/PCP, 2002).
- 40 UGs prepared their database and annual and five-year plans with the technical and financial support of RSWR/PCP (DNPWC/PCP, 2002).
- Research under taken at RSWR during the last three years as per the DNPWC record are
    - During 1999-2000, study on Wild elephant effects on woody vegetation (DNPWC, 2000a; DNPWC, 2001c; DNPWC; 2002a).
    - During 2000-2001, 4 research were conducted which include: Effectiveness of community based program, Wetland vegetation dynamic, population ecology of Nilgai and Swamp deer (DNPWC, 2000a; DNPWC, 2001c; DNPWC, 2002a).
    - No research was under taken in 2001-2002 (DNPWC, 2000a; DNPWC, 2001c; DNPWC; 2002a).
    - In the year 2002-2003, 5 research were undertaken which are on study of habitat structure, swamp deer, wildlife damage, small mammals and Rhino (DNPWC, 2000a; DNPWC, 2001c; DNPWC; 2002a).
- Final draft of RSWR management plan has been submitted to DNPWC
- Park management strategy framework has been prepared
- The on-going projects/program in RSWR area
    - Participatory Conservation Program (May 2002 – April 2004) in continuation to the Park People Program supported by UNDP (DNPWC/PCP, 2002).
    - KMTNC/Shuklphanta Conservation Program established

3.10.4 Lessons Learned

Lesson learnt from the management of RSWR are:

- Political support is important for the effective park management especially in reference to RSWR extension
- *Imperata cylindrica* dominated grassland succeed to tall grassland or forest due to disturbance through grazing, cutting and fire
- Uncontrolled fire causing degradation of grassland
- People have not perceived the benefits that could arise from the reserve due to lack of well organized Community Based Organizations (CBOs), inadequate coordination between park and people, local NGOs not adequately mobilized. There is a need to formalize the CBOs through declaration of BZ.

3.10.5 Obstacles

The major obstacles faced in management and conservation of RSWR are as follows

- Habitat loss and other pressures exerted by the ever-increasing human population
- Uncontrolled burning of grasses is thought to be one of the factors contributions to the deterioration of grass quality

- Traditional system of grazing in forest and free grazing practice in the reserve has contributed a lot in illegal grazing
- Close to airport and municipality generate unnecessary pressure around the park surroundings
- Existence of industries such as brick, tiles, saw mills near RSWR have negative impact on the environment of the area
- High incidence of poaching of Swamp deer and tiger reported along the border with India and the incidences of road kill (DNPWC, 2000a).
- Large herbivore populations are isolated by the Mahakali Irrigation Canal (DNPWC, 2000g).
- 150 ha of forest was cleared to increase the command area of Mahakali irrigation project (DNPWC, 2003d).

3.10.6 Gaps

The gaps identified in RSWR are:

- Does not yet have a legally demarcated BZ boundary
- Infrastructure as well as development (management) to be initiated in the recently extended area
- Impacts of the irrigation scheme on the movement of free-ranging herbivores are obvious. However, its ecological damages and biodiversity displacement magnitude have been overlooked
- Some sections of the reserve boundary are not clearly delineated which has lead to the encroachment
- Existing ecological information on the faunal diversity of the research is limited to hispid hare, swamp deer, tiger and rhino. The status of reptiles, amphibian, insects, butterflies and small mammals are not known.
- Regular monitoring of the released rhino has not been well monitored which may be vulnerable to poaching

3.10.7 Commitments

The major commitments pertinent to RSWR are reflected in the international conventions and agreements that Nepal has been affiliated to, such as:

- CITES: Convention on International Trade in Endangered Species of Wild Fauna and Flora 1975
- Convention on Biological Diversity 1992
- Membership from IUCN
- Identified as a tiger conservation unit under the Global Tiger Forum
- TAL: Terai Arc Landscape initiated to restore and maintain critical forest corridors and bottle necks connecting 4 PAs of Nepal and 7 PAs of India
- Transboundary cooperation with India in respect to anti-poaching, wildlife monitoring and exchange of information and knowledge, and linkage with Lagga Bhagga forests in India.

The major national commitments pertinent to RSWR include (DNPWC, 2003d).

- Protect the last remaining herd of Swamp deer
- Promote conservation of cultural heritage (tangible and intangible) through public awareness and participation
- Promote eco-tourism to uplift the standard of living of local people as well as for the conservation of the environment
- Promote women, *dalit*, and poor in participatory development process
- Promote trans-boundary cooperation for the eco-regional conservation
- Develop comprehensive Management Plan
- Species action plan for Tiger, Rhino and Elephant have been made

The local commitments pertinent to RSWR includes

- Propose for development of surrounding area as BZ as per the BZ development guideline

3.11 Koshitappu Wildlife Reserve

3.11.1 Background

Area: Wildlife Reserve 175 sq km and proposed BZ 136 sq km (MoFSC, 2002).
Districts: Sunsari, Saptari and Udaypur with 13 VDCs in BZ (DNPWC, 2002b).
Year(s) Established WR in 1976 with 65 sq km, extended to its present size in 1980 by including the flood plains of Koshi River to protect the last remnant population of wild water buffalo. Declared Ramsar Site in1987 (IUCN, 1998).
IUCN Management Category: IV

3.11.2 Significance

Biological aspects cover the species and habitat including the ecosystem's description, conservation and management.

- 5 types of ecosystem have been identified which include Water bodies, Pseudo steppe with graminae, Terai cultivated areas, Psudo steppe with graminae tropical elephant grasses, Khair sisoo riverine forest (BPP, 1995a).
- 514 species of flora have been recorded from the reserve (DNPWC, 2002b).
- 31 species of mammals, 461 species of birds, 45 species of reptiles/amphibians and 200 species of fishes have been recorded from the reserve(DNPWC, 2002b)
- 4 species of endemic flowering plants have been recorded from the reserve (MoFSC, 2002)
- 13 species of mammals found in KWR are protected by CITES
- 6 species of mammals, 5 bird species, 3 reptiles, are protected under the Appendix I of NPWCA, 1973
- Symbolic species of KWR are Wild water buffalo (*Bubalus bubalis arnee*), Gangetic dolphin (*Platanista gangetica*),

Socio-economic aspects cover vulnerability, livelihood and cultural heritage linked to biodiversity conservation and poverty reduction.

- The average poverty rank of KWR is calculated at 38.0 which fall under poor category of poverty rating scale (ICIMOD, 1998).
- 125,749 people from 25,092 HHs are settled around the reserve's periphery (CBS, 2001).
- Average annual visitors of KWR is 1582 since 2000
- Cultural sites around the KWR are Ramdhuni temple, Gor Raja temple, etc. (IUCN, 1997).
- Large number (10,000-25,000) of pilgrims visited annually to the religious shrines located in KWR

Conflict aspects cover the conflict arising from the interaction of reserve-people, policy, organizations and people-people (DNPWC, 1998b)

- Conflicts due to people reported are poaching, revenge killing, communicable diseases/related to grazing, poisoning of wetlands in PA, disturbances, inbreeding, illegal collection of forest products, hybridization with domestic buffalo, over fishing etc.
- Conflicts due to reserve reported are human causalities, human injury, crop raiding, property damage, etc.
- Threats related to habitat and wildlife in KWR includes alien species invasion, development infrastructure, natural hazards, habitat loss, irrigation canal through the reserve, impact of Koshi barrage flooding/siltation, irrigation canal, high tension electric line etc

Managerial aspects cover the program implementation process and modality of various organizations to support biodiversity conservation and poverty reduction.

- Headed by the Warden, KWR has 61 staff positions of which 1 is gazetted and 60 are non gazetted staffs (Pers. Com. DNPWC).

- RNA is present in the park with a responsibility of protection and its strength is 478 infantrymen in two companies (Pers. Com. DNPWC).
- Average annual revenue generated by the reserve in the last three year was Rs816,000 (Annual revenue in 2000, 2001 and 2002 were Rs1,209,000, Rs643,000, Rs596,000 respectively) (DNPWC, 2000a; DNPWC, 2001c; DNPWC, 2002a).
- Average allocated annual budget for KWR since 2000 was Rs3,745,000 (Annual budget in the year 2000, 2001 and 2002 were Rs2,353,000, Rs5,361,000, Rs3,523,000 respectively) DNPWC, 2000a; DNPWC, 2001c; DNPWC, 2002a).
- Currently 2 funding agencies/donor communities are working in KWR, which includes UNDP and IUCN
- SABIHAA'S WCC model can be integrated in the BZ system to organize BZ User Groups first at the ward level and then at the VDC level. It will require declaration of BZ to encompass all wards of a VDC, and forming BZUCs at the entire VDC level. This approach will bring consistency between BZ, LSGA and SABIHAA.
- Replication of POWER group as promoted by SABIHAA will enhance empowerment process. However, modifications may be required to reflect the local situations.

This includes international, national and cross cutting policies and legislations concerning biodiversity conservation in PAs and wetlands (DNPWC, 2002b)

- Declared wetland of international importance (RAMSAR site) on December 17, 1987 with greater commitment for conservation when Nepal joined the "Convention on Wetlands of International Importance especially as Waterfowl habitat"

3.11.3 Achievements

The major achievements of KWR are:

- Conserved the last remnant population of the critically endangered wild water buffaloes and their habitats Comprehensive management strategy framework and plan has been prepared by involving key stakeholders of KWR. (DNPWC, 2002b)
- Increased bird sighting incidence, number and frequency of migratory birds visit (DNPWC. 2002b)
- Supports more than 20,000 waterfowl, it is a hotspot for supporting 200 species of fish (DNPWC, 2002b)
- Prepared a translocation proposal for Wild Water Buffalo in Nepal (DNPWC, 2002b)
- Prepared a checklist of birds, mammals, fishes, herpato-fauna, butterflies found in the reserve (DNPWC, 2002b)
- First Ramsar Site of Nepal (DNPWC, 2002b)
- BZ of 173 sq. km. has been proposed and all process for the declaration of BZ has been completed and is awaited for the declaration by the ministry (DNPWC, 2002b)
- Though KWR does not yet have a legally demarcated BZ boundary but local people are practicing several conservation measure for their own protection from the wildlife
- Research under taken at KWR during the last three years as per the DNPWC record are
    - During 1999-2000, four research were carried out which include, crop damage and livestock depredation, study of riverine forest, Arna's habitat and Swamp partridge
    - During 200-2001,3 research were conducted which are Economics of Wild buffalo, Problem prospect of BZ, Nilgai survey
    - In the year 2001-2002, 3 research were undertaken which are on study of wetland site, study of Fishes and Elephant people interface
    - None of the research were carried out in 2002-03
- About 500 domestic buffaloes captured inside the reserve
- 3 wildlife died due to natural causes in 2002/03 compared to 7 in 2001/02
- Human causality by wildlife was nil in 2002/03 compared to 1 in 2001/02
- None of the people were injured by wildlife in 2002/03 compared to 4 in 2001/02

3.11.4 Lessons Learned

Lesson learnt from the management of KWR are

- Physical nature of Koshitappu is apparently detrimental to long term conservation of buffalo and other large mammals
- With increasing pressure on wetlands resources, it is unlikely that the area will remain intact for conservation purposes.
- Alternate resources especially grazing land is necessary for the effective management of the reserve
- Inadequate people's participation is clearly reflected by land encroachment and the destruction of fence
- Required comprehensive management strategies for wildlife reserve and Ramsar site because the first one is protection oriented whereas the Ramsar site is conservation with wise use.

3.11.5 Obstacles

The major obstacles faced in management and conservation of KWR are as follows

- Relatively small and inadequate given its mandate to protect the biodiversity existing in the region (DNPWC, 1999b)
- Inbreeding of wild water buffaloes and the cross breeding with domestic buffaloes is a major problem of the park (DNPWC, 1999b)
- Grazing of cattle inside KWR
- Use of agrochemical fertilizer and toxic insecticides in modern agriculture are other causes of wetland vegetation and bird population loss
- Open access to Koshi Barrage (DNPWC, 1999b)
- No policy to bridge Ramsar site and WR
- Boundary dispute
- Problems related with Flood
- Changing courses of the river
- KWR Management plan and strategic framework has identified poaching and vandalism as major threats. But specific strategies for anti-poaching and anti-vandalism is lacking
- Obstacles in implementing the recently formulated policies such as wildlife farming and NGO management of parks, since there are no specific legal provisions in the current acts and regulations
- No institution with clear mandate for wetland management in Nepal

3.11.6 Gaps

The gaps identified in KWR are

Existing management of KWR is not effective due to the absence of an organized research and monitoring system

- List of protected species of NPWCA does not include endangered fish species and many herpeto-fauna which are found in KWR
- Does not yet have a legally demarcated BZ boundary
- Inadequate income generation opportunities
- Lack of wildlife corridor
- Does not have a defined strategy that involves the management, protection units and the local communities
- People are not adequately organized into the users group, functional groups and users committee hence their involvement in decision making and planning for management is poor
- Ecotourism master plan for KWR and vicinity should be developed for promotion of tourism

3.11.7 Commitments

The major commitments pertinent to KWR are reflected in the international conventions and agreements that Nepal has been affiliated to, such as:

- Ramsar Convention on Wetlands of International Importance especially as Waterfowl Habitat 1971
- CITES: Convention on International Trade in Endangered Species of Wild Fauna and Flora 1975
- Convention on Biological Diversity 1992
- Membership from IUCN
- Transboundary cooperation with India in respect to anitpoaching, wildlife monitoring and exchange of information and knowledge, and linkage with potential wetlands in India.

The major national commitments pertinent to KWR includes

- Preserve the habitats for the last remnant population of wild water buffalo
- Promote conservation of cultural heritage (tangible and intangible) through public awareness and participation.
- Promote eco-tourism to uplift the standard of living of local people as well as for the conservation of the environment
- Promote women, *dalit*, and poor in participatory development process
- Promote trans-boundary cooperation for the eco-regional conservation
- Comprehensive Management Plan for BZ and the Park prepared.
- Species action plan for domestic elephant have been made
- Develop as a gene pool of wild buffaloes for providing genetic resources to other protected areas
- Intended for handing over management responsibility to non-government or other organizations

The local commitments pertinent to KWR includes

- Propose for development of surrounding area as BZ as per the BZ development regulation and guideline
- Integrate and conserve the Ramdhuni religious forest as a connectivity

3.12 Parsa Wildlife Reserve

3.12.1 Background

Area: Wildlife Reserve 499 sq km and Proposed BZ 376 sq km (MoFSC, 2002).
Districts: Bara, Parsa and Makwanpur districts with 22 VDCs in BZ
Year(s) Established in 1984 as wildlife reserve by converting the hunting grounds of royal family. It is contiguous with the RCNP
IUCN Management Category: IV

3.12.2 Significance

Biological aspects cover the species and habitat including the ecosystem's description, conservation and management.

- 8 types of ecosystem have been identified which include Terai tropical sal forest, Sal forest inner valleys, Hygrophytic tropical forest on northern slopes of Siwaliks, Tropical hill sal forest in large valleys, Tropical dense forest (BPP, 1995a).
- 919 species of flora have been recorded from the reserve (Shakya et al, 1997).
- 37 species of mammals, 500 species of birds, 13 species of reptiles/amphibians, and 8 species of fishes have been recorded from the reserve (DNPWC, 2002c)
- 16 species of mammals found in PWR are protected by CITES
- 11 species of mammals, 6 bird species, 2 reptiles, are protected under the Appendix I of NPWCA, 1973
- Symbolic species of PWR are Royal Bengal Tiger (*Panthera tigris*), Gaur (*Bos gaurus*), wild elephant(*Elephus maximus*)

Socio-economic aspects cover vulnerability, livelihood and cultural heritage linked to biodiversity conservation and poverty reduction.

- The average poverty rank of PWR is calculated at 27 that fall under very poor category of poverty rating scale (ICIMOD, 1998).
- 1,88,421 people from 26,696 HHs are settled around the reserve's periphery (CBS, 2001).
- Average annual visitors since 2000 is 316 (DNPWC, 2002a).
- Cultural sites inside PWR is Kailash Mahadev in Bhata
- Less number of pilgrims visited annually to the religious shrines located in the PWR

Conflict aspects cover the conflict arising from the interaction of reserve-people, policy, organizations and people-people.

- Conflicts due to people reported are poaching, revenge killing, communicable diseases/related to grazing, disturbances, in-breeding, etc.
- Conflicts due to reserve reported are human causalities, human injury, livestock depredation, crop raiding, property damage, etc.
- Threats related to habitat and wildlife in PWR includes alien species invasion, development infrastructure, settlement enclave inside etc.

Managerial aspects cover the program implementation process and modality of various organizations to support biodiversity conservation and poverty reduction.

- Headed by the Chief Warden, PWR has 76 staff positions of which 2 are gazetted and 74 are non gazetted staffs (Pers. Com. DNPWC).
- RNA is present in the park with a responsibility of protection and its strength is 478 infantrymen in two companies (Pers. Com. DNPWC).
- Average annual revenue generated by the reserve in the last three year was Rs344,000 (Annual revenue in 2000, 2001 and 2002 were Rs354,000, Rs259,000, Rs421,000 respectively) (DNPWC, 2000a; DNPWC, 2001c; DNPWC, 2002a)
- Average allocated annual budget for PWR since 2000 was Rs3,745,000 (Annual budget in the year 2000, 2001 and 2002 were Rs3,817,000, Rs3,411,000, Rs4,009,000 respectively) (DNPWC, 2000a; DNPWC, 2001c; DNPWC, 2002a)
- Currently 2 funding agencies/donor communities are working in PWR, which includes UNDP and WWF
- SABIHAA'S WCC model can be integrated in the BZ system to organize BZUGs first at the ward level and then at the VDC level. It will require declaration of BZ to encompass all wards of a VDC, and forming BZUCs at the entire VDC level. This approach will bring consistency between BZ, LSGA and SABIHAA.
- Replication of POWER group as promoted by SABIHAA will enhance empowerment process. However, modifications may be required to reflect the local situations.

3.12.3 Achievements

The major achievements of PWR are

- Created a water hole near the Adhabar grassland and renovated Kamini Daha
- Management plan of the area is drafted
- Established Anti-poaching unit
- Network of about 110 km fire line has been also created in the reserve to prevent spreading of fire from one area to another (DNPWC, 2002c).
- Large number of people each year and confiscates a large volume of illegally collected NTFPs (DNPWC, 2003a).
- Established Hattisar in Amlekhgunj, about 5 km. north to the reserve headquarters for patrolling, tourism activities, research programs, rescue and search operations and other official duties

- Maintained an orphanage center to take care abandoned wildlife until they are recovered and become ready for release. A total of 12 wild animals were released in the reserve since 2000-2002.
- Over 91 poachers and illegal dealers have been taken action between 2002-2003 (DNPWC, 2003a)
- Carried out community plantations over an area of about 5,491 ha, encompassing 8,765 HHs as beneficiaries (DNPWC, 2003a)
- Private lands plantation was carried out by 804 HHs covering an area of 97 ha
- Research under taken at PWR during the last three years as per the DNPWC record are (DNPWC 1999c; DNPWC, 2000a; DNPWC, 2001c; DNPWC, 2002a; DNPWC, 2003a).
  - During 1999-2000, study was conducted on spotted deer
  - During 200-2001, vegetation survey of timber species and ecological survey of Nilgai was carried out
  - In the year 2001-2002, 3 research were undertaken which are on study of wetland site, study of Fishes and Elephant people interface
  - None of the research were carried out in 2002-03
- 1 people was killed by wildlife 1 in 2002/03 compared to 1 2001/02
- 1 people were injured by wildlife in 2002/03 where as 2 in 2001/02
- The on going projects in PWR is PCP (May 2002 – April 2004) in continuation to the PPP supported by UNDP

3.12.4 Lessons Learned

Lesson learnt during the management of reserve are

- Vested interest group should be mobilized for reserve management
- Conservation is unlikely to materialize without the approval of stakeholders (local people) which will come with incentives to conserve rather than direct costs resulting from the presence of some endangered species and from the centrally-instituted plans designed to protect them.

3.12.5 Obstacles

Obstacles faced during the management of the reserve are

- Excessive monsoon rain in the Churia occasionally causes flash flood in the streams and rivers of the reserve. As a consequence, the lower part of the reserve is facing several problems like, rising of riverbed, heavy cutting of riverbanks and uprooting of trees, change of course by streams.
- Confiscates a large volume of illegally collected NTFPs by a large number of people each year
- Inadequate waterholes inside the park, water level start drying up especially around the Adhabhar, Mahadev Khola and Charbhaiya post during the dry seasons which make wildlife vulnerable for poaching outside the park in search of water
- High human pressure on the park resources (especially for thatch grass, firewood, logs, NTFPs) from the adjoining villages
- Watercourses is being polluted due to increased number of industries (distilleries, beer factories, bottlers, steel factory & paper mill)
- Does not yet have a legally demarcated BZ boundary
- Settlement inside reserve, Rambhori Bhata encroached by people and needs to be evacuated. HMG has approved this step recently.
- Limited fire fighting capacity of the management
- Some sections of the reserve boundary are not clearly delineated and boundary dispute in northern side is still unclear
- Lack of land use plan (management zones) and administrative sector for balanced management
- High grazing pressure inside the park

- Lack of effective monitoring and evaluation system
- Faced problems in wild elephant management
- Roadside accidents are particularly serious in the PWR because the highway is 24 hour busy with exceptionally high speed vehicles
- Forest fire creates big threat to wildlife of the reserve, especially to the reptiles and young birds (DNPWC, 1999d).
- 1 wildlife was poached during 2002/03
- 1 wildlife died due to natural causes in 2002/03
- 1 people was killed by wildlife in 2002/03

3.12.6 Gaps

The gaps identified are

- Weak implementation of EIA/IEE
- Management plan not yet endorsed
- Lack of institutional framework where local community can be involved in tourism development
- One of the least studied PA of Nepal
- People are not adequately organized into the users group, functional groups and users committee hence their involvement in decision making and planning for management is poor

3.12.7 Commitments

The major commitments pertinent to PWR are reflected in the international conventions and agreements that Nepal has been affiliated to, such as:

- CITES: Convention on International Trade in Endangered Species of Wild Fauna and Flora 1975
- Convention on Biological Diversity 1992
- Membership from IUCN
- Identified as a tiger conservation unit under the Global Tiger Forum
- TAL: Terai Arc Landscape initiated to restore and maintain critical forest corridors and bottle necks connecting 4 PAs of Nepal and 7 PAs of India

The major national commitments pertinent to PWR includes

- Promote conservation of cultural heritage (tangible and intangible) through public awareness and participation.
- Promote eco-tourism to uplift the standard of living of local people as well as for the conservation of the environment
- Promote women, *dalit*, and poor in participatory development process
- Promote trans-boundary cooperation for the eco-regional conservation.
- Comprehensive Management Plan.
- Species action plan for Tiger, Rhino and domestic Elephant have been made
- Intended for handing over management responsibility to non-government or other organizations

The local commitments pertinent to PWR includes

- Proposed for development of surrounding area as BZ as per the BZ Development Regulation and Guidelines

3.13 Dhorpatan Hunting Reserve

3.13.1 Background

Area: Hunting Reserve 1,325 sq km (MoFSC, 2002)
Districts: Rukum, Myagdi and Baglung districts
Year(s) Established in 1987 as the only hunting reserve to meet the needs of Nepalese and foreign hunters of blue sheep and other game animals
IUCN Management Category: VII

3.13.2 Significance

Biological aspects cover the species and habitat including the ecosystem's description, conservation and management.

- 14 types of ecosystem have been identified (BBP, 1995c)
- 1150 species of flora have been recorded from the reserve (Shakya et.al., 1997)
- 36 species of flowering plants are endemic to the reserve (MoFSC, 2002)
- 16 species of mammals found in DHR are protected by CITES
- 7 species of mammals, 3 bird species are protected under the Appendix I of NPWCA, 1973
- Symbolic species of DHR is the blue sheep (*Pseudois nayaur*) and snow leopard

Socio-economic aspects cover vulnerability, livelihood and cultural heritage linked to biodiversity conservation and poverty reduction.

- The average poverty rank of DHR is calculated at 34.7 which fall under poor category of poverty rating scale (ICIMOD, 1998).
- 51,710 people from 9,629 HHs are settled around the reserve's periphery (CBS, 2001).
- Average annual visitors of DHR are 98 since 2000 (DNPWC, 2001c).
- Cultural sites inside DHR include Dhorbaraha (IUCN, 1997).
- Very few numbers of pilgrims visited annually to the religious shrines located inside

Conflict aspects cover the conflict arising from the interaction of reserve-people, policy, organizations and people-people.

- Conflicts due to people reported are poaching, revenge killing, illegal collection of forest products etc.
- Conflicts due to reserve reported are human injury, livestock depredation, crop raiding etc.
- Threats related to habitat and wildlife in DHR includes natural hazards, habitat loss, fire and transcending animals especially packed mules etc.

Managerial aspects cover the program implementation process and modality of various organizations to support biodiversity conservation and poverty reduction.

- Headed by the Warden, DHR has 35 staff positions of which 1 are gazetted and 34 are non gazetted staffs (Pers. Com. DNPWC).
- There is no army for protection in this reserve.
- Average annual revenue generated by the reserve in the last three year was Rs797,000 (Annual revenue in 2000, 2001 and 2002 were Rs151,000, Rs87,000, Rs12,000 respectively) (DNPWC, 2000a; DNPWC, 2001c; DNPWC, 2002a).
- Average allocated annual budget for DHR since 2000 was Rs3,771,000 (Annual budget in the year 2000, 2001 and 2002 were Rs2,937,000, Rs3,694,000, Rs4,083,000 respectively) (DNPWC, 2000a; DNPWC, 2001c; DNPWC, 2002a).
- Currently only one funding agencies/donor communities is work which is WWF
- All provisions of hunting are given in the NPWC Rules.
- Partnership possibilities between Japanese International Cooperation Agency (JICA) and other donor would be extremely possible

- Replication of SABIHAA model would be possible with promotion of POWER group at the grass root level, and consolidation of user groups at the ward level similar to Ward Conservation Committee promoted under SABIHAA. VDC level user committees should also be formed to make consistency with the LSGA.

3.13.3 Achievements

The major achievements of DHR are

- Only hunting reserve of the country
- Meet the needs of Nepalese and foreign hunters of blue sheep and other game animals
- Foreigner as a main visitors of the HR which are catered by well organized Nepali hunting safaris
- DNPWC annual report (1999, 2001, 2002) shows that two research were conducted on institutional as well as individual level
  - Problem and prospect of hunting reserve (2001)
  - Status and distribution of cheer Pheasant (2003)

3.13.4 Lessons Learned

Lesson learnt from the management are:

- Staff security is necessary for effective reserve management
- Direct benefit from the tourism activities is necessary for successful ICDP so as to safeguard biodiversity by allowing tourism revenue to benefit locals

3.13.5 Obstacles

The major obstacles faced in management and conservation of DHR are as follows

- Overgrazing of domestic animal in the reserve (Bajimaya, 1990).
- High density of cattle has been major problem to the reserve (Bajimaya, 1990).
- Fire and forest encroachment has also been identified as major obstacles (Bajimaya, 1990).
- Poaching of animal for meat by local (Bajimaya, 1990).
- The possession of fire arms by villagers is yet another problem faced by the reserve authority in controlling poaching (Bajimaya, 1990).

3.13.6 Gaps

The gaps identified are

- Game Hunting is not professionally and competitively promoted
- Management plan of the Dhorpatan Hunting reserve is not yet prepared.
- Success or failure of hunting is not reported by hunters
- Lack of transport facilities makes difficulty in monitoring
- Difficult to identify the position of hunters within park

3.13.7 Commitments

The major commitments pertinent to DHR are reflected in the international conventions and agreements that Nepal has been affiliated to, such as:

- CITES: Convention on International Trade in Endangered Species of Wild Fauna and Flora 1975
- Convention on Biological Diversity 1992
- Membership from IUCN

The major national commitments pertinent to DHR includes

- Allow sports hunting and ensure satisfaction of the hunters
- Promote conservation of cultural heritage (tangible and intangible) through public awareness and participation
- Promote eco-tourism to uplift the standard of living of local people as well as for the conservation of the environment

- Promote women , *dalit*, and poor in participatory development process
- Prepare a comprehensive Management Plan.
- Formulate a separate hunting reserve regulation
- Intended for handing over management responsibility to non-government or other organizations

3.14 Annapurna Conservation Area

3.14.1 Background

Area: Conservation area spans over 7,629 sq km (MoFSC, 2002)
Districts: Manang, Mustang, Kaski, Myagdi and Lamjung districts with 55 VDC inhabited by different ethnic group people (KMTNC, 2002a)
Year(s) Established in 1985 and gazatted in 1992 as the largest conservation area in Nepal and is managed by KMTNC (a national NGO) (KMTNC, 1997)
IUCN Management Category: VI

3.14.2 Significance

Biological aspects cover the species and habitat including the ecosystem's description, conservation and management.

- 28 types of ecosystem have been identified which include *Castanopsis tribuloides* forest, *Castanopsis indica* hygrophyte forest, Pokhara cultivated areas, Mixed hygrophytic Oak-hemlock-Fir forest, Open and dry blue montane forest, Blue pine spurce -fir forest, Mountain oak forest, Spruce mountain forest, Blue pine forest, Cyperus forest with Dwarf barberry Hygrophyic *Quercus lamellosa* forest, Collinean oak- mixed broad leaved forest, Open blue pine forest, Terai subtropical sal forest, Juniper forest, North Himalayan alpine vegetation. Glaciers, Snow level, High attitude cushion plant formation (BBP, 1995b; BPP, 1995c).
- 3,430 species of flora have been recorded from the conservation area (Shakya et al, 1997)
- 101 species of mammals, 478 species of birds, 41 species of reptiles and 23 species of amphibians have been recorded from the conservation area (KMTNC, 2002a).
- 56 species of flowering plants are endemic to the area (Shrestha and Joshi, 1996).
- 27 species of mammals found in ACA are protected by CITES
- 13 species of mammals, 3 bird species, are protected under the Appendix I of NPWCA, 1973
- Symbolic species of ACA are snow leopard, musk deer, Tibetan argali, and Tibetan wolf

Socio-economic aspects cover vulnerability, livelihood and cultural heritage linked to biodiversity conservation and poverty reduction.

- The average poverty rank of ACA is calculated at 62.2 which fall under very poor category of poverty rating scale (ICIMOD, 1997).
- 1,000,457 people from 20,581 HHs are settled around the conservation area's periphery.
- Average annual visitors of ACA is 60,000 since 2000 (KMTNC, 2002a)
- More than 30 cultural sites are inside ACA of which some are Lomanthang, Muktinath, Damodar kunda, Nar-phu, khuldi-piper, Higo-koree, etc. (IUCN, 1997)
- Very large number of pilgrims visited annually to the religious shrines inside ACA

Conflict aspects cover the conflict arising from the interaction of conservation area-people, policy, organizations and people-people.

- Conflicts due to people reported are poaching, revenge killing, poisoning of wetlands in PA, disturbances, illegal collection of forest products etc.
- Conflicts due to conservation area reported are human injury, livestock depredation, crop raiding, etc.
- Threats related to habitat and wildlife in ACA includes alien species invasion, development infrastructure, natural hazards, tourism garbage etc.

Managerial aspects cover the program implementation process and modality of various organizations to support biodiversity conservation and poverty reduction.

- There are three staff deputed by the DNPWC especially for legal matters in this Conservation Area according to the Conservation Area Regulation (Pers. Com. DNPWC).
- Management modality is based on the Conservation Area Management Regulation 1997 and the Conservation Area Directive 2000. This requires that the area be managed by local level Conservation Area Management Committees (CAMCs) at the VDC level. The area is allowed to be managed by a national NGO to the extent that the CAMC becomes capable to take over the management responsibility themselves (KMTNC, 2002b).
- Managed by KMTNC.
- Self sustained by entry fees from the visitors and additional support from funding agencies and individual support
- Currently 4 funding agencies/donor communities are working in ACA, which includes UNDP, KMTNC, WWF, and CARE (KMTNC, 2002a).
- Possible partners would be KMTNC, conservation committees, local NGOs etc.
- Replication of SABIHAA model would be possible with amendment of Conservation Area Regulations, such as consolidation of user groups at the ward level similar to Ward Conservation Committee promoted under SABIHAA. POWER group can be replicated for empowerment.

3.14.3 Achievements

The major achievements of ACA are

- ACAP serves as a model for conservation projects both within Nepal and throughout the world.
- Starting from 1 VDC (Ghandruk) in 1986 as a pilot phase, expanded in Lwang and Sikles in 1990 under the first phase expansion. The second phase expansion was in 1992 and 1993 in Lomanthang, Jomsom, Manang and Bhujung covering total 55 VDCs in 5 Districts (KMTNC, 1997).
- ACAP management plan was prepared and implemented for 1997 – 2002.
- Preparation of the Conservation Area Management Regulation 2053 BS (1997) and Conservation Area Directives 2056 BS (1999) has been in enforcement (KMTNC, 2002).
- KMTNC in 2001 submitted a phase-out strategy from the ACAP to the HMG. Realizing the successful undertaking of the first 10 year phase of the ACAP from 1991 to 2001 gave rise to giving management responsibility for an additional 10 years till 2012 by HMG to the KMTNC.
- Building the capacity of all the 55 CAMCs so that the management responsibility can be handed over by the ACAP to these local CBOs was the major strategy for ACAP phases out from the ACA (KMTNC, 2002).
- GEF, UNDP, AHF, ICIMOD, KMTNC funded Upper Mustang Biodiversity Conservation Project is in implementation since 2000 for five years in the Lomanthang Sector of the ACAP covering 7 VDCs.
- ACAP has proved that the principle of participatory ICDP in Conservation Area management is a successful model for Nepal to adopt. This model has been replicated by HMG by declaring MCA and KCA and adopting people centered BZ management in national parks (KMTNC, 2001a).
- Conservation education has been the backbone of all programs and an essential backdrop in most of the schools.
- Cultural conservation is given equal importance along with nature conservation. The cultural conservation program of Upper Mustang completed first phase and will be expanded to other monasteries in the second phase (KMTNC, 2002a).

Major achievements of ACAP up to 2000 are as following (KMTNC, 2002a):

- Natural Resource Conservation Program: Total 50 different activities conducted; 55 CAMC Operational plan prepared; 27 project and private nursery established; 1,662,014 tree

seedlings planted; Rs2,366,000 endowment fund of CAMC formed as an economic empowerment; 10 Musk deer and snow leopard conservation committee formed; training and study tour on various aspects; etc.

- Alternative Energy Program: Total 32 different activities; 13 Micro-hydro established benefiting 1,989,000 HHs/hotels; 589 back boiler system installed, 36 kerosene depot established; training and study tour; etc.
- Conservation Education Program: Total 28 different activities; 74 CE classes in schools; 72 study tour for students; various other activities.
- Community Development Program: Total 36 different activities; 62 suspended bridge construction; 60,191 meter trail repair and construction; 194 school building construction supported; 141 drinking water schemes; 8 sites river training supported; etc.
- Agriculture Development Program: Total 35 different activities conducted; 10 agriculture demo sties established; 10,143,157 vegetable seedling distributed; 524 people trained in kitchen gardening; 45 HHs provided soft loan; various other trainings, etc.
- Livestock Development Program: Total 29 different activities conducted; 36 farmers trained on poultry; 9 village animal health worker trained; 11 veterinary clinics supported; 124 shed improvement; etc.
- Women Development Program: Total 66 different activities conducted among 290 mother groups; 36 mothers group management training provided; 7 day care center operated; 139 Adult Literacy Class (ALC) operated; 27 schools endowment for girl scholarship; 18 saving and credit group cooperatives formed; training on various aspects, etc.
- Tourism Development Program: Total 55 different activities conducted; 27 tourism management sub-committees formed; 5120 participants benefited by 89 tourism awareness camps; 656 people participated in 22 lodge management training; 117 rubbish pit and 12 dumping sites constructed; 29 visitor information center established; 2 micro-enterprise training conducted; various other training and visits, etc.
- Cultural Heritage Conservation Program: Total 15 different activities conducted; 52 monasteries renovation; 13 monasteries management committee formed; 19 temple constructed; etc.
- Research and Documentation: Total 13 different activities conducted; 2 Wildlife survey conducted; 7 medicinal plant survey conducted; 16 VDC socio-economic survey etc.
- Community Health Program: Total 25 different activities conducted; 30 mobile health camp operated benefiting 2953 people; 23 health awareness camp conducted with 611 participants; 7117 people benefiting from health services; various other training, etc.
- Awards: Deutscher Rieseburo-Verband Award of Tourism and Environment; Tourism for tomorrow – world wide; Tourism for tomorrow – Asia pacific; J. Paul Getty Conservation Award; Global 500 Award. Mother Group of Jomsom village and Tourism Management Sub-Committee of Chhomrong village were awarded Abraham Conservation Award 2001 and 2002 from WWF/Nepal respectively.
- As an impact of ACAP, people of 55 VDCs that on the onset of the ACAP did not have even clean drinking water have now:
  - community owned and managed drinking water supply; construction of health posts and health services support people are getting adequate health care;
  - alternative means of energy has been provided through community owned and managed systems such as micro-hydro and kerosene depots;
  - access has been improved through regular repair and maintenance of trials and construction of bridges.

3.14.4 Lessons Learned

Lesson learnt from the management are

- Involvement of local communities and benefit sharing by them was very critical for long term biodiversity conservation. In areas where people are dependent for livelihood on natural resources, biodiversity and environment conservation would neither be possible nor be meaningful if people are dissociated from conservation and benefit sharing (KMTNC, 2001a).

- Experiences from ACAP showed that biodiversity/environment conservation, tourism management and socio-economic development could be achieved through participatory conservation area management (KMTNC, 2001b).
- Boundary related conflict between committee within the VDCs for resource utilization is being resolved through dialogues and helped by the Conservation Area Regulation 1997 as it has authorized realignment of boundaries in the case of conflicts. This amply illustrates that community ownership and legal measures are both vital for the conservation of biodiversity (KMTNC, 2001a).
- As ACAP provides a background for community based conservation, it also has responsibility to explore values and sustainable use of biodiversity for which multidisciplinary management research has a pivotal role to play.

3.14.5 Obstacles

Major obstacles faced in management and conservation of ACA are as follows

- Illegal herb collection and poaching of wildlife still occur in Lomanthang, Manang, Bhujung and Lwang sectors.
- There is still lack of a comprehensive MIS that limits effective Conservation Area management.
- Although the Conservation Area Operation Plan has been prepared by each of the 55 CAMCs, it has yet to be implemented for which training and monitoring is essential.
- There is a need for necessary amendment of the Conservation Area Management Regulation 2053 as it offers some obstacles in implementation (KMTNC, 2002b).

3.14.6 Gaps

Gaps identified are

- Lack of information on the medicinal and aromatic plants abundance and trade.
- Management still suffers due to lack of a MIS.
- To issue the harvesting permit of the wildlife (other than endangered) through the CAMC on the basis of detail survey/research and extension is essential.
- Lack of an ACAP Management Council, a representative umbrella organization of all CAMCs.
- Development of a NTFP harvesting policy by empowering CAMCs for overall management and implementation is still lacking.

3.14.7 Commitments

The major commitments pertinent to ACA are reflected in the international conventions and agreements that Nepal has been affiliated to, such as:

- CITES: Convention on International Trade in Endangered Species of Wild Fauna and Flora 1975
- Convention on Biological Diversity 1992
- Membership from IUCN

The national commitments pertinent to ACA includes

- Privately managed by King Mahendra Trust for Nature Conservation and was given authority to handle the management of the conservation area for a second period of 10 years till 2012
- Develop the area as multiple uses by integrating environmental protection with rural development and tourism
- Promote conservation of cultural heritage (tangible and intangible) through public awareness and participation
- Promote eco-tourism to uplift the standard of living of local people as well as for the conservation of the environment
- Promote women , *dälit*, and poor in participatory development process
- Comprehensive Management Plan of the Conservation Area.
- Declare all Himalayan Protected areas as garbage free zone.

- Promote alternative energy

The local commitments pertinent to ACA includes

- To protect ecological sites such as Damodar kunda, Nar-phu, khuldi-piper, Higo-koree, Lomanthang, etc.
- Community based conservation with active participation of local community
- Community based eco-tourism development

3.15 Kanchenjunga Conservation Area

3.15.1 Background

Area: Conservation area spans over 2,035 sq km (MoFSC, 2002)
Districts: Taplejung district with 4 VDC inhabited by different ethnic group people (WWF, 2003)
Year(s) Established in 1997 as the conservation area adjoining the Qomolongma Nature Preserve in Tibet and Kanchendzonga Biosphere Reserve in Sikkim, India and declared as Gift to the Earth (WWF, 2003)
IUCN Management Category: VI

3.15.2 Significance

Biological aspects cover the species and habitat including the ecosystem's description, conservation and management.

- 8 types of ecosystem have been identified (BBP, 1995b; BPP, 1995c).
- 3,000 species of flora have been recorded from the conservation area (Shakya et.al., 1997).
- 23 species of flowering plants are endemic to the area (Shrestha and Joshi, 1996)
- 15 species of mammals found in KCA are protected by CITES
- 7 species of mammals, 1 bird species, are protected under the Appendix I of NPWCA, 1973
- Symbolic species of KCA are snow leopard (*Uncia uncia*), musk deer (*Moschus chrysogaster*), Red Panda (*Ailurus fulgens*)

Socio-economic aspects cover vulnerability, livelihood and cultural heritage linked to biodiversity conservation and poverty reduction.

- The average poverty rank of KCA is calculated at 62.0 which fall under very poor category of poverty rating scale (ICIMOD, 1998).
- 5,908 people from 1,135 HHs are settled around the conservation area's periphery (WWF, 2003).
- 388 people visited KCA in 2002/03 of which 257 were male (WWF, 2003)
- Cultural sites inside KCA are Dikicholing Gumba, Pathibhara, Simgajema Taal
- Number of pilgrims visiting KCA is medium

Conflict aspects cover the conflict arising from the interaction of conservation area-people, policy, organizations and people-people (WWF, 2003; DNPWC/WWF, 1997).

- Conflicts due to people reported are poaching, revenge killing, illegal collection of forest product etc.
- Conflicts due to conservation area reported are human injury, livestock depredation, crop raiding, etc.
- Threats related to habitat and wildlife in KCA include habitat loss, natural hazards, slash and burn etc

Managerial aspects cover the program implementation process and modality of various organizations to support biodiversity conservation and poverty reduction.

- The KCA management modality is based on the Conservation Area Government Management Regulation 2001. This requires that the area be managed by local level Conservation Area Management Committees (CAMCs) at the VDC level. The area is allowed to be managed by

a national NGO to the extent that the CAMC becomes capable to take over the management responsibility themselves

- Managed by DNPWC with support of WWF, there are nine staff deputed by the DNPWC in this Conservation Area according to the Conservation Area Government Regulation (Pers. Com. DNPWC).
- .Currently 4 funding agencies/donor communities are working in KCA, which includes UNDP, DFID, WWF, and SNV
- Possible partners would be WWF, conservation committees, local NGOs etc.
- Replication of SABIHAA model would be possible with amendment of Conservation Area Regulations, such as consolidation of user groups at the ward level similar to Ward Conservation Committee promoted under SABIHAA. POWER group can be replicated for empowerment.

This includes international, national and cross cutting policies and legislations concerning biodiversity conservation in PAs and wetlands

- Declared as Gift to the Earth on April 1997 by HMG of Nepal in support of WWF's Living Planet Campaign in recognition to its rich natural and cultural resources (WWF, 2003).

3.15.3 Achievements

The major achievements of KCA are as follows:

- Some research works have been conducted in and around KCA and the major research themes were ecotourism, transhumance grazing and red panda.
- Separate Management Plan of Kanchanjunga is being prepared
- User committee Operational Plan has been prepared
- Snow leopard Action Plan has been prepared as well as monitoring was done
- Red Panda Status Survey has been done
- With the aim of regulating efficient tourism management practice, a Tourism Plan has been made by the DNPWC
- Conservation Area Management Council has been formed
- The area of the KCA was extended from 1,650 sq km to 2,035 sq km
- With the collaborative efforts of several international organizations, WWF is promoting a long term concept of a "tri-nation peace park" that would join the KCA to neighboring protected areas in India and China (WWF, 2003)

3.15.4 Lessons Learned

The main lessons learned from this park are as follows:

- ICDP is replicable with community participation
- More tangible activities required for biodiversity conservation and socioeconomic improvement

3.15.5 Obstacles

The major obstacles faced in KCA are:

- High density of livestock in grazing area is a major problem which leads to year-round grazing (WWF, 2003)
- Tree felling was reported in several places within the conservation area to make planks and to supply to Tibet
- Illegal collection of Medicinal Plants (WWF, 2003)
- Lack of poor infrastructures and logistics (e.g. motorable roads etc.)
- Geophysical Barrier is also a major obstacle (WWF, 2003)
- Poaching of snow leopard and musk deer is a major problem
- Fire and Slash and Burn are pertinent to this National Park

3.15.6 Gaps

The gaps identified in KCA are as follows:

- Tri-national peace park policy concept of WWF not formulated yet
- Gap in management information system

3.15.7 Commitments

The major commitments pertinent to KCA are reflected in the international conventions and agreements that Nepal has been affiliated to, such as:

- CITES: Convention on International Trade in Endangered Species of Wild Fauna and Flora 1975
- Convention on Biological Diversity 1992
- Membership from IUCN
- Transboundary cooperation with India and China in respect to anti-poaching, wildlife monitoring and exchange of information and knowledge, and linkage with Kanchandzonkha Bioshphere Reserve in India and Qomolungma Nature Preserve in China.

The national commitments pertinent to KCA includes

- Develop KCA as a tri-national Peace Park in-cooperation with the neighboring countries
- Develop the area as multiple uses by integrating environmental protection with rural development and tourism
- Promote conservation of cultural heritage (tangible and intangible) through public awareness and participation
- Comprehensive Management Plan of the Park.
- Promote eco-tourism to uplift the standard of living of local people as well as for the conservation of the environment
- Promote women, *dalit*, and poor in participatory development process
- Promote trans-boundary cooperation for the eco-regional conservation
- Declare all Himalayan Protected areas as garbage free zone.
- Promote alternative energy
- Letter of intent has been issued to KCAM Council for managing the KCA

The local commitments pertinent to KCA includes

- Community based conservation with active participation of local community
- Community based eco-tourism development

3.16 Manaslu Conservation Area

3.16.1 Background

Area: Conservation area spans over 1,663 sq km (MoFSC, 2002)
Districts: Gorkha district with 7 VDC inhabited by different ethnic groups of people (KMTNC, 2002a)
Year(s) Established in 1998 as the conservation area and is the second conservation area managed by KMTNC
IUCN Management Category: VI

3.16.2 Significance

Biological aspects cover the species and habitat including the ecosystem's description, conservation and management.

- 18 types of ecosystem have been identified
- 2,500 species of flora have been recorded from the conservation area (Shakya, et., al, 1997).
- 33 species of mammals, 110 species of birds and 3 species of reptiles/amphibians have been recorded from the conservation area (KMTNC, 2002a).
- 9 species of mammals found in MCA are protected by CITES
- 6 species of mammals, 1 bird species, are protected under the Appendix I of NPWCA, 1973

- Symbolic species of MCA are snow leopard and musk deer.

Socio-economic aspects cover vulnerability, livelihood and cultural heritage linked to biodiversity conservation and poverty reduction.

- The average poverty rank of MCA is calculated at 64.0 which fall under very poor category of poverty rating scale (ICIMOD, 1998)
- 7,711 people from 1,842 HHs are settled around the conservation area's periphery.
- A total of 566 tourists visited in 1999, grew to 570 in 2000, grew to 803 in 2001.
- More than 10 cultural sites are inside MCA which include Chipuk Gumba, Kungyurchuling Gumba, Mankhang Gumba, Sangakcholing Gumba, Malamphuk Gumba, Kungyurlhakhang Gumba, Kampunggyang Guffa, Kangyurlhakhang Gumba, Kargincholing Gumba, Serangi Gumba (IUCN, 1997).
- Very few numbers of pilgrims visit annually to the religious shrines inside MCA

Conflict aspects cover the conflict arising from the interaction of conservation area-people, policy, organizations and people-people.

- Conflicts due to people reported are poaching, revenge killing, communicable diseases related to grazing, illegal collection of forest products. etc.
- Conflicts due to conservation area reported are human injury, livestock depredation, crop raiding, etc.
- Threats related to habitat and wildlife in MCA includes natural hazards

Managerial aspects cover the program implementation process and modality of various organizations to support biodiversity conservation and poverty reduction.

- There are three staff deputed by the DNPWC especially for legal matters in this Conservation Area according to the Conservation Area Regulation (Pers. Com. DNPWC).
- The MCAP management modality is based on the Conservation Area Management Regulation 1997 and the Conservation Area Directive 2000. This requires that the area be managed by local level CAMCs at the VDC level. The area is allowed to be managed by a national NGO to the extent that the CAMC becomes capable to take over the management responsibility themselves.
- Managed by KMTNC.
- Currently 2 funding agencies/donor communities are working in MCA, which includes KMTNC and ADB.
- Possible partners would be KMTNC, CAMCs, local NGOs etc.
- Replication of SABIHAA model would be possible with amendment of Conservation Area Regulations, such as consolidation of user groups at the ward level similar to Ward Conservation Committee promoted under SABIHAA. POWER group can be replicated for empowerment.

3.16.3 Achievements

There are 7 CAMCs formed in each of 7 VDCs in MCA. In addition there are 12 Forest Management Committee at the ward level, 25 Women Groups (WGs). 4 micro hydro management committee and 2 Tourism Management Committee are the major CBO in the MCA. The brief highlight of Manaslu Conservation Area Project (MCAP)/Manaslu Ecotourism Project conducted program description and achievements as of September 2001 are as following (KMTNC, 2001a; KMTNC, 2002a):

- A material distribution center and check post was established; tourist information center established at Philim MACP headquarter.
- Access Improvement: As the nearest road head is located 3 days walk a total of 10.8 km trail was improved by stone paving or widening; Sign posting placed along the entire Larkye Trail with maintenance responsibility given to Tourism Management Committees; 16 new wooden bridges constructed and 2 restored; 2 Helipad were construction and survey of Short Take Off

and Landing airport at Prok village conducted; 6 wireless radio communication sets established.

- Alternative Energy: 4 Micro hydro electricity projects are under way Samagaon 33 kW, Lho 30 kW, Prok 23 kW and Namrung 15 kW benefiting total 351 HHs; 7 kerosene depots have been established under a loan agreement; 8 Gompa were supported with solar electricity generating 40-50 Watts.
- Nature Conservation: Seeking alternatives as a strategy to natural resource dependency is being worked out; CAMC formation and strengthening through various training, workshop and exposure visits and deposit of NRs 24,000 in each of the CAMC accounts since 2000. The CAMCs are employing a forest guard in each ward; 11 Forest Management Committee are formed in 3 VDCs at each ward; 1 forest nursery was established and produced 7000 seedlings for plantation; different types of conservation education and extension program activities were conducted in villages; a workshop was held as a first step to prepare Operational Plan of each CAMC.
- Sustainable Tourism Development and Management: 5 community owned campgrounds built, 5 private campsite were supported with toilet construction, financial support to 3 local lodge owners provided, various training programs organized to build local capacity, etc. Total 20 campsites have piped drinking water, 10 have dumping pits, 15 have toilets. Tourism awareness camps organized, Tourism Management Committee have been formed in 2 VDCs, Training on various aspects provided.
- Sustainable Community Development: 11 drinking water supply schemes in eleven village with 55 taps benefiting 525 HHs, 14 community toilets, various supports to schools such as roofing and conservation education curriculum teaching, health improvement and sanitation program were launched through various training and extension program and by providing infrastructure support. The traditional *Amchis* were supported.
- Heritage Conservation: 120 Gomba were financially and technically supported for renovation and 8 were supported for solar photovoltaic electricity installation. In Nubri, a poacher caught red handed is stripped publicly, lashed 500 times on the buttock and fined Rs 5000 have been extremely effective among the local inhabitants.
- Women in Conservation and Development: Empowerment of women is central, formation of WG in each village under which 25 WGs in the 7 VDCs have been accomplished; ALC launched in 10 villages of 4 VDCs. The WG formed have been found to be the most active institution playing an important role in conservation and development.
- Agriculture and Livestock Development: Promotion of vegetable production demo plots established in 4 sites; training on kitchen gardening provided. Local people have started to make their own kitchen garden after observing the plots.
- Capacity Building: This includes the technical, analytical and decision-making skills of local people under which five exposure tours of VDC representative, WG, CAMC, Micro Hydro-Electricity Management Committee were organized and training on various aspects provided.
- Research, Promotion and Publicity: Biodiversity survey conducted in 1998/99; promotional documentary film prepared; etc.

3.16.4 Lessons Learned

- ICDP is replicable with community participation
- Tourism has been seriously paralyzed and local economy affected by political insurgency, which is not a good sign for conservation and poverty alleviation.
- Killing of animals is strictly forbidden by Monastic orders and violators are subject to public humiliation and physical and financial punishment in the MCA (DNPWC 2001g). This has been a very effective socio-cultural practices against illegal activities.

3.16.5 Obstacles

- Geophysical barrier and inaccessibility, transportation difficulty and shortage of labors due to the remoteness of the area

- A few incidences of hunters and poachers from Manang, and lower Gorkha in search of musk deer and other game species but is not a serious problem. Habitat loss because of heavy dependence on forest products is a severe problem.
- Illegal collection of MAP and inadequate control measures is also of major concern
- Seasonal and intentional fire causes serious damage to the natural resources.
- High dropout rate in ALC
- Upper Manaslu area is stated to be capable of hosting a far grater number of tourists than the HMG set quota of 1000 tourists per year.

3.16.6 Gaps

- There is still inadequate conservation awareness and education among the people.
- The Operational Plan preparation is in the process. To complete the OP in each CAMC a socio-economic survey and forest inventory is necessary. Following to the Operation Plan a Management Plan of the MCA is to be devised.
- Lack of basic infrastructures such as trail, bridges, and telecommunications is the primary hindrance for tourism promotion and community development in MCA.

3.16.7 Commitments

The major commitments pertinent to MCA are reflected in the international conventions and agreements that Nepal has been affiliated to, such as:

- CITES: 1975
- Convention on Biological Diversity 1992
- Membership from IUCN

The national commitments pertinent to MCA includes

- Privately managed by KMTNC and was given authority to manage for a period of 10 years
- Develop area as multiple uses by integrating environmental protection with rural development and tourism
- Promote conservation of cultural heritage (tangible and intangible) through public awareness and participation
- Promote eco-tourism to uplift the standard of living of local people as well as for the conservation of the environment
- Promote women, *dalit*, and poor in participatory development process
- Develop a Comprehensive Management Plan
- Declare all Himalayan Protected areas as garbage free zone.
- Promote alternative energy

The local commitments pertinent to MCA includes

- Community based conservation with active participation of local community
- Community based eco-tourism development

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Annex 4
Review of Wetland Sites

Contents

1 Introduction

This study on Poverty Reduction through Sustainable Management of Protected Areas and Wetlands in Nepal: Processes, Modalities, Impacts and Identification of areas for Future Support was commissioned to Center for Natural Resource Analysis, Management, Training and Policy Research (NARMA) Consultancy (Pvt) Limited by Japan International Cooperation Agency Nepal (JICA-Nepal). The main objective of the study was to make a comprehensive review of biodiversity in Protected Areas (PAs) and Wetland Sites (WSs) of economic and conservation importance in Nepal and thereby identify feasible areas for Japan Nepal future cooperation in this sub-sector for participatory biodiversity conservation and poverty reduction. The study spanning over five months became effective from November 2003.

An Inception Report was submitted to JICA Nepal outlining the detail study methodology which was revised based on comments and suggestions received from several stakeholders during a half-day consultation meeting organized in the Department of National Parks and Wildlife Conservation (DNPWC) on 28 November 2003[1]. Following the agreed methodology, review analysis of PAs and WSs was carried out at two levels. At the first level, the study prepared and documented all studies/documents conducted/pr prepared in all the 16 PAs and 10 priority WSs of Tarai (Annex 2 presents the findings fron the first level review). Later on all the 16 PAs and 10 WSs are analyzed in terms of their focus / coverage (biodiversity, socio-economic, conflict, managerial and policy/legislation aspects) using the Significance, Achievement, Lesson learnt, Gap, Obstacle, Commitment (SALOGC) approach. This annex is devoted to present the review analysis of 10 WSs of the Tarai. Presentation in this annex is organized into three main sections. With the brief presentation of background in this section, section 2 is devoted to the presentation of an overview of findings and the third section in the presentation of detail review findings of each wetland studied.

2 An Overview of Review Findings

2.1 Wetland Sites

Wetland sites account only 5 percent of Nepal's total surface area but they have high ecosystem diversity and support high global biodiversity. According to the BPP 1995, of the 51 wetlands of Tarai 36 are deemed biologically significant and Nepal biodiversity strategy has identified 10 WSs, which merit legal protection. The review of WSs has been focused on these sites only. Table 1 below summarizes the key features of the priority WSs.

Table 1: Priority WS in Nepal

Wetlands	Area (ha)		Physio-graphic regions	Significance
	Water body	Watershed		
1. Bishazari tal	180	1,000	Terai	Large complex of oxbow lakes set in a very scenic environment, a good representative of an oxbow ecosystem, supporting an appreciable assemblage of rare, vulnerable and endangered wildlife species
2. Gaindahawa tal	11	26	Terai	Oxbow lake, wintering populations of several species of waterfowl
3. Jagdishpur Reservoir	156	406	Terai	Large irrigation reservoir supporting more than 4% of the Asian population of Ferruginous Duck (*Aythya nyroca*), and designated Ramsar site

[1] Appendix 1 presents the list of participants attending the meeting and Appendix 2 presents the summary of discussions and comments and suggestions made.

Wetlands	Area (ha)		Physio-graphic regions	Significance
	Water body	Watershed		
4. Badahiya tal	100	100	Terai	Large marshy natural depression supporting a large number of resident and wintering populations of several species of waterfowl.
5. Ghodaghodi tal	150	250	Terai	Large complex of oxbow lakes set in a very scenic environment, surrounded by dense Sal forest. Designated Ramsar site,
6. Nakhrodi tal	100	130	Terai	Large complex of oxbow lakes set in a very scenic environment, surrounded by dense *Sal* forest.
7. Rampur tal	22	28	Terai	Medium-sized complex of oxbow lakes set in a very scenic environment, surrounded by dense Sal forest
8. Deukhuria tal	22	24	Terai	Large lake set in a very scenic environment. Of major importance as a particularly good example of an oxbow ecosystem supporting an appreciable assemblage of rare (*Sarkidiornis melanotos*), vulnerable and endangered wildlife species
9. Patriyani tal	35	200	Terai	Large oxbow lake
10. Betkot tal	4	4.5		Very scenic lake of special value for maintaining genetic and ecological diversity.

2.2 Major Obstacles and Gaps in Wetland Management

From the review of 10 WSs of the Tarai, a number of obstacles and gaps have been identified in respect of conserving the biodiversity and sustainable management of wetland resources. Most of the obstacles and gaps reported are common for all the WSs reviewed. Reported obstacles and gaps are summarized in Table 2 with site specific details in next section.

Table 2: Major obstacles and gaps reported in wetlands

Major Obstacles	Major Gaps
• Natural and cultural eutrophication • Alien species invasion • Dependency on the natural resources • Draining and drying up of water sources • Encroachment and forest clearance • Excessive fishing including exploitation of rare, endangered and monogeneric species • Flooding, landslide and erosion • Human population increase • Hunting • Organic accumulation and siltation • Over grazing • Pollution • Unplanned constructions and developmental activities	• CITES bill not yet been endorsed • Gap in the information on encroachment • Inadequate conservation awareness • Legal jurisdiction of the Ramsar Site is not clear • Management of wetland not been recognized in the periodic plans including the current Tenth Plan • Management plan not implemented • No clear demarcation of the wetland site • No conservation measures initiated • No detail inventory • No specific legal provisions of the recently formulated conservation policies • No tangible programmes on conservation and development • Not yet been developed from tourism perspective • Species not fully protected under existing legal system

3 Wetland Specific Review Findings

3.1 Ghodaghodi Tal Ramsar Site

3.1.1 Background

Area: water body 150 ha
watershed 250 ha
Located 100 m north of the East-West (E-W) highway in the Ward 5 of Darakhnidi Village Development Committee (VDC)
Districts: Kailali encompassing 3 VDCs (Darakhnidi, Ramsikharjhala and Sandepani)
Year(s) Ramsar site recognized in 2003

3.1.2 Significance

Significance attempts to review and analyze the background information, which illustrates the situation and importance of the WSs. The significance aspects cover the five areas of inquiry, which includes biological, socio-economic, conflict, managerial, and policy and legislations as suggested in study framework.

Biological aspects cover the species and habitat including the ecosystem's description, conservation and management.

- Biodiversity Profile Project (BPP) 1995, has identified 2 types of habitat around the WS
- International Union for Conservation (IUCN) 1998a, has classified 6, 12, 13 wetland type i.e. permanent fresh water lake, seasonal fresh water marshes on inorganic soils and peat lands
- Water surface area is 150 ha
- Watershed coverage is 250 ha
- Land use pattern of the WS area include 98 % of dense forest and 2 % of pasture
- Serves as a waterhole for wild life e.g. tiger (*Panthera tigris),* otter *(Lutra lutra)* etc.
- Supports large population of marsh mugger (*Crocodylus palustris)*
- Occurrence of gharial (*Gavialis gangeticus*) has been reported (BPP, 1995)
- 3 species of turtle have been recorded from the site
- 17 species of fishes have been recorded including species such as mungre (*Tor tor*) which is normally found in fast flowing streams
- 140 species of bird have been reported. 4 resident birds found in the area breed only in low land (Baral, 1992)
- Resident population of pigmy goose (*Nettapus coromandelianus)* is about 1 % of total Asian total population
- BPP (1995) has rated
  - Very high importance on biological diversity and wildlife habitat
  - High importance on scenic/landscape beauty and scientific value

Socio-economic aspects cover vulnerability, livelihood and cultural heritage linked to biodiversity conservation and poverty reduction.

- Poverty rank situation of the WSs is 20.
- Around 7054 people from 897 households (HHs)use this WS
- 4-6 HHs are involved in water fowl trapping and 5-7 HHs in harvesting of other wild life such as turtle
- Used for Irrigation, Fishing, Grazing, Domestic use, Fodder, Plant harvest, Recreation, Fuel source, Aquatic fruit collection
- Has a great religious value and Laxmi Narayan temple is constructed on the southern side of the lake

- Supports 150 HHs of adjoining village for fishing, 200 HHs for livestock grazing, 20 HHs for fodder collections.
- BPP (1995) has rated
  - Very high importance on historical or cultural value
  - High importance on plant product collection and tourism/recreation potential as WS immediately adjacent to highway
  - Medium importance on water quantity regulation, water quality regulation, animal production/harvesting and water storage or supply
  - Very less importance on land development as WS is surrounded by forest

The major threats to the GTRS are:

- Water fowl trapping
- Fishing
- Drainage, vegetation succession, defoliation of surrounding ridges and siltation
- Building construction, monospecific dominations

The managerial aspects cover the program implementation process and modality of various organizations to support biodiversity conservation and poverty reduction.

- WS has high importance for potential management effectiveness
- Conservation of the lake is responsibility of Kailali District Forest Office (DFO)
- No conservation measures have been initiated so far for the management of the WSs
- Conservation measures has been initiated in the WS
- WS has a well prepared management plan
- Donor communities/funding agencies are supporting for the conservation of WSs although funding has not yet been committed for Ghodaghodi. IUCN with the support of Canadian Cooperation Office (CCO) has prepared the management plan, and World Wildlife Fund (WWF) has been supporting for the Terai Arc Land program that covers the Ghodaghodi Tal as well.
- Samudayik Bukash tatha Hariyali Aayojana's (SABIHAA) Ward Conservation Committee (WCC) model can be integrated in the management of GTRS by consolidating User Groups (UGs) first at the ward level and then at the VDC level. It will require defining of the GTRS boundary to encompass all wards of a VDC.
- Replication of Poor People, Occupational caste and Women's Empowerment for Resource management Program (POWER) group as promoted by SABIHAA will enhance empowerment process. However, modifications may be required to reflect the local situations.

Policy aspect includes international, national and cross cutting policies and legislations concerning biodiversity conservation in WSs.

- Designated Ramsar Site in 2003 due to its global significance
- BPP (1995) ranked this WS as category D. This category warrants for urgent conservation measures and management and or control the use of their resources
- IUCN (1998a) ranked as High category WS because it is in natural and less disturbed conditions. This category of WS may need conservation to maintain ecological characteristics.

3.1.3 Achievements

The major achievement in respect to the GTRS is its designation as a Ramsar site in September 2003 for the following reasons:

- The area includes a number of lakes, of which the GTRS is the largest natural terai (lowland) lake of Nepal. The lakes in the area are representative of several lakes found in the Western terai area of Nepal.

- It includes globally threatened species (IUCN, 2002) which include: Critically endangered: Red-crowned Roofed Turtle (*Kachuga kachuga*) Endangered: Tiger (*Panthera tigris)*, Three-striped Roof Turtle (*Kachuga dhongka*); Vulnerable: Smooth-coated Otter (*Lutra perpiscillata*), Common Otter (*Lutra lutra*), Swamp deer (*Cervus duvaucelli*), Lesser Adjutant Stork (*Leptotilos javanicus*) Marsh Crocodile (Crocodylus palustris) Least Risk: Ferruginous Duck (*Aythya nyroca*), Grey -headed fish eagle (*Ichthyophaga ichthyaetus*), Asiatic Rock Python (*Python molurus*) repetition

The other achievements are as follows:

- Preparation of the participatory community-centered Conservation Management Plan with the joint efforts of IUCN and *Ghodaghodi Kshetra Samrakshan Tatha Bikas Samiti* with the financial support of CCO
- Selected as a demonstration site by IUCN-Nepal for research and monitoring
- Proposed for a conservation reserve or a bird sanctuary and/or wildlife reserve.
- User groups have been formed with the initiative of the local Non Governmental Organizations (NGOs)
- More than 16 Community Based Organizations (CBOs) are working in GTRS area

3.1.4 Lessons Learned

On the basis of the recommendations given in the Ghodaghodi management plan following lessons can be learned:

- Certain species of fish below a minimum-size should not be caught.
- Cultural heritage can increase the internal tourism of the GTRS.
- Government commitment is necessary for the biodiversity conservation and community development.
- Multidisciplinary action and scientific research should be conducted to fulfill the gaps on priority areas identified for the management, which also includes biodiversity conservation.
- Formal and informal conservation awareness programmes in communities and schools should be conducted for the restoration of WS resources.
- GTRS area should be declared as a conservation area under the appropriate legislation.
- There should be regular monitoring and evaluation for the biodiversity conservation.

3.1.5 Obstacles

The major issues that pose obstacles for the conservation and development of the site are as follows:

The biological and environmental obstacles are:

- Accumulation of organic substance from deposition of aquatic macrophytes, mainly of large leafed lotus
- Natural eutrophication through the death and decay of biological products is higher in Ghodaghodi.
- Growing algal cover
- Exploitation of existing rare, endangered and monogeneric species
- Invasive species such as water hyacinth (*Eichhornia crassipes*) and besharam (*Ipomoea species*) pose a serious problem as in any other WSs in Terai
- Siltation has been a serious problems due to rapid deforestation, over-grazing, and other human disturbances have increased soil erosion
- Water sources are gradually drying up due to deforestation in the upstream
- Production of waste and garbage during religious-cultural practices in the GTRS Pollution of the lake water has been visible due to washing, bathing and buffalo wallowing

The socio-economic obstacles are:

- There is a high dependence on forest and WS resources since roughly 88 percent of the population is engaged in agriculture and fishing.
- Grazing is higher in the southeastern parts of GTRS. The heavy grazing has led to the loss of native vegetation and the proliferation of the unpalatable *Imperata cyclindrica*.

- Over 100 lakes and ponds in Kailali district are used extensively for farming exotic carp species (e.g. Common carp, Grass carp, Silver carp etc.).
- Hunting is a common pastime of a certain section of the community in the region. Wildfowl, wild boar and deer species are commonly hunted.
- The encroachment problem is severe in northwestern part of GTRS. Due to increasing number of migrants over 400 hectares of forestland along GTRS Complex has been converted into cropland.

The other obstacles in the GTRS are as follows:

- Construction of unplanned new temples and trails have resulted in increased human activities
- The Mahendra E – W Highway runs from the southern edge of the GTRS. The road provided access to the population and encouraged encroachment of the surrounding area.
- There are also plans for certain development activities such as an irrigation project, which would have a serious long-term effect. About 500ha of rice fields are currently irrigated by water from the GTRS.

3.1.6 Gaps

The major gap identified in the GTRS is on biological research and monitoring. Most of the researches are concentrated on birds.

The socio-economic gaps include the followings:

- Despite rich in biodiversity, GTRS has not yet been developed as a tourism destination.
- There is no clear demarcation of the WS.
- There have not been commitments from the government and the donors for the conservation and development of the WS.
- The local people are not aware of the importance of the WS.
- There is a gap in the information on encroachment

Some important gaps pertinent to WS in general are as follows:

- Aquatic and other migratory species are not fully protected under the existing legal system
- Legal jurisdiction of the Ramsar site is not clear. Department of National Park and Wildlfe Conservation (DNPWC) is the focal institution for Ramsar convention, but the GTRS falls under the jurisdiction of the Department of Forests

The policy related gaps pertinent to GTRS are as follows:

- There are no specific legal provisions in the current acts and regulations for the implementation of the recently formulated conservation policies, such as provision of handing over protected area management to non government sector.
- Management of WS has not been recognized in the periodic development plan especially the 10th Plan
- The Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES) bill that addresses the control of illegal trade in wildlife products has not yet been endorsed.

3.1.7 Commitments

In relation to GTRS, His Majesty Government of Nepal (HMG/N) has made significant international commitments on biodiversity conservation such as follows:

- Ramsar Convention or Convention on WSs of International Importance especially as Waterfowl Habitat 1971
- CITES: Convention on International Trade in Endangered Species of Wild Fauna and Flora 1975
- Convention on Biological Diversity 1992

The national level commitment towards GTRS is that the Nepal Biodiversity Strategy (NBS) included it in a list of WSs that need to be legally protected. Similarly, a community centered Management Plan (1998) reflect the commitments of the local people for the long term management. The National Ramsar Policy 2002 reflects the government commitments for the conservation of the WSs.

3.2 Bishazari Tal Ramsar Site

3.2.1 Background

Area: Water body 180 ha; Watershed area 1,000 ha; Located 8 km south from E-W highway in Gitanagar VDC
Districts: Chitwan encompassing 1 VDC (Gitanagar)
Year(s) Ramsar site recognized in 2003

3.2.2 Significance

Biological aspects cover the species and habitat including the ecosystem's description, conservation and management.

- BPP (1995) has identified five types of habitat around the WS
- IUCN (1998a) has classified 6, 10 wetland types i.e. permanent fresh water lake; permanent fresh water on marshes and swamps
- Water surface area is 180 ha
- Watershed coverage is 1000 ha
- Land use pattern of the WS include open forest 30%, dense forest 40%, grass land 15%, and pasture 15% of the total area
- 21 species of mammals have been recorded of which 4 are threatened and 1 is protected
- 13 species of reptiles are thought to occur including 2 endangered species
- 17 species of fishes are known from this site including 2 species which is considered to have a limited range
- BPP (1995) has rated
  - Very high importance on biological diversity and scenic/landscape beauty
  - High importance on wildlife habitat
  - Medium importance on scientific value

Socio-economic aspects cover vulnerability, livelihood and cultural heritage linked to biodiversity conservation and poverty reduction.

- Poverty rank situation of the WS is 66.
- Around 5000 HHs are dependent on these WSs
- Supports 50 HHs for fisheries (illegal), 5000 HHs for grazing of livestock and fodder collection and few HHs are involved in water fowl trapping
- Used for fishing, water storage for irrigation, grazing of cattle, fodder collection, recreation and collection of fuel wood
- BPP (1995) has rated
  - High importance on water quantity regulation, water quality regulation, plant product collection, animal production/harvesting and Tourism/recreation potential
  - Medium importance on historical or cultural value and water storage or supply
  - Low importance on land development

Major threat areas reported are:

- Resource use over the last five year has shown a large increase due to the increasing populations of surrounding VDC and municipalities
- Due to agriculture runoff

Managerial aspects cover the program implementation process and modality of various organizations to support biodiversity conservation and poverty reduction.

- WS has very high importance for potential management effectiveness
- Armed guard under the administration of Royal Chitwan National Park (RCNP)
- Conservation measures has been initiated in the WS
- WS has a well prepared development plan
- Donor communities/funding agencies are supporting for the conservation of the Buffer Zone (BZ) which includes this WS. They are United Nations Development Program, King Mahendra Trust for Nature Conservation, WWF and others.
- SABIHAA's WCC model can be integrated in the BTRS with the existing BZ system to organize hundreds of Buffer Zone User Groups into a manageable size first at the ward level and then at the VDC level. It will require redefinition of the BZ boundary to encompass all wards of the adjoining VDCs, and the adjoining wards in case of municipalities. It will also require reorganizing the Buffer Zone User Committees at the VDC level.
- Replication of POWER group as promoted by SABIHAA will enhance empowerment process. However, modifications may be required to reflect the local situations.

Policy aspect includes international, national and cross cutting policies and legislations concerning biodiversity conservation in WSs.

- Designated Ramsar Site in 2003 due to its global significance
- Research by Department of Irrigation pertaining to increase in water level to convert WSs into permanent reservoir
- BPP (1995) ranked these WSs as category D. This category warrants for urgent conservation measures and management and or control the use of their resources
- IUCN (1998a) ranked as excellent WS because of its rich biodiversity and adjoining the RCNP. This requires no immediate actions for conservation and the site is in good condition.

3.2.3 Achievements

The major achievement in respect to the BTRS is

- NBS included it in a list of WSs that need to be legally protected
- Adherence with the National Wetland Policy, 2002
- Detail inventory of WS conducted
- Included in Ramsar site
- Gaida gasti by arm guard under supervision of Chitwan DFO
- Included in Buffer zone of the protected areas

3.2.4 Lessons Learned

Lesson learnt from the management of WS include

- No conservation measures/programs are implemented in the WS

3.2.5 Obstacles

The major issues that pose obstacles for the conservation and development of the site are as follows:

- Increasing population in adjoining VDC has increased the pressure of resource use
- Excessive grazing
- Illegal fodder collection
- Decreasing water level of canal

3.2.6 Gaps

The major gap/issues identified in the BTRS are

- Necessary regulations to be formulated to implement the National Wetland Policy
- Management plan yet to be implemented

- Management of WS has not been recognized in the periodic development plan especially the 10th Plan
- Awareness at the grass-root and policy making levels is necessary

3.2.7 Commitments

The commitments made by the BTRS are

- NBS recognized as important WS for conservation
- Ramsar Convention on WSs of International Importance

The National Ramsar Policy 2002 reflects the government commitments for the conservation of the WSs.

3.3 Gaindahawa Tal

3.3.1 Background

Area: Water body 11 ha; Watershed area 26 ha
Located Ward # 1 of Bishnupura VDC
Districts: Rupandehi encompassing 1 VDC Bishnupura)
Listed in Nepal Biodiversity Strategy

3.3.2 Significance

Biological aspects cover the species and habitat including the ecosystem's description, conservation and management.

- BPP (1995) has identified 4 types of habitat around the WS
- IUCN (1998a) has classified 6,10 wetland type i.e. permanent fresh water lakes and permanent fresh water marshes and swamps on inorganic soils, with emergent vegetation whose bases lie below the water table for most of the growing season
- Water surface area is 11 ha
- Watershed coverage is 26 ha
- Land use pattern of the WS is agriculture 30%, open forest 60% and settlement 10 % of the total area
- 10 species of reptiles are thought to occur including 1 endangered species
- Important water hole of remnant population of blue bull (*Boselaphus tragocamelus*)
- Important WS for Sarus breeding
- Supporting a largest number of *Myceteria leucocephala*
- 10 species of fishes occur in the lake
- BPP (1995) has rated
  - High importance on wildlife habitat
  - Medium importance on biological diversity, scenic/landscape beauty and scientific value

Socio-economic aspects cover vulnerability, livelihood and cultural heritage linked to biodiversity conservation and poverty reduction.

- Poverty rank situation of the WS is 33.
- Around 13,701 people from 2,220 family use this WSs
- Supports 70 HHs for grazing of livestock
- Used for irrigation, fishing, aquaculture, grazing and land fill
- BPP (1995) has rated
  - High importance on water quantity regulation, animal production/harvesting and water storage or supply
  - Medium importance on historical or cultural value, water quality regulation, tourism/recreation potential and land development

- Less importance on plant product collection
- Human encroachment, eutrophication, vegetation succession and siltation are some of the threats to the WSs
- Degradation of WS due to pollution and draining
- Hunting of birds is still prevalent

Managerial aspects cover the program implementation process and modality of various organizations to support biodiversity conservation and poverty reduction.

- WS is rated very important in potential management effectiveness
- VDC issued fishing contract to private party in every five year
- No conservation measures have place taken yet
- None of the donor communities/funding agencies are working for the conservation of this WS
- SABIHAA's WCC model can be integrated in the management of GT by consolidating User Groups first at the ward level and then at the VDC level. It will require defining of the boundary to encompass all wards of a VDC.
- Replication of POWER group as promoted by SABIHAA will enhance empowerment process. However, modifications may be required to reflect the local situations.

Policy aspect includes international, national and cross cutting policies and legislations concerning biodiversity conservation in WSs.

- Referred on Directory of Asian Wetlands by Scott. D.A. in 1989
- BPP (1995) ranked this WSs as category D. This category warrants for urgent conservation measures and management and or control the use of their resources.
- IUCN (1998a) ranked as poor WS because of human encroachment, fishing contract and siltation. This site has already lost its ecological characteristics and needs to be restored.

3.3.3 Achievements

The major achievement in respect to the GT is

- Repaired southern side of dam
- Lumbini development trust shown interest to develop the site as recreation center
- NBS included it in a list of WSs that need to be legally protected
- Referred in Directory of Asian Wetlands
- Adherence with the National Wetland Policy, 2002
- Detail inventory of WS conducted
- Well prepared conservation/management plan

3.3.4 Lessons Learned

Lesson learnt from the management of WS include

- None as no conservation measures/programs are implemented in the WS

3.3.5 Obstacles

The major issues that pose obstacles for the conservation and development of the site are as follows

- Increase of grazing activities during last five year
- Hunting of aquatic birds by local people
- Excessive pollution and draining
- Fodder cutting and forest clearance of adjoining areas

3.3.6 Gaps

The major gaps/issues identified in the GT are:

- Management plan yet to be implemented
- No conservation measures initiated so far though NBS recognized as priority WS

- Management of WS has not been recognized in the periodic development plan especially the 10th Plan

3.3.7 Commitments

- The NBS has merited this WS for legal protection.
- The National Ramsar Policy 2002 reflects the government commitments for the conservation of the WSs.

3.4 Jagdishpur Reservoir Ramsar Site

3.4.1 Background

Area: Water body 156 ha
Watershed area 406 ha
Located 10 km south of E-W highway in Ward # 9 of Jagdishpur VDC
Districts: Kapilabastu encompassing 1 VDC (Jagdishpur VDC)
Year(s) Declared as Ramsar site in 2003 and is under the management of Department of Forests since 1994. The site is mentioned in Directory of Asian Wetlands

3.4.2 Significance

Biological aspects cover the species and habitat including the ecosystem's description, conservation and management.

- BPP (1995) has identified 2 types of habitat around the WS
- Water surface area is 156 ha
- Watershed coverage is 406 ha
- Land use pattern of the land include 100 % reservoir
- 18 species of mammals have been recorded of which 4 are threatened and 1 is protected
- 8 species of reptiles are thought to occur where the Marsh Mugger is non resident but enters the reservoir during the monsoon
- Many species of fishes occur in the reservoir
- Visited by large variety of wintering and staging waterfowl and offers excellent foraging habitat for both resident and migratory species
- BPP (1995) has rated
  - Very high importance on biological diversity,
  - High importance on scenic/landscape beauty,
  - Medium importance on scientific value and wildlife habitat

Socio-economic aspects cover vulnerability, livelihood and cultural heritage linked to biodiversity conservation and poverty reduction.

- Poverty rank situation of the WS is 26.
- Around 7564 people from 1231 family use the reservoir
- 35 people were dependent for their livelihoods by selling dead birds
- Used for fishing, water storage for irrigation, fishing, aquaculture and recreation
- BPP (1995) has rated
  - Very high importance on water storage or supply
  - High importance on water quantity regulation and land development
  - Medium importance on water quality regulation and tourism/recreation potential
  - Less importance on historical or cultural value, plant product collection and animal production/harvesting

Four threats to the WSs include road construction and filling, degraded draining

Managerial aspects cover the program implementation process and modality of various organizations to support biodiversity conservation and poverty reduction.

- WS is rated high importance for potential management effectiveness
- Water fowl trapping has been stopped by DFO
- Active management of the WS has been taken by the DFO
- Strict control of poaching has occurred.
- None of the donor communities/funding agencies are working for the conservation of this WS
- SABIHAA's WCC model can be integrated in the management of JRRS by consolidating the existing User Groups first at the ward level and then at the VDC level. It will require defining of the boundary to encompass all wards of a VDC.
- Replication of POWER group as promoted by SABIHAA will enhance empowerment process. However, modifications may be required to reflect the local situations.

Policy aspect includes international, national and cross cutting policies and legislations concerning biodiversity conservation in WSs.

- Designated Ramsar Site in 2003 due to its global significance
- Referred on Directory of Asian Wetlands by Scott. D.A. in 1989
- BPP (1995) ranked this WS as category D. This category warrants for urgent conservation measures and management and or control the use of their resources
- IUCN (1998a) ranked as excellent WS because it is being protected by Department of Irrigation. This requires no immediate actions for conservation and the site is in good condition.

3.4.3 Achievements

The major achievement in respect to the Jagdishpur Reservoir is

- Managed strictly by DFO
- Water fowl trapping has been stopped by forest Department
- Controlled in poaching of aquatic Birds
- Included in Ramsar site
- NBS included it in a list of WSs that need to be legally protected

3.4.4 Lessons Learned

Lesson learnt from the management of WS include

- None as no conservation measures/programs are implemented in the WS

3.4.5 Obstacles

The major issues that pose obstacles for the conservation and development of the site are as follows

- Reservoir surrounded by privately owned land
- Waterfowl trapping
- Excessive fishing
- Decreasing water level

3.4.6 Gaps

The major gaps identified in the JRRS are:

- Management plan yet to be prepared
- No detail inventory of the WS carried out
- No conservation measures initiated so far though NBS recognized as priority WS
- Management of WS has not been recognized in the periodic development plan especially the 10th Plan

3.4.7 Commitments

The commitments made are:

- Adherence with the National Wetland Policy, 2002
- NBS recognized as important WS for conservation
- Adherence with Ramsar Convention on Wetlands of International Importance
- The National Ramsar Policy 2002 reflects the government commitments for the conservation of the WSs.

3.5 Badahiya Tal

3.5.1 Background

Area: Water body 100 ha during rainy season , watershed covers 100 ha in rainy season confined to 25 ha in dry season

Located 5 km south of E-W highway (Bansgadhi) in Wards # 1 and 3 of Soraha VDC. About 1800 ha of land is irrigated from this tal annually

Districts: Bardia encompassing 1 VDC (Soraha VDC)

3.5.2 Significance

Biological aspects cover the species and habitat including the ecosystem's description, conservation and management.

- BPP (1995) has identified 2 types of habitat around the WS
- IUCN (1998a) has classified 6, 10 wetland types i.e. permanent fresh water lake; permanent fresh water on marshes and swamps
- Water surface area is 100 ha
- Watershed coverage is 100 ha
- Land use pattern of the WS area include agriculture during the dry seasons when the lake is not filled with water is 70% agriculture, 5% grass land during the dry seasons, 5% pasture land and 20% fish ponds of the total area
- Serves as a waterhole for wild life e.g. *Axis axis, Elephas maximus, Panthera tigris, Cervus duvauceli* etc.
- 8 species of reptiles have been reported by local community including the protected *Varanus flavescens*
- 2 species of turtle have been recorded from the park
- 7 species of fishes are known from this site
- Offers an excellent foraging habitat both residents and migratory water fowls
- BPP (1995) has rated
  - High importance on biological diversity and wildlife habitat
  - Medium importance on scenic/landscape beauty and scientific value

Socio-economic aspects cover vulnerability, livelihood and cultural heritage linked to biodiversity conservation and poverty reduction.

- Poverty rank situation of the WSs is 22.
- Around 15771 people from 2407 HHs are dependent on these WSs
- Supports 50 HHs in clay collection, 150 HHs in grazing of livestock and collection of fodder
- Used for fishing, irrigation, grazing domestic use and aquaculture
- BPP (1995) has rated
  - High importance on water quantity regulation, animal production/harvesting and land development
  - Medium importance on historical or cultural value, water quality regulation, plant product collection and water storage or supply
  - Less importance on Tourism/recreation potential

Major threats to WS are:

- Resource use over the last five year have largely remained the same
- Major threat to the lake is increasing agriculture development in the surrounding areas which may render the WSs unsuitable for a number of species
- Agriculture runoff and continued degradation of the lake by draining caused the deterioration of the lake's biodiversity.
- Over fishing by the contractors

Managerial aspects cover the program implementation process and modality of various organizations to support biodiversity conservation and poverty reduction.

- WS has medium importance for potential management effectiveness
- Fishing carried out through contractor. Approx. 50 MT of fish is harvested per annum.
- No conservation measures have been initiated so far for the management of the WSs
- None of the donor communities/funding agencies are working for the conservation or management of this WS
- SABIHAA's WCC model can be integrated in the management of BT by consolidating User Groups first at the ward level and then at the VDC level. It will require defining of the boundary to encompass all wards of a VDC.
- Replication of POWER group as promoted by SABIHAA will enhance empowerment process. However, modifications may be required to reflect the local situations.

Policy aspect includes international, national and cross cutting policies and legislations concerning biodiversity conservation in WSs.

- BPP (1995) ranked this WSs as category D. This category warrants for urgent conservation measures and management and or control the use of their resources
- IUCN (1998a) ranked as fair category WS because important WS for water fowl but highly disturbed. This category of WS needs immediate conservation measures without which the ecological functions of the site may be irreparably damaged.

3.5.3 Achievements

The major achievement in respect to the BT is

- NBS included it in a list of WSs that need to be legally protected

3.5.4 Lessons Learned

Lesson learnt from the management of WS include

- None as no conservation measures/programs are implemented in the WS

3.5.5 Obstacles

The major issues that pose obstacles for the conservation and development of the site are as follows

- Use of excessive fertilizers by farmers around the lake area
- High level of fishing done
- Poor draining facilities
- Increasing agricultural land area around the area

3.5.6 Gaps

The major gap/issues identified in the BT are

- Management plan yet to be prepared
- No detail inventory of the WS carried out
- No conservation measures initiated so far though NBS recognized as priority WS
- Management of WS has not been recognized in the periodic development plan especially the 10th Plan

3.5.7 Commitments

The commitments made are:

- Adherence with the National Wetland Policy, 2002
- NBS recognized important WS for conservation

3.6 Nakhrodi Tal

3.6.1 Background

Area: Water body 100 ha during dry season and 125 ha in rainy season; watershed 130 ha Located 600 m north of GTRS and 500 km north of E-W Highway in Ward # 8 of Sandepani VDC.

Districts: Kailali encompassing 1 VDC (Sandepani)

3.6.2 Significance

Biological aspects cover the species and habitat including the ecosystem's description, conservation and management.

- BPP (1995) has identified 5 types of habitat around the WS
- IUCN (1998a) has classified 8 wetland type i.e. large seasonal fresh water lake
- Water surface area is 100-125 ha and watershed coverage is 130 ha
- Land use pattern of the WS area include 20 % of open forest, 50% dense forest, 15 % of grass land and 15% of pasture land
- 21 species of mammals have been recorded in the area including 5 threatened species
- 21 species of reptiles have been recorded in the area
- 20 species of fishes have been recorded including riverine species, *Glossogobius giurus*
- Regular breeding site for rare and localized Gray headed fishing eagle (*Ichtyophaga ichthyaetus*) and is possibly only place in Nepal where now rare comb duck (*Sarkidiornis melanotos*) may still breed
- BPP (1995) has rated
  - High importance on biological diversity, scenic/landscape beauty and wildlife habitat
  - Less importance on scientific value

Socio-economic aspects cover vulnerability, livelihood and cultural heritage linked to biodiversity conservation and poverty reduction.

- Poverty rank situation of the WS is 20.
- Around 10709 people from 1573 family use this WS
- Used for Irrigation, Fishing, Grazing, Fodder, Plant harvest,
- Supports 10-20 HHs for thatch and reed harvesting, 200 HHs for subsistence fishing, 300 HHs for grazing and 300 HHs for fodder collection
- 5 HHs are involved in water fowl trapping and 3 HHs for harvesting of turtles
- BPP (1995) has rated
  - High importance on water quantity regulation, water storage or supply as it is important water storage basin for irrigation, and tourism/recreation potential as WS is close to GTRS
  - Medium importance on historical or cultural value, water quality regulation, plant product collection, animal production/harvesting and land development

Major threats to the WS are:

- Flooding, erosion and runoff from the Churia hills may cause the siltation of lake if surrounding forest is not adequately protected
- Vegetation succession threatens open water and water fowl habitat

Managerial aspects cover the program implementation process and modality of various organizations to support biodiversity conservation and poverty reduction.

- WS has medium importance on potential management effectiveness
- No conservation measures have been initiated so far for the management of the WSs
- No management plan is available to address preservation of lake's ecosystem
- None of the donor communities/funding agencies are working for the conservation or management of this WS
- SABIHAA's WCC model can be integrated in the management of NT by consolidating User Groups first at the ward level and then at the VDC level. It will require defining of the boundary to encompass all wards of a VDC.
- Replication of POWER group as promoted by SABIHAA will enhance empowerment process. However, modifications may be required to reflect the local situations.

Policy aspect includes international, national and cross cutting policies and legislations concerning biodiversity conservation in WSs.

- BPP (1995) ranked this WS as category C. This category warrants for management and their exploitation
- IUCN (1998a) ranked as excellent WS site because it is in undisturbed conditions and is away from settlement. This category of WS needs no immediate actions for conservation as the site is in good condition

3.6.3 Achievements

The major achievement in respect to the NT is

- NBS included it in a list of WSs that need to be legally protected

3.6.4 Lessons Learned

Lesson learnt from the management of WS include

- None as no conservation measures/programs are implemented in the WS

3.6.5 Obstacles

The major issues that pose obstacles for the conservation and development of the site are as follows

- Erosion, flooding and run-off from the Churia hill
- Increasing grazing around the lake area
- Excessive fishing
- Fodder collection

3.6.6 Gaps

The major gap/issues identified in the NT are:

- Management plan yet to be prepared
- No detail inventory of the WS carried out
- No conservation measures initiated so far though NBS recognized as priority WS
- Management of WS has not been recognized in the periodic development plan especially the 10th Plan

3.6.7 Commitments

The commitments made are:

- Adherence with the National Wetland Policy, 2002
- NBS recognized important WS for conservation

3.7 Rampur Tal

3.7.1 Background

Area: Water body 22 ha; Watershed area is 28 ha
Located 7 km south east of E-W highway in Urma VDC.
Districts: Kailali encompassing 1 VDC (Urma)

3.7.2 Significance

Biological aspects cover the species and habitat including the ecosystem's description, conservation and management.

- BPP (1995) has identified 2 types of habitat around the WS
- Water surface area is 22 ha
- Watershed coverage is 28 ha
- Land use pattern of the WS area include 15% open forest, 85% dense forest
- Wintering and staging area for a number of waterfowl species
- 7 species of fishes have been recorded
- BPP (1995) has rated
  - High importance on biological diversity,
  - Medium importance on scenic/landscape beauty and wildlife habitat
  - Less importance on scientific value

Socio-economic aspects cover vulnerability, livelihood and cultural heritage linked to biodiversity conservation and poverty reduction.

- Poverty rank situation of the WS is 20.
- Used for Irrigation, Fishing, Grazing, Domestic use, Fodder, Fuel source
- Has a great religious value and temple dedicated to Buddha Baba lies at the west side for the lake
- Thousands of Hindus come visit to celebrate different festivals
- Supports 600 HHs for fishing and 300 HHs in grazing of livestock
- 10 to 25 HHs are involved in waterfowl trapping
- BPP (1995) has rated
  - Very high importance on animal production/harvesting
  - High importance on historical or cultural value and plant product collection
  - Medium importance on water quantity regulation, water quality regulation, water storage or supply and tourism/recreation potential as WS immediately adjacent to highway
  - Less importance on land development as WS is surrounded by forest

Over use of existing floral and faunal resources is the major threat to the WS

Managerial aspects cover the program implementation process and modality of various organizations to support biodiversity conservation and poverty reduction.

- WS has medium importance for potential management effectiveness
- No conservation measures have been initiated so far for the management of the WSs
- No management plan is available to address preservation of lake's ecosystem and guide tourist development
- None of the donor communities/funding agencies are working for the conservation or management of this WS
- SABIHAA's WCC model can be integrated in the management of RT by consolidating User Groups first at the ward level and then at the VDC level. It will require defining of the boundary to encompass all wards of a VDC.

- Replication of POWER group as promoted by SABIHAA will enhance empowerment process. However, modifications may be required to reflect the local situations.

Policy aspect includes international, national and cross cutting policies and legislations concerning biodiversity conservation in WSs.

- BPP (1995) ranked this WSs as category D. This category warrants for urgent conservation measures and management and or control the use of their resources

3.7.3 Achievements

The major achievement in respect to the RT is

- NBS included it in a list of WSs that need to be legally protected

3.7.4 Lessons Learned

Lesson learnt from the management of WS include

- None as no conservation measures/programs are implemented in the WS

3.7.5 Obstacles

The major issues that pose obstacles for the conservation and development of the site are as follows

- Overuse of existing floral and faunal resources
- Harvesting of turtle
- Waterfowl trapping
- Excessive fishing in the tal area

3.7.6 Gaps

The major gaps/issues identified in the RT are:

- Management plan yet to be prepared
- No detail inventory of the WS carried out
- No conservation measures initiated so far though NBS recognized as priority WS
- Management of WS has not been recognized in the periodic development plan especially the 10th Plan

3.7.7 Commitments

The commitments made are

- Adherence with the National Wetland Policy, 2002
- NBS recognized important WS for conservation

3.8 Deukhuria Tal

3.8.1 Background

Area: Water body 22 ha
Watershed area is 24 ha
Located 3 km north east of Dhangadhi town (Ward # 7)
Districts: Kailali encompassing one ward (# 7) of the Dhangadhi Municipality

3.8.2 Significance

Biological aspects cover the species and habitat including the ecosystem's description, conservation and management.

- BPP (1995) has identified 1 types of habitat around the WS
- Water surface area is 22 ha
- Watershed coverage is 24 ha

- Land use pattern of the WS area include 80% of open sacred forest and 20% of agriculture land
- Wintering area for sizeable numbers of several species of water fowl and provides a staging area for many species during their migration.
- 7 species of fishes have been recorded
- BPP (1995) has rated
  - High importance on biological diversity and scenic/landscape beauty
  - Medium importance on scientific value and wildlife habitat

Socio-economic aspects cover vulnerability, livelihood and cultural heritage linked to biodiversity conservation and poverty reduction.

- Poverty rank situation of the WS is 20.
- Used for Irrigation, Fishing, Grazing, Religious value, Fodder, Recreation, Fuel source, decay jute tree to make fire
- Has a great religious value; A temple of lord Shiva lies on the south east side of the lake
- Supports 400 HHs for livestock grazing and 200 HHs for fodder collection
- 400 HHs are involved in fisheries. There is a contractor for fisheries with permit from District Development Committee (DDC)
- BPP (1995) has rated
  - High importance on historical or cultural value, plant product collection, animal production/harvesting, tourism/recreation potential and land development
  - Medium importance on water quantity regulation, water quality regulation and water storage or supply

Over exploitation of lake's surrounding for wood and pasture is the major threat to this WS

Managerial aspects cover the program implementation process and modality of various organizations to support biodiversity conservation and poverty reduction.

- WS has medium importance for potential management effectiveness
- Conservation of the lake is responsibility of Kailali DFO
- No conservation measures have been initiated so far for the management of the WSs
- No management plan is available to address preservation of lake's ecosystem and guide tourist development
- None of the donor communities/funding agencies are working for the conservation or management of this WS
- SABIHAA's WCC model can be integrated in the management of DT by consolidating User Groups first at the ward level and then at the VDC level. It will require defining of the boundary to encompass all wards of a VDC.
- Replication of POWER group as promoted by SABIHAA will enhance empowerment process. However, modifications may be required to reflect the local situations.

Policy aspect includes international, national and cross cutting policies and legislations concerning biodiversity conservation in WSs.

- BPP (1995) ranked this WS as category D. This category warrants for urgent conservation measures and management and or control the use of their resources

3.8.3 Achievements

The major achievement in respect to the DT is

- NBS included it in a list of WSs that need to be legally protected
- Leased by DDC for fishing

3.8.4 Lessons Learned

Lesson learnt from the management of WS include

- None as no conservation measures/programs are implemented in the WS

3.8.5 Obstacles

The major issues that pose obstacles for the conservation and development of the site are as follows

- Excessive grazing
- Fodder collection by side forest increased
- Over exploitation of lake surrounding for wood and pasture
- Harvesting of thatch and reed

3.8.6 Gaps

The major gap/issues identified in the DT are:

- Management plan yet to be prepared
- No detail inventory of the WS carried out
- No conservation measures initiated so far though NBS recognized as priority WS
- Management of WS has not been recognized in the periodic development plan especially the 10th Plan

3.8.7 Commitments

The commitments made are

- Adherence with the National Wetland Policy, 2002
- NBS recognized was important WS site for conservation

3.9 Patriyani Tal

3.9.1 Background

Area: Water body 35 ha
Watershed area is 200 ha
Located half km south of E-W highway in Ward # 2 of Krishnapur VDC
Districts: Kanchanpur encompassing 1VDC (Krishnapur)

3.9.2 Significance

Biological aspects cover the species and habitat including the ecosystem's description, conservation and management.

- BPP (1995) has identified 2 types of habitat around the WS
- IUCN (1998a) has classified 6, 10, 11 wetland type i.e. permanent fresh water lake, permanent fresh water on marshes and swamps, on inorganic soils and peat lands
- Water surface area covers 35 ha
- Watershed coverage is 200 ha
- Land use pattern of the WS area include 60 % of open forest, and 40 % of dense forest
- Wintering area for sizeable numbers of several species of water fowl and provides a staging area for many species during their migration.
- 3 species of fishes have been recorded from the area
- BPP (1995) has rated
  - High importance on biological diversity and scenic/landscape beauty
  - Medium importance on wildlife habitat
  - Less importance on scientific value

Socio-economic aspects cover vulnerability, livelihood and cultural heritage linked to biodiversity conservation and poverty reduction.

- Poverty rank situation of the WSs is 22.
- Around 13892 people from 2125 HHs use this WS
- Used for Irrigation, Fishing, Grazing, Domestic use, Fodder, Recreation, Fuel source

- Supports 2000 HHs for thatch and reed harvesting, 1500 HHs for grazing , 50 to 75 HHs for fodder collection
- 100 HHs are involved in trapping of waterfowl and 50 HHs in harvesting of turtles
- 1500 HHs are involved in fishing during March/April
- BPP (1995) has rated
    - Medium importance on historical or cultural value, water quantity regulation, water quality regulation, plant product collection, animal production/harvesting, water storage or supply, tourism/recreation potential and land development

Hunting of wild life and waterfowl trapping, Drainage and filling and fishing are the major threat to this WS

Managerial aspects cover the program implementation process and modality of various organizations to support biodiversity conservation and poverty reduction.

- WS has medium importance for potential management effectiveness
- No conservation measures have been initiated so far for the management of the WSs
- No management plan is available to address preservation of lake's ecosystem and guide tourist development
- None of the donor communities/funding agencies are working for the conservation or management of this WS
- SABIHAA's WCC model can be integrated in the management of PT by consolidating User Groups first at the ward level and then at the VDC level. It will require defining of the boundary to encompass all wards of a VDC.
- Replication of POWER group as promoted by SABIHAA will enhance empowerment process. However, modifications may be required to reflect the local situations.

Policy aspect includes international, national and cross cutting policies and legislations concerning biodiversity conservation in WSs.

- BPP (1995) ranked this WS as category D. This category warrants for urgent conservation measures and management and or control the use of their resources
- IUCN (1998a) ranked as fair category WS because of over grazing and draining. This category of WS needs immediate conservation measures without which ecological functions of the site may be irreparably damaged.

3.9.3 Achievements

The major achievement in respect to the PT is

- NBS included it in a list of WSs that need to be legally protected

3.9.4 Lessons Learned

Lesson learnt from the management of WS include

- None as no conservation measures/programs are implemented in the WS

3.9.5 Obstacles

The major issues that pose obstacles for the conservation and development of the site are as follows

- Waterfowl trapping
- Decreasing water level
- Illegal fishing
- Hunting of wildlife
- Loose management

3.9.6 Gaps

The major gap/issues identified in the PT are:

- Management plan yet to be prepared

- No detail inventory of the WS carried out
- No conservation measures initiated so far though NBS recognized as priority WS
- Management of WS has not been recognized in the periodic development plan especially the 10th Plan

3.9.7 Commitments

The commitments made are:

- Adherence with the National Wetland Policy, 2002
- NBS recognized important WS for conservation

3.10 Betkot Tal

3.10.1 Background

Area: Water body 4 ha
Watershed area is 4.5 ha
Located 11 km north of E-W highway from Daiji village
Districts: Kanchanpur encompassing one ward of the Daiji VDC

3.10.2 Significance

Biological aspects cover the species and habitat including the ecosystem's description, conservation and management.

- BPP (1995) has identified 2 types of habitat around the WS
- IUCN (1998a) has classified 7, 10 wetland type i.e. large seasonal fresh water lakes and permanent fresh water marshes and swamps on inorganic soils with emergent vegetation.
- Water surface area is 4 ha
- Watershed coverage is 4.5 ha
- Land use pattern of the WS area include 98 % of forest and 2 % of pasture land
- 21 species of mammals have been recorded from the site including 5 threatened species
- 3 species of fresh water turtle have been recorded from the site
- Supports resident and migratory water fowls.
- BPP (1995) has rated
  - High importance on biological diversity, scenic/landscape beauty and wildlife habitat
  - Medium importance on scientific value

Socio-economic aspects cover vulnerability, livelihood and cultural heritage linked to biodiversity conservation and poverty reduction.

- Poverty rank situation of the WS is 59.
- Around 12,967 people from 2086 family use this WS
- Used for fodder, grazing and have religious value
- Religious place for bathing, marriage and worship. Large number of pilgrims visit this area on the occasion of Ram Nawami
- Supports 5-10 HHs for livestock grazing and fodder collections.
- BPP (1995) has rated
  - Very high importance on historical or cultural value
  - Medium importance on water quantity regulation, water quality regulation and water storage or supply
  - Importance on tourism/recreation potential
  - Very less importance on plant product collection, animal production/harvesting and land development

Road construction along the bank and draining and filling are the major threats to this WS

Managerial aspects cover the program implementation process and modality of various organizations to support biodiversity conservation and poverty reduction.

- WS has high importance for potential management effectiveness
- No conservation measures have been initiated so far for the management of the WSs
- No management plan is available to address preservation of lake's ecosystem and guide tourist development
- None of the donor communities/funding agencies are working for the conservation or management of this WS
- SABIHAA's WCC model can be integrated in the management of BkT by consolidating User Groups first at the ward level and then at the VDC level. It will require defining of the boundary to encompass all wards of a VDC.
- Replication of POWER group as promoted by SABIHAA will enhance empowerment process. However, modifications may be required to reflect the local situations.

Policy aspect includes international, national and cross cutting policies and legislations concerning biodiversity conservation in WSs.

- BPP (1995) ranked this WS as category D. This category warrants for urgent conservation measures and management and or control the use of their resources
- IUCN (1998a) ranked as excellent category because of less encroachment. This requires no immediate actions for conservation and the site is in good condition

3.10.3 Achievements

The major achievement in respect to the BkT is

- NBS included it in a list of WSs that need to be legally protected

3.10.4 Lessons Learned

Lesson learnt from the management of WS include

- None as no conservation measures/programs are implemented in the WS

3.10.5 Obstacles

The major issues that pose obstacles for the conservation and development of the site are as follows

- Raising of dam on the west side of lake
- Illegal fishing

3.10.6 Gaps

The major gap/issues identified in the BkT are:

- Management plan yet to be prepared
- No detail inventory of the WS carried out
- No conservation measures initiated so far though NBS recognized as priority WS
- Management of WS has not been recognized in the periodic development plan especially the 10th Plan

3.10.7 Commitments

The commitments made are

- Adherence with the National Wetland Policy, 2002
- NBS recognized as important WS for conservation

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Annex 5
Review of Samudhayik Bikash Thata Hariyali Ayojana

Contents

1. Background

1.1 Introduction

With support from Japan International Cooperation Agency (JICA) His Majesty Government of Nepal (HMG/N) started implementing Community Development and Forest /Watershed Conservation Project following an approach of Conservation through Community Development since 1994. This Project had selected two districts (Kaski and Parbat) of Western Development Region. This project formed and facilitated 900 User Groups (UGs) and promoted them to manage various sub projects with bottom up, participatory, gender sensitive and need-based approach. The first phase of the project was completed in July 1999. After the completion of first phase of the project, second phase started since July 1999, taking 10 new Village Development Committee (VDC) in Kaski and Parbat Districts, to establish a model, which could be applicable to other hill areas of Nepal. However, because of recent security situation, the project has been modified since August 2000. This project is named "Community Development and Forest/Watershed Conservation Project Phase II" alias "SABIHAA", (Samudayik Bikash tatha Hariyali Aayojana) which stands for Community Development and Greenery Project.

1.2 Purpose of Review

The purpose of review of SABIHAA Model is to assess its operational modality and examine its impact on natural resources conservation and poverty alleviation and to examine whether or not SABIHAA model can be replicated in the management of Protected Areas (PAs) and Wetland Sites (WSs) for biodiversity conservation and poverty alleviation.

2 Review Procedure

The review was carried out at two levels. First level review was carried out in Kathmandu based on secondary sources comprising appraisal of literatures, consultations, meetings and informal interactions with JICA personnel in Kathmandu. The second level review was carried out at the operational level and comprised consultation with Western Regional Director of Ministry of Forest and Soil Conservation (MoFSC), Project Staff, District Soil Conservation Office (DSCO), District Forest Office (DFO), Ward Conservation Committee (WCC), Mid-Level Technician (MLTs), and Users in Kaski at Project districts. A four-day field trip was made by the 6 members of the study team to assess field implementation. The schedule of the field study is attached in Attachment 1.

The team visited District Soil Conservation Offices (DSCO) in Kaski, Parbat and Syangja to observe the implementation modality of the WCC and UGs.

3 Findings of the Review

Review was done on the basis of strength, weakness, opportunities and threats (SWOT) analysis. Salient findings of the review are summarized in table overleaf and elaborated under following sub-sections.

3.1 Strengths

Institutional permanency: All Ward committee Members, few representatives from UGs, two representatives from POWER (Poor People, Occupational Caste and Women's Empowerment for Resources Management) Group are included in WCC. Since Ward Chairperson is usually the chairperson of the WCC, WCC is a permanent institution.

Conforms with LSGA: SABIHAA is a ward based planning and implementation approach. It has developed very good coordination with Wards and VDCs too. Need assessment and prioritization is

done by the community. SABIHAA covers all the wards of the selected VDC. Although WCC are yet to be linked at VDC level, it fits well with LSGA philosophy, once WCC's planning activities are integrated at VDC level planning and implementation.

Table 1: SWOT Analysis of SABIHAA Model

Strengths	Weakness	Opportunities	Threat
• Institutional permanency as it is affiliated with Ward of a VDC • Conforms with LSGA • Gender, poor, occupational caste representation • UGs representation • Comprehensive Operational Guidelines • Transparent system – public and social audit • Highly participatory process including decision making • More focused on community development than conservation • Beneficiaries have a long term vision (CBWMP) • Realistic planning with assured source of funding • Ward capacity building • POWER group gives opportunities for the people who are deprived and left out from the mainstream activities	• Dependent on external sources for funding • All UGs are not continuous after projects • UGs are linked with resource base like forests • Rs. 300/member investment is insignificant • No clear legal basis • Core members change after election of a VDC representatives • No legal status of Operational Guidelines • Horizontal coordination is missing • Monitoring of WCC is questioned after project (MLTs will not be available) – Centralized monitoring system • User groups limited at the ward level under WCC • No coordination committee at VDC level	• Since legal base is yet to be decided, modification is possible. • Test of WCC with PA/WS legal framework • Can attract VDC and other resources • Allows room for holistic planning • Possibility of replication at BZ	• Vested political interests • Possible contradiction with existing PA/WS legal system • Low interest/ incentive due to long gestation period • High management cost in case of PA/WS (2 MLTS/2 motivators per VDC)

Gender, poor, occupational caste representation: Representation of poor, Dalits and women is ensured during WCC formation. Two quotas are allocated for the POWER group and few representatives of UGs are also included in the WCC. A special capacity building program "POWER" for under privilege people has been implemented by the Project. Adult literacy classes including introductory, post literacy and continuous learning courses, field visit, training, study tours, life improvement activities like improved cooking stoves and saving and credit activities are run by the project.

UGs representation: Separate User's Committees (UCs) are formed to implement the community development sub-project activities based on Annual Action Plan. Representatives of the UCs are included in the Ward Conservation Committees.

Comprehensive Operational Guidelines: A comprehensive operational guideline has been prepared by the project. Goals and purpose, key concepts, organizational structures, project partners, operation procedure, POWER Program and implementation process are incorporated in OG in detail. This guideline is very practical for the field activity and provides a common platform for all project staff in effective and efficient implementation of the project. The beauty of the guideline is that the guideline can be revised whenever and wherever necessary.

Transparent system - public and social audit: One of the important features of the project is its transparency. Public Information System has been established. Project Headquarter provides

necessary information such as sub-project, progress, budget and account report to the VDC office and VDC office provides information putting up a notice on VDC office and delivering it to each ward. Payment is provided after approval of the Users and public auditing.

Beneficiaries long term vision: Long term vision has been developed by the community. Community Based Watershed Management Prospect (CBWMP) for each ward is developed by the community. Community Based Management Plan (CRMP) and Annual Action Plan (AAP) has also been developed by them and implemented. Development activities are implemented by separate UGs. Highly participatory process including decision making

Project has adopted participatory process to plan and implement the activities. One of the examples of the participation is community resources workshop where the participants (residents of the particular ward) discuss about the overall problems and potentials. They select WCC and prioritized their activities and form a three year CRMP and AAP on their own. Participation of the poor, dalits and women is ensured by the representation of the POWER group in WCC.

Realistic planning: Need Assessment & prioritization is done at the community level AAP are prepared according to the implementation capacity and availability of the resources. If required, CRMP is revisited based on annual progress, AAP implementation and resources availability.

Ward capacity building: All the community level activities are coordinated and implemented under WCC. WCCs have been developed the capacity especially in the planning, implementation and monitoring of the project activities.

POWER group gives opportunities: In spite of efforts by the DSCO or the field staff in bringing all the people in the mainstream of the development and conservation programs, few people are found to be left out or deprived of the benefits due to extreme shyness or social problems. In such a situation, POWER deliberately organizes such people through adult education and other activities.

3.2 Weaknesses

Dependents on external resources: Financial and technical support for SABIHAA is provided by the project. In absence of external resources, the continuation of the project is doubtful and initial symptoms are evident from the way SABIHAA has been replicated in Syangja.

Development activities are less Natural Resources based: Since WCC is not lined up with a given tangible natural resources base like patch of forests in community forestry, WCC member do not obtain the immediate benefits from the natural resources present in the watershed. Regular income is necessary for the sustainability of the project activities. No regular sources are seen at the WCC level. So long term sustainability of the project is doubtful.

Insignificant investment per member: Project provides Rs.300. per person as life improvement support which each member deposit in POWER group for the income generation activities of the POWER group members. The amount is insufficient to fulfill the credit demand of the poor people.

No clear legal basis: WCCs are not registered as are community forest user groups. So there is no legal basis of WCC. WCC as well as POWER groups are not registered even with DSCO.

Core members change after election: Core members of the WCC are the ward representatives. Ward representatives change in every five years after election. Since WCC core member change after election, on one hand it will be very difficult to orient new representatives to the program, on the other, new members may not endorse views of the old members. This might be the case when new members come from different political ideology or groups.

Temporary nature of UGs: For each sub-projects implemented by WWC, a UGs is formed. These UGs cease to function after the sub project is completed. This might lead to poor maintenance of sub-projects. Further, these UGs are not legal organizations.

No legal status of Operational Guidelines (OG): Operational Guideline has been prepared and implemented in the project areas, but the OG is not approved by DNPWC and MoFSC. Therefore, there is no legal status of operational guidelines. The OG would require modifications to fit with DSCWM's standards in implementing conservation activities.

Horizontal coordination is missing: Coordination between district line agencies at the district level and User's Committees at the village level is missing. For example, separate UVs or WCCs are formed by different district line agencies. Coordination mechanism between Community Forest User's Committees and WCC is also not developed.

Monitoring of WCC is questioned after project: Mid Level Technicians (MLTs) and Community Motivators will be decreased after project. It is therefore very difficult to ensure proper monitoring of WCC activities after completion of the project.

Project supported activities are biased towards community development: Most of the project activities are related to community development e.g. drinking water, adult literacy class, training, saving and credit. Limited activities are done in the bio-diversity conservation such as plantation and gully control. Hence, it seems that the project is more community development oriented than the conservation.

User groups limited at the ward level under WCC: The UGs formed under the SABIHAA are organized at the ward level only. So chances of their contributions are low for the VDC level planning. Although UGs are organized and coordinated through WCC, they are not organized at the VDC level.

3.3 Opportunities

Modification possibility: The WCC needs to register for the sustainability and has to select a legal base for the registration. MoFSC for that matter DSCWM can prepare its own operational guidelines or regulations regarding the legal base of WCC under SABIHA Model. Therefore some modification in the SABIHAA Model is possible since legal base is yet to be decided.

Piloting of WCC with PA/WS legal framework: SABIHAA has been developed as a successful model in community development and forest/watershed conservation in Parbat and Kaski districts. WCC concept can be tested within the legal framework of PAs/WSs where buffer zone has not been declared.

Can attract VDC and other sources: SABIHAA Model is working according to the decentralization principles and has developed a very good coordination with Wards of the selected VDCs. It is easier to attract VDC, DDC and other resources in this model, because ward chairperson is the chairperson of the WCC.

Allows room for holistic planning: The WCC is the main responsible unit of the SABIHAA Model. WCC Chairperson can motivate people for the holistic planning of the ward and he/she also can motivate the VDC Council for holistic planning by integrating their activities in the VDC annual plans. Besides, the WCC can concentrate on the genuine problems they are facing.

Better option to address underprivileged people for natural resources of PAs: POWER Group concept is very important for the empowerment of poor, dalit and women of the community. Therefore, the POWER Group concept can be used in the PAs and WSs as well.

Possibility of replication at BZ: SABIHAA concepts of WCC and POWER can proliferate under BZ system where there is a sustainable source of income. However, BZ system will require redefinition in terms of BZ boundary to encompass entire VDC, and the BZ UCs have to be reorganized at the VDC level.

3.4 Threats

Vested political interests: The WCC Chairperson is also a local political leader. So, his political interests might dominate in the WCC activities and might exclude minorities and other political rivals and their might change every five years when new leader come in the Ward Committee.

Possible contradiction with existing PA/WS legal system: UCs and UGs of the existing PAs and SABIHAA are formed by two different process and the operation modalities are also different. In addition, PAs and SABIHAA is guided by different policies and legislation. Therefore, contradiction between two models can be expected during replication of the SABIHAA model in PAs and Wetlands.

Low interest/incentive due to long gestation period: SABIHAA Model has a long process. There is lack of coordination with Community Forestry UCs. This might result into lack of interest on one hand and the possible low incentives on the other.

High management cost in case of PA/WS: High management cost is required to implement SABIHAA Model. Two MLTS and two Motivators are involved in a VDC. It will be difficult to provide such type of management support or the staff support in PAs and Wetlands without external assistance.

4. Relevancy and Appropriateness of SABIHAA Modality in Protected Area and Wetland management

The SABIHAA modality is relevant to the current approaches and strategies of biodiversity conservation and sustainable community development in Nepal. In respect to the programs of PAs and WSs management in the country, SABIHAA philosophy concurs with the policies of BZ and CAs. Given the legislative modality for program implementation, level of community participation varies from the one site to another. There are 3 PAs where the level of community participation has been observed high. They are the 3 CA namely ACA, KCA and MCA which are managed under the CA Regulations. Under the CA management, local people are organized into UGs and Conservation Area Management Committees. They have access to the resources and have decision making roles in the management. In the 6 NPs namely Royal Chitwan National Park (RCNP), Royal Bardia National Park (RBNP), Shey Phoksundo National Park (SPNP), Langtang National Park (LNP), Makalu Barun National Park (MBNP) and Sagarmatha National Park (SNP) where buffer zones (BZ) have been developed, the level of community participation has been observed as medium. In the Buffer Zones, the local people have limited access to the resource management and in decision making roles as compared to CA. In the remaining 7 PAs: Shivpuri National Park (ShNP), Rara National Park (RNP), Khaptad National Park (KNP), Parsa Wildlife Reserve (PWR), Koshitappu Wildlife Reserve (KWR), Royal Suklaphanta Willife Reserve (RSWR) and Dhorpatan Hunting Reserve (DHR), where BZ has been proposed, conceived or intended to manage under NGO or other organizations, the level of community participation is low. The local people have limited or restricted access to the resources and are not involved in decision making roles unlike in the BZs and CAs.

The SABIHAA modality resembles with the community participation strategies stated in the Nepal Biodiversity Strategy 2002 (NBS). There are four significant components in the 17 cross-sector strategies stipulated in the NBS. They are integration of local participation, endorsement of indigenous knowledge and innovations, promotion of women in biodiversity conservation and enhancing conservation awareness. Similarly, the 8 sector strategies of protected areas as outlined in

the NBS include new models of protection and management, cross-sector coordination and capacity building of local communities. The wetlands sector strategy includes participatory research, identification of appropriate institutions for coordination, user group participation, raising awareness and others.

The SABIHAA modality conforms to the recent government policy of handing over management responsibilities of protected areas to non-government or other organizations. In accordance with the policy, HMGN has issued letters of intent to King Mahendra Trust for Nature Conservation (KMTNC) for managing ShNP, SPNP, KNP and RNP, and to the KCA Management Council for KCA management. The idea is to manage the said protected areas by promoting community participation. In case of the WSs outside the PA system, the Department of Forest is responsible for biodiversity conservation. As outlined in the NBS 2002, one of the 9 strategies of forest sector is local participation.

Considering the spirit of NBS 2002, and the recent policies of managing PAs by NGO or other organizations, two fundamental structural components of SABIHAA that can be integrated in the community participation strategy of PA/WS management are as follows:

1. WCC as an umbrella structure for grass root user groups, and
2. POWER as a tool of empowerment for the people whether affiliated with user groups or not.

Based on the review of SABIHAA modality vis a vis modalities being implemented in PAs/WSs and the baseline survey conducted in the six selected sites (BTRS, GTRS, JRRS, KWRRS, LNP and ShNP), following inferences have been drawn up with details presented in Annex 2.

1. Replication of WCC by consolidating the existing user groups in the PAs/WSs where stakeholders communities are organized under legal structures

   There are 9 PAs and 1 WS where user groups exist under the regulations pertinent to CA or BZ, such as ACA, KCA, MCA, RCNP, RBNP, SPNP, LNP, MBNP, SNP and BTRS. There are 3 PAs where ad-hoc UGs have been formed by proposing Buffer Zones, such as in KWR, PWR and RSWR. Similarly, there are user groups on water, forests and other resources formed under various legislations in some WSs that merit for legal protection. Provision of WCC in the regulations or the pertinent legislations will smooth the process of replication.

2. Replication of WCC by organizing user groups in the PAs where stakeholders communities are not yet organized under any legal structure

   There are 4 PAs where stakeholder communities are not organized into UGs since BZ has not yet been declared or proposed. They are ShNP, RNP, KNP and DHR. SABIHAA replication will be possible in those PAs when BZ is materialized along with WCC provisions. Similarly, there are WSs where UGs are not yet organized. In both the cases, formation of user groups and WCC should be promoted for biodiversity conservation and poverty reduction. A special provision of forming UGs and WCC has to be made in the PAs till BZ is materialized.

3. Replication of POWER as an empowerment tool

   The concept of POWER group as conceived and encouraged by SABIHAA should be promoted as an empowerment tool at the grass root level across the user communities in all 16 PAs and 10 WSs. In case of BZ, settlement based UGs have been organized in a similar fashion as the POWER groups are. It would be more beneficial to foster such concepts by promoting exchange of information and experiences between SABIHAA and BZ programs. The tool of POWER will be equally applicable to the communities who are left out from the mainstream of UGs process as well.

SABIHAA's WCC model can be integrated in the BZ system to organize hundreds of BZ User Groups into a manageable size first at the ward level and then at the VDC level. It will require redefinition of the BZ boundary to encompass all wards of a VDC, and reorganizing or forming BZ User Committees at the entire VDC level[1]. This approach will bring consistency between BZ system, LSGA and SABIHAA, since it maximizes strengths and minimizes weaknesses of the three systems.

With this approach, the existing UGs that number in thousands will come under the umbrella of WCC and becomes manageable from program planning, implementing and monitoring perspectives. WCC integration will help for more realistic planning and institutional link with VDC/DDC plans for synergetic effects in conservation and development. Since WCC conforms to the LSGA, it will minimize conflicts with the DDC/VDCs. It will help enhance transparency and foster higher level of community participation especially DAGs and poor people. Along with encouragement of the local communities, WCC integration will contribute for ward capacity building. Replicating SABIHAA implies formation of WCC under existing VDC level conservation committee.

Integration of POWER group will add value to the strategy of encouraging community participation in biodiversity conservation in and around the PAs/WSs ensuring equity and gender perspectives. This will ensure the active participation of the poor, occupational cast and women who are deprived from the mainstream of conservation and development programs. Since POWER is sustained with adult literacy, close supervision by motivators and financial supports by the project management, it creates a favorable environment for the deprived people who are left out during the process of forming user groups or committees. However, considering its weaknesses, such as insignificant investment amounting to Rs300 per member, local situations should be considered while replicating POWER.

While integrating the SABIHAA concepts of WCC and POWER in the PA/WS management, there are some factors that should be considered as alerts. To discourage dependency syndrome among the user groups and committees formed under SABIHAA, they should be linked with common property resources as in the case of BZ or community forestry. Continuity of monitoring should be ensured under line agency institutional structure and management system upon completion of a project. Program planning guidelines should be clearly designed to avoid any political bias.

[1] For example, all the 35 VDCs and two municipalities touching the RCNP should be brought under the BZ system, and the current number of 21 BZ UCs should be reorganized into 37 BZ UCs in conformity with VDCs.

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Attachment 1: People Consulted

SN	District/Place	Office	Name	Post	Remark
1.	Pokhara Kaski	Western Region Forest Directorate	Mr. Ram Poudel	Regional Director	
2.	Kaski	District Soil Conservation Office	Mr. Ram Dayal Yadav	District Soil Conservation Officer	
3.	Kaski	District Soil Conservation Office	Mr. Udhav Bahadur Ghimiree	Asst. District Soil Conservation Officer	
4.	Parbat	District Soil Conservation Office	Mr. Monohar Kumar Shaha	District Soil Conservation Officer	
5.	Parbat	District Soil Conservation Office	Mr. Prakash Basnet	Mid Level Technician	
6.	Parbat	District Soil Conservation Office	Mr. Shivaraji Thakur	Mid Level Technician	
7.	Parbat	District Soil Conservation Office	Mr. Bharat Sapkota	Mid Level Technician	
8.	Parbat	District Soil Conservation Office	Mr. Bishnu Hari Poudel	Mid Level Technician	
9.	Parbat	District Soil Conservation Office	Mr. Binaya Kumar Jha	Mid Level Technician	
10.	Syangja	District Soil Conservation Office	Mr. Bharat Babu Shrestha	Act. District Soil Conservation Officer	
11.	Syangja	District Soil Conservation Office	Mr. Shree Prashad Yadav	Overseer	Khilung Deural-3
12.	Syangja	District Soil Conservation Office	Mr. Binod Gyawali	Mid Level Technician	Khilung Deural-3
13.	Pokhara, Kaski	SABIHAA HQ	Mr. Toshinobu MAKINO	Chief Adviser	
14.	Pokhara, Kaski	SABIHAA HQ	Ms Yasuko Yoshizawa	Community Development Expert	

Annex 6
Review of Programmes and Projects on Protected Areas and Wetlands

Content

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1 Introduction

1.1 Background

This study on Poverty Reduction through Sustainable Management of Protected Areas and Wetlands in Nepal: Processes, Modalities, Impacts and Identification of areas for Future Support was commissioned to Center for Natural Resource Analysis, Management, Training and Policy Research (NARMA) Consultancy (Pvt) Limited by Japan International Cooperation Agency Nepal (JICA-Nepal). The main objective of the study was to make a comprehensive review of biodiversity in Protected Areas (PAs) and Wetland Sites (WSs) of economic and conservation importance in Nepal and thereby identify feasible areas for JICA-HMG/N cooperation in this sub-sector for participatory biodiversity conservation and poverty reduction.

This annex is prepared to document on the processes, modalities and impacts of different conservation related projects and programmes on PAs and WSs management. Detail and analytical review of various projects in national parks, wildlife reserves and the WSs assisted by different donor communities has been made to assess the effectiveness of different modalities in terms of socio-economic betterment of communities and conservation of biodiversity as well as in identifying major strengths and weakness of such modalities in terms of attainments of objectives.

1.2 Objectives

The objectives of this annex is to review and analyze different conservation related projects and programmes on protected areas and wetland management and assess their strength, weakness and effectiveness in biodiversity conservation, poverty reduction and conflict minimization.

1.3 Review Process

The study followed two steps in review and analysis. It followed content analysis method to review projects and programmes. Content analysis is adopted as an approach for analysis of the documents and texts that seek to quantify the contents in terms of predetermined categories in a systematic and replicable manner. The attributes developed and used are objectives, coverage, duration, programme strategy and components, implementation modality, achievements, problems/issues faced, strength and weakness of the projects and lesson learnt.

Based on the detail review of the project, attributes or indicators were developed to assess their strength and weakness on biodiversity conservation, poverty reduction and conflict minimization. Two different sets of verifiers have been identified for this purpose, qualifier verifiers, which are, established through the presence or absence of phenomenon, and the assessment verifiers which are ranked in order of its contributions. The former mainly helps to assess the strength and weakness of the project where as latter one helps to address the effectiveness of the projects. Appendix 1 presents the decision criteria used for different assessment verifiers.

1.4 Review Presentation

This review report is organized in three sections. With this first introductory section, section two reviews on with the government programmes related to biodiversity conservation in PAs and WSs. Finally the section three briefly reviews the major donor assisted projects/programmes and identifies their strength, weakness and effectiveness with their detail review on appendix 2.

2. Government Programme

2.1 Protected Areas

Department of National Park and Wildlife Conservation (DNPWC) is a leading agency for biodiversity sector related programmes implemented in the protected areas. Organizationally, the DNPWC is responsible for the conservation of the biodiversities in protected areas and the management of the buffer zones (BZ) designated by His Majesty of Government Nepal (HMG/N) in accordance with the National Park and Wildlife Conservation Act (NPWCA) and relevant regulations. The objective of DNPWC is to conserve the country's major representative ecosystems, unique natural and cultural heritage, implement international conservation conventions and give protection to the valuable and endangered wildlife species.

2.1.1 Administration

To conserve, restore and manage the biodiversity and landscape of Nepal, an office named "National Park and Conservation Office" was established in 1972 under the Department of Forest (DOF), which was later upgraded into DNPWC in 1980.

Park staff: There are altogether, 1052 staffs including the staffs of both headquarters and protected areas. Out of which, 52 are gazetted and 1,000 are non gazetted. At the headquarter there are all together 41 staffs out of which 14 are gazetted and 27 are non gazetted. The increase in PA coverage through the declaration of BZ demands more human resource to manage it but new vacancies are not yet approved by HMG/N.

National Parks, Wildlife Reserves and Hunting Reserves are managed by the DNPWC. Around 216 staffs are working in wildlife reserves. Similarly, 751 staffs are working in National parks and 35 staffs are working in hunting reserve. The protected areas have their own organizational set-up with wardens, assistant wardens, park rangers, senior game scouts, game scouts and the administrative staff. Royal Chitwan National Park (RCNP) has highest whereas Rara National Park (RNP) has lowest number of staff. Three staff each is deputed from DNPWC to the Annapurna Conservation Area (ACA) and Manaslu Conservation Area (MCA) for legal matters in accordance with the Conservation Area Management Regulation (CAMR). The detail staff positioning of DNPWC is shown in table 1 below.

Table 1: Staffing of DNPWC

Protected Areas	Number of staffs						
	Gazetted officer	Ranger	Administration	Game Scout	Hattisar	Total	Royal Nepal Army
Department of National Park and Wildlife Reserve	14	1	26	0	0	41	15
Royal Chitwan National Park	8	22	27	102	129	288	792
Langtang National Park	2	7	6	61	0	76	478
Sagarmatha National Park	1	3	4	31	0	39	239
Rara National Park	1	3	3	21	0	28	239
Shey Phoksundo National Park	3	6	2	36	0	47	239
Khaptad National Park	1	4	3	23	0	31	239

Protected Areas	Number of staffs						
	Gazetted officer	Ranger	Administration	Game Scout	Hattisar	Total	Royal Nepal Army
Royal Bardia National Park	3	10	9	74	33	129	478
Makalu Barun National Park	5	9	5	41	0	60	0
Shivapuri National Park	3	7	13	30	0	53	478
Royal Shuklaphanta Wildlife Reserve	3	8	7	33	24	75	239
Koshitappu Wildlife Reserve	3	4	5	18	33	63	239
Parsa Wildlife Reserve	3	6	6	30	33	78	239
Dhorpatan Hunting Reserve	1	4	4	26	0	35	0
Aannapurna Conservation Area						3	0
Kanchanjunga Conservation Area	1	3	1	4	0	9	0
Manaslu Conservation Area						3	0
Total	**52**	**97**	**121**	**530**	**252**	**1,052**	**3,914**

Source: Pers. Com., DNPWC, 2003

Royal Nepal Army: A separate Royal Nepal Army (RNA) unit has been deployed specifically for protection of the protected areas since 1975. Battalion and companies of RNA have been deployed as protection units in eleven different protected areas. Moreover, a national park directorate has been set up in the Army Headquarter to monitor the protection units. Though the law enforcement is stringent but the deployment of RNA unit in the park protection is highly cost intensive. From the personal communication with DNPWC staff, 2003, altogether 3,914 infantrymen are deployed including about 15 in RNA National Park Directorate.

Hattisar: DNPWC has also managed hattisar in five protected areas of Terai region namely, RCNP, Royal Bardia National Park (RBNP), Royal Shuklaphanta Wildlife Reserve (RSWR), Parsa Wildlife Reserve (PWR) and Koshitappu Wildlife Reserve (KWR). Altogether 252 DNPWC staffs are working at Hattisar at the rate of on an average 3 staff for each elephant. Besides, an elephant-breeding center was established in 1985 in Chitwan with an objective of producing trained elephants to meet requirement of elephants for research and tourism and discourage the endangered wild elephant capture for domestication. Total of 54 hattisar staffs manage this center headed by a *gazetted subba* (Hattisar incharge). Besides, this center has also become a major tourist attraction to observe elephant activities (DNPWC, 2001a).

2.1.2 Programme

With early emphasis of species preservation and research and beginning with "fortress" styled management system, DNPWC has pioneered the concept of people's involvement in protected area management and it has already shifted its conservation policy from government-managed and protection-oriented to community-managed sustainable approaches. The major programmes of DNPWC on PAs management includes the species conservation, habitat management, infrastructure development, transboundary cooperation and partnerships etc

Species Conservation: The programmes related with species conservation are

- **Anti Poaching Units (APU)**: For minimizing the threat to endangered species DNPWC has set up 20 mobile APUs since 1991 with the support of International Trust for Nature Conservation (ITNC), World Wildlife Fund (WWF), King Mahendra Trust for Nature Conservation (KMTNC) and Buffer Zone Management Committee (BZMC) for regular surveillance and information network system. At present, the APUs are located 7 in RCNP, 3 in RBNP, 2 in RSWR, 2 in PWR, and one each at Makwanpur, Parsa, Nawalparasi and Chitwan forest areas in coordination with the Park/Reserve, District Forest Office (DFO), and local Community Based Organizations (CBOs) (CEDA, 2003).
- **Tiger Conservation Action Plan:** Realizing the need to protect the endangered tiger, HMG/N has approved an action plan in 1998. It focuses on habitat management, monitoring, anti-poaching, public awareness, It has visualized protecting a larger landscape to conserve an estimated population of 340-350 tigers distributed over the low land Terai-Siwalik range from Bagmati to Mahakali Rivers (CEDA, 2003).
- **Rhino Action Plan:** The Rhino Action Plan has been prepared by HMG in 1993. It had envisaged maintenance of rhino habitat and corridor through zoning, developing trenches and plantation of unpalatable species, conservation education, staff training, stringent law enforcement and effective monitoring. The population of rhino has been gradually building up. The Count Rhino 1994 census has estimated a population of 446 which has increased to 544 according to Rhino Count 2000 census (DNPWC, 2000).
- **Snow Leopard Action Plan:** The protection of this endangered species has become necessary to minimize the threat of extinction from its home range mainly due to poaching for its hide and as retaliatory killing. The Snow Leopard Conservancy has supported HMG for the preparation of the Action Plan. It is intended for the long-term conservation of this species throughout the himalayan range with active transboundary support.
- **Rhino translocation:** The rhino translocation programme was launched by the DNPWC with the support of KMTNC and WWF in order to reduce the intra-specific competition and possible threat of extinction of a single isolated population. A total of five attempts have been made since 1986 and all together 87 rhinos have been translocated from RCNP to RBNP and RSWR (DNPWC, 2003). HMG/N has envisaged building a second viable and alternate population of this endangered species in RBNP and RSWR.
- **Gharial crocodile conservation:** A captive breeding project at Kasara for the rehabilitation of the endangered gharial was started since 1978 with the support of the Frankfurt Zoological Society. The objective of this breeding centre is to protect natural nest sites, carefully collect and incubate the wild eggs and rear hatchlings to a length of 1m for restocking mainly in the Karnali, Narayani and Koshi river systems of Nepal. The breeding centre is located at Kasara and an egg collection centre is located at Amaltari. This project is also rearing Marsh crocodile and conducting turtle breeding programmes
- **Blackbuck conservation:** In 1970s, actions were taken to protect blackbuck in Bardia and the population grew up to 178 in 1988. Since then, the population again started dwindling due to lack of secure place for survival. HMG/N initiated the conservation of this endangered species by setting aside about 2.5 sq km area in Khairapur, Bardia. About Rs 20 million has been already spent for its conservation and the area extension programme is also continuing (CEDA, 2003).
- **Musk deer conservation:** DNPWC has initiated Musk Deer Research Center in Godavari, Kathmandu in 1993 for the reproduction of musk deer through embryo transplant and artificial extraction of musk. The center provides opportunity for study on captive-bred musk deer and support the conservation of this species with the possibility of musk deer farming in private level.

Habitat Management: The habitat management practices conducted by DNPWC in the various protected areas are: *kharka* management, wetland management such as cleaning and maintenance of lakes/ponds, control burning programme, landslide control, retention wall maintenance and grassland management. In addition, waterholes, firelines including the maintenance of wildlife corridors are carried out. Moreover, different researches such as grassland ecology, fire ecology, and human impact on wildlife habitat etc. have been conducted for habitat management. DNPWC has also joined hand with donor organizations such as WWF, KMTNC, The Netherlands Cooperation Agency (SNV) and United Nation Development Programme (UNDP) for habitat management and corridor development.

Infrastructure Development: In order to conserve biodiversity DNPWC has made large investment by the development of PA infrastructure. Construction and maintenance of visitor centre, park roads and fire-lines, natural trails, guard posts and staff quarters, wooden bridges, hattisars, *machans* (view tower), trenches, fences, etc. are the major infrastructure development activities of the department. However, due to shortage of internal resources allocated from HMG the infrastructure maintenance and development work in the PAs are almost non-existent.

Conservation Education: DNPWC has given high priority to conservation education and awareness programmes. The conservation education section of DNPWC regularly prepares and publishes innovative promotional materials such as newsletters, bulletins, posters, and brochures and disseminate for public awareness. Along with radio programmes, it regularly organizes interactions, meetings, campaigns, festivals, and celebrates the World Environment Day, Wetland Day, Wildlife Week, and Heritage Day to generate conservation awareness.

Trans-boundary Cooperation: For safety of the wildlife across international borders, DNPWC has initiated trans-boundary cooperation with India and Tibet Autonomous Region (TAR) of China. It has organized several consultative meetings with India and TAR of China. Several resolutions were passed concerning the protection of corridors and developing connectivity between PAs, monitoring of illegal trade and trade routes. DNPWC has also worked for the greater Mt. Everest ecosystem conservation and tri-national Peace Park in Kanchanjungha mountain ecosystem as trans-boundary cooperation.

Monitoring / Research: DNPWC has initiated wildlife research, census and monitoring system in different PAs with the support of various conservation institutions. For instance Tiger Ecology Project was initiated in 1973 as a joint venture of government and Smithsonian Institution and WWF to conduct tiger research. Besides, the monitoring and evaluation division at DNPWC regularly monitors and evaluates the different projects/programme implemented in PAs. Moreover, it encourages research institutes, universities, students, etc to conduct research activities but lacks a research protocol for effective research management.

Buffer Zone Management Programme: HMG/N has established buffer zones around RCNP, RBNP, SPNP, LNP, MBNP and SNP to minimize biotic pressure and for sustainable management of the natural resources. The DNPWC executes Buffer Zone Management Programmes through BZMC. Under the NPWC Act 1973 as amended in 1993 and the Buffer Zone Management Regulations 1997, His Majesty's Government of Nepal has empowered the Buffer Zone Management Committee with an authority to protect and manage the natural resources in the buffer zone, and thirty to fifty percent park revenue is allocated to the buffer zone management programme. The buffer zone management activities can be divided in two groups, natural resource management and community development. Many participatory conservation initiatives are undertaken in Buffer Zones by different organizations.

Partnership: Partnerships in conservation have gradually taken momentum from the recent past for PAs management and biodiversity conservation. HMG has introduced liberal people centered conservation policies through which the local CBOs and Non Governmental Organizations (NGOs) are now close alliances. To facilitate partnership within the BZ 30-50 percent of park revenue and in conservation areas 100 is ploughed back for conservation and development activities. Similarly, DNPWC has been working in collaboration/partnership with several national and international organization and donors for the conservation of biodiversity. The important ones currently in partnership are given in the table 2 below.

Table 2: Partnership and collaboration with different projects/programme

Programme/Project	Collaborator/ Partners	Support
Manaslu Conservation Area Project (MCAP)	KMTNC	Asian Development Bank (AsDB), Ministry of Tourism and Cultural Affairs (MoTCA)
Biodiversity Conservation Center (BCC)	KMTNC	UNDP, GEF, UNF
Bardia Conservation Project (BCP)	KMTNC	WWF, Norwegian Agency for Development (NORAD)
Annapurna Conservation Area Project (ACAP)	KMTNC	UNDF, GEF, AHF, ICIMOD
Terai Landscape Project (TLP)	DOF	WWF
Northern Mountain Conservation Programme (NMCP)	WWF	USAID
Kanchanjungha Conservation Area Project (KCAP)	WWF	WWF
Sagarmatha Community Agro-Forestry project (SCAFP)	WWF	WWF
Participatory Conservation Programme (PCP)	UNDP	UNDP
Bardia Buffer Zone Development Project	CARE Nepal	European Union (EU), Danish International Development Agency (DANIDA),
Tourism for Rural Poverty Alleviation (TRPAP)	UNDP	Department for International Development (DFID), SNV
CITES Unit	Department of Forests and other CITES agencies, DOF, Department of Custom, Nepal Police	WWF

2.1.3 Problems and constraints faced by DNPWC in managing PAs

Policy and legislation: The Department of National Parks and Wildlife Conservation (DNPWC) is the government authority for the management of protected areas of Nepal. It is also a CITES management authority for fauna in Nepal. It is empowered with the National Parks and Wildlife Conservation Act and the corresponding regulations on specific areas including buffer zone.

Although the HMGN has formulated new policies on handing over of some of the national parks and wildlife reserves to NGOs or other organizations, wildlife farming and management of captive elephants, the National Parks and Wildlife Conservation Act has not yet been amended to reflect these policies. There are no rules in place for the implementation of these policies. Similarly, although it has been felt, separate rules for the Shivapuri National Park and the Dhorpatan Hunting Reserve are not yet finalized.

The *Hattisar* management requires separate Civil Service Rules because of its different nature of work and qualifications. It demands for more physical work than academic qualifications, which is different from the general civil service work.

Institutional development: The DNPWC is manned with over 1,000 personnel in the headquarters and the field offices in the protected areas. Though Buffer Zones for 6 national parks have been declared and some more are under process of declaration, adequate or additional personnel (except in Chitwan) have not been approved. A proposal of creating new division responsible for buffer zone has not been approved, although the management and organization study of the DNPWC suggested for establishing it.

The work load and the responsibility of the department has increased due to expanding buffer zone programme, increasing responsibilities towards international conventions (CITES, Ramsar, World Heritage, Global Tiger Forum) and new programmes/projects that are being launched by the DNPWC. Some staff has to be assigned or deputed to facilitate implementation of the programme/projects for regular monitoring, supervising and coordination. This arrangement of accommodating programmes and projects within the DNPWC premise has created space problems at Babar Mahal complex on top of scarcity of human resources.

The DNPWC has attempted strengthening its database center in the headquarters. The center is equipped with computers and GIS facilities, but requires updating and upgrading. There is no full time staff for the center at present. The ecological, biological and sociological studies are still inadequate although research is in high priority. The DNPWC has limited resources in terms of human and financial resources for conducting research and carrying out monitoring of the protected areas.

Besides, conservation education is a priority programme of the department and its field offices. However, there is a gap in terms of well-planned conservation education strategy and diversified educational materials to support the education programmes in the field. The DNPWC contains over 5,000 items, but not attended by a full time librarian. Space is a major obstacle for the library. The library needs to be upgraded by systematic listing or indexing the books and other education materials and improve its management.

Networking equipment and Transport: The DNPWC is poorly equipped with communications systems and vehicles. There has been a limited movements and communication networking to keep the field offices in contact. The DNPWC has to depend on the wireless sets for communications..

Capacity enhancement: As revealed in the training needs assessment of the DNPWC and its field offices, the personnel need capacity building in various fronts. Apart from the regular refresher training programmes, DNPWC personnel need to develop their expert authorities, such as expertise in wildlife biology. Being involved in the conservation organization, the Administration and Finance staff members do need to receive training in the technical areas such as wildlife, conservation policies and tourism. Besides, there are ample opportunities within the DNPWC and its field offices for exchange between other countries to expand knowledge and skill.

Budgetary constraints: The HMG budget available for the DNPWC and its field offices are mainly to sustain the recurring cost and running the office on a day to day work. For any significant conservation activities such as rhino translocation, DNPWC has to rely on the external sources.

2.2 Wetlands

2.2.1 Administration

Unlike in PAs, management responsibility of WSs does not fall under any particular government department. It is vested on different organizations based on factors such as the location, use, purpose etc. For example, Bishazari Tal Ramsar Site (BTRS) in Chitwan comes under the responsibility of the RCNP as it is located in the BZ. The DFO Kailali, on the other hand, manages Ghodaghodi Tal Rarmsar Site (GTRS) since it is located within the national forest. Likewise, Jagadishpur Reservoir Ramsar Site (JRRS) belongs to the Department of Irrigation (DOI) and is managed jointly by the Water Users' Association (WUA) formed under the Banaganga Irrigation Project (BIP).

DNPWC and DOF are responsible for the management of wetlands in and outside the PAs respectively. Ministry of Agriculture and Cooperatives (MoAC) and its departments of agriculture and livestock services are responsible for the utilization of wetlands for fisheries. Similarly, Department of Irrigation is responsible for the irrigation water.

2.2.2 Programme

There are no specific programmes for WSs management. When wetlands are inside the PAs such as BTRS or a part of PA network such as KWR, they receive support of the DNPWC, otherwise wetlands would hardly receive any attention from any organization despite their contribution to biodiversity conservation. One of the major programmes launched in the government managed wetlands include cleaning of weeds such as water hyacinth, removal of debris and excavation in some cases. Besides, conservation awareness regarding wetlands are conducted such as celebration of wetland day and other festivals.

3. Donor Assisted Projects/programme

Thirteen major donor assisted projects/programmes were reviewed in this section to assess their strength, weakness and effectiveness on biodiversity conservation, poverty reduction and conflict minimization. This chapter is organized into two sections. The first assess on major donor assisted projects and programmes in PAs whereas the next section reviews on projects and programmes on WSs.

3.1 Protected Areas

3.1.1 Overview of the project

Thirteen major donor assisted projects/programmes have been reviewed based on its coverage, emphasis, administration modality and mode or ways of ensuring the people's participation. Table 3 gives a brief overview of the projects/programmes with their detail review on **Appendix 2.** Of the 13 projects reviewed, four projects have already been phased out which includes BICP, BZDP, MEDP and NMCP. Most of the projects/programmes cover only one PAs like BICP, BCC/BRP, TRCP and SCAFP etc, however PCP, TAL and TRPAP cover 7, 4 and 5 PAs respectively. All the projects/programmes implemented in PAs have the dual objectives of biodiversity conservation and poverty reduction except for TRPAP which aims to alleviate poverty through policy review and formulation and strategic planning for sustainable tourism development. The projects have been adopting two distinct administration modalities for delivery of the programmes. The first one includes the NGO implementation modality of KMTNC, with directly implementation of the programme such as ACAP, MEDP, UMBCP, BCC/BRP, TRCP etc where as the second includes the partnership or joint management model which are followed by PCP, KCAP, NMCP, SCAFP etc. KMTNC has followed this approach across all its projects where as other conservation partners such as UNDP, WWF, TRPAP have implemented the programmes under the joint management framework or partnership with DNPWC. All the projects have made provisions to ensure active people participation either directly or indirectly in management or implementation of their programme for example ACAP involves through CAMC, KCAP involves through CDC and PCP involves through BZMC. Though most of the projects have formed their own beneficiary groups, but TAL mainly supports on existing group to develop their capacity and provide very minimal support on formation of new group.

3.1.2 Biodiversity conservation

Based on the detail review and analysis of their objectives and achievement made so far, strength and weakness of the projects on biodiversity conservation is assessed in terms of absence or presence of programmes as well as its extent of coverage or implementation of activities related to biodiversity conservations such as antipoaching, species conservation, forest management, alternative energy, habitat management, conservation education and Management Information System establishment. Project specific strength and weakness has been reviewed in **Appendix 2.** Table 4 below presents the strength and weakness of the projects on biodiversity conservation. Of the projects implemented in PAs, TRPAP has the least or no Programmes directly related to the biodiversity conservation, hence is very weak in biodiversity conservation. The projects which adopted Integrated Conservation Development Project (ICDP) model had weak components of the biodiversity conservation such as

PCP, ACAP, BZDP etc. These projects have given more emphasis on development as compared with biodiversity conservation, and programmes are either weak or poorly implemented, however the exceptional are WWF's BZDP and KMTNC's BCC/BRP. They have strong components of biodiversity conservation such as anti-poaching, species research and monitoring, habitat management and are being strongly implemented in the field.

Table 3: Project Overview

Project/ Programme	Coverage	Emphasis on	Administration modality	Mode of People's participation
PCP	PWR, KWR, RSWR, RCNP, RBNP, RNP, KNP	Both	Joint (DNPWC/UNDP)	BZMC
ACAP	ACA	Both	NGO/KMTNC	CAMC
MEDP	MCA	Both	NGO/KMTNC/ADB	CAMC
KCAP	KCA	Both	Joint (DNPWC/WWF)	CDC
SCAFP	SNP	Both	Joint (DNPWC/WWF)	BZMC/CFUG
NMCP	SPNP	Both	Joint (DNPWC/WWF)	BZMC
BICP	RBNP	Both	Joint (DNPWC/WWF)	BZMC
BCC/BRP	RBNP	Both	NGO/KMTNC	BZMC
TAL	PWR,RCNP,RSWR,RBNP and outside PAs	Both	Joint (DNPWC/DOF/WWF)	BZMC/CFUG
UMBCP	ACA	Both	NGO/KMTNC/GEF/UNDP	CAMC
BZDP	RBNP	Both	Joint/CARE	BZMC
TRPAP	KCA, SNP, LNP, SPNP, RCNP	Poverty reduction	Joint/UNDP/SNV/DFID	CBOs
TRCP	RCNP	Both	NGO/KMTNCGEF/UNDP	BZMC/CFUG

Both includes poverty reduction and biodiversity conservation

Table 4: Strengths and weakness on biodiversity conservation

Project/. programme	Antipoaching	Species conservation	Forest management	Alternative energy	Habitat management	Conservation education	MIS establishment
PCP	W	W	M	M	M	S	S
ACAP	W	M	S	S	W	S	W
MEDP	W	W	M	M	W	S	W
KCAP	S	M	S	S	W	S	M
SCAFP	N	N	S	M	N	M	W
NMCP	S	S	S	S	W	S	S
BICP	S	S	S	M	S	S	S
BCC/BRP	W	S	M	S	M	S	W
TAL	S	S	S	S	S	S	S
UMBCP	M	M	W	S	S	S	M
BZDP	N	N	S	S	N	M	S
TRPAP	N	N	N	N	N	N	W
TRCP	S	S	S	S	M	S	S

Note: S = Strong: W = Weak: M = Moderate N: None

TAL, TRCP, KCAP have the strong components of the biodiversity conservation as they have been regularly involved in species monitoring, research, translocation of species, antipoaching operations

as well as adopted the landscape approach in biodiversity conservation. Of the current projects almost all the projects strength lies on alternative energy and conservation education. However MIS establishment have been very weak in most of the projects except for PCP, NMCP, BICP, TRCP and BZDP.

3.1.3 Poverty reduction

Based on the detail review of the projects, indicators were developed to assess their strength or weakness on poverty reduction which includes formation/strengthening of CBOs, community capital generation, skill and capacity development, livelihoods diversification, community development, tourism promotion, heritage conservation, local resource management support and natural hazard reduction. Most of the projects/programmes have great strengths and has significant impacts on poverty reduction either by reducing the vulnerability of the people or enhancing or maintaining their livelihoods assets. Though the projects have adapted different approaches of conservation such as ICDP or Landscape, but their central emphasis has been on poverty reduction. Appendix 2 briefly reviews on for project specific contributions to poverty reduction. Review of programme components and achievements reflects that almost all projects/programmes had either directly or indirectly contributed to the poverty reduction. Major strengths across the project on poverty reduction are community capital generation, skill and capacity development, livelihoods diversification, community development where as few projects are weak incase of tourism promotion, heritage conservation and natural threats or hazard minimization. The strength and weakness of each project is assessed in table 5 below.

Table 5: Strength and weakness on poverty reduction

Project/ Programme	CBO formation/ strengthening	Community capital generation/ endowment	Skill and capacity development	Livelihoods Diversification/ IGAs	Special target group programmes	Community/infrastructure development	Heritage conservation	Tourism management	Local resource management support	Natural threat minimization
PCP	S	S	S	S	M	M	M	W	M	S
ACAP	S	M	S	S	S	S	S	S	S	W
MEDP	S	M	M	M	S	M	S	S	W	W
KCAP	S	M	S	M	W	W	W	W	M	W
SCAFP	S	M	M	S	S	M	M	M	S	N
NMCP	S	S	S	S	W	M	S	W	S	N
BICP	S	W	S	S	S	S	M	M	S	W
BCC/BRP	S	S	S	S	S	S	M	M	S	N
TAL	M	W	S	S	M	M	W	N	M	S
UMBCP	M	M	M	M	M	M	S	S	S	W
BZDP	M	S	S	S	M	S	N	N	S	N
TRPAP	S	S	S	S	W	M	S	S	W	N
TRCP	M	M	S	S	W	W	W	W	S	N

Note: S = Strong: W = Weak: M = Moderate N: None

3.1.3 Conflict minimization

The strength and weakness of projects on conflict minimization is assessed on the basis of nature of relationships within and between project and its beneficiaries groups, mechanism of coordination or collaboration with line agencies/peer groups in implementation of programme and presence or absence of wildlife damage mitigation measures along with the provisions for compensations. As seen in table 6 below, all the projects have strong inbuilt mechanisms of intra-programme coordination or networking e.g. TAL have formed community forestry coordination committee, ACAP had formed the CAMC, PCP has formed the BZMC. This has not only reduced internal conflicts related to ownership, participation, benefit sharing but had also helped on planned efforts of development. The

inter programme coordination has been duly addressed and is one of the major strengths in most of the projects as the review reflects they are either moderately or strongly effective. For example, TAL had formed the coordination committee from central to field level, BZDP, BICP, PCP and BCP/BRP implemented in RBNP had even divided the programme VDC to avoid the duplication of programmes and resources as well as problems of coordination. Wildlife damage control and mitigation measures have been one of the effective methods in reducing the park people conflicts. Almost all the projects implemented in national parks such as PCP, NMCP, TAL, BICP, BZMP, BCC/BRP has strong components on conflict minimization as they are not only supporting on livelihood diversification but also on construction of physical structures such as trench, fence etc to reduce the wildlife damages. The damage mitigation control has been seen as weakness in projects implemented in conservation areas such as ACAP, MCAP, and SCAFP etc. However none of the projects have been providing direct monetary compensation for the damage caused by wildlife

Table 6: Strength and weakness on conflict minimization

Project/ programme	Intra programme coordination/ networking	Inter programme coordination/ line agencies	Wildlife damage mitigation measure	Wildlife damage compensation
PCP	S	M	H	N
ACAP	S	W	M	N
MEDP	S	W	W	N
KCAP	S	S	W	N
SCAFP	S	M	W	N
NMCP	S	S	S	N
BICP	S	S	S	N
BCC/BRP	S	S	S	N
TAL	S	S	S	N
UMBCP	S	M	S	N
BZDP	S	S	S	N
TRPAP	S	S	N	N
TRCP	S	M	W	N

Note: S = Strong: W = Weak: M = Moderate N: None

3.1.4 Effectiveness of the project

The effectiveness of the project is assessed in terms of their contribution on biodiversity conservation, poverty reduction, conflict minimization and their overall contribution to biodiversity conservation and poverty reduction through sustainable management of PAs. The indicators were indentured and scoring was done on the basis of its provisions as well as on attainment of objectives in above areas based on their detail review (Appendix.2). As seen in table 7. TAL and TRCP were seem to be the most effective projects in biodiversity conservation as they had adopted landscape approach of biodiversity conservation and as well as contributing on conservation of biodiversity outside the protected area network and has been effectively implementing the programmes related to species conservation and habitat improvement. ACAP approach has been highly effective to reduce the poverty level of people. This model has been replicated and followed by others projects and PAs as well. In terms of conflicts minimization, BICP approach has been highly effective which had not only implemented programmes in collaboration and coordination with its peer groups but also supporting communities to construct wildlife damage control measures. In general, ICDP approach followed by BICP and NMCP seemed to be highly effective in attainment of dual goal of poverty reduction and biodiversity conservation. Based on the success of ICDP, PCP also adapted the same approach in Teria PAs

Table 7: Effectiveness of the project

Project/programme	Biodiversity conservation		Poverty reduction		Conflict minimization		Overall	
	Score	Rank	Score	Rank	Score	Rank	Score	Rank
BICP	20	II	24	III	9	I	53	I
NMCP	19	IV	22	V	9	I	50	II
BCC/BRP	15	VI	25	II	9	I	49	III
TAL	21	I	19	IX	9	I	49	III
PCP	14	VII	24	III	8	VI	46	V
ACAP	14	VII	27	I	4		45	VI
UMBCP	16	VI	22	V	6	VII	44	VII
TRCP	20	II	17		5		42	VII
KCAP	17	V	17		6	VII	40	VIII
BZDP	11	IX	19	IX	9	I	39	IX
MEDP	11	IX	22	V	4		37	X
SCAFP	8		22	V	5		35	XI
TRPAP	1		22	V	6	VII	29	XII

3.2 Wetlands

Wetlands at present have virtually no external support. Over the last year, HMG/N and IUCN Nepal have designed a project to promote the conservation and sustainable use of Nepal's wetlands with UNDP-GEF funding support. The overall goal of the proposed project is to ensure the maintenance and enhancement of wetland biodiversity and environmental goods and services for improved local livelihoods in Nepal.

The proposed project will address the root causes of wetland loss and degradation by increasing focus on wetland conservation and wise use in the national policy and planning framework, strengthening institutional, technical and financial capacities, developing and implementing economic incentives for wetland conservation and demonstrating replicable models of collaborative wetland management. The project will undertake work at two demonstration sites: the KWR and its proposed BZ in Eastern Nepal, and the GTRS Complex in Far Western Nepal.

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Attachment 1: Decision Criteria for assessment verifiers

Inference	Score	Decision rule
None	0	• No programmes are suggested, mentioned or implemented
Weak	1	• Indirect support or implementation of programme • Very few components • Poorly achieved (Less effective) • No replication
Medium	2	• Direct support or implementation of component • Few components • Moderate achieved (Less effective) • Replication in some of the area
Strong	3	• Direct support or implementation of component • Strong inbuilt project component • Highly achieved (Effective) • Replicated across the all areas and acknowledged

Appendix 2: Review of Programme /Project

1. Participatory Conservation Programme

The PCP is a follow up of the Park People Programme (PPP) implemented by DNPWC during 1995-2001 under the assistance of UNDP as a pilot project in five Terai and two Mountain PAs. PPP approach has emerged as a strongly viable vehicle for forgoing an effective partnership between the government and the local people for collaborative conservation undertaking in the PAs. With the aim of institutionalizing the successes and achievements of PPP, PCP was designed and came into operation since May 2002 for a period of two years. The focus of this programme will be on the establishment of BZ Development Division within the DNPWC, review of BZ policy, capacity development of PA staff and the local communities and up-scaling social mobilization activities in the BZs.

Aim	• Support the conservation of biodiversity in and around seven parks/reserves and their BZs through the active participation of BZ communities so as to reduce their dependencies on the natural resources of the park/reserves and the BZs
Objectives	The programme is guided by four objectives: • To institutionalize BZ management at the central level for the conservation and management of PA and BZ resources • To support communities in BZ in contributing to conservation of PA resources • To enhance the capabilities of PA staff to forge partnership with community based institutions and to develop its institutional capacity for improved management of PA and BZ resource • To support Ministry of Forest and Soil Conservation (MoFSC) to strengthen its institutional capacity for implementing National Biodiversity Strategy (NBS) and National Biodiversity Implementation Plan (NBSIP)
Duration	• May 2002 to April 2004
Funding agencies	• HMG/N, UNDP
Coverage	• 7 out of the 16 PAs of Nepal namely: KWR, PWR, RCNP, RBNP, and RSWR in Terai; KNP and RNP in the hills/mountain • 17 districts and encompasses 109 VDCs/municipalities • HH covers stands 66,636 which is around 73% of the household
Programme Strategy	• Intervention strategy of i) reducing the dependency of the BZ community on the core zone resources of the PA and ii) minimizing the park and people conflict. The programme will thrive for ensuring financial sustainability, representation of women and special target groups and the conservation and development funding mechanism • Exit strategy for the RCNP and RBNP by gradually providing low support to these parks • Partnership strategy to share experiences and networking within Nepal to utilize talent and expertise with the ongoing efforts of WWF, KMTNC, CARE, National Biodiversity Conservation Programme, DFID, BISEP-ST, Nepal Biodiversity Landscape Project and TRPAP.
Major programme components	• Policy support • Community mobilization • Management of natural resources and development of alternative sources • Institutional development at the local level • Community capital generation and its institutionalization through cooperatives • Human resource development through skill enhancement • Women empowerment (Mainstreaming gender) • Conservation awareness • Park Management which includes habitat conservation, waterhole improvement, policy development support • Green enterprises development and promotion
Approach	• Adopted the community based ecosystem level biodiversity conservation approach

by forging a partnership between the government staff and the communities of local people

Implementation mechanism

- National Execution (NEX) modality
- Implement two programmes simultaneously
  - **Core area management:** Park staff are supported with activities primarily focused on developing MIS and interventions in order to facilitate the improvement of wildlife habitat and species management for biodiversity conservation
  - **Buffer zone development:** Buffer Zone User Groups (BZUGs) are supported through a BZ Support Unit with activities focusing on the development of alternative livelihood and natural resource in order to improve the socio-economic well beings of local communities based on self reliance and simultaneously contributing to the conservation of biodiversity
- DNPWC/PCP implements these activities in close consultation and partnership with the various community-based institutions by adopting a participatory bottom-up approach
- Activities are carried out through the formation of settlement or village based User Groups (UGs), User Committes (UCs), specialized Functional Organizations (FOs) and BZMCs. The formation of these eommunity institutions are based on the principle of self management, self promotion and self reliance

Achievements/ Impacts

- Support provided for biodiversity registration in two pilot sites in Kaski district
- BZ Working Group has been established at DNPWC
- Management Plans of RCNP have been prepared and piloted
- Biodiversity Conservation Facility (BCF), previously known as Area Conservation Facility (ACF), and Community Savings and Credit Guidelines have been reviewed, prepared and published
- A BZ Forum, common meeting point for different park/reserve Wardens and BZMC/ad hoc BZMC Chairpersons for exchanging ideas and experienees and establishing better lateral and vertical linkages of the DNPWC with its BZ partners, has been initiated
- Park-people relation has improved significantly from hostility to harmony
- Several community based organizations have been formed (FOs, UGs and UCs), and are being institutionalized
- Biodiversity Conservation Facility (seed money made available to BZ communities for productive investment in micro and green enterprises) has been mobilized after the Guidelines and necessary forms and formats were developed
- Conservation awareness has increased significantly
- Communities undertake regular self-initiated activities like cleaning and health campaigns, construction and repair of infrastructure etc. for the improvement of the BZs
- Communities have been highly encouraged to rear improved breeds of cattle and adopt stall feeding practiees
- Encouragement and support has been provided to communities in making use of alternative energy like biogas which has reduced consumption of fuel wood considerably
- Capacity enhancement of BZ communities through various skill development and occupational training programmes have provided them better employment opportunities
- Habitat conservation through management of grassland, wetlands
- Supported on species conservation (crocodile farming)

Issues/Problems/ Challenges

- The prolonged delay in the declaration of the BZs in those Parks/Reserves (KWR, PWR, RNP, RSWR, KNP) been has been an obstacle to the smooth functioning of the programme
- Uncertainty of financial resources and staff requirement for the continuation of PCP in most of the project sites after the UNDP support phases out
- Disease transmission from farm animals to wild animals.

Strengths

- Based on principle of system learning as piloted BZ programme in 7 PAs
- Institutionalized the BZ management in the PAs through policy, legislation and institutional development
- Established vertical linkages of DNPWC with its BZ partners through BZ Forum
- Conservation through active participation of BZ communities
- Formation of settlement or village based UGs, UCs, specialized FOs and BZMCs based on principle of self management, self promotion and self reliance
- Started bottom up planning process
- Forged partnership with community based institutions
- Addressed the gender and equity issues
- Special programme for women empowerment
- Participatory and democratic governance system
- Partnership with different conservation partners to share experiences and networking
- Biodiversity Conservation Facility (seed money made available to BZ communities) for productive investment in micro and green enterprises
- Community capital generation and its institutionalization through cooperatives
- Reduces vulnerability of people such as natural calamities and wildlife caused damage
- Overall, positive efforts to reduce the park people conflict

Weakness

- Replicated same model from the Terai to the hills without considering the socio-cultural and economic situation
- Programme more tilted towards development than conservation aspect
- Still unable to mainstream disadvantage groups in conservation and poverty reduction programme
- Programme duration is short with three extensions leading to uncertainty spread in a large number of protected areas, thus facing a challenge for regular monitoring by the limited project staff.

Lesson learnt

- The most important conservation partners for the government are CBOs like UGs, UCs, and BZMCs.
- Local NGOs can be important agencies for providing technical backstopping, especially in cases related to transfer of appropriate technology like alternative energy, conservation awareness and education.
- Community savings and credit scheme has enabled people to undertake self-reliant income generating activities, thus drawing their dependence away from the park/reserve and BZ natural resources.
- In the two mountain parks (RNP, KNP), there exists a high level of dependency of the people on the programme due to relative infancy of the programme. Special policies should be formed in the case of mountain parks. The replication of the achievements of the programme in the terai to the mountains is neither possible nor practical
- The BZ management in the terai and mountain should not be regarded the same, there are quite distinct and obvious differences meriting differential management approaches and strategies for conservation.

2. Annapurna Conservation Area Project

ACAP launched in 1986 at Ghandruk as a pilot programme to integrate nature conservation with community development. The concept proved successful. After ACA was gazetted in 1992, ACAP programme cover the entire area of 7600 sq km. The ACA is divided into seven conservation units, which includes Jomsom, Manang, Lho Manthang, Bhujung, Lwang, Sikles and Ghandruk. Integrated tourism management and agro-pastoralism is focused in Jomsom, Manang and Ghandruk, which are also popular areas for trekking destination. The priority or focused programmes in the Bhujung, Sikles and Lwang sector are poverty alleviation and integrated agriculture and livestock development, agro forestry, and community development respectively. In the Lho Manthang sector, ACAP has been on managing controlled tourism on a sustainable basis, and promoting heritage conservation, which is the major tourist attraction along with alternative energy, resource conservation and community development programmes.

Aims

- Achieve sustained balance between nature conservation and socio-economic improvement in the ACA thereby assist KMTNC in achieving its goal

Objective	• Conserve the natural resources of ACA for the benefit of the present and future generation. • Bring sustainable social and economic development to the local people. • Develop tourism in such a way that it will have minimum negative impact on the natural, socio-cultural and economic environments.
Duration	• Years (1992- 2012), 10 years phases
Funding agencies	• GEF, UNDP, American Himalayan Foundation (AHF), International Center for Integrated Mountain Development (ICIMOD), KMTNC
Coverage	• ACAP covers 5 districts and 55 VDCs • Supports to 100,457 people from 20,581 households
Programme Strategy	• Develop and strengthen local institutions to ensure bio-diversity as well as soil and water conservation at the same time ensuring the sustainable supply of forest products • Addressing cultural conservation through education, documentation and supporting the renovation and maintenance of historically and culturally significant sites, monasteries and cultural practices • Empower the local communities to take control of the programmes being implemented • Provide alternative sources of energy and appropriate cooking and heating devices to reduce the consumption of fuel-wood
Major programme components	• Natural Resource Conservation Programme • Conservation Education and Extension Programme • Sustainable Community Development Programme • Alternative Energy Programme • Sustainable Tourism Management Training • Agriculture and Livestock Development Programme • Gender Development Programme • Reproductive Health Programme • Heritage Conservation Programme • Human Resource Development • Meetings and Workshops
Approach	• Integrated conservation and development programme model • Multiple land use principles of resource management that combines environmental protection with sustainable community development
Implementation mechanism	• Implemented by the KMTNC • Communities have been encouraged to form groups or communities as grass root organization to take control of the programme being implemented • CAMC are formed either at the VDC level or on the basis of traditional resource users, • CAMC, the local institutions is responsible for the overall management of the ACA • ACAP has been regularly providing administrative support to all CAMCs, • Local communities contribute their unskilled labour required for the project and collect locally available materials where as the project provides the skilled manpower and locally unavailable materials
Achievements	• Serves as a model for conservation projects throughout the world, KMTNC being unique example of non government organization managing the significance portion of tourism revenue to plough back into conservation and development • ACAP management plan was prepared and implemented for 1997 – 2002. • Preparation of the CAMR 2053 BS (1997) and Conservation Area Directives 2056 BS (1999) has been in enforcement. • KMTNC in 2001 submitted a phase-out strategy from the ACAP to the HMG/N. Realizing the successful undertaking of the first 10-year phase of the ACAP from 1991 to 2001 gave rise to giving management responsibility for an additional 10 years till 2012 by HMG/N to the KMTNC.

- Building the capacity of all the 55 CAMCs so that the management responsibility can be handed over by the ACAP to these local CBOs was the major strategy for ACAP phases out from the ACA.
- GEF, UNDP, AHF, ICIMOD, KMTNC funded UMBCP is in implementation since 2000 for five years in the Lomanthang Sector of the ACAP covering 7 VDCs.
- ACAP has proved that the principle of participatory ICDP in Conservation Area management (CAM) is a successful model for Nepal to adopt. This model has been replicated by HMG/N by declaring MCA and KCA and adopting people centered BZ management in national parks.
- Cultural conservation is given equal importance along with nature conservation. The cultural conservation programme of Upper Mustang completed first phase and will be expanded to other monasteries in the second phase.

Issues/Problems/ Challenges

- Lack of ACAP Management Council, a representative umbrella organization of all CAMCs.
- Development of a Non Timber Forest Product (NTFP) harvesting policy by empowering CAMCs for overall management and implementation is still lacking

Strength

- Within an area, different programmes are implemented based on management potentialities e.g. integrated tourism management and agro-pastoralism in Jomsom, Manang and Ghandruk and poverty alleviation and integrated agriculture and livestock development, agro forestry, and community development in the Bhujung, Sikles and Lwang sector etc
- Conservation education is considered as a backbone for implementation of all programme components
- Institutionalize the CA management through policy and legislation development support
- Based on principle of self reliance and sustainable social and economic development
- Serves as a model for conservation projects throughout the world in ICDP approach
- Integrated eco-tourism in the programmes to have minimum negative impact on the natural, socio-cultural and economic environments
- Cultural conservation
- Formation of CAMC at the VDC level
- Strengthen local institutions to ensure bio-diversity as well as soil and water conservation
- Empower the local communities to take control of the programmes
- Based on principle of system learning and piloted ICDP approach. This model has been replicated by HMG/N to manage other PAs such as MCA, KCA and adapting BZ management in national parks
- Strong emphasis on the promotion and development of alternative energy
- Economic empowerment of CAMC through endowment fund
- Prepared the operational plan of all CAMCs with emphasis on alternative energy, tourism promotion, resource conservation and agriculture development
- Adopted bottom up planning process
- Special programme for women empowerment
- Established cordial relationship with local communities in biodiversity conservation

Weakness

- Weak management information system
- Operational plan is prepared but not implemented
- Programme more tilted towards development than conservation

Lesson learnt

- Conservation and development can be mutually complementary to each other for meeting both the environmental concerns and basic human needs of the local people
- Effective conservation of natural resources cannot be realized without active participation of local community in all stages of development
- ACAP realizes that improvements of basic community infrastructure is necessary, which is also genuine aspiration of the local people, to make local people interested and actively participated in conservation.
- The success of nature conservation, sustainable community development and

tourism management relies on the quality of Conservation Education and Extension Programme to help the people understand how these objectives can be achieved. People's attitudes toward resource use had to be changed and the means to achieve this is through formal (school) and informal (out of school) education and extension programmes

- ACAP provides a background for community based conservation, it also has responsibility to explore values and sustainable use of biodiversity for which multidisciplinary management research has a pivotal role to play

3. Manaslu Ecotourism Development Project

Based on ACAP experience that conservation and development can be mutually complementary to each other for meeting both the environmental concerns and basic human needs of the local people, KMTNC has undertaken the responsibility of implementing the MEDP in the Manaslu area of Upper Gorkha since 1997. The project is implemented under the loan assistance of the Asian Development Bank (AsDB) to HMG/N Ministry of Tourism and Civil Aviation - Second Tourism Infrastructure Development Project.

Aims	• Improve the capacity of the Manuslu region to support environmentally benign tourism with the intention of raising the socio-economic level of its inhabitants through the tourism industry.
Objective	• Develop the alternative energy sources to alleviate the pressure on the forests for fuel wood • Develop campsites and lodges along the trekking route with safe drinking water supplies and facilities to dispose human wastes safely • Develop trails and helipad/stopper for tourist entry and transport of supplies • Develop communications for better management of tourist activities and emergency services • Train local residents in service provision and the operation and maintenance of facilities
Duration	• 1997-2002
Funding agencies	• AsDB through HMG/Ministry of Tourism and Civil Aviation Second Tourism Infrastructure Development Project (STIDP)
Coverage	• Encompasses seven VDCs, Samagaun, Lho, Prok, Bihi, Chunchet, Chhekampar and Sirdibas of north Gorkha District bordering China (Tibet)
Programme Strategy	• Creation of local institutions and empowerment through training are the integral to MCAP strategy of achieving the sustainability in its endeavor
Major programme components	• Access improvement • Natural Resource Conservation Programme • Conservation Education Programme • Sustainable Community Development Programme • Alternative Energy Programme • Sustainable Tourism Development • Agriculture and Livestock Development Programme • Women in conservation and development programme • Heritage Conservation Programme • Capacity building • Research, Promotion and publicity
Approach	• Integrated conservation and development programme model
Implementation mechanism	• Managed by KMTNC • Communities have been encouraged to form groups or communities as grass root organization to take control of the programme being implemented • CAMC are formed either at the VDC level or on the basis of traditional resource users, • CAMC, the local institutions is responsible for the overall management of the MCA • Local communities contribute their unskilled labour required for the project and collect locally available materials where as the project provides the skilled manpower and locally unavailable materials
Achievements	• Formation of CAMCs at all VDC

- Access Improvement: As the nearest road head is located 3 days walk a total of 10.8 km trail was improved by stone paving or widening; Sign posting placed along the entire Larkye Trail with maintenance responsibility given to Tourism Management Committees (TMCs); 16 new wooden bridges constructed and 2 restored; 2 Helipad were constructed and survey of Short Take Off and Landing (STOL) airport at Prok village conducted; 6 wireless radio communication sets established.
- Alternative Energy: 4 Micro hydro electricity projects are under way at Samagaon 33 kW, Lho 30 kW, Prok 23 kW and Namrung 15 kW benefiting total 351 households; 7 kerosene depots have been established under a loan agreement; 8 Gompa weer supported with solar electricity generating 40-50 Watts.
- Nature Conservation: Seeking alternatives as a strategy to natural resource dependency is being worked out; CAMC formation and strengthening through various training, workshop and exposure visits and deposit of Rs 24,000 in each of the CAMC accounts since 2000. The CAMCs are employing a forest guard in each ward; 11 Forest Management Committee are formed in 3 VDCs at each ward; 1 forest nursery was established and produced 7000 seedlings for plantation; different types of conservation education and extension programme activities were conducted in villages; a workshop was held as a first step to prepare Operational Plan of each CAMC.
- Sustainable Tourism Development and Management: 5 community owned campgrounds built, 5 private campsite were supported with toilet construction, financial support to 3 local lodge owners provided, various training programmes organized to build local capacity, etc. Total 20 campsites have piped drinking water, 10 have dumping pits, and 15 have toilets. Tourism awareness camps organized, Tourism Management Committees have been formed in 2 VDCs, Training on various aspects provided.
- Sustainable Community Development: 11 drinking water supply schemes are constructed in eleven villages with 55 taps benefiting 525 households, 14 community toilets and various supports to schools such as roofing and conservation education curriculum teaching, health improvement and sanitation programme were launched through various training and extension programme and by providing infrastructure support. The traditional Amchis were supported.
- Heritage Conservation: 120 Gombas were financially and technically supported for renovation and 8 were supported for solar photovoltaic electricity installation. In Nubri, a poacher caught red handed is stripped publicly, lashed 500 times on the buttock and punished Rs 5000 have been extremely effective among the local inhabitants.
- Women in Conservation and Development: Empowerment of women is central, formation of women groups (WGs) in each village under which 25 WGs in the 7 VDCs have been accomplished; ALC launched in 10 villages of 4 VDCs. The WG have been found to be the most active institution playing an important role in conservation and development.
- Agriculture and Livestock Development: Promotion of vegetable production demo plots established in 4 sites; training on kitchen gardening provided. Local people have started to make their own kitchen garden after observing the plots.
- Capacity Building: This includes the technical, analytical and decision-making skills of local people under which five exposure tours of VDC representative, WG, CAMC, Micro Hydro-Electricity Management Committee were organized and training on various aspects provided.
- Research, Promotion and Publicity: Biodiversity survey conducted in 1998/99; promotional documentary film prepared; etc

Issues/Problems/ Challenges

- People are reluctant to support the project as they were of the opinion that they would be relocated some where outside MCA.
- Two major problems faced in implementing the project include the transportation difficulties and the short working season in the area.

Strengths

- Prioritized infrastructure development and economic growth before the conservation programmes
- Formed groups or communities to take control of the programme being implemented

- Central focus on women empowerment
- Based on principle of self reliance and sustainable social and economic development
- Integrated conservation with local culture, values and costumes
- Quick impact on poverty through promotion of income generating activities
- Diversified livelihood opportunities through promotion of community based eco-tourism
- Emphasize on cultural conservation
- Emphasize on capacity development of local institutions
- Empowerment of local communities to take control of the programmes
- Holistic, integrated and conservation in line with sustainable development
- Established the cordial relationship with local communities in biodiversity conservation

Weakness

- Dependent on tourism sector and emphasis on tourism promotion than biodiversity conservation
- No specific programme for species conservation
- Poor coordination with line agencies

Lesson learnt

- Infrastructure development and alternative energy promotion are prerequisite to any conservation effort in remote area of Nepal. It is vital to prioritize infrastructure development and economic growth before the conservation programmes are introduced to rural communities.
- ICDP is replicable with community participation.
- Contemporary form of education will only contribute in the destruction of traditional values and beliefs.
- Tourism has been seriously paralyzed and local economy affected by political insurgency, which is not a good sign for biodiversity conservation and poverty alleviation.

4. Kanchenjunga Conservation Area Project

HMG/N and WWF launched the KCAP in 1998 with an aim to safeguarding the biodiversity of the area. In particular, the programmes are aimed at institutionalizing and strengthening the CAM system, economically empowering community members, and increasing conservation awareness among all stakeholders. The legal provision of CAMR BS 2057 (gazette notified on 4 September 2000) entails management of natural resources in Conservation Areas through community participation and CBOs. The CBOs like Management Councils, UCs, UGs and Mother Groups are integral to natural resource management in Conservation Areas.

Aim

- Integrate conservation and development by improving the socio-economic conditions of the local people and safeguarding the biodiversity of the area

Objectives

- Improve the sustainable use of natural resource by assisting local people to formulate and implement the management of resources
- Increase sources of income by developing alternative income generating activities
- Increase women's participation in development programmes
- Improve tourism infrastructures and practice eco-tourism
- Increase the management capacity of local level staff of DOF, DNPWC and local people through trainings, strengthening infrastructure and supply of necessary equipments

Duration

- 5 years (1998-2003)

Funding agencies

- WWF

Coverage

- Implemented in four VDCs Lelep, Tapethok, Walangchung Gola and Yamphudin in Taplejung District

Programme Strategy

- Strengthen capacity of KCA community to manage their natural resources by improving their socio-economic conditions

Major programme components

- Forest conservation
- CBOs institutionalization
- Species conservation
- Sustainable development

	• Tourism and heritage conservation • Economic empowerment • Education and capacity development • Communication • Policy support
Approach **Implementation mechanism**	• Integrated conservation and development programmes • Managed by WWF and implemented by DNPWC • Participatory processes are used to maximize local inputs in various level of project • Implementation of project activities are conducted by partner organizations • CDC have been formed at each VDC level consisting of 10-15 members as per the ACA model
Achievements	• Formation of KCA management council • Initiation of KCA's 5 year integrated management plan • Finalization and endorsement of operational plan of 7 Conservation Area User Committee (CAUC) • Implementation of sustainable community development programmes through CAUCs • Evaluation of five years KCAP implementation • Coordination with other organizations in natural resource sector • Conduction of research on NTFPs and trade • Support from the Mac Arthur Foundation for strengthening of the KCA management system • MAPs/NTFPs conservation • Promotion of alternative energy technologies and reduced the dependency of people on forest as well as improved the quality of life
Issues/Problems/ Challenges	• Mobility continues to be a constraining factor for project implementation.
Strengths	• Established the cordial relationship with local communities in biodiversity conservation • Management of natural resources through community participation and Community-based organizations • Diversified and increased sources of income of people • Followed participatory processes to maximize local inputs • Implementation of project activities are conducted by partner organizations • Formation of KCA management council
Weakness	• Emphasis on development • Habitat management component is weak • No special target group programme
Lesson learnt	• It is essential to identify changing livelihood strategies and influencing factors within communities and to formulate the different programmes and activities accordingly. • It is crucial to win the trust of local communities and generate conservation awareness through the interaction and extension programmes prior to initiation of programme. • In order to ensure the sustainability of the KCA and bring all stakeholders to a common ground for conservation, cooperation and partnership with concerned stakeholders is needed. • The success of community-based programmes depends on the processes of social mobilization. • Mother groups play a crucial role both in conservation and development activities through out the KCA • Establishment of multipurpose nurseries would motivate the community towards the private and community plantation, changing attitudes towards the care and value of trees • Generation of awareness on biodiversity conservation reduces the hunting and poaching activities by the local community • Promotion and capacity development of local institutions would ensure the sustainability of programmes.

5. Sagarmatha Community Agro Forestry Project (SCAFP)

Recognizing the importance of conservation outside the SNP, WWF initiated the SCAFP in 1996. SCAFP commenced to address the issue of deforestation in the Chaurikharka VDC

Aims	• Increase community participation in conservation to restore balance between conservation and development needs
Objective	• Strengthen local institutions, including CFUGs to promote the management of forest resources • Increase forest coverage by supporting local institutions in establishing nurseries and managing their forest • Reduce fuel wood consumption through use of alternative energy and appropriate technologies • Promote agro-forestry and enhance income generating opportunities • Increase conservation awareness among local residents and visitors • Empower the local community • Ensure self sustainability of all project activities
Duration	• Two years (July 1 2002- June 30 2004)
Funding agencies	• WWF
Coverage	• One VDC (Chaurikharka) and also some programmes in Khumjung and Namche VDCs
Programme Strategy	• Reverse the trend of deforestation and promote sustainable use of forest resources • Effective and sustainable management of Pharaks Forest through a variety of integrated activities • Socio-economic development of Pharak by supporting and promoting sustainable livelihoods • Increase forest cover and biodiversity in Pharak by partnering with local residents
Major programme components	• Sustainable resource use • Alternative energy • Environmental education • Gender and development • Local conservation capacity development • Eco-tourism • Pollutants/ solid waste management
Approach	• Integrated agro-forestry and community development programmes
Implementation mechanism	• Implemented through the DNPWC, HMG/N and the local community
Achievements	• Formation and training of community forestry user groups • Generated conservation awareness among local residents. • Empowerment of women through capacity-building programmes such as skill enhancement training tours and literacy classes • HMG/N's declaration of Chaurikharka VDC as part of the SNP BZ was due to active participation and lobbying by local residents, especially women • Established a Visitor Information Center • Installation of back-boiler water heating systems and support to a gas depot run by the Women Awareness Group at Lukla reduced fuel wood consumption
Issues/Problems/ Challenges	• Need for baseline data and monitoring and evaluation of SCAFP activities • Need to ensure the project sustainability • Growing inequity between project beneficiaries
Strengths	• Balance between conservation and development needs by providing incentives and options for sustainable income generating activities • Partnership with local institutions in forest management and development activities • Integrated agro-forestry and community development programmes • Pollutants/ solid waste management • Focused on people's participation in sustainable natural resource management
Weakness	• Weak species conservation programme

Lesson learnt	• Emphasis on development • Weak research component • BZ establishment has greatly enhanced in the protection of Pharak's forests and wildlife as well as sustainability of project activities • Skills related to sustainable resource management and forest conservation have been instrumental in developing local residents and organizations. • Balance between conservation and development needs can be achieved by providing incentives and options for sustainable income generating activities • Women tend to be more aware of emerging resources scarcities than the male counterparts and hence more receptive to conservation efforts.

6. Northern Mountain Conservation Project

WWF Nepal Programme, in collaboration with the DNPWC of HMG/N, started the NMCP in 1996. With the financial support of USAID, WWF Nepal Programme implemented the Project in SPNP and DHR in its BZ with the objective of conserving biodiversity.

Aims	• Facilitate local management of natural resources and to improve the living conditions of local people, while safeguarding the unique natural heritage of the region
Objective	•
Duration	• 1996-2003
Funding agencies	• USAID, WWF
Coverage	• Two PAs DHR, SPNP
Programme Strategy	• Strengthen the capabilities of user groups, local NGOs, DNPWC
Major programme components	• Alternative energy • Capacity Development of the stakeholders (CBOs, park staffs, community members) • Operational plan preparation (BZUC) • Exposure visit
Approach	• BZ Approach
Implementation mechanism	• ICDP
Achievements	• Training workshop for CFUGs • Support for the establishment of community plantation and nurseries • Training for BZMCs • Formation and strengthening of women's groups. • Increased saving and credit activities, • Environmental and conservation education in local schools • Support for eco-clubs • Preparation of a draft management plan of SPNP • National workshop on conservation and management of medicinal and aromatic plants • Promotion of alternative energy
Issues/Problems/ Challenges	• Over exploitation of natural resources for fuel, fodder, manure and grazing • Wildlife poaching • Lack of awareness • Unsustainable use of natural resources
Strengths	• Safeguarding the unique natural heritage of the region • Strengthen the capabilities of user groups, local NGOs and DNPWC • Support for eco-clubs and environmental and conservation education in local schools • Promotion of alternative energy • Strengthen community based conservation and management of medicinal plants • Contribute to the wider development of ethno-botany • Improving the primary health care by increasing the capacity of Amchis

	• Experimental demonstration plots of selected medicinal plants • Initiated the cultivation of key species of medicinal plants along with a strong community based monitoring and harvesting of medicinal plants in wild • Increased coordination between the project and the line agencies of the government
Weakness	• Emphasis on development • Weak on habitat management • Not able to provide linkage of the local products including handicrafts with market
Lesson learnt	• Conservation awareness is necessary to control the excessive use of natural resources including forest resources. • Alternative energy is necessary to decrease the consumption of fuel wood for cooking. • Increased coordination between the project and the line agencies of the government to avoid duplication of works

7. Bardia Integrated Conservation Project

The BICP has five components including conservation education, anti-poaching, eco-tourism, women empowerment and income generation. BICP implemented with the funding support of the SNV through WWF Nepal Programme in selected VDCs lying in BZ of RBNP.

Aims	• Promote conservation of biodiversity in and around the park by strengthening the capacity of local institutions and institutional development of DNPWC • Assist local communities in the BZ to practice ecologically sound, sustainable natural resource management
Objective	• To conserve plants and animals in the parks • To reduce poverty in the BZ communities • Strengthen the capacity of anti poaching units
Duration	• 1996-2001
Funding agencies	• SNV through WWF
Coverage	• RBNP
Programme Strategy	• Strengthen the management of the park through a comprehensive management plan and human resource development through training opportunities for park and DNPWC staff • Enhance effective park and BZ management through trained manpower.
Major programme components	• Conservation education programme • Anti-poaching operation, and reducing wildlife damage • Women in conservation and income generating programme • Sustainable eco-tourism • Sustainable agriculture and forestry • Animal husbandry and livestock management • Training
Approach	• ICDP • Manage the BZ within the national park jurisdiction • Empower local people rather than being a programme working exclusively
Implementation mechanism	• Jointly launched by DNPWC and WWF Nepal Programme and jointly implemented by KMTNC, Women in Environment (WE) and other community based organizations.
Achievements	• Provided various training and orientation programmes for park and the members of the Protection Unit of the RNA stationed in the park for joint patrolling, anti-poaching surveillance, and legal procedures following the capture of offenders • Increased their participation in resource management and BZ development activities • Improved animal husbandry and livestock management practices by distributing breeding bulls, support for veterinary store, fodder tree and grazing management, and promotion of bio-diversity.
Strengths	• Anti-poaching operation to conserve the key stone species • Emphasis on reduction of park people conflicts through development of mitigation

	measures such as fence, trench etc • Empower local people rather than being a programme working exclusively • Replicated ICDP model in Terai PAs • Improved animal husbandry and livestock management practices • Positive effort to reduce the park people conflict • Addressed the gender and equity issues • Special programme for women empowerment • Effective partnership between the government, private sector and community
Weakness	• Unable to promote tourism that forms a major source of income • Unable to layout ground for the management of wasted resources like driftwood
Issues/Problems/ Challenges	• Inadequate fodder and fuel wood to local communities • Disturbance in wildlife movement • Inadequate wildlife habitat • Inadequate research documentation • Excessive pressure on park sources • Insufficient baseline information on wildlife
Lesson learnt	• Proved a model for an ICDP in the Terai PAs • Effective partnership between the government, private sector and community helps to maintain harmony with the conservation and development goal • Park people conflict could be reduced by replicating the ICDP model

8. **Bardia Conservation Project/Bardia Research Project**

With technical support of the Agriculture University, Norway and in close association with the DNPWC, BCP is also developing wildlife research projects in RBNP, which has started from December 1997. The Norwegian Agency for Development NORAD has been the major donor for BCP. The BCP undertaken by the KMTNC included five components of the BICP implemented with the funding support of the SNV through WWF Nepal Programme. BRP is follow up project of BCP with primary focus on wildlife research.

Aims Objective	• Conduct scientific research on prey and predators in RBNP • Study on wild life such as wild elephant and Gharial Crocodile. • To identify and develop alternative income generation schemes and promote the nature based tourism. • To generate income from sustainable agriculture, forestry, animal husbandry and livestock management.
Duration	• 1996-2007
Funding agencies	• KMTNC/NORAD
Coverage	• RBNP
Programme Strategy	• Equal emphasis to biological conservation and community development/poverty reduction
Major programme components	• Sustainable agriculture • Animal husbandry and livestock management • Income generation • Community plantation • School support • Tharu culture promotion • Health care • Women development • Skill enhancement • Crop depredation control programme. • Capture and collaring of tigers and common leopards for regular monitoring • Study on the social organization and behavior of barking deer • Monitoring of tigers with the indirect method of pugmark study and camera trapping method under Adopt a Tiger Scheme. • Implementation of ICDP development activities • Awareness and capacity development programme
Approach	• ICDP

Implementation mechanism	• Implemented through KMTNC with the support of the park staff
Achievements	• Different community development activities such as community plantation, health care, school support were implemented. • Income generation activities such as sustainable agriculture, skill development, animal husbandry and livestock management activities were conducted to raise the income of the local people. • Species conservation and research activities such as tiger monitoring, common leopard monitoring were implemented. • Control on crop damage and livestock depredation by wildlife through different technologies including electric fencing. • Off season vegetable farming • Forest management, gender sensitizations and leadership development training
Strengths	• Monitoring of tigers with the indirect method of pug-mark study and camera trapping method • Capture and collaring of tigers and common leopards for regular monitoring • Study on the social organization and behavior of barking deer • promote the nature based tourism • Implementation of ICDP development activities • Income generation activities were conducted to raise the income of the local people • Control on crop damage and livestock depredation by wildlife through different technologies including electric fencing. • Addressed the gender and equity issues • Special programme for women empowerment
Weakness	• Inadequate human resources for follow up efforts • Not able to start elephant research on time • Mortality of tiger during reserach
Issues/Problems/ Challenges	• Disturbance in wildlife movement • Inadequate wildlife habitat • Inadequate research documentation • Excessive pressure on park sources • Insufficient baseline information on wildlife
Lesson learnt	• BZ practices minimize crop damage by wildlife, • BCP is experimenting with electric fencing technology in the areas of high impact of elephat • The chemical immobilization in tiger census is quite risky and fatal. Camera trapping method has evolved as an easy method to supplement research needs

9. Terai Arc Landscape Programme

The Department of Forests (DOF), DNPWC and WWF Nepal Programme have jointly implemented the Terai Arc Landscape (TAL) Programme in collaboration with local communities and NGOs, following Grant Agreement between the MoFSC, HMG/N and WWF Nepal Programme on 13 July 2001. The Programme has two project components: TAL-DNPWC and TAL-DOF. Both DOF and DNPWC have set up their field offices at RBNP and Dhangadi, Kailali District. After July 2001, the Western Terai Churia Conservation Programme (Tiger, Rhino and Elephant Complex) better known as WETTREC merged into TAL Programme.

Aim	• Conserve the biodiversity, soil and watershed of the Terai and Chuira (Siwaliks) hills in order to ensure the ecological, economic and socio-cultural integrity of the region
Objectives	• Restore and manage the degraded forest corridors and maintain links between protected areas within the TAL and dispersal corridors through community forestry, plantation and natural forest regeneration by strengthening community forestry user groups • Conserve tiger, elephant, rhino and other species of special concern including plants and birds while preserving their habitat integrity and increasing the land base that supports their viable population by improving and strengthening all protected area in the TAL

	• Maintain and enhance environment services for agriculture productivity, soil conservation and watershed management that enhance local livelihoods and reduce poverty through community participation using innovative approaches to integrate conservation and natural resource management • Promote conservation education to local communities and strengthen their capacity by supporting institutions, developing environmental education packages and conducting environmental interactions • Develop effective coordination and communication among conservation partners and stakeholders and develop promotional material for fund raising and information dissemination • Strengthen institutional policy, legal framework and enhance coordination between India and Nepal as well as achieve long term financial security for TAL conservation
Duration	• 5 years (July 2001 to June 2006)
Funding agencies	• WWF Nepal
Coverage	• 4 PAs (PWR, RCNP, RBNP, RSWR) out of 16 PAs
Programme Strategy	• TAL Programme was initiated with an envision of creating a single functioning landscape through the restoration and maintenance of forest corridors connecting 11 protected areas between Nepal's PWR/RCNP and India's Rajaji National Park by building upon and creating effective partnership with local communities as resource managers, beneficiaries and stewards.
Major programme components	• Forest Corridor conservation and management (seedling production, plantation, institutionalization of CFUGs, natural forest regeneration) • Species conservation (habitat management, anti-poaching, CITIES implementation, minimize wildlife damage, rhino translocation, black buck conservation) • Research, survey and monitoring (Status survey and wildlife monitoring, vegetation monitoring and research and study) • Sustainable development (Livestock management, alternative energy programme, income generating programme, community services, eco-tourism) • Education, communication and capacity building (Conservation education and awareness, communication, capacity building) • Policy and advocacy (Stakeholder consultation, transboundary meeting, coordination) • Planning • Programme monitoring • TAL strategic plan development • Trans boundary activities
Approach Implementation mechanism	• Landscape approach • Jointly implemented by DNPWC and WWF inside PAs and through DFO outside PA network • Implemented through the grassroots organizations most particularly CBOs, CFUGs and Community Forest Coordination Committee (CFCC)
Achievements	• Seedling production and distribution • Restoration of degraded forest patches • Legalization and institutionalization of CFUGs • Development of site level vegetation monitoring protocol • Formation and strengthening of District Forest Coordination Committee as a pilot programme for district level land use planning) • Strengthen PA management and community based management outside PA Network • Rhino, tiger and ungulates monitoring • Finalize TAL strategic plan • Prepare TAL partnership and business plan • Transboundary cooperation between Nepal and India • Conservation awareness among local people • Community participation in most of the TAL activities is over 40% of the total cost. This shows the community morivation on forest corridors restoration and

	community development activities in TAL • Promote alternative energy and appropriate technology • Encroachment removed
Issues/Problems/ Challenges	• Unstable political situation in the country • Success of landscape level programme depends on more rigorous field monitoring activities
Strengths	• Emphasized on biodiversity conservation outside the PA network • Strengthening both PA management and community based management outside as programmes is being jointly implemented by DNPWC and DOF • Establish strong coordination and networking with stakeholders through the formation of District Forest Coordination Committee and (CFCC) • Involved the diverse range of stakeholders in implementation of programme as either contracted out to local NGOs or implemented through the grassroots organizations CBOs, CFUGs and CFCC • Maintained balance between conservation and development • Maintain links between protected areas and dispersal corridors for wildlife • Institutionalized the TAL concepts in national periodic plan • Developed the broad TAL strategic plan • Recognized the role of community in species conservation outside PA network • Emphasized on action research and piloting
Weakness	• Likelihoods to increase the conflicts between people • No clear policy on the management of biological corridors.
Lesson learnt	• CBOs, CFUGs and CFCC are the most viable institutions for implementing different programmes under the existing conflict situations • Success of community based anti-poaching operation has proved the role of local community in anti-poaching operation • Conservation of landscape will be possible through strong partnership among stakeholders, governmental and NGOs working in the region, donor, the private sector and interested groups. • Landscape approaches has not only increased the frequency of sighting and population of species but also reduces the crop raiding by wildlife

10. Upper Mustang Biodiversity Conservation Project

The ACAP has been active in this region, through the Lomanthang Unit Conservation Office. The UMBCP is the extension of Lomanthang Unit Conservation Office facility in Upper Mustang and is building on earlier works and experiences of ACAP with greater emphasis to link tourism and local economy with overall biodiversity conservation. The project has an innovative approach to partnerships and co-financing.

Aims	• Conserve biodiversity of actual and potential value and preserve globally important habitats and species of Upper Mustang
Objectives	• Build the institutional capacity for effective protected area management and biodiversity conservation specific to Upper Mustang • Establish community based planning, management and monitoring system for protecting the biodiversity in perpetuity • Develop and test particularly in connection to nature and heritage based tourism and pasture and livestock management replicable income generating activities that contribute to biodiversity conservation
Duration	• July 2000 - June 2005
Funding agencies	• GEF, UNDP, ICIMOD, AHF, KMTNC
Coverage	• Upper Mustang Region • Benefits 5,694 people from 7 VDCs
Major programme components	• Corral improvement • Conflict mitigation • Seed bank establishment • Developing tourism activities according to tourism plan

	• Technical capacity development • Baseline inventory • Awareness and education programme • Range land management • Social mobilization • Community trust fund • Management information system • Cultural survey • Training need assessment of the staff
Approach	• Ecosystem approach to conserving biodiversity
Implementation mechanism	• Implemented by KMTNC • NGO national execution modality
Achievements	• Formation of community resource action committee • Training in participatory approaches and wildlife management • Participatory capacity assessment in range management and livestock wildlife interaction • Social mobilization and gender training • Development of MIS • Baseline survey and inventory • Development of community trust fund • Minimizing dependency on forest and animal dung • Development of sustainable range land management schemes
Issues/Problems/ Challenges	• High expectation and low participation • Upper Mustang entry fee • Korolia -Jomsom road • Over exploitation of shrub lands and the remaining forests. • Over exploitation of native medicinal plant resources • Changing patterns of animal husbandry • Poverty and lack of viable income generating opportunities
Strengths	• Establish community based planning, management and monitoring system for protecting the biodiversity in perpetuity • Conservation education is considered as a backbone for implementation of all programme components • Action research on nature and heritage based tourism and pasture and livestock management • Developed replicable income generating activities that contribute to biodiversity conservation • Development of community trust fund • Harmonize park people relation through Crop depredation control programme
Weakness	• Emphasis on development
Lesson learnt	• CAMCs need to be further strengthened so that they are in a position to manage the resources in connection with the local government agencies DDC and VDCs

11. Buffer Zone Development Project/Care Nepal:

This project is the continuation of Bardia BZDP managed jointly by CARE international and DNPWC in the selected BZ VDCs of RBNP.

Aims	• Improve the livelihood security of the BZ community while ensuring the sustainable forest management and biodiversity conservation of the park
Objectives	• To create strong and effective linkage between park management, communities and other line agencies in the BZ. • To increase the capacity of participating communities to identify, plan and manage development activities and natural resources in a sound manner. • To increase the agricultural productivity in an environmentally sustainable manner. • To increase the capacity and participation of girls, women and landless people in local development processes

Duration	• 3 years (2001 – 2004)
Funding agencies	• EU and CARE Denmark
Coverage	• The project works in nine VDCs covering approximately half of the total buffer zone area of RBNP. This includes 7,535 households and a total estimated population of 30,961.
Programme Strategy	• Women and landless people are the specific target group of the project.
Major programme components	• Institutional coordination and community organization formation • Women leadership training • Rural Infrastructure development • Non Formal Education • Conservation education • Income generating activities • Natural Forest Management • Agro forestry, Plantation and Cooking Stoves • Agriculture • Livestock • Alternative energy • Capacity development
Approach	• Community Based Approach/BZ model and Infrastructure development as entry point
Implementation mechanism	• The DNPWC and CARE International Nepal are jointly managing the project.
Achievements	• One gravity flow system has been constructed and 150 people are benefited from the scheme. • Eighty-seven hand pumps are installed and 2970 people benefited by the schemes. • Thirty-three wells are constructed & rehabilitated and 426 people are benefited from the scheme. • Two wells are rehabilitated and 1026 people are beneficiated. • Ten farmer managed irrigation systems are rehabilitated. • Thirteen artisan wells/shallow tube wells are constructed. • Twenty-five treadle pumps are installed. • Twenty-six culverts are constructed and 23,892 peoples are benefited. • Two stream bank protection schemes are implemented and 23,892 people are benefited through the schemes. • Four-foot trails are improved and 4004 people are benefited by the scheme. • Two hundred and ninety four pit latrines are constructed and 2058 peoples are benefited. • Five animal watchtowers are constructed. • Twenty cattle-feeding trough are constructed. • Seventy-four basic literacy classes are implemented and approximately 1458 people have completed basic literacy class. • A total of 398 persons have completed the advanced literacy class. • A total of 231 children participated in out-of-school children literacy class. • Eight children benefited by Disadvantaged Groups (DAGs) scholarship programme. • Twenty-four households received Rs. 97,400.00 loan for income generation activities. • Twenty-seven forest user groups developed management plans with participation of key stakeholders. • Three forest management plans are produced. • 50 agro-forestry farms established on private lands • 20 households adopted alternative sources of energy.
Issues/Problems/ Challenges	• Inadequate attention on bio-diversity conservation. • Excessive pressure on park resources
Strengths	• Established effective linkage between park management, communities and other line agencies in the buffer zone • Identified poor, women and landless people as the specific target group of the

	project • Addressed the gender and equity issues • Special programme for women empowerment • Participatory and democratic governance system • Implementation of ICDP development activities
Weakness	• Less emphasis on biodiversity conservation • Tilted towards the development
Lesson learnt	• The verbal turnover of BZ Forest to the control of a specific group was the primary factor behind improvements in local resources management in the project area. • More than other intervention, water supply (primarily irrigation) generates multiple benefits that most directly contribute to socio-economic security and protection of BZ and Park Forest. • Targeting strategies for ICPDs or BZDPs need to include criteria that specifically identify sub-populations that have a high degree of dependence on forest resources.

12. Tourism for Rural Poverty Alleviation Programme

This project is being implemented in and around the five protected areas namely KCA, SNP, LNP, SPNP, RCNP. The programme is funded jointly by UNDP, SNV and DFID and is executed by Nepal Tourism Board (NTB) and DNPWC.

Aims	• The goal of TRPAP is to contribute to the poverty alleviation objective of the government through review and formulation of policy and strategic planning for sustainable tourism development, which are pro-poor, pro-environment, pro-women and pro-rural communities.
Objectives	• Demonstrate sustainable tourism development model for policy feed back, • Develop institutional mechanisms for the sustenance of tourism development in Nepal and • Support the government to review and formulate sustainable tourism development policy and strategies, and integrate them with wider conservation objectives.
Duration	• 2001-2006
Funding agencies	• UNDP, SNV, DFID
Coverage	• KCA, SNP, LNP, SPNP, RCNP
Programme Strategy	• In order to achieve sustainable tourism development and to promote necessary linkages, the programme is implemented at three interrelated levels, viz, micro, meso and macro levels.
Major programme components	• Social mobilization • Institutional development • Human Resources development and capacity building • Sustainable tourism partnership • Tourism for infrastructure development • Tourism and environment awareness programme • Baseline survey • Preparation of rural tourism plan of potential settlements • Formation of Community Organizations (COs) • Formation of Functional Groups (FGs) • Capacity Enhancement Training for FG/BZUG/COs • Sustainable Rural Tourism (SRT) for Community Focal Persons • Community Awareness Campaign on Sustainable Tourism Development • Developing Model Physical Facilities (MPF) for Rural Tourism • Refining Villagers Micro and Small Enterprise Skills • Formation of District Tourism Coordination Committee
Approach	• Community based tourism programme
Implementation mechanism	• TRPAP is implemented through DDCs and specific activities are implemented by COs.
Achievements	• Formation of community organizations and functional groups • Capacity enhancement of community organizations and functional groups

	• Capacity enhancement of Social Mobilizes and junior staff of VDC, DDC and National Parks. • Skill development of potential entrepreneurs • Preparation of rural tourism plan of potential settlements • Community Awareness Campaign on Sustainable Tourism Development
Issues/Problems/ Challenges	• Dolpa, Taplejung and Chitwan programme areas faced obstacles in the implementation of the programme activities because of security reasons. • TRPAP could not start its work in Sindhupalchowk district because of the proposed programme VDCs are isolated and quite far away for regular supervision and those VDCs were found to be vulnerable from security point of view. • The implementation of programme activities has been affected by the absence of elected VDC and DDC authorities. • The COs formed by different development organizations in the programme areas have their own organizational structure and vary from the organizational structure of TRPAP community organizations. • Inadequate coordination with national parks.
Strengths	• Implemented through DDC • Capacity enhancement of community organizations and functional groups • Preparation of rural tourism plan of potential settlements • MPF for Rural Tourism • Refining Villagers Micro and Small Enterprise Skills • Formation of District Tourism Coordination Committee
Weakness	• No programmes for biodiversity conservation • Spread over diverse areas e.g. Sagarmatha and Chitwan • Focused outside protected areas, e.g., in Chitwan.
Lesson learnt	• A sound management information system is essential to lunch the programme effectively. • Prioritization of the programme activities is found essential for the proper implementation of the programme.

13. Tiger Rhino Conservation Project

TRCP is being implemented in RCNP. KMTNC, BCChas been executing and implementing the project since 2001 with the financial support from GEF, United Nations Foundation and UNDP. TRCP aims to conserve globally significant biodiversity in and around the RCNP by initiating appropriate conservation of the Barandabhar Corridor Forest (BCF). BCF is situated between Bharatpur and Ratnanagar municipalities and is critical to landscape and transboundary level conservation as it serves as an only corridor for the wildlife of RCNP and Balmiki Tiger Reserve of India to the foothills of Mahabharat range. BTRS is also situated in BCF.

Aim	• The overall goal of the project is to conserve biodiversity in and around RCNP, a world heritage site, with active participation of the local authorities and communities.
Objectives	• Reduce pressure on the resources in corridor. • Provide alternative means of livelihood for communities living near by the BCF. • Reduce human dependency on the declining natural resources while addressing the pertinent biological problems of the area. • Manage and restore critical ecosystem important for movement of wildlife. • Strengthen management and monitoring of BCF. • Strengthen the anti-poaching unit. • Create new habitat for park's most important endangered species.
Duration	• 2001 onwards
Funding agencies	• GEF, United Nation Fund and UNDP
Coverage	• BCF and communities living in and around the BCF. Five VDCs (Bachhauli, Jutpani, Patiyani, Gitanagar and Padampur) and two municipalities (Ratnanagar and Bharatpur) are included in the project's working area.
Programme Strategy	• Reducing pressure on BCF resources, providing improved and diversified economic options outside the corridor and managing and restoring critical ecosystem

	important for the movement of wildlife.
Major programme components	• Strengthening management and monitoring of the BCF • Establishment of community based conservation model • Wildlife research and monitoring • Strengthen anti poaching programme • Ecological restoration and management of grassland • Community forestry • Veterinary • Community Development • Conservation education • Promotion of indigenous knowledge • Women participation in natural resource conservation
Approach **Implementation mechanism**	• Landscape Approach • Conservation related programmes are directly implemented by KMTNC/BCC/TRCP and community development related activities are also implemented through partner organizations (local NGOs).
Achievements	• Ten tigers were recorded within BCF in 2002. • 8, 34 and 31 Rhinos were recorded within BCF during pre monsoon, monsoon and post monsoon season respectively. • 280 bird species were recorded within BCF. • 1010 hectares of grassland have been identified within BCF. • Three mobile anti-poaching units have been established for inside the national park, BZ and national forest areas. • An endowment fund has been created for the anti-poaching operations. • Assisted in establishment of three new CFUGs in new Padampur area. • 10,000 seedlings of fruits and multipurpose trees together with 1000 slips of grass have been distributed for agro forestry practices and roadside plantation. • Alternative energy usage has been promoted with the installation of 46 biogas plants. • Mobile livestock awareness training programme has been completed in 18 wards of the project area. • Construction of veterinary center in Padampur. • A detailed market assessment survey was conducted. • Conservation awareness workshop for 1800 people in Padampur and Gitanagar. • Documentation of indigenous knowledge on use of medicinal plants • Promotion of indigenous cultures has been completed for more than 200 species of plants. • Construction of Tharu culture museum. • Functional group of local healers (Gurau) group has been formed and registered. • A total of 18 line-transects totaling 75 km of length have been formed and used for the regular biological monitoring programme. • Tiger Rhino conservation awareness programme booklet published. • Botanical survey was conducted in the old Padampur VDC. • Commercial production of off-season vegetable training was organized and 12 farmers participated in training. • Agro forestry management training was organized for 29 participants. • Agroforestry demonstration plot measuring 1825 square meter has been established at ward number 8 of new Padampur VDC. • Thirty-five days long "Animal Health Worker's Training" was organized for 12 participants. • Preliminary survey of Siraichuli Eco Trekking Route was conducted. • Seven green clubs are formed in 7 schools.
Issues/Problems/ Challenges	• Heavy grazing pressure and extraction of forest products hindered the movement of wildlife meta-population in the North of highway. • Expansion of illegal settlements and other encroachments in the North of highway. • Crop damage and livestock depredation by wildlife. • People burn the grassland areas forest during the monsoon to rejuvenate enough

succulent.

- Development of various industries and urbanization within close proximity of BCF on both sides of the forest causing adverse effect on forest, soil, water, wildlife and aquatic life.

Strengths

- Enhanced local livelihoods and reduce poverty through community participation using innovative approaches to integrate conservation and natural resource management
- Conserved tiger, rhino and other species of special importance
- Strengthening management and monitoring of the BCF
- Community development related activities are implemented through partner organizations
- An endowment fund has been created for the anti-poaching operations
- Documentation of indigenous knowledge
- Promotion of indigenous cultures
- Manage and restore critical ecosystem important for movement of wildlife

Weakness

- Likelihoods to increase the conflicts between the people and wildlife as emphasis on dispersal of animal
- Limited to a comparatively small tract of land in Bharandabhar, although it is a landscape project.

Lesson learnt

- Experiences of the community forestry near the national park reflect that these forests could be saved under the guardianship of the local communities.
- The conservation of BCF is only the viable option to retain habitat integrity of threatened wildlife.
- Communities in and around the BCF need alternative sources of income and employment to reduce their dependency.