PARSA NATIONAL PARK

AND ITS BUFFER ZONE MANAGEMENT PLAN

FY 2075/76-2079/80

Government of Nepal
Ministry of Forests and Environment
Department of National Parks and Wildlife Conservation
Parsa National Park Office
Aadhavar, Bara

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Elephant of PNP, Parsa National Park Office, Aadhavar, Bara, Nepal

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Foreword

Parsa National Park (PNP) was established in 1984 as a Wildlife Reserve with the aim of preserving Asian wild elephant and to provide extended habitat for tigers and rhinos. The status of the Reserve was changed to the National Park (NP) on 2074 Ashad 19 (3rd July 2017) after the extension of the Reserve towards east covering biodiversity hotspots and Halkhoria Daha (wetland). It is expected to flourish tourism and contribute to economic development of local people. The strategic location of the Park also provides opportunity to link Chitwan National Park of Nepal and Valmiki Tiger Reserve of India.

Our Park staff and security personnel of Nepal army play a vital role in conserving biological diversity, supporting social and economic development of Buffer Zone communities, promoting and enhancing visitor experience and ensuring that biodiversity is conserved and enhanced for future generations. Success of the Park relies on close and effective partnership with Buffer Zone communities. This plan is an outcome of wider consultations with concerned and varied stakeholders having responsibilities of contribution for the management, protection and wise use of tangible and intangible resources of the Park. So, it is not only a plan for Park authority, but also a plan for all the stakeholders and many organizations and individuals who have crucial role in managing and caring for this precious and fragile landscape.

This five-year plan has been produced as an outcome of hard work of management plan preparation team, and I would like to acknowledge the support extended by conservation partners, professionals, practitioners, conservation communities and service provider.

Finally, I would like to thank all the individuals, organizations and stakeholders who extended their support and cooperation to bring this document to this final stage. At this juncture, I would like to request all the concerned stakeholders in joining hands in translating the vision of this plan into meaningful action.

Man Bahadur Khadka
Director General

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Government of Nepal
Ministry of Forests and Environment
Department of National Parks and Wildlife Conservation
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Apart from the efforts of management plan preparation team, success of this plan depends largely on the encouragement and guidelines of various personalities. Therefore, it would not have been possible without kind support and help of many individuals and organizations at both local and national level.

First and foremost, I would like to express my gratitude to Director General Mr. Man Bahadur Khadka for his never ending guidance, encouragement and support. Similarly, I am thankful to Deputy Director General Mr. Gopal Prakash Bhattarai and former DDG Mr, Sher Singh Thagunna for their constant technical support throughout the plan preparation period and final review of the plan. With a special mention to Mr. Shayam Bajimaya, former DG and Protected Area Management Expert, the critical review and feedback throughout the planning process was very constructive to make the plan implementable. Thank is also due to former DG and Protected Area Management Expert, Mr. Fanindra Raj Kharel for initial review of this plan.

A very special gratitude goes to all the management section staffs starting from Management Officer (Under Secretary) Mr. Narayan Rupakheti, Assistant Management Officer Mr. Bishnu Prasad Thapaliya and Mr. Santosh Kumar Bhagat for invaluable assistance. I would also like to thank task force team members, Planning Officer Mr. Amir Maharjan and Conservation Partners (NTNC, ZSL Nepal and WWF Nepal) for their valuable comment and cooperation to improve this plan.

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I am indebted to Mr. Saurav Shrestha, his team from Sustainable Development Initiative Centre (SDIC) and therefore would like to express my sincere thanks for his untiring efforts in supporting us in plan preparation which includes field level interaction, write up, analysis, central level interaction and finalizing. A thank is also due to Mr. Bhola Nath Dhakal for preparing maps. I am grateful to Mr. Dipesh Joshi from WWF Nepal for his contribution to assess the climate change vulnerability and integrate with the plan.

Last but not least, special thanks go to all my colleagues of PNP, especially Assistant Conservation Officer Mr. Ashok Kumar Ram who supported in write up from start till end and Assistant Conservation Officers Mr. Shiva Narayan Shah and Birendra Prasad Kandel for facilitating UC level plan preparation process. ZSL Nepal and NTNC deserve special thanks for financial support to prepare the management plan.

Hari Bhadra Acharya
Chief Conservation Officer

नेपाल सरकार
वन तथा वातावरण मन्त्रालय
राष्ट्रिय निकुञ्ज तथा वन्यजन्तु संरक्षण विभाग
(.....शाखा)
व्यवस्थापन

फोन नं. : ४२२०८५०
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फ्याक्स नं. ४२२७६७५

संकेत नं. :-
पत्र संख्या :- २०७४।७५ व्य.नं ३६३
चलानी नं. :- ३४४०

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मिति :- २०७५।३।३१

विषय :- पर्सा राष्ट्रिय निकुञ्ज र त्यसको मध्यवर्ती क्षेत्रको पञ्चवर्षिय व्यवस्थापन योजना (२०७५।७६-२०७९।८०) र सो को प्रारम्भिक वातावरणीय परीक्षण प्रतिवेदन (IEE) स्वीकृत गरिएको सम्बन्धमा ।

श्री पर्सा राष्ट्रिय निकुञ्ज कार्यालय
आधाभार, बारा

प्रस्तुत विषयमा पर्सा राष्ट्रिय निकुञ्ज र त्यसको मध्यवर्ती क्षेत्रको पञ्चवर्षिय व्यवस्थापन योजना (२०७५।७६-२०७९।८०) र सो को प्रारम्भिक वातावरणीय परीक्षण प्रतिवेदन (Initial Environmental Examination-IEE) स्वीकृतिको लागि त्यस कार्यालयको पत्र संख्या २०७४।७५ च.नं.११२६ मिति २०७५।२।११ को पत्रसहित टिप्पणी पेश हुन आएको ।

उल्लिखित फाईल उपर कारवाही हुँदा **"स्वीकृत व्यवस्थापन योजनालाई नेपाली भाषामा अनुवाद गरी अंग्रेजी र नेपाली दुवै भाषाको योजनालाई छापेर सरोकारवालालाई वितरण गर्ने"** गरी पर्सा राष्ट्रिय निकुञ्ज र त्यसको मध्यवर्ती क्षेत्रको पञ्चवर्षिय व्यवस्थापन योजना (२०७५।७६-२०७९।८०) र सो को प्रारम्भिक वातावरणीय परीक्षण प्रतिवेदन (IEE) मिति २०७५।३।३१ को विभागीय निर्णयानुसार स्वीकृत गरिएको हुँदा स्वीकृत व्यवस्थापन योजना र सो को प्रारम्भिक वातावरणीय परीक्षण प्रतिवेदन यसैसाथ राखी कार्यान्वयनको लागि पठाईएको व्यहोरा निर्णयानुसार अनुरोध छ ।

२०७५।३।३१

(विष्णु प्रसाद थपलिया)
सहायक व्यवस्थापन अधिकृत

Executive Summary

Parsa National Park (PNP) was initially gazzetted as a Wildlife Reserve in 1984 (B.S. 2041) aiming to preserve Asian Wild Elephant (*Elephus maximus*) and their remaining habitat of historical Char-Koshe-Jhadi which was spread over Terai from east to west of Nepal.The status of Reserve has been changed to National Park in 3rd July, 2017 (B.S. 2074/3/19) after extension to 627.39 km^2 from 499 km^2. It is located in central Nepal having diverse flora and fauna and includes tropical and sub-tropical forests of Churia (Siwalik) and Bhawar physiographic regions of Parsa, Makwanpur and Bara districts. Of the total Park area, 70%, 18% and 12% falls under Parsa, Bara and Makwanpur district respectively. The Buffer Zone of the Park was declared on 2062/03/13 BS with and area of 285.3 km^2 of Parsa, Bara and Makwanpur districts having 12%, 21% and 67% area respectively.

PNP covers a small Terai-Bhawar area with 90% Sal forest and 10% other mixed hardwood and riverine forest having Sissoo and Khair forests with small area of grasslands. It has a decent floral and faunal diversity. PNP is connected with CNP in the west and with Valmiki Tiger Reserve (VTR) of India in the south-western part. In the east and north, PNP is connected with national forests. The Park also provides extended habitat for migratory wildlife species as well as dispersal site for spill over population of many mega fauna species mainly from CNP. Besides, PNP is also serving vital needs of water by recharging ground water table of lower Terai region where large human population resides.

Before the establishment of the Park, the forest was under heavy anthropogenic pressure from selective logging, firewood collection, grass cutting, open grazing, uncontrolled fire, collection of non-timber forest products (NTFPs) and poaching. These illegal activities were controlled thereby restoring major forest with the declaration of Reserve. The Park holds about 530 hectare of grassland and limited numbers of wetlands mainly due to porous soil which cannot hold water. It inhabits 336 species of plants, 37 species of mammals, 490 species of avian fauna and 13 species of reptiles. Despite limited wetlands and aquatic habitats, 3 species of Amphibians and 8 species of Pisces are reported in this Park.

PNP provides shelter to many wildlife species and contributes in conserving protected species listed in NPWC Act, 2029. Asian Wild elephant (*Elephus maximus*), Gaur (*Bos gaurus*), Royal Bengal tiger (*Panthera tigris*), Striped hyena (*Hyaena hyena*), Asian one-horned rhinoceros (*Rhinoceros unicornis*), Python (*Python molurus*), Giant hornbill (*Buceros bicornis*), Lesser adjutant (*Leptotilos javanicus*), and Sarus crane (*Grus antigone*) are some major protected species of Nepal. Among the plant species, Satisal (*Dalbergia latifolia*) is becoming rare due to over exploitation in the past.

There are about 60-65 number of estimated wild elephants as a residential population. Mostly elephants stay in Rambhori–Bhata, Lauki Daha, Charbhaiya, Mahadev, Ghodemasan, Halkhoria, Kalidaha area and other inner valleys of Churia. Elephants frequently stray outside of the Park after monsoon and quite often cross the east-west highway to reach Halkhoria Daha or further east to Bagmati River. Similarly, the Park provides habitat to 7 Bengal tigers (Tiger survey report, 2013), 5 Rhinos (Rhino count 2015), 105 Gaur (Gaur monitoring report 2073). Among these mega-fauna Asian one-horned rhinoceros occasionally visit up to Sarlahi district crossing Bagmati River to the east. Similarly, Gaur is another mega-fauna found to dwell in mixed deciduous hardwood forest, in the foothills of Churia range especially in Bhata, Charbhaiya, Mahadev Khola and Halkhoria Daha range.

This is the first Management Plan of PNP prepared under the leadership of Chief Conservation Officer following the Protected Area Management Plan Preparation Procedure, 2073. The plan envisions

maintaining a healthy ecosystem of Chure-Bhawar-Terai, thereby delivering essential benefits for the wellbeing of local people. To achieve this vision, the Park will emphasize on conservation of biological diversity through improvement and management of wildlife habitat involving local communities in participatory manner. The specific objectives of management are:

- To restore, improve and manage habitat for wild elephant, tiger, rhino, gaur and other species;
- To ensure maintenance of a viable population of wild elephant and tiger including all flora and fauna by restoring corridors to ensure connectivity, reduce illegal killing and illegal trade;
- To develop tourism infrastructure in order to promote sustainable tourism by involving private entrepreneur so that locals benefit from increased socio-economic opportunities while minimizing and mitigating negative impacts to maintain ecological integrity and cultural heritage;
- To enhance participatory biodiversity conservation by institutional strengthening of key stakeholders to take stewardship on conservation by increasing awareness at the same time improving livelihood of local people; and
- To strengthen institutional capacity through research, capacity building, coordination and collaboration.

The management plan aims to achieve the above-mentioned objectives through specific interventions in Park protection, habitat management, species conservation, fire control, encroachment control, research-monitoring and capacity building, climate change adaptation and BZ management. The total budget of the plan is NRs. 94,73,27,166.00 (Ninety Four Crore Seventy Three Lakh Twenty Seven Thousand One Hundred and Sixty Six) for Park. The plan gives much weightage to Park protection followed by habitat management which are around 33% and 23% respectively. The next priority is given to tourism development, species conservation and BZ which are about 14%, 8% and 7% respectively. Government allocated budget is 45% on an average, and this plan envisages the need of partnership from conservation partners to fulfill the gap of remaining 55%.

The budget of BZ is considered as per the current available budget from GoN and conservation partners. The budget of all the BZUCs is NRs. 60,58,42,907.00 (Sixty Crore Fifty Eight Lakh Forty Two Thousand Nine Hundred and Seven) and current available budget is only 29% and remaining 71% budget has to be sought from local government and other agencies. The BZUCs have also expected to raise the income through the sale of river-based natural resources mainly sand, gravel and boulder. The budget focuses mainly in conservation with 43% weightage followed by community development; skill development and income generation; and conservation awareness with 29% 28%, and 6% respectively. The BZUCs are expected to pool the resouces from local GoN to implement the activities.

It is expected that if all the acitivities of the plan is implemented, it will create the job of 195,980 mandays (One hundred ninety five thousand nine hundred eighty) over the five-year period.

सारांश

पर्सा राष्ट्रिय निकुञ्ज रैथाने जङ्गली हात्ती तथा तिनीहरुको बासस्थानको संरक्षण एंव व्यवस्थापन गर्ने उद्देश्यले ४९९ वर्ग कि.मि. क्षेत्रमा फैलिएको पर्सा वन्यजन्तु आरक्षको रुपमा २०४१ सालमा राजपत्रमा प्रकाशित भई स्थापना भएको हो । यस निकुञ्जले तल्लो दक्षिण भागमा अवस्थित ठूलो जनसंख्या भएको तराईको लागि भूमिगत पानीको स्रोत उपलब्ध गराउन सहयोग पुऱ्याउदै आईरहेको छ । यस संरक्षित क्षेत्रले नेपालको पूर्वदेखि पश्चिममा तराईसम्म फैलिएको ऐतिहासिक चारकोशे झाडीको केही अंश प्रतिनिधित्व गर्दछ । पर्सा राष्ट्रिय निकुञ्ज पश्चिममा चितवन राष्ट्रिय निकुञ्जसंग जोडिएको छ र दक्षिण-पश्चिमी भागमा भारतको वाल्मिकि टाइगर रिजर्वसंग जोडिएको छ । पूर्वी र उत्तर भागमा राष्ट्रिय वनसंग जोडिएको छ । पर्सा राष्ट्रिय निकुञ्ज नेपालको मध्य भागमा अवस्थित तराई, भावर र चुरे क्षेत्रमा पाईने विविध पारिस्थिकीय प्रणालीहरुको प्रतिनिधित्व गर्दै बारा, मकवानपुर र पर्सा जिल्लाका केही भागहरुमा फैलिएको छ । निकुञ्जले पर्सा, बारा र मकवानपुर जिल्लाको क्रमशः ७०% १८%र १२% क्षेत्रफल ओगटेको छ । निकुञ्जको पूर्वतिर हलखोरिया दह र आसपासको वनक्षेत्र वन्यजन्तुको लागि उपयुक्त वासस्थान भएकोले १२८.३९ वर्ग कि.मि थप गरी ४९९ वर्ग कि.मि बाट २०७२ भाद्र ७ मा ६२७.३९वर्ग कि.मि पुऱ्याइएको हो । यसलाई २०७४ बैशाख २५ गते नेपाल सरकारको निर्णयले राष्ट्रिय निकुञ्जमा परिणत गरेर २०७४ आषाढ १९ गते राजपत्रमा सूचना प्रकाशित गरी आरक्षबाट राष्ट्रिय निकुञ्जमा परिणत गरिएको छ । २०६२ आषाढ १३ गते पर्सा, बारा र मकवानपुर जिल्लाको २८५.३ वर्गकिलोमिटर क्षेत्रलाई मध्यवर्ती क्षेत्रको रुपमा घोषणा गरिएको थियो, जसमध्ये ती जिल्लाहरुमा क्रमशः १२%, २१% र ६७% क्षेत्रफल पर्दछ ।

पर्सा राष्ट्रिय निकुञ्जको ९० प्रतिशत भू-भाग सालको जङ्गलले ढाकेको छ भने १० प्रतिशत मिश्रित काठे पतझड वन र नदी तटीय वन लगायत अन्य सिसौ खयरको वन रहेको पाईन्छ । यस निकुञ्जमा विभिन्न प्रजातिको वन्यजन्तु तथा रुख विरुवाहरुको विविधता पाइन्छ भने चितवन राष्ट्रिय निकुञ्जका फिरन्ते गैडा जस्ता ठूला आगन्तुक वन्यजन्तुहरुलाई पनि आश्रयस्थल प्रदान गरेको छ ।

संरक्षित क्षेत्रको स्थापना गर्नु अघि वन जङ्गलमा मानिसहरुको अत्यधिक चाप थियो । वनमा राम्रा रुख छनौट गरेर कटान गर्ने, घाँस काट्ने तथा दाउरा संकलन गर्ने, खुल्ला चरिचरन, गैह्रकाष्ठ वन पैदावार संकलन जस्ता गैरकानूनी गतिविधिहरुबाट वनको हैसियत दिनानुदिन बिग्रदो अवस्थामा थियो । आरक्षको घोषणासंगै र संरक्षणको कार्यबाट यस्ता कार्यको साथै चोरी शिकारी पनि नियंन्त्रित भई वनको पूनर्स्थापनामा सहयोग पुग्न गई वन्यजन्तुको वासस्थान पनि सुधार हुँदै गएको छ । यस निकुञ्जमा लगभग ५३० हेक्टर घाँसे मैदान रहेको छ । भावर क्षेत्रको माटोमा पानी संञ्चय गर्ने क्षमता नभएको हुँदा जमिन सुख्खा रहने गर्दछ । यस निकुञ्जमा ३३६ प्रजातिका विरुवा, ३७ प्रजातिका स्तनधारी जीव, ४९० प्रजातिका चरा र १३ प्रजातिका सरिसृप रहेका छन् । सीमित सिमसार र जलीय बासस्थान न्यून भएता पनि यस निकुञ्जमा ३ प्रजातिका उभयचर र ८ प्रजातिका माछा पाईन्छन् ।

पर्सा राष्ट्रिय निकुञ्जले राष्ट्रिय निकुञ्ज तथा वन्यजन्तु संरक्षण ऐन, २०२९ को अनुसूची-१ मा सूचीकृत भएका संरक्षित प्रजातिहरुको संरक्षणमा उचित योगदान पुऱ्याएको छ । संरक्षित वन्यजन्तुहरुमा जङ्गली हात्ती, गौरीगाई, पाटे बाघ, गैँडा, जङ्गली कुकुर, अजिंगर, सालक, राजधनेश, भूँडीफोर र सारस क्रेन पर्दछन् । यस निकुञ्जमा धेरै मात्रामा निकासीको कारणले दूर्लभ हुन पुगेको सतिसालको संरक्षणमा पनि जोड दिइएको छ ।

जङ्गली हात्तीहरु झुण्डमा रहने गर्दछन् र धेरै जस्तो मनसुनपछि निकुञ्जबाट बाहिर निस्किने गर्दछन् र प्राय पूर्व–पश्चिम राजमार्ग पार गरेर हलखोरिया दह हुँदै बाग्मती नदीसम्म पुग्छन् । विभिन्न समयमा वन्यजन्तुको गणना गर्दा यहाँ ६०–६५ वटा जङ्गली हात्ती, ७ वटा पाटे बाघ, ५ वटा गैँडा र १०५ वटा गौरीगाई पाईएको छ । ठूला जनावर मध्ये गैडा कहिले काँही बाग्मती नदी पार गरेर सर्लाही जिल्लासम्म पुगेको अवस्था रहेको छ । त्यसै गरी गौरीगाई

अर्को ठूला जनावर मध्ये एक हो जुन मिश्रित काष्ठजन्य वन र चुरीया क्षेत्रको तल्लो तटीय क्षेत्र विशेष गरी भाटा, चारभैया र महादेव खोला तिर पाईने गर्दछ ।

पर्सा राष्ट्रिय निकुञ्जको यो पहिलो स्वीकृत व्यवस्थापन योजना हो । यो पञ्चवर्षीय योजना संरक्षित क्षेत्रको व्यवस्थापन योजना तयारी कार्यविधि, २०७३ अर्न्तगत प्रमुख संरक्षण अधिकृतको नेतृत्वमा बनाईएको हो । यस व्यवस्थापन योजनाको उद्देश्य निम्न रहेको छ:

- हात्ती, बाघ लगायतका वन्यजन्तुको जीवन धान्न सक्ने संख्यामा संरक्षण गर्दै वन्यजन्तुको चोरी शिकार तथा अवैध व्यापार नियन्त्रण गर्ने । जङ्गली हात्ती, पाटे बाघ, गैँडा र अन्य वन्यजन्तुको वासस्थान पुर्नस्थापना, सुधार र व्यवस्थापन गर्ने;
- पर्यटन व्यवसायीहरु सहभागी गराउँदै पर्यटन पूर्वाधार विकास गरी वातावरणीय प्रभाव न्यूनीकरण गदै सामाजिक आर्थिक अवसर वृद्धि गर्ने;
- स्थानीय समुदायको संस्थागत सुदृढीकरण गर्दै संरक्षण, जीविकोपार्जनमा सुधार, संरक्षण सचेतना बढाउँदै जैविक विविधताको संरक्षण सहभागितामूलक पद्धतिमा गर्ने;
- अध्ययन, अनुसन्धान र क्षमता विकासजस्ता कार्यक्रम गर्दै निकुञ्ज कर्मचारी र स्थानीय मध्यवर्ती क्षेत्र तथा सरोकारवालाहरुको क्षमता अभिवृद्धि गर्ने ।

यो दस्तावेज दुई भागमा बाँडिएको छ, जसमा पहिलो भाग विद्यमान वस्तुस्थिति र दोश्रो भागमा प्रस्तावित व्यवस्थापनका कार्यक्रम रहेको छ । भाग एकमा राष्ट्रिय निकुञ्ज सम्बन्धी परिचय राखिएको छ, जुन अध्याय १ देखि ३ सम्म रहेको छ । भाग दुई अर्न्तगत अध्याय ४ देखि ११ सम्म राखिएको छ, जसमा दूरदृष्टि, लक्ष्य, उद्देश्य, चुनौति, रणनीति, अनुसन्धान, अनुगमन, क्षमता अभिवृद्धि, प्रजाति संरक्षण, पर्यटन, सामुदायिक विकास, बजेट र तर्कपूर्ण सोचको खाका समावेश गरिएको छ ।

यस योजनामा प्रस्ताव गरिएका विभिन्न कार्यक्रमहरु मध्ये निकुञ्जको सुरक्षा र वासस्थान व्यवस्थापनलाई प्राथमिकता दिईएको छ । वासस्थान व्यवस्थापनमा विशेष गरी घाँसे मैदान र सिमसार क्षेत्र व्यवस्थापन पर्दछन् । प्रजाति संरक्षण मध्ये जङ्गली हात्तीको संरक्षण र व्यवस्थापनलाई नै बढी महत्व दिईएको छ । साथै, यस योजनामा पर्या-पर्यटन, अध्ययन अनुसन्धान, संस्थागत विकास र सुदृढीकरण, सामुदायिक विकास, सीप विकास तथा आय-आर्जन र संरक्षण शिक्षा लगायतका कार्यक्रम समावेश गरिएको छ । व्यवस्थापन योजनाले परिलक्षित गरेका निकुञ्ज तर्फको कार्यहरु कार्यान्वयन गर्न जम्मा रु. ९४,७३,२७,१६६.०० (अक्षरेपी चौरानब्बे करोड त्रिहत्तर लाख सत्ताईस हजार एक सय छैसट्ठी) लाग्ने प्रस्ताव गरेको छ । प्रस्तावित उक्त कूल बजेटको ३३.% रकम निकुञ्जको सुरक्षामा छुट्ट्याईएको छ भने वासस्थान व्यवस्थापनका लागि २३% रकम प्रस्ताव गरिएको छ । त्यस्तै पर्यटन प्रवर्द्धनको लागि १४% छुट्टयाएर पर्यटनको गन्तव्य बनाउने लक्ष्य राखेको छ । नेपाल सरकारबाट यस संरक्षण क्षेत्रका लागि बिनियोजन हुने गरेको बजेट योजनाले प्रस्ताव गरेको कूल बजेटको ४५% मात्र हुन आउँछ । तसर्थ, बाकी ५५% रकम स्थानीय सरकार र संरक्षण साझेदार वा अन्य निकायबाट पूर्ति गर्नु पर्ने देखिन्छ ।

साथै, यस योजनामा मध्यवर्ती क्षेत्रतर्फ मध्यवर्ती क्षेत्र व्यवस्थापन समिति र १३ वटा मध्यवर्ती उपभोक्ता समितिहरुको कूल कार्यक्रम बजेट ६०,५८,४२,९०७।०० (अक्षरेपी साठी करोड अन्ठाउन्न लाख बयालीस हजार नौ सय सात रुपैया) रहेको छ । हाल प्राप्त भइरहेको बजेट अनुसार यो नघटेमा निश्चित प्राप्त हुने रकम २९% मात्र हुन आउँछ र बाँकी ७१% रकम स्थानीय सरकार वा अन्य निकायद्वारा पूर्ति गर्नु पर्ने हुन्छ । मध्यवर्ती उपभोक्ता समितिहरुले नदीजन्य स्रोत जस्तै ढुंगां, गिट्टी र बालुवाबाट पनि यथेष्ट आम्दानी गर्न सकिने सोच लिइएको छ । मध्यवर्ती उपभोक्ता समितिहरुको कार्यक्रमले संरक्षणलाई जोड दिएको छ, जसको भार ४३% हुन आउँछ । साथै, सामुदायिक विकास, सीप विकास तथा आय आर्जन र संरक्षण शिक्षामा क्रमशः २९%, २८% र ६% बजेट विनियोजन गरेको छ ।

यस व्यवस्थापन योजनामा प्रस्ताव गरिएका सम्पूर्ण कार्यक्रमहरु कार्यान्यवयन हुन सकेमा योजना अवधिभर १९५,९८० (एक लाख पन्चानब्बे हजार नौ सय असी) श्रमदिन स्थानीयस्तरमा रोजगारी सृजना हुने देखिन्छ ।

Acronyms

ACO	Assistant Conservation Officer
APU	Anti-Poaching Unit
BPP	Biodiversity Profile Project
BZ	Buffer Zone
BZCF	Buffer Zone Community Forest
BZMC	Buffer Zone Management Committee
BZUC	Buffer Zone User Committee
BZUG	Buffer Zone User Group
CBAPU	Community Based Anti-Poaching Unit
CCO	Chief Conservation Officer
CCTV	Close Circuit Television
CFUG	Community Forest User Group
CIB	Central Investigation Bureau
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CNP	Chitwan National Park
DNPWC	Department of National Parks and Wildlife Conservation
GESI	Gender Equality and Social Inclusion
GIS	Geographical Information System
GoN	Government of Nepal
HWC	Human Wildlife Conflict
IAS	Invasive Alien Species
IEC	Information Education and Communication
IUCN	International Union for Conservation of Nature and Natural Resources
MoFE	Ministry of Forests and Environment
NA	Nepal Army
NGO	Non Governmental Organization
NPWC	National Parks and Wildlife Conservation
NTFP	Non Timber Forest Product
OP	Operational Plan
PA	Protected Area
PNP	Parsa National Park

PWR	Parsa Wildlife Reserve
RCC	Reinforced Cement Concrete
RRT	Rapid Response Team
SMART	Spatial Monitoring and Reporting Tool
TAL	Terai Arc Landscape
TCU	Tiger Conservation Unit
ToT	Training of Trainer
VIC	Visitor Information Centre
VTR	Valmiki Tiger Reserve
WCCB	Wildlife Crime Control Bureau

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Process of Management Plan Preparation

The Management Plan of Parsa National Park and its Buffer Zone (2075/76-79/80) is prepared following the template of *Protected Area Management Plan Preparation Procedure, 2073*. In due course, participatory approach was adopted in preparing this first management plan of the Park. Nepal Biodiversity Strategy and Action Plan (2014-2020) was the guiding document from conceptualizing vision, goal and objectives of the plan; devise strategy and formulate activities. In the process, the steps followed were; i) review of published literatures, documents, annual reports, project reports; ii) consultation meeting with Park staffs, Nepal Army and BZ Communities; iii) discussion with tourism operators; iv) shared the draft plan including logical framework with Park staffs; v) carried out planning meeting and discussion with all Buffer Zone User Committees; vi) sharing of draft plan with Buffer Zone Management Committee members including relevant stakeholders for their comments and input; vii) conducted sharing of draft plan with the experts of Department of National Parks and Wildlife Conservation (DNPWC) and experts from conservation partners at Kathmandu to solicit comments, feedbacks and input; viii) prepared refine draft accommodating all the comments and feedback; ix) forwarded the refined draft plan to external reviewers to obtain comments and suggestion; x) incorporated comments and feedbacks from external reviewer; xi) finalization of the plan and submitted to DNPWC for approval; xii) the plan has been approved from DNPWC; xiii) printing and distribution of the approved plan by PNP.

Part A
The Existing Situation

Introduction of the Protected Area

CHAPTER I

1.1 Name, Location, Constitution and Extent

1.1.1 Name: Parsa National Park, Aadhavar, Bara

1.1.2 Location

Parsa National Park (PNP) is located in central Nepal (Figure 1) of Province 2 and 3 in Parsa, Bara, and Makwanpur districts. It adjoins Chitwan National Park (CNP) on its western side. Geographically, PNP is located within north latitude of 27º 15' to 27º 33' and east longitude of 84º 41' to 84º 58'.

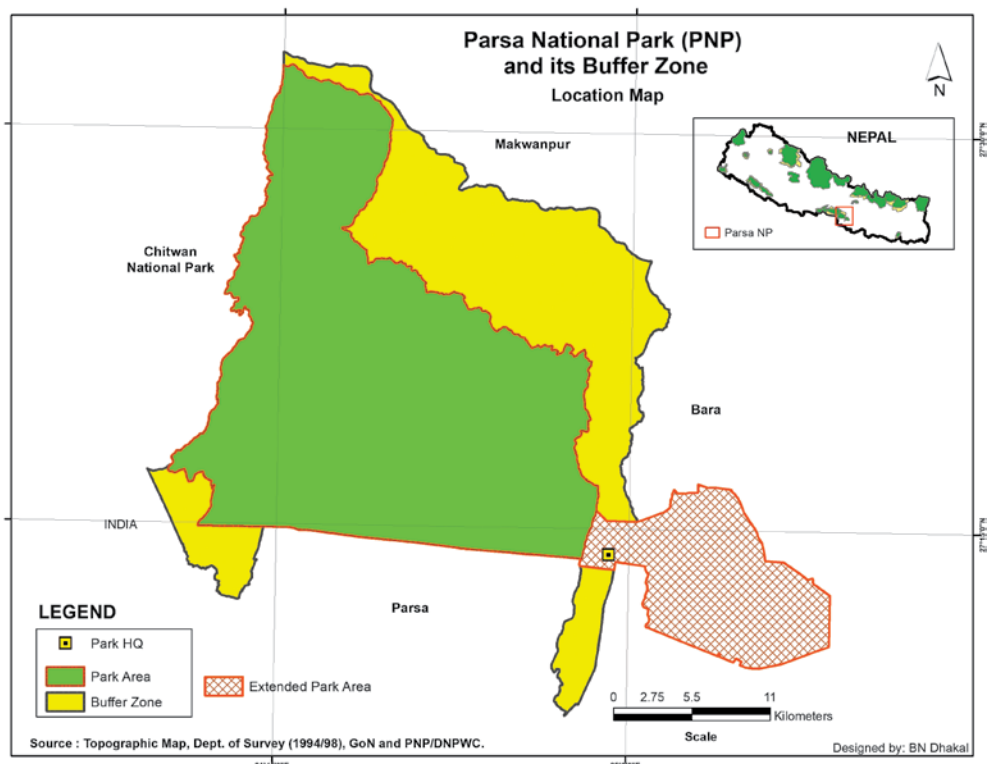

Figure 1: Location of PNP and its Buffer Zone

1.1.3 Constitution and Extent

PNP was initially established as Parsa Wildlife Reserve (PWR) in 1984 with an area of 499 km^2. Through the gazette of Bhadra 07, 2072 (August 24, 2015) an area of 128.39 km^2 of Bara district was added to it including Halkhoria lake as one of the major wildlife habitat making a total area of 627.39 km^2 covering parts of Parsa, Bara, and Makwanpur districts.With this extension, the status of Wildlife Reserve was changed to National Park on Ashadh 19, 2074 (July 03, 2017). About 65 km of East-West highway passes through Buffer Zone (BZ) and the Park as well. Of the total Park area, 70%, 18% and 12% falls under Parsa, Bara, and Makwanpur districts respectively (Figure 1*: Location of PNP and its Buffer Zone*). Similarly, the area of BZ is 285.3 km^2 that falls in Parsa 12%, Bara 21%and Makwanpur 67%.

Table 1: PNP at a glance

Parsa WR Declaration	Parsa Wildlife Reserve declared on 18th April, 1983 (2040 Baisakh 05, Monday) and gazetted on 21st May, 1984 (2041 Jestha 08); Area- 499 km^2 Districts- Parsa and Makwanpur
Community Involvement	Park and People Programme launched in 1994
BZ Declaration	Declaration of Buffer Zone on 27th June 2005 (2062 Ashadh 13) Area- 285.3 km^2 Districts- Bara, Parsa and Makwanpur
Area Extension	128.39 km^2 national forest of Bara district including Halkhoria Lake is added to the Park on 24th Aug, 2015 (2072 Bhadra 07)
Parsa NP Declaration	Parsa Wildlife Reserve has been converted into Parsa National Park by government decision on 8th May, 2017 (2074 Baisakh 25) and Gazetted on 3rd July, 2017 (2074 Ashadh 19); Area- 627.39 km^2; Districts- Parsa, Bara and Makwanpur.
Park HQ	Aadhavar, Bara District, Bagmati Zone, Pradesh 2, Nepal
Biodiversity	Mammals- 37 species; Birds- 490 species; Reptiles- 13 species; Butterflies-31 species; Pisches- 8 species; Plants- 336 species
Endangered Species	Wild elephant- 60 to 65; Tiger- 7; Gaur- 105; Rhinoceros- 5
IUCN Category	II

1.2 Access

The Park headquarter is located at Aadhavar of Bara near the East-West high way of Province 2 (Figure 2). It is around 200 km from Kathmandu by road and is connected with air transport as well. The flight from Kathmandu to Simara takes about 15 minutes and a 15 minute drive to reach the Park headquarter. Similarly, it will take 4-5 hours if travelled via road from Kathmandu to Aadhavar.

Hetauda and Birgunj, the two-major industrial and business centers of Nepal, are located at a distance of about 25 km north and 23 km south respectively from Aadhavar. From both towns, Park headquarter can be reached by bus in a less than one-hour. Birgunj is also the Gate Way to Nepal from India and Indian visitors can take this route. This feature of PNP makes it highly potential for promotion of tourism.

Besides Aadhavar, PNP can also be approached from Mahadev post, Charbhaiya post, Gaduwaline post, Nirmalbasti post, Amlekhgunj post, Ramauli Pratappur, Lamitar, Pasaha and Ratanpuri posts. The posts of northern part like Manahari and Padampokhari are located in BZ and connected with road networks. The inner part of the Park is accessible by four-wheel drive motor mainly in the southern section through a network of fire line (gravel road), except during monsoon flood season.

Figure 2: Accessibility of PNP from Different Towns of Nepal

1.3 Statement of Significance

PNP covers a part of Terai Bhawar area having 90% Sal forest and 10% other mixed hardwood and riverine forest of Sissoo and Khair forests with small area of grassland. It has a diverse floral and faunal species.

It plays a vital role to accomplish goals and objectives of Protected Area (PA) management regimes of Nepal. The significant characteristics of the Park are as follows:

- Represents a sample of historical Char-Koshe-Jhadi (6 miles width of forest) remaining in the Terai;
- Home to a large resident population of wild Asian elephants;
- Provides an extended habitat for migratory wildlife species as well dispersal site for spill over population of Tigers and Rhino from CNP;
- Provides an opportunity to link PAs of Nepal and India as it is connected with CNP in the west, Valmiki Tiger Reserve (VTR) in west-southern part. In the east and north, PNP is connected to national forests of Nepal;
- Covers 62.5% Churia of the Park and is also a part of Rastrapati Chure Terai Madhesh Conservation Program. Through this Churia conservation, water sources are conserved thereby serving a large human population living south of the Park. Similarly, the conservation activities of the Park also help to minimize soil erosion in the Churia as well as reducing risk of sedimentation and flooding in downstream.
- High potential to develop the eco-tourism activities as its location is near the major cities of Nepal and near the border of India. Further, the Nijgadh-Kathmandu Express way is connecting Kathmandu with the Park in near future.

II CHAPTER

Background Information and Attributes

2.1 Boundaries

2.1.1 Legal

PNP was gazetted as a PWR on 2041 Jestha 08 (21st May, 1984) and the status of the Reserve has been changed to the National Park on 2074 Ashad 19 (03rd July, 2017), adding 128.39 km^2 in existing reserve area of 499 km^2, encompassing potential wildlife habitats and to allow tourism to flourish and contribute to economic development of local people. Therefore, the present area of Parsa National Park is 627.39 km^2. Similarly, BZ was established on 2062 Ashad 13 (27th June, 2005) to enhance conservation benefits for surrounding communities of the BZ of PA. The area of the Park and BZ is duly notified and demarcated on the ground. The boundary of the Park and BZ as per the gazette notification of the Government of Nepal (GoN) can be seen in the Annex VII-A.

2.1.2 Legislations

2.1.2.1 National Parks and Wildlife Conservation Act, 2029 (1973AD)

The clause (3)(1)(Ka) of the fifth amendment of National Parks and Wildlife Conservation (NPWC) Act, 2029 has made it mandatory that Parks, Reserves and Conservation Areas must be conserved and managed by the management plan approved by the Department of National Parks and Wildlife Conservation (DNPWC).

2.1.2.2 Control of International Trade in Endangered Species of Wild Flora and Fauna Act, 2073 (2017AD)

Control of International Trade in Endangered Species of Wild Flora and Fauna Act, 2073, generally known as CITES Act, has recently been enacted. This Act has authorized Chief Conservation Officer or Officer assigned by him/her of the protected area to work as Investigation Officer in illegal wildlife trade related offences and to file case in District Court as per the clause (23).

2.1.2.3 Buffer Zone Management Regulation, 2052 (1996)

The Buffer Zone Management Rules, 2052 (1996) have clearly spelled out requirement of management plan and user committees' operation plans. The management plan will be prepared by Chief Conservation Officer (CCO) with the support of Assistant Conservation Officers (ACOs) and experts, if required, and submit it to the DG of DNPWC for the approval. Similarly, under this rule, the CCO can form Buffer Zone User Group (BZUG), Buffer Zone User Committee (BZUC) and Buffer Zone Management Committee (BZMC) which will be responsible to carry out participatory biodiversity conservation in the BZ with the support of Park authority.

2.1.3 Ecological Significance

PNP was established in1984 with the aim of preserving Asian wild elephant habitat. The strategic location of the Park provides opportunities to link the PAs of Nepal from north to south and east

to west. PNP is connected with CNP in the west, which is further extended westward and linked to Mahabharat forests in the north through Barandabhar forest, and to Indian PAs in the south through VTR. In the east, the PNP is connected to the national forests extending up to Bagmati River in Rautahat district. The Park also exhibits potential to link north through a stretch of forest near Lothar in Makwanpur. Together with VTR of India, CNP and PNP of Nepal, a total of coherent 2460 km^2 represents the Tiger Conservation Unit (TCU).

2.2 Geology and Soil

Churia-hills, formed around 40 million years ago by sediments produced from Himalaya, represent a sub-himalayan mountain system running east-west almost parallel to the Mahabharat range. The rocks deposited complex is Conglomerates, most probably deposited in Miocene period. Because of loose and erodible geo-morphological characteristics, the Churia is full of gullies and its southern part is extremely dry and highly drained area, making it unsuitable for cultivation. As such, there is little inhabitation. However due to features of both terai and hills, the northern part is rich in biodiversity (Sharma, 1977).

Based on altitude and geology, Churia can be further divided into upper, middle, and lower Siwalik through clear-cut lithological differences while the latter two are not clear in all places (Gurung and Khanal, 1988). The upper Siwalik is composed of unconsolidated conglomerates of clays, sandstones, limestone, quartzite, phyllite, shale and slate. The middle Siwalik is more fragile due to poor cementation having soft stones with bands of hard calcareous sandstones and clay. The lower Siwalik consists of sandstones. It is composed of fine to medium-grained gray (compact and hard) sandstones interpedded with nodular shale, conglomerates, pebble and boulder beds, the siltstone and some clay (Sharma, 1977).

The entire Churia range is covered with colluvial and alluvial deposits making difficult to distinguish the Bhawar alluvial from poorly consolidated Siwalik formation. The Bhawar zone is represented by southern and northern foothills of Churia extended up to 10 km in the southern side. Comparatively, the Bhawar zone has gentle slopes like Terai, but is extremely dry due to its boulders and gravelly nature. .

Terai is represented by flat area in the southernmost part of the Park. It consists of depositions of fine alluvium of quaternary materials. Though Terai is considered to be moist in nature, it is typically dry in PNP particularly towards the east. In contrast, moist Terai is found in western portions of the Park around Gaduwaline and Nirmalbasti posts, and in Rambhori-Bhata areas to some extent. Ramauli-Pratappur area located on the northern side of the Park represents inner-Terai and consists of features of both Terai and hills. This area is fertile and rich in biodiversity (Sharma, 1977).

Major soil types found in and around PNP are brown shallow soil, brown black, red soil, black soil, and brown soil. The brown shallow soil shows loamy texture and by nature they are dystochrepts, ustorthents and ustochrepts. The brown black and red soils are dominant in the forest and around the Churia hills. Common in the Sal (*Shorea robusta*) forests are black soils (haplustolls). The brown soil (systochrepts and ustrochrepts) and well-sorted dry shallow soil are also found in and around the area (Sharma, 1977). The soils of Aadhavararea includes brown shallow soil, black and red soil, black soil, brown soil, wet well drained soil, poorly drained brown soil and well sorted dry shallow soil (Hawking 1986, LRMP 1978).

2.3 Topography and Drainage

The altitude of the Park ranges between 100 to 950 metre from msl. Broadly, it can be divided into three topographic regions from north to south viz. the Churia (Siwalik), Bhawar, and Terai. Inner-

Terai also comprise towards north side of Churia range. The Churia and Bhawar zones (lying above 250 msl) jointly cover about two-third (62.5%) area of the Park while Terai and inner-Terai occupies approximately 37.38% of the Park area.

There are numerous seasonal streams flowing through Park in Churia watershed systems but have very few perennial rivers. Water flow is pronounced during the monsoon (June to September). Most streams turn dry during the winter. Hasta Khola, Bhalu Khola and Bagau Khola are the important streams that flow northward from Churia and are tributaries of the Rapti River. Pasaha Khola, Dudhoura Khola, Bhedaha Khola, Bhalu Khola, Mahadev Khola, Jamuni Khola, Bhata Khola, Orai Khola and Doharam Khola are flowing toward south. Bhata Khola is the only perennial stream among south-flowing streams, though scanty amount of water is present in the basins of Bhedaha Khola and Mahadev Khola (*Figure 3*). All streams disappear in the Bhawar due to extreme porosity and resurface in the south, outside the Park boundary.

During excessive rain in monsoon, numerous gullies are formed in the Churia hills and large volume of boulders and sands are transported downstream resulting in rising of riverbeds that change their courses every year, thereby making entire lowland area prone to the flooding. In the recent years, flooding has caused considerable damage not only to forest and wildlife inside the Park, but also threatening lives and property of the surrounding communities of BZ. Problems like wiping a fairly big chunk of forests, uprooting of trees, deposition of debris, cutting of riverbanks and croplands, and deposition of sands and gravels in croplands are exceedingly apparent in the Park and surrounding areas. The width of many river/streams is increasing at the cost of forest area.

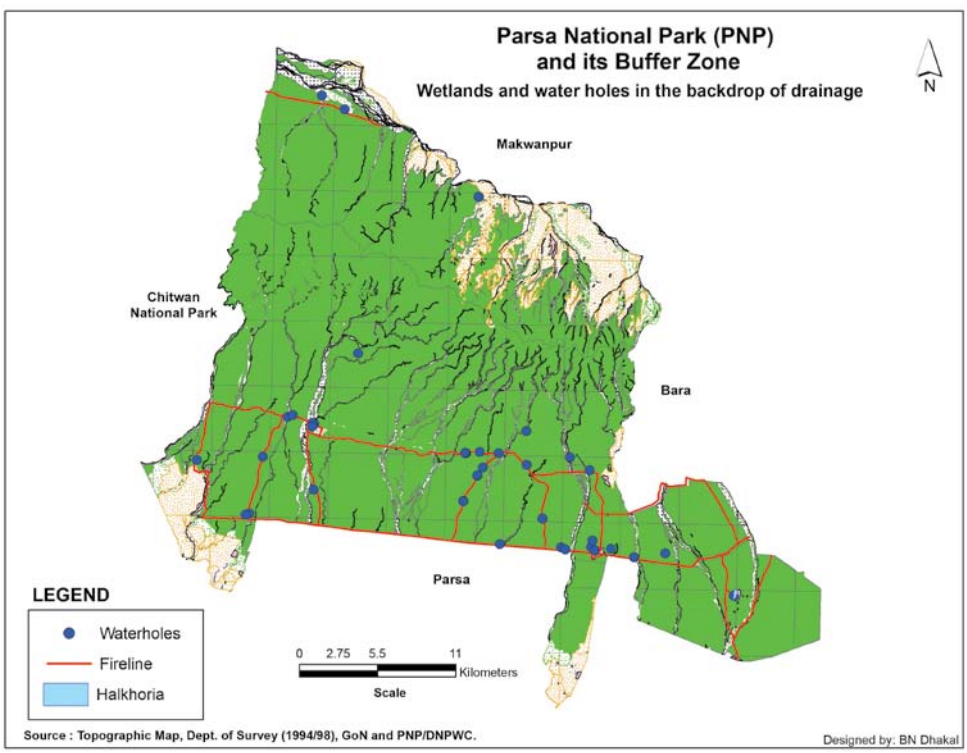

Figure 3: Wetlands and Waterholes in the Backdrop of Drainage

2.4 Climate

PNP lies in the humid sub-tropical climatic zone and exhibits four distinct seasons, viz. summer, rainy (monsoon), winter and spring. Summer (May to July) is extremely hot and temperature reaches up to 39° C and dries with scarcity of water in the area. The rainy season (July to September) is dominated by monsoon clouds and rains causing little drop in the temperature. Winter lasts from November to

Januarycharacterized by very cold evenings and mornings reaching 7° C with clear skies. Similarly, Spring (February to April) is the enjoyable season with chilly nights and pleasing day temperatures and clearer skies but drier air and land. May is the hottest month when the mean maximum temperature reaches to 39° C while coolest month is January with mean minimum temperature 7° C (Figure 4).

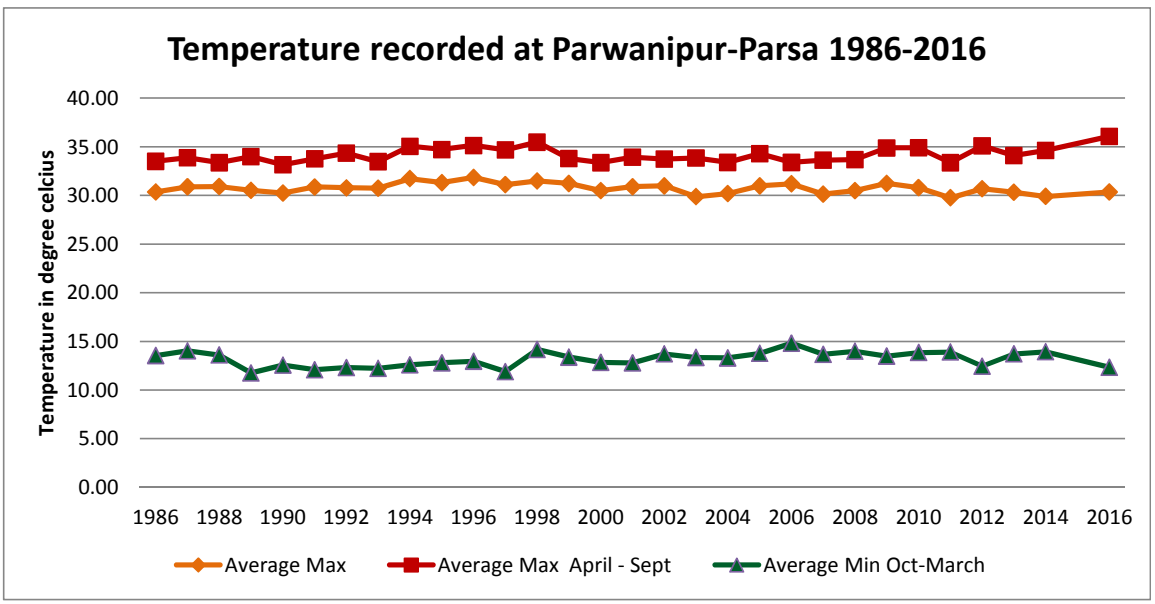

Figure 4: Average Annual Temperature Recorded at Parwanipur (DHM 2016)

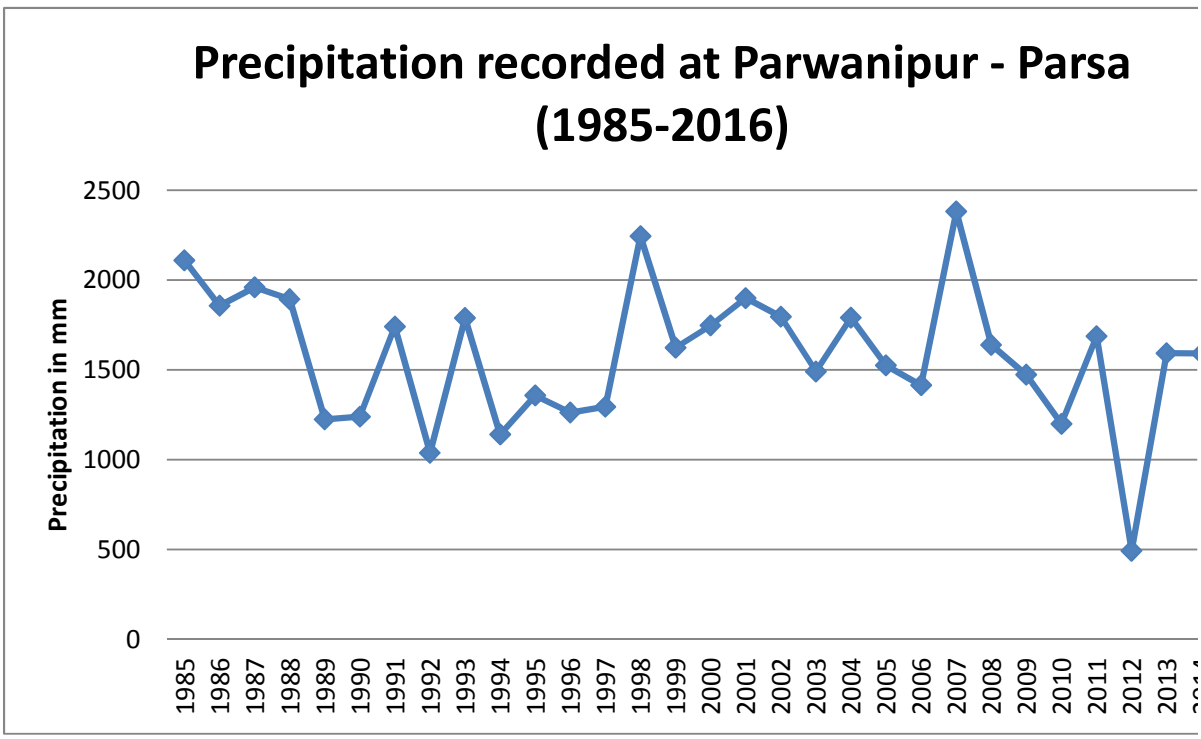

Figure 5: Annual Precipitation at Parwanipur (DHM 2016)

The highest precipitation occurred in 2007 with 2380 mm while only 493 mm rainfall occurred in 2012 (*Figure 6*). The precipitation occurs mainly from June to September and receives 83% of the total precipitation.

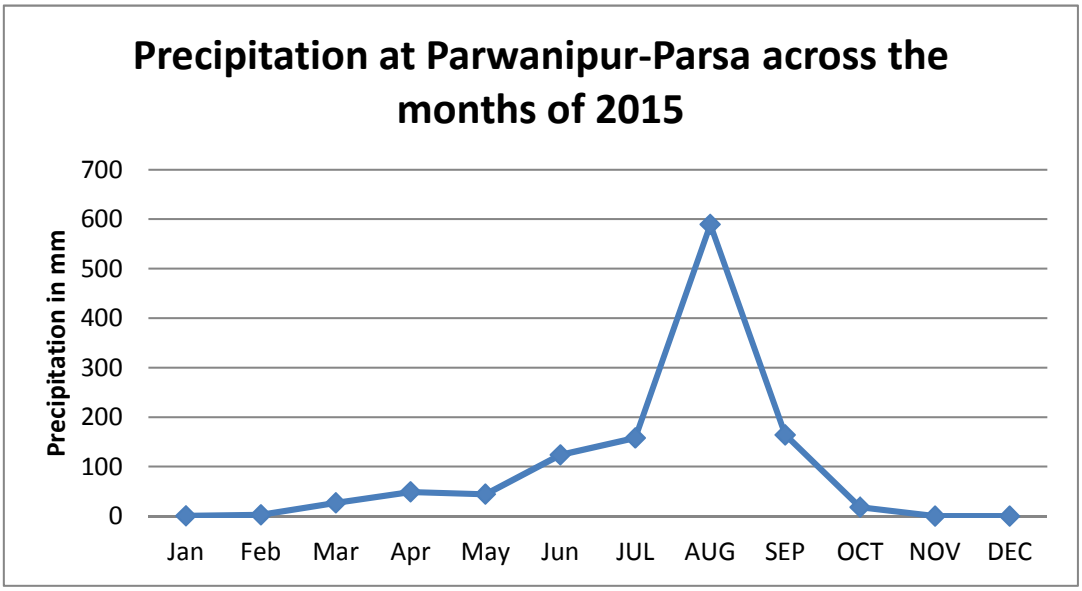

Figure 6: Precipitation in the year 2015 (DHM 2016)

2.5 Biodiversity Status

2.5.1 Floral diversity

The PNP mainly consists of tropical and sub-tropical forests (about 90%) dominated by Sal (*Shorea robusta*) and its associated species. However, a variation in the vegetation composition according to slopes, altitudes and other edaphic and micro-climatic factors is quite visible. Based on the studies, PNP forests can be divided into six types (Chaudhary 1998 and BPP, 1996).

Mixed Deciduous Riverine Forest: This type of forest is distributed relatively in a stable soil of Terai and Bhawar, at a distance of about 200 m. or more from the riverbanks. Dominated by deciduous tree species like Sissoo (*Dalbergia sissoo)*, Khair (*Acacia catechu)*, Simal (B*ombax ceiba)*, Phorsa (*Grewia disperma)*, Khirro (*Holarrhena pubescens)*, the associated bush species are, Bayer (*Zyzyphus mauritiana)*, Boksi Kanda (*Caesalpinia cucullat*a) and Asare (*Murraya koenigi)*.

Mix Deciduous Hardwood Forest: Lying in low areas of the Park with more stable soil, the mixed deciduous forest mainly consists of tree species like Sal (*Shorea robusta), Haldu* (*Adina cardifolia)* and Saj (*Terminalia alata)* in the uppermost canopy. The secondary canopy is formed by Tantari (*Dillenia pentagyna), Botdhayero (Lagerstroemia parviflora), Sindhure (Mallotus phillippensis)* and *Kurilo (Asparagus racemosus),* Ram datiwan (*Smilax ovalifolia)* and saplings of Phoenix spp. constitute the rich ground vegetation of this type.

Sal (*Shorea robusta*) Forest: In the areas with dry and stable soil, pure Sal stands are common in lower Churia, Bhawar, and Terai. According to the altitude and moisture conditions, the associates of Sal in the upper canopy of this forest type vary from Saj (*T. tomentosa),Harro (T. chebula),*Barro *(T. belerica),*Banjhi*(Anogeissus latifolia)*, to Haldu (*Adina cordifolia)*. The associated species of the middle canopy are Tantari (*Dillenia pentagyna), Khirro (Holarrhena pubescens),*Koiralo *(Bauhinia variegata)* and Sindhure (*Mallotus phillippensis)*. The ground vegetation is dominated by *Curcuma leucorhiza* and *Costus speciosa*.

Sal-Pine (*Shorea robusta- Pinus roxburghii*) Forest: Along the north-eastern aspect of Churia slopes, between 500m. to 700 m Sal (*Shorea robusta*) is characteristically associated with chir-pine (*Pinus roxburghii*). In the Shorea robusta- Pinus roxburghii forest, Sal trees are relatively dwarf and ground cover is also poor (Shrestha 1989).

Pine (Pinus roxburghii) Forest: Above 700m chir-pine (*Pinus roxburghii*) is dominant in the south-facing slope of the Churia hills of the Park. The growths of the other species are limited due to dryness of soil.

Sissoo (*Dalbergia sissoo*)-Khair (*Acacia catechu*) Forest: Growing on the flooding areas with freshly deposited riverbeds and riverbanks, in sandy soil, pure stands of Sissoo and Khair are present. It includes areas like riverbanks of Bhalu Khola, Mahadev Khola, and Doharam Khola. Dense patches of elephant grass (*Saccharum bengalenses*) are associated with these riverine forests.

There are 336 plant species found in PNP (Annex I) and at least 60 species found in the Park are edible (Dhakal, 1999).

2.5.2 Faunal diversity

Mammals

PNP harbours a variety of resident and migratory wildlife. There is record of 37 species of mammal (Budha and Chaudhary 1998, BPP 1995). The mammalian diversity of the Park is presented in Annex II. Out of them 7 species are included in protected list *viz*. Asian Wild Elephants (*Elephas maximus*), Royal Bengal tiger (*Panthera tigris*), One horned rhinoceros (*Rhinoceros unicornis*), Gaur (*Bos gaurus*), Wild dog *(Cuon alpinus),* Pangolin (*Manis pentadactyla*), Four horned antelope (*Tetracerus quadricornis*) and Striped Hyena (*Hyaena hyena*).

There are 60-65 residential population of Asian wild elephants and these elephants stay around Rambhori–Bhata, Lauki Daha, Charbhaiya and Mahadev, Ghodemasan areas and other streams of Churia. Elephants frequently move outside of the Park after the monsoon and often cross east-west highway at Aadhavar to travel to Halkhoria Lake and sometimes further east up to Bagmati River i.e. eastern boundary of Rautahat district. During October-November, they often raid farmer's agriculture field both in Makwanpur, Bara and Parsa districts.

Similarly 7 Bengal Tiger, 5 Rhinos, 105 Gaur bisons are major mega fauna of this Park (PNP Annual Report, 2073/74). It has been reported that 5 individual rhinoceros have been sighted regularly inside the Park due to good habitat in the extended area. Rhinoceros occasionally visit up to Sarlahi district crossing Bagmati River as well.

Other mammalian species include Spotted deer (*Axis axis*), Barking deer (*Muntiacus muntajak*), Hog deer (*Axis porcinus*), Shambar deer (*Rusa unicolor*), Leopard cat (*Felis bengalensis*), Jungle cat (*Felis chaus*), Fox (*Vulvas bengalensis*), Jackal (*Cannes aurous*) and Wild dog (*Cuon alpinus*), Rhesus monkey (*Macaca mulatta*), Langur (*Presbytes entellus*), Sloth bear (*Melursus ursinus*), Porcupine (*Hystria indica*), Long-tailed tree mouse (*Vandeleuria oleracea*), Indian mole rat (*Bandicota bengalensis*), Great bandicoot (*Bandicota indica*), and Squirrel (*Funambulus pennaii*) etc. List of all the species found in PNP is presented in Annex II.

Avian fauna

The Park is equally rich in avian diversity as 490 species of avian fauna are reported (BPP, 1995). Due to the diversity of landscape and water sources, the density and diversity of avian species are high in Halkhoria, Bhata, Shikaribas and Pratappur areas. Budha and Chaudhary (1998) listed 155 species of birds from this area.

Two species of endangered and threatened birds; the Giant hornbill (*Buceros bicornis*) and Lesser adjutant (*Leptotilos javanicus*) are reported in Bhata, Shikaribas and Pratappur areas. Other important species include Tawny eagle (*Aqula rapax*), White eyed hawks (*Butaster teesa*), Kaleej pheasant

(*Lophura leucomellana*), Spotted owlet (*Antheno brama*), Forest eagle owl (*Bubo nepalensis*), White breasted kingfisher (*Halcyon symensis*), Brahminy myna (*Sturnus papodarun*), Green Magpie (*Cissa chinensis*), White checked Bulbul (*Pycnonotus leucogenys*), Gray winged Black Bird (*Trudus bulbul*), Eurasian tree pipit (*Anthus trivialis*), Purple sunbird (*Nectarinia asiatica*) and varieties of doves (Annex III).

Reptiles

BPP (1995) and Budha and Chaudhary (1998) listed 13 species of reptiles (Annex IV). Python (*Python molurus*) and King cobra (*Ophiophagus Hannah*) are distributed in the Churia and its foothills and are rare in the area. Among these two, the Nepalese law protects python. Common reptiles found in the area are: Garden lizard (*Calotes versicolor*), Monitor lizard (*Varanus bengalensis*), Common krait (*Bungarus careleus*,) Branded krait (*Bungarus faciatus*), Common cobra (*Naja naja*), and common Rat snake (*Ptyas mucosus*).

Amphibians

Despite very few wetlands and aquatic habitats, there are 3 amphibian species found in this Park (BPP, 1995). Amphibian species includes: Painted bull frog (*Kaloulo pulchra), Globular frog (Uperodon globulosu)* and Jerdon's bull frog *(Rana crassa).*

Pisces

In PNP, eight species of Pisces are reported (BPP, 1995) which includes *Cudusia chapra, Gudisia godanahiae, Notopterus notopterus, Catla catla, Cirrhinus mrigal, Cirrhinus reba, Puntius sarana* and *Puntius sophore*(Annex V).

Invertebrates

A large number of invertebrates such as molluscans, earthworms and arthropods are commonly reported. Arthropod diversity is especially very high in the Park. Many species of millipedes and centipedes are seen crawling on the forest floor. Similarly many species of insects such as ground beetles, dung beetle, grasshopper, crickets, stick insects, bugs, termites are seen in the PNP forest. The area is also very rich in many species of spiders and scorpions. Many species of butterfly and moths can be seen flying in and around Park. Similarly, 31 species of butterfly have been reported from the PNP (Budha and Chaudhary, 1998). Annex VI displays the list of butterflies found in the Park.

Endangered Species

PNP contributes in conserving many species which are listed as protected by NPWC Act, 2029 as a Schedule I species of Nepal. Asian elephant (*Elephus maximus*), Gaur (*Bos gaurus*), Royal Bengal tiger (*Panthera tigris tigris*), Striped hyena (*Hyaena hyaena*), Asian one-horned rhinoceros (*Rhinoceros unicornis*), Wild dog *(Cuon alpinus),* Python (*Python molurus*), Giant hornbill (*Buceros bicornis*), Lesser adjutant (*Leptotilos javanicus*), and Sarus Crane (*Grus antigone*) are some major protected species of Nepal. Among the plant species, Satisal (*Dalbergia latifolia*) is already rare due to large scale extraction in the past.

Past management and Present Management Practices

CHAPTER III

3.1 Conservation History

Before Rana regime (1846-1950), Nepal's wildlife conservation history was not well documented. One of the earliest accounts shows that Terai forest between 1760 and 1770 were underused since it afforded strategic protection against invasion by the East India Company, King Prithvi N. Shah and his generations considered maintaining the Terai forests in wild state (Mishra 2009). Therefore, when Rana attained power, the entire Terai and inner-Terai including Chitwan valley was covered with dense Sal (Shorea robusta) forest. It was popularly known as Char-Koshe-Jhadi, and offered bountiful wildlife sport. The Rana rulers started exploitation of Terai forest as hunting ground of big games, later as a source of revenue through timber export and conversion of forests into agriculture land to generate land tax. They reserved Chitwan valley and other selected forests as a privileged class hunting ground for Rana elites and their distinguished guests from European and Indian Royal family. On March 1876, Jung Bahadur Rana organized a hunting camp for King Edward VII and managed to gather 800 elephants, which is remembered as one of the most extensive huntings to be remembered by anyone in the world. Hunting record showed as many as, 120 tigers, 38 rhinos, 27 leopards and 15 bears were killed by a hunting party in a single hunting event. It is said that Juddha Shamsher Rana killed 433 tigers, 33 rhinos, 93 leopards, 22 bears, 20 crocodiles, 1 wild buffalo, 3 elephants (captured) and many wild dogs, hyenas, deer and other small animals during seven hunting seasons from 1933 to 1940 (Chand 2000). Nevertheless, such irregular big hunting hardly affected the total population of wildlife. In fact, Jung Bahadur Rana declared the rhinoceros as a Royal Game Animal in 1846 and stringent punishments were inflicted to the poachers (Mishra 2009).

The commercial exploitation of the Terai forests started since the first quarter of 20th century when expansion of railway network was taking place in Northern India. Mr. J.B. Collier of British Indian Forest Service was then advisor (from 1925 to 1930) to the GoN. Keeping the endless demand of timber and boulders in the mind, he advised revenue generation through supplying timber to India by intensive felling of Terai forests and development of agriculture land. Massive deforestation of Terai took place during that period (Hamilton 1819, Agrawal 1976, and Bajracharya 1983).

When Rana regime collapsed in 1950, still plenty of forests and wildlife were left in Terai because people were precarious to come down to Terai due to deadly malaria infections. The situation worsened when an exodus of hill-migrants started to cut and burn the Terai forest under the resettlement program launched by the government after successful eradication of malaria in the 1960s. The period has seen loss of a vast tract of Terai forest.

3.2 Protection of the National Park

The illegal activities inside the PNP started to be controlled since its establishment as Wldlife Reserve in 1984. Regular patrolling effort from security posts established in the Park was the major activity to ensure protection. At the beginning, it was looked after by a unit of Nepal Army (NA) from CNP. Now, there is a separate battalion of NA deployed to protect the Park and the wildlife. The protection of the

Park has resulted in increase in wildlife population. The increased number of tiger and sighting of rhino in the Park is an indicator of an effective management after its establishment.

3.3 Habitat Management

There are relatively few grasslands and wetlands in the Park. There are 36 artificially constructed water holes (ponds) and some natural lakes and about 530 hectares of grasslands. To maintain prey population, maintenance of the existing grasslands and wetlands are main focus of habitat management program. Grass cutting, controlled burning, canopy opening through tree cutting and uprooting has been adopted as grassland management tool to allow sprouting of palatable grasses. For wetland creation and restoration, intervention such as artificial waterhole construction, pond renovation and removing of aquatic plants are undertaken.

3.3.1 Grassland

There are 250 hectares of grasslands (55 hectare Bhata, 47 hectare Rambhori, 10 hectareAadhavar, 12 hectare Charbhaiya, 57 hectare Pasaha, 65 hectare Pratappur) inside the Park (Figure 7). Additionally, there are about 280 hectare grasslands located on both sides of Bhata, Pasaha, Jamunia and Balganga River making a total of around 530 hectare. Among these grasslands 100-150 hectare grassland is only maintained annually. Ramauli Pratappur and Rambhori Bhata grasslands are maintained after relocation of Ramauli Pratappur and Rambhori Bhata in 2009/2010. Siru (*Imperata cylindrica*), Munj (*Saccharum bengalense*), Kans (*Saccharum spontaneum*), Dhaddhi (*Cymbopogon species*), Dubo (*Cyanodon dactylon*), Kush (*Demostachya bipinnata*), Banso (*Eragrostis tenalle*), Bans (*Dendrocalamus strictus*) and *Cyperus amabilis* are the major grass species found in this Park.

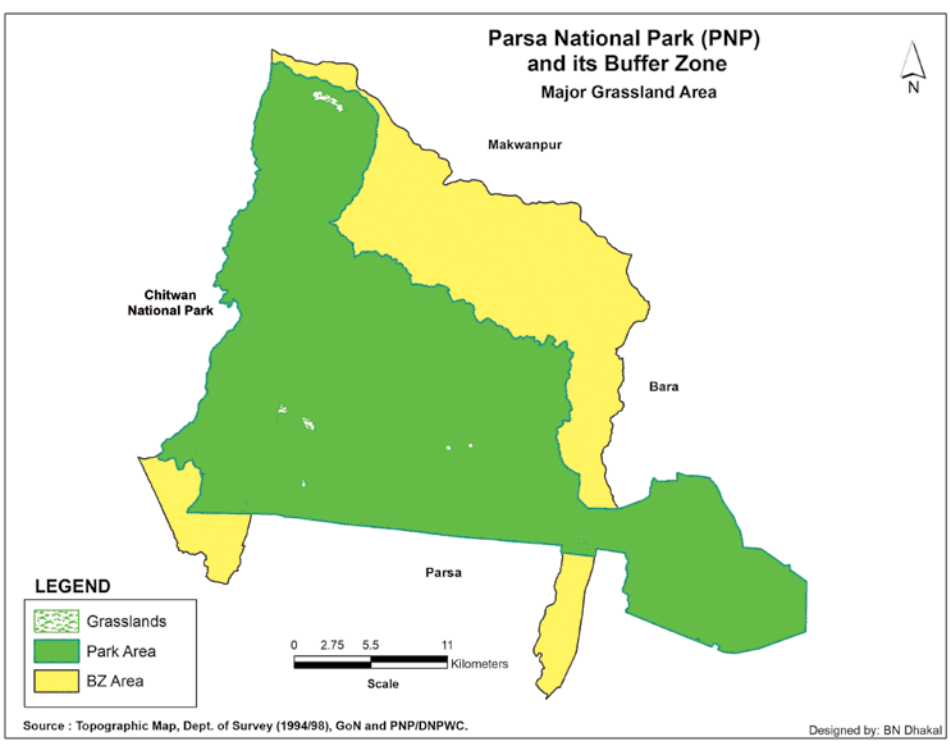

Figure 7: Grasslands of PNP in core area

3.3.2 Wetland

Rapti River flows along the northern boundary of the Park. It is a major aquatic habitat/ perennial habitat in the Park that flows westwards and passes through CNP. It creates a prime habitat for Rhinoceros along

the river. In the southern part of the Park, there are very few streams, viz Bhata Khola, Mahadev, and Bhedaha that have perennial water flows in the upper part which is channelized to feed the artificially created ponds for wildlife in the dry Bhawar areas. It also supports some of the fish species in a small aquatic habitat. In the extended area in the eastern part, there is Halkhoria lake which is very important as it provides water for mega fauna species mainly wild elephant, Tigers and Rhinoceros. Kamini Lake is also renovated to provide water to the wildlife. There are some man-made fish ponds in evacuated areas of Rambhori-Bhata. These fish ponds play a vital role in forming waterholes which is valuable for wildlife. Except those fish ponds, there are altogether 31 other small ponds/ waterholes (Figure 8) which are fed by water channelized from Churia. All the waterholes and fish ponds can help wildlife to get fresh drinking water during dry season. These ponds need regular maintenance for recharge.

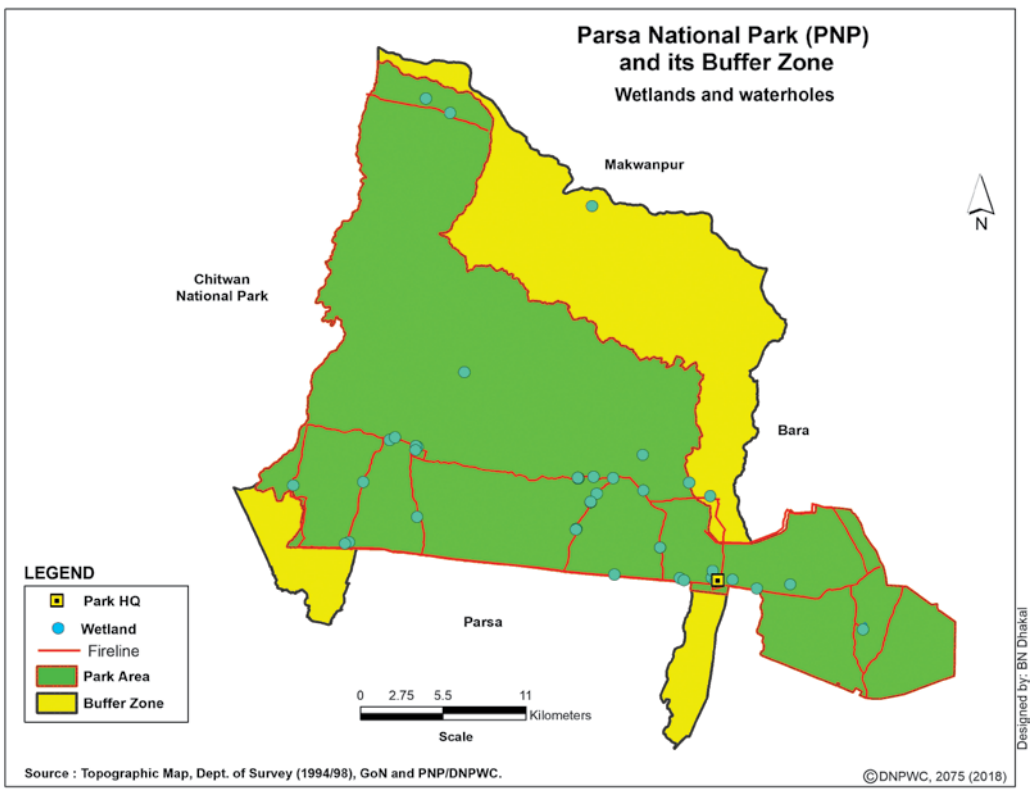

Figure 8: Wetlands and Waterholes in PNP

3.4 Anti-poaching and Intelligence Gathering

Bara forests have been famous for hunting in the past. After establishment of the Reserve, hunting was totally prohibited and poaching was brought under control, except for some poaching incidents of wildlife for meat in some part of Churia. The Churia area of the Park has valleys having streams with perennial water, grassland and virgin forest habitat thus providing good habitat for wildlife. However, there is inadequate security arrangement inside Churia except for some security posts along the northern boundary. Poachers mainly kill game animals like spotted deer, shambar deer, barking deer, hog deer, wild boar, and gaur by using traps and guns. Illegal fishing and bird killing are also reported in Pratappur area. Some cases of poaching in the adjacent national forests along the East-West highway are also observed.

To control poaching and curb illegal trade of wildlife derivatives, PNP has established intelligence networks, field level posts, community based anti-poaching operation units. Besides, Park has also established district level Wildlife Crime Control Bureau (WCCB) and Chief Conservaton Officer (CCO) of PNP has coordinate to WCCB. Furthermore, Close Circuit Television (CCTV) camera and

Spy camera (Poachers cam) have also been established with a well-equipped Rapid Response Centre, Rapid Response Team (RRT) and 4 wheeled drive vehicle.

In order to make anti-poaching operations more effective, district level WCCB has been formed covering Bara, Parsa and Makwanpur districts. The Bureaus of all three districts are coordinated by the CCO of PNP. The Bureau in each district comprises of officers representing District Administrative Office, District Police Office, Armed Police Force, District Level National Investigation Office, District Attorney Office, District Forest Office and other relevant government offices as well.

Information gathering is the first step towards an effective anti-poaching operation. Anti-Poaching Unit (APU) is established under CCO to counteract illegal activities in and around the Park. The APUconcentrates in collecting information on illegal activities by coordinating concerned institutions such as security units and District Forest Offices. APU also coordinate with locally hired community informants who holds key information on poaching and illegal trade of wildlife and timber smuggling. In addition, there is Community Based Anti-Poaching Unit (CBAPU) in all the BZUC. This CBAPU organizes regular activities to combat poaching and sharing information amongst all the CBAPU in the region. The APU activities of PNP are also closely coordinated with CNP and VTR.

3.5 Tourism and Interpretation

PNP lacks visitor centers and museums for tourism interpretation. Facilities like hotels, lodges and small restaurants are now available in Simara, Nijgadh, Amlekhgunj, Hetauda and Birgunj. Nijgadh-Kathmandu express highway, Nijgadh International Airport are some future plans for infrastructure development by the government which will improve efficient transportation for national and international tourists.

3.6 Research and Monitoring

3.6.1 Research

As per research protocol, a researcher requires an approval letter from the DNPWC, prior to conduct any research inside the Park for overseas students. However, students from Nepal can carry out research work with the permission of particular PA. Each researcher is also required to submit hard copy and soft copy of their research reports to Park authority. Because of lack of funding sources and less interest of researchers, research activities are quite limited inside PNP. From 1995 to 2010, only 16 researches have been carried out in this Park.

3.6.2 Monitoring

Monitoring is a regular phenomenon which is carried out on a regular basis. Central, regional and district level monitoring are carried out by DNPWC, Regional Forest Directorate Office and Park Office regularly for protection of rare/endangered flora and fauna. They monitor development work, ecotourism promotion activities, habitat management and community mobilization programs. RRT, Anti-poaching operation team, SMART patrol team are also mobilized for monitoring and patrolling work.

Long, medium and short-range patrols are jointly carried out inside the Park to curb poaching activities. Besides regular patrolling, Park has also installed CCTV networks, having well equipped RRT to respond immediately after any crime incidents happen in the field. Patrolling team records events of wildlife sighting, poaching, illegal wood cutting as well as any other changes in the forest. CCO and corresponding battalion commander visit Park security and posts separately or jointly for periodic monitoring. A monthly, quarterly and annual progress reports are sent to DNPWC, Regional Forest Directorate and Ministry of Forest and Environment (MoFE).

3.7 Human-Wildlife Conflict

A negative interaction between human and wildlife is called Human Wildlife Conflict (HWC). Human casualties (killing and injury), retaliatory killings of wildlife by the people, livestock depredation, crop raiding, property damage by wildlife are common HWC incidents in PNP and its BZ. Tiger, wild elephants, bears, wild boars, spotted deer, and common leopards are some major animals associated with HWC. Conflicts between people and wildlife are increasing because of the growing human populations around the Park such that major migratory routes and dispersal areas are being constrained. In PNP, a major migratory route around Syaulibasti was encroached before. The Park is one of the residential habitats for wild elephant in Nepal. There are around 60-65 elephants inhabiting the Park. Sal forest with mixed hard wood species, grasslands, Churia virgin valleys having plenty of perennial water, better habitat of bamboos, bananas and *Dillenia* species act as a major terrestrial habitat for wild elephants. PNP also serves as a migratory corridor for wild elephant which moves to and from India as well as western part of this Park towards CNP and eastern Char-Koshe-Jhadi forests of Rautahat, Bara, Sarlahi, Mahottari and Sindhuli districts. So, human-elephant conflict is one of the major issues that need to be addressed. Apart from this, there are damages to houses and infrastructure within BZ which creates lots of management challenges throughout the year and retaliatory killing also results in some cases. In recent years, human-wildlife conflict is becoming one of the major hindering factors for maintaining harmonious relationships with local people and increase people's participation in conservation.

Although relief policy has been formulated and with three amendments till 2074 (2017), latest amendment increased relief fund to NRs. 10,00,000.00 (Ten Lakhs) to the victim's family in case of death of human being by wildlife outside the PA. Outreach programs organized by Park authorities are also intended to ease such conflicts. Until the economic status of the local communities is improved, poverty levels will continue to fuel conflict between Park and people.

3.8 Administration and Organization

The administration of the Park is headed by CCO who is stationed in the headquarters at Aadhavar, Bara. Under the CCO, there are three ACOs who are responsible to lead two Sector Offices which are located at Gaduwaline, Parsa (Western) and Lamitar, Makwanpur (Northern). These Sectors implement administrative and technical task assigned by headquarter. The ACOs are supported by Rangers, who supervises Range Posts and they communicate with BZ communities and implement Park's activities. The smallest administration unit of the Park is Guard Post which is managed by Senior Game Scout or Game Scout and deliver the work assigned by Range Post.

Similarly, there is also a BZMC to coordinate and implement BZ program. The BZMC manages the fund received as per the BZ regulation as envisioned in NPWC Act, 2029. There are thirteen BZUCs under the BZMC in Parsa NP.

3.9 Achievements of Preceding Management Plan

A draft management plan of PNP (then PWR) was prepared for 2010-2015 period. Although, it was not approved the Park followed it as guiding document for five years. It comprised of 4 components, viz., a) Park Management; b) Tourism Management; c) BZ Management; d) Institutional strengthening. The extension of Park in the east to include Halkhoria Daha (Lake), relocation of settlement from Bhata, Rambhori, Ramauli and Pratapur to outside of the Park and change of status to National Park from Reserve have been major achievements of the plan.

Park management consists of protection and habitat management. During the plan period, the Park was protected by a Company (Gulm) of NA headed by Major. In 2016, the Company was replaced by battalion led by Lieutenant Colonel. Three additional security posts were established in the extended eastern areas of Halkhoria Daha. Similarly, real time SMART patrolling and CCTV camera at certain places has been initiated to protect the wildlife.

Habitat management includes creation, restoration and management of grassland and wetlands. Grassland management has been undertaken by creating grassland by opening of forest canopy, restoring a number of grassland patches, removing invasive species, cutting and burning tall grasses. Considering effectiveness, uprooting of tree has been recognized as the more appropriate method of grassland management encroached by woody vegetation. Underground piping has been laid for water regulation in artificial wetlands to manage wetlands. Similarly, Kamini Daha has been restored and maintained to cater drinking water for the wildlife. In addition, Halkhoria Daha has also been restored with rod, cement and concrete (RCC) dam. Due to the highly percolating nature of soil, in the Bhawar region various types of waterholes has been practiced which include waterholes with plastic sheet kept underneath, the base plastered with mud and cemented waterhole. It is found that the cemented waterholes are most effective to hold water for longer period. The water is supplied by water tank carried by tractor on regular basis.

Tiger Conservation Action Plan has been implemented at satisfactory level. The tiger monitoring has been carried out through camera traps. Recent study showed that 7 tigers (APR 2073/2074) inhabit in the Park and prey density is 25.32/Km^2.

During this period several watch towers have been constructed, fire lines have been extended and wooden bridges maintained. In the bridge maintenance, the Park initiated cement mortar foundation with wooden plank over it to lengthen the durability of bridge and reduce maintenance cost. Similarly, elephant safari for the visitors has been initiated nearby Amlekhgunj to attract tourists. One tourist operator vehicle has been given permission in 2017 to operate Jeep Safari in the Park as an initiation for tourism promotion.

The BZ management programmes were developed and implemented by the communities under the facilitation and supervision of the Park staff. In this regard, a number of community forests have been handed over, river training in various streams have been conducted, livelihood training has been imparted to create self-employment, small infrastructure has been constructed, eco-club and CBAPUs units have been mobilized and various important conservation days and events were celebrated to increase conservation awareness.

In the upcoming five year plan, habitat management has to be focused creating more grasslands by opening and uprooting of shrub and tree in the strategic locations inside the Park; and maintaining water holes to increase the prey base species and consequently sustain the predator population. Similarly, highway crossing bridge such as underpass or overpass for wild elephant movement has to be piloted along the main highways developing fly over road. Additional fire line has to be constructed from south to north to link Churia range to connect CNP to attract tourists. In order to reduce the cost of maintenance semi RCC wooden bridge has to be constructed. Similarly, all weather graveled fire-line should be constructed which is mostly used for patrolling and monitoring. Relief to the victims of human-wildlife conflict should be regulated as per, third amendment, Relief Guideline 2074 (2017).

3.10 Strength, Weakness, Opportunity and Threat (SWOT) Analysis

3.10.1 Strengths

- Well organized institutional arrangement to conduct conservation programmes and security of the Park;
- The Asian wild elephant population draws attention of GoN along with global community for its conservation;
- Encouraging partnership with local communities and stakeholders, including national and global conservation organizations;
- Accessible location of the Park from Kathmandu, Hetauda, Birgunj of Nepal and very near to the border of India to attract national and international tourists; and
- Increasing number of endangered wildlife species such as tiger, gaur, and elephant.

3.10.2 Weaknesses

- Inadequate tourism infrastructures such as information centre, ticket counter and entrance gate, etc.;
- Trespassing for the local people can be used by poachers also; and
- Inadequate physical resources and means to undertake day to day operation and management.

3.10.3 Opportunities

- Potential site for the GoN to generate revenue by developing tourism infrastructure for national and international visitors;
- Increase income of local people by tourism based business, enterprises and jobs;
- Maintain good relationship between local people and PNP authority through people's participation in biodiversity conservation; and
- Undertake various research and studies in collaboration with conservation partners and implement the findings in PNP.

3.10.4 Threats

- Unsustainable use of sand and gravel mining pose threat to biodiversity conservation;
- High speed of roadways accidently kills wildlife;
- Human-wild elephant conflict;
- Retaliatory killings of wildlife;
- Habitat loss and fragmentation due to encroachment in the BZ;
- Poaching and illegal trade of wildlife and its derivative and
- Illegal timber smuggling.

Part B
The Proposed Management

Vision, Goal and Objectives

IV
CHAPTER

4.1 Vision

Conserve and enhance biodiversity at species, ecosystem and landscape levels with high priority to nationally protected and globally threatened wildlife species thereby maintaining healthy ecosystem of Chure-Bhawar-Terai region and delivering essential benefits for the wellbeing of local people.

4.2 Management Goal

To conserve biological diversity of the Park with special focus on protected wildlife species including wild elephant and tiger through restoration, improvement and management of wildlife habitat and contribute towards prosperity of local people.

4.3 Management Objectives

The specific objectives of the management plan are as follows:

- To restore, improve and manage habitat for wild elephant, tiger, rhinos and other species;
- To ensure maintenance of a viable population of wild elephant and tiger including all flora and fauna by restoring corridors to ensure connectivity, reduce illegal killing and illegal trade;
- To develop tourism infrastructure in order to promote sustainable tourism by involving private entrepreneur so that locals benefit from increased socio-economic opportunities while minimizing and mitigating negative impacts to maintain ecological integrity and cultural heritage;
- To enhance participatory biodiversity conservation by institutional strengthening of key stakeholders to take stewardship on conservation by increasing awareness at the same time improving livelihood of local people; and
- To strengthen institutional capacity through research, capacity building, coordination and collaboration.

4.4 Major Problems, Gaps, Issues in achieving Objectives

Problems:

- Land encroachment by the local people in fringe areas of the Park;
- Invasion by weeds affecting grassland management;
- Illegal collection of herbs and other specific plants and wildlife species;
- Illegal grazing in the Park;
- Timber smuggling in south-west and north-east part of the Park;
- Roadside accidents of wildlife in the highway between Amlekhgunj-Pathlaiya-Nijgadh;
- Rise in river beds due to occurrence of erosion and landslides in Churia range and destruction of forest habitat due to change in river courses;

- Illegal activities in terms of timber smuggling and poaching during khar-khadai collection in Pratappur; and
- Illegal collection of sand, gravel and stone from the Churia region of the BZ.

Gaps

- Less areas of grasslands in the Park and inadequate maintenance of existing grasslands;
- Inadequate quantity and quality of wetlands or water holes and inadequate maintenance of existing artificially created water holes;
- Limited fire-fighting capacity of the Park;
- Inadequate and insufficient interpretation facility, ticket counter for visitors;
- Lack of cultural museum in order to aware the visitors regarding the culture of local people;
- Inadequate sign boards and signage to the visitors;
- Inadequate maintenance of watch towers, bridges and fire lines inside the Park;
- Poor documentation of research results and monitoring results and other management activities;
- Inadequate publicity of the Park via proper media;
- Lack of documentation;
- Lack of caring centres for orphan, injured, and diseased wildlife species; and
- Inadequate infrastructures in rural parts of the BZ: seasonal roads, lack of safe drinking water, inadequate medical services, inadequate health and hygiene facilities, poor irrigation facility, and inadequate veterinary services.

Issues

- Human pressure to wildlife habitat from BZ communities;
- Risk of disease transmission from livestock to Wildlife;
- Infrastructure: high tension lines, highway extension, petroleum pipe-line;
- Management of orphan, injured and release of wildlife;
- Religious crowds in temple located at Bhata during festivals and throughout Shrawan month to offer water inside temple in the name of Mela;
- Location of Nepal Oil Corporation's petroleum storage and refilling centre in Amlekhgunj; and
- Hunting of spotted deers by feral dogs.

Management Strategies

V
CHAPTER

5.1 Boundaries

5.1.1 Legal

PNP (627.39 km^2) and its BZ (285.3 km^2) was declared according to the NPWC Act, 2029. The boundary of PNP and its BZ is well defined and duly notified with the publication in Nepal gazette (Annex VII-A, VII-B, VII-C). When the Park was established as a Wildlife Reserve the area of the Park was only 499 km^2. An area of 128.39 km^2 including Halkhoria lake was added to it in 2015 as it is a very good habitat for wildlife especially rhino, tiger and wild elephant. The strategy to extend the habitat preservation up to Bagmati River towards north from existing east west highway will be undertaken in the coming five year period.

5.1.2 Administrative

The Park is headed by CCO (under-secretary level), who is stationed in the headquarters at Aadhavar, and is responsible for overall management of the Park. The headquarters of the Park has technical, administration, financial, BZ, and Hattisar section. As per new organization & management structure, there are 133 approved posts including position of elephant management (Hattisar staff) as well. Out of the approved position currently only 91 positions are fulfilled (Annex XII) but remaining positions will be fulfilled by Public Service Commission in near future. Along with Park headquarters, PNP has two strategically located Sector Offices headed by Assistant Conservation Officers. The two sectors are Lamitar (northern) and Gaduwaline (western) Sector and supervise 9 Range posts and 3 Guard posts under their respective jurisdictions. These posts are responsible to carry out technical and administrative works at the field level. In addition to administrative posts, there are 15 security posts of NA deployed for protection of the Park. Additionally, there are also BZMC and BZUCs to implement BZ program.

PNP Hattisar is located in Amlekhgunj, about 5 km. north of the Park headquarters. It was relocated in Amlekhgunj from Dumarbana in 1997. There are 11 elephants, assigned for patrolling and tourism activities inside the Park located at Bhata Sector, Pratapur Post and Amlekhgunj Hattisar. These elephants are used in patrolling, tourism activities, research programs, rescue and search operations and other official duties. These elephants are taken care by 32 staffs of Hattisar.

5.1.3 Ecological

PNP together with CNP and VTR of India forms TCU of 2460 km^2 and this area can further be increased, with proper study, by adding forest patches near Amlekhgunj area and national forests towards east up to Bagmati River of Rautahat district.

5.2 Zonation

Zonation is a management tool that enables the spatial management of a PA that has to achieve both protection of the area's key ecological features and sensitive habitats, sustainable utilization of the landscape for tourism and other non-materially altered purposes. Zonation allows managers to achieve

different management aims in different parts of the PA. Zoning also provides a framework for planning by designating zones with different management objectives and allowable human impacts. This ensures a balance / trade-off between conservation and development objectives. It allows the planners to focus proposed conservation and development activities and resources on different zones depending on management objectives of specific sites within the PA. The use of this methodology will enhance conservation planning by ensuring effective conservation and development. In order for managers to achieve different management objectives in different parts of the Park, four main zone types have been identified.

5.2.1 Management Facility Zone

This is the zone inside Park occupied by the infrastructures developed for office and accommodation for staff including Hattisar and security persons. It comprises area occupied by head office of the Park and NA together with Sector, Range post and Guard posts established at strategic locations. This zone also includs the administrative, museum, interpretation and law enforcement facilities are provided to the local people, researchers and visitors.

5.2.2 Utility Zone

This is an area of the Park allocated for limited recreational activities for the visitors along with nature interpretation services for conservation awareness. This includes hotels and campsite areas, religious sites, fire lines (roads) allowed for jungle drive as well as vehicular patrolling and elephant ride routes, nature walk routes, and public work installation areas. The main objective of managing this zone is to regulate tourism in the core area to minimize the disturbance to wildlife and its habitat and to enhance visitors' satisfaction through providing wilderness experience.

5.2.3 Core Zone

The area of the Park apart from facility zone and utility zone are set out as core area. It is wilderness area which include all parts of the Park including fragile Churia ridge as well as slopes of both sides i.e. north and south, except for management facility zone and utility zone. The key objective of this zone is protection and maintenance of the natural state of the ecosystems and provide suitable habitat for wildlife as well as stability of Churia ridge and to encourage research and science-based management intervention.

5.2.4 Buffer Zone

This is the area outside of the core area which includes all the settlements and private lands, where environment-friendly development activities will be carried out to reduce dependency of people on forest resources of the core area and improve livelihood of local people living in the area through economic benefit sharing earned by the Park as per provision of the NPWC Act, 2029.

5.3 Theme Plans

5.3.1 Park Protection

5.3.1.1 Status

Park protection is one of the most important activities of entire Park management. NA has been deployed for protection through enforcement of NPWC Act, 2029 and subsequent conservation legislation. The battalion is headed by Lieutenant Colonel and served by total strength of Army in various positions deployed under the battalion commander who is responsible to National Parks and Wildlife Protection

Directorate of NA headquarters. The battalion was formed in 2016 after upgrading existing company (Gulma) to cover additional extended part of PNP. It has its headquarters at Aadhavar and three companies in Nirmal Basti, Bhata and Sahajnath. The headquarter was relocated at Aadhavar from Bhata in 2005. During the insurgency period, the Army posts were merged with headquarter.

Similarly, one company is responsible to protect Makwanpur area of CNP and there are 15 security posts at strategic location (Fig. 9) to guard and secure the core and BZ (Annex XI). The security posts assist Park staff in carrying out regular patrolling, controlling entry points, check posts, carrying out search operations and other law enforcement activities. Patrolling is done either on foot or by using bicycle, motorcycle, vehicle or elephant riding depending upon situation and site of patrolling. Elephant has been one of the important means of transportation used in patrolling to move into the dense forest. At the headquarters, the CCO bears overall responsibility to co-coordinate with the battalion commander for effective law enforcement.

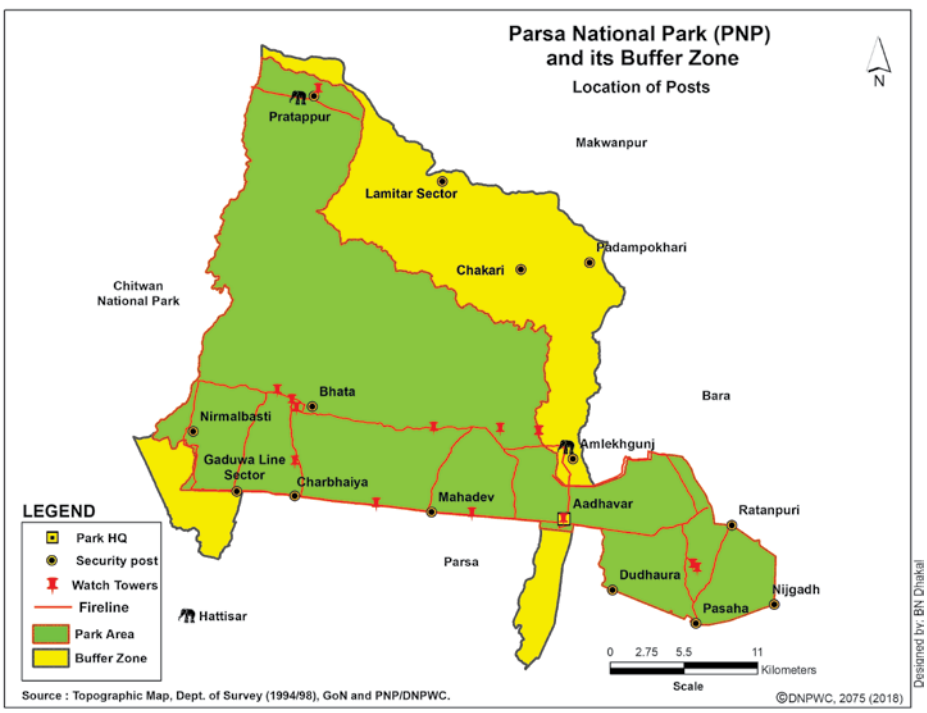

Figure 9: Location of Posts in PNP

5.3.1.2 Issues

- Inadequate infrastructures for Park management at key locations including accommodation and drinking water facility;
- Illegal smuggling of timber from the Park;
- The movement of local people during Dugdeshwor Mela which takes place three times a year using fire line of the core area poses threat to wildlife;
- Communication in all the parts of the Park is difficult;
- Patrolling by vehicle is not possible in rainy season due to lack of all-weather road and bridge;
- There is inadequate vehicle for patrolling;
- The infrastructure of post needs to be upgraded with adequate facility of drinking water system, electrification and others;
- There is insufficient budget for maintenance and repair of electrical and mechanical equipment; and
- South-north connection by developing fireline (road) to improve the patrolling.

5.3.1.3 Strategies

- Infrastructure development for mobility and patrolling;
- Patrolling through foot trail, bicycle, elephant ride, vehicle, real time SMART patrolling to minimize illegal activities using various available means;
- Explore and use innovative and advance technology to monitor sensitive areas and to study land use change;
- Establish information collection and purchase mechanisms with local informants;
- Share information and extend cooperation with CNP and VTR authority to control poaching; and
- Coordinate, collaborate and cooperate with Central Investigation Bureau (CIB) to control poaching.

5.3.1.4 Activities

- Construct office building (additional) in Aadhavar, and two sector offices in Lamitaar (Northern) and Gaduwaline (Western);
- Construction of 7 additional posts (Dambarpur-Bara, Thulothali-Makwanpur, Thadekhola-Makwanpur, Masinekhola-Makwanpur, Churiyamai-Makwanpur, Khairee khola-Parsa, Dilliipur Chaurahakhola-Makwanpur) for PNP staffs and security personnels;
- Repair and maintenance of office buildings in HQ, Sector office, Range post, Guard post and security posts including fencing;
- Construct and upgrade facilities such as drinking water, solar power for lighting and charging batteries of communication and mobile phone at sector offices and security posts;
- Maintain kitchen, toilet and fence of posts and sector office regularly;
- Construct 10 Km overhead bridges (Amlekhgunj to Churiamai -3 Km, Nirmalbasti to Brahma nagar-1 Km, Amlekhgunj to Pathlaiya-2 Km, Pathlaiya to Tamagadi-2 Km, Ratanpuri to Tamagadi-2 Km) in elephant corridor in coordination with Department of Road (DoR);
- Upgrade existing 60 Km fire line to all-weather otta-shield road and construct additional 70 km of all-weather road networks inside the Park;
- Maintenance of 125 km of fire line throughout the year;
- Construct fireline (road) from Bhata to Pratappur for improving patrolling activities;
- Construct 5 RCC watch towers in sensitive areas from security point of view and use them during night camps;
- Repair and maintain existing 15 watch towers;
- Improve wooden bridge with RCC or Cement mortar foundation;
- Repair and maintain building required in elephant management units (Hattisar);
- Procure equipment required for elephant riding on a yearly basis;
- Provide hauda, gaddi, and other materials for elephant safari and management;
- Undertake meeting with Nepal Telecom, NCELL or other mobile company and install 5 Base Transceiver Station (BTS) inside the Park;
- Support Nepal Telecom to carry out survey to make effective communication using CDMA phone;
- Install walky-talky radio communication throughout the Park including repair and maintenance;

- Installation, repair and maintenance of additional CCTV cameras in the highway from Amlekhgunj to Pathlaiya;
- Install spy camera (poacher's cam) at strategic location;
- Carryout short, medium and long range patrol including sweeping and camping operation using bicycle, foot, vehicle and elephant;
- Implement real time and SMART patrolling with changing the time and route on random basis;
- Demarcate the boundary of PNP and settlement area;
- Procure metal detector to identify iron set leg traps probably used by poachers to trap wildlife (especially for tiger);
- Piloting of drone to take pictures of sensitive areas;
- Procure four wheel vehicle (two) for sectors to make effective patrolling and Park management; and
- Procure 20 night vision binoculars.

5.3.2 Habitat Management

5.3.2.1 Status

The Park has relatively small coverage of grasslands and therefore maintenance of existing grassland is a major focus. Controlled burning has been adopted as main management tool to prevent succession and to allow sprouting of palatable grasses. Before controlled burning is applied, the Park is opened for controlled khar-khadai collection (tall grass cutting by the villagers) every year. The Park has also carried out grassland development in the recent years including creation of new grasslands in relocated sites. The old settlement areas of Rambhori, Bhata, Ramauli and Pratappur have become new grasslands after relocation of these settlements from the core area. Regular maintenence of these areas is required to retain grassland integrity. Apart from these, the concept of canopy opening along the firelines has been initiated to promote the development of undergrowth grasses in the dry Bhawar areas.

Since PNP is situated in the Bhawar Zone, the southern slope of Siwalik lacks water. Scarcity of water to the wildlife during dry seasons is a key limiting factor in the Park especially around the areas of Aadhavar, Mahadev Khola and Charbhaiya posts. As a result wild animals come out of the Park and become susceptible to poaching. After the extension of eastern part including Halkhoria lake, the lake has been refurbished and provides water for wildlife mainly wild elephant, tigers, rhinoceros, gaur and deers. The Park is emphasizing development of water holes in the water scarcity areas including maintenance of exiting water holes. The Park created a water hole nearbyAadhavar grassland in 1997 and renovated Kamini Daha; both of these sites require regular maintenance to hold sufficient water year round. There are some water holes at the old settlements of Rambhori and Bhata. These water holes were constructed by the villagers for fishery before their relocation from the Park. At present, water holes are deemed necessary near Mahadev Khola and Jamunia Khola and other places.

5.3.2.2 Issues

- There are inadequate grasslands in PNP and they are small in sizes;
- The grasslands in the Park are degraded as they are invaded by weeds and woody vegetation;
- Most of the habitat falls in Churia region and it is sensitive as it was degraded before the establishment of the Park due to uncontrolled livestock grazing, encroachment for agriculture land, collection of sand, gravel, firewood and timber;

- The wetlands and water holes cannot hold water due to high percolating properties of the soil of the Bhawar region;
- The wetlands dry up in the summer season and proper reclaiming and maintenance of the wetlands for long range and migratory wild animals like elephant is a challenge;
- The artificially created and cemented water holes need periodical fetching of water either by pipe or water tanker;
- There are some problems of forest encroachment in few areas particularly in the northern Syaulibasti of Nirmalbasti village;
- The BZ forests are disturbed due to uncontrolled grazing, forest fires and timber smuggling;
- Biological corridor in Syaulibasti, which is important for wildlife movement between CNP-PNP-VTR complex, suffers from unsustainable harvesting of forest produce as well as collection of river-based natural resources, poaching, overgrazing and encroachments; and
- Invasion by weed species like Eupatorium, Mikenia and water Hyacinth affect forest regeneration seriously in intensively grazed areas, moist grassland and wetlands.

5.3.2.3 Strategies

- Increase grassland cover by creating grasslands on the both sides of fire lines and streams by opening up of canopy and removing woody vegetation at regular interval;
- Control Invasive Alien Species (IAS) by targeting entire patch at one go to prevent regeneration in the following year;
- Promote conservation and sustainable use of wetlands for maintaining the functional environment;
- Collaborate Livestock Service Office (LSO) to encourage stall-feeding, replacing unproductive livestock and vaccination against foot and mouth disease;
- Collaborate with researchers and academician to carry out studies and research;
- Strengthen communication, collaboration and coordination for management of trans-boundary migratory species; and
- Adopt communication, education and public awareness among local community and stakeholders in participatory biodiversity conservation.

5.3.2.4 Activities

- Undertake inventory of grassland and wetlands recording XY coordinate;
- Undertake inventory and mapping of IAS and record XY coordinate;
- Manage grassland by: control burning (500 hectares) removing woody species (750 hectares); uprooting trees and clearing shrubs and unwanted vegetation on the both sides of fire lines (1900 hectare); uprooting trees and clearing shrubs and unwanted vegetation on the both sides of stream flowing from north to south (2000 hectare);
- Clean shrub of 10 m height transects on the both sides of east-west highway to promote visibility of/for wildlife species to reduce road kills;
- Organize Khar-Khadai on annual basis, if required,for grassland management intervention;
- Removal and control of IAS in an area of 500 hectare;
- Create alternative grazing land and ponds in appropriate areas of BZ for cattle to reduce pressure on core area;
- Undertake river embankment of 1 km to reduce and mitigate river cutting;

- Construct 12 intakes in the upstream of Churia to establish 5 water recharge pond and RCC or cement mortar dam in the foot-hills of Churia to provide water for animals during dry seasons;
- Construct additional 15 RCC or cemented water holes at water deficient areas;
- Clean and remove weeds in wetlands and maintain cemented water holes by supplying water by water tanker on periodic basis;
- Pilot solar water pump to recharge water holes at certain areas;
- Assess water quality in regular intervals;
- Procure high density water tanks to store water for dry seasons; and
- Celebrate world Wetland Day on February 02.

5.3.3 Forest Fire

5.3.3.1 Status

The PNP has extremely dry environment due to its physiographic location and experiences forest fires which causes incalculable harm in the Park every year during late winter or dry season. Forest fire creates big threat to wildlife of the Park especially to the reptiles, and young mammals and birds. More than 95% of the fire cases are caused by peoples' carelessness during the cooking of meal by timber smugglers, poachers, NTFP collectors or throwing of burning match stick, bidi or cigarette by the local people while walking along the fire line. Intentional fire is generally set out by villagers during khar-khadai to stop succession in the grassland.

For controlling forest fire, the Park management has placed strict prohibition on taking fire-producing items inside the Park but it is difficult to control as many villagers pass through the fire line. A network of about 250 km fire line has been created in the Park to prevent spreading of fire from one block to another. The fire line needs regular cleaning before the commencement of the dry season. The Park management also uses controlled fire as a management tool every year before winter to prevent forest fire and grassland management. Every Guard post needs a team of manpower consisting of both Park and Army staff, which is trained in fire management with firefighting equipment.

5.3.3.2 Issues

- Summer grass, fallen leaves and branches in dry season become so igneous that fire spreads very quickly especially during windy season;
- When the forest is on fire, the wild life panics and cannot flee out quickly for survival;
- Increasing fire sizes and severity may lead to increased loss of critical forest habitats resulting a long-term impact to the existing natural resources and communities;
- There is lack of fire-fighting strategy and inadequate fire- fighting equipment at field level to combat fire incidents;
- There is no systematic data collection regarding the occurrence of fire incidents to analyze the trend for the correction of future course of action; and
- The fire lines are not wide enough to mitigate and minimize surface fire.

5.3.3.3 Strategies

- Develop and maintain fire line;
- Develop capacity of Park staffs, security personnel, Community Forest User Group (CFUG) members and BZ communities to control fire in the Park and its BZ;

- Increase awareness towards BZ communities about prevention of fire incidents;
- Utilize firefighting toolkits received from Japan; and
- Establish RRT response team by involving local people, Park staff and security personnel for firefighting in Park headquarters, sector offices and other fire prone areas.

5.3.3.4 Activities

- Prepare fire-fighting strategic and management plan and implement it;
- Construct new fireline from Bhata to Pratappur;
- Clear fire line or undertake control burning in the fire lines before the onset of fire season;
- Conduct early burning of grasslands and other burning materials along the fire lines;
- Provide firefighting equipment to Park Post and CFUGs;
- Mobilize fire-fighting team with equipment in order to stop spreading of fire in grasslands;
- Establish forest fire early warning systems;
- Establish fire occurrence reporting databases;
- Construct 4 multipurpose ponds that provide water for wildlife including birds and for extinguishing fire;
- Construct fire hydrant supported by solar pump nearby ponds; and
- Carry out fire prevention education and awareness activities.

Figure 10: Fire line in the PNP

5.3.4 Wildlife Health Services

5.3.4.1 Status

It is very difficult to treat free ranging wild animals and control epidemic disease outbreaks. It is important to ensure that chances of any infective disease being communicated to the wild animals are minimized. Domestic cattle are potential carrier of diseases to the wild.

Regular interaction between wildlife and domestic livestock is obvious either directly or sharing the same grassland or waterholes as there are villages around the Park. Wildlife may come in contact with domestic livestock while straying out of the core area. Since there is risk of transferring disease from livestock to wildlife and vice versa so that health monitoring and surveillance of diseases should be done regularly. Besides, regular and timely immunization of domestic livestock around the Park against major diseases is needed to prevent disease outbreak.

The road accidents on the east-west highway cause death and injuries to many wildlife species. Similarly livestock are also reported to be injured by wild predators in many cases. At the moment, a veterinary staff has not been fulfilled and emergency medicine has not been kept in stock to provide medical services effectively. However, the veterinary staff of CNP has been used whenever required.

The Park also maintains a service to take care of orphan animals until they are recovered and become ready to release. A total of 32 wild animals were rescued and most of them were released in the Park during last five years. Currently there is only one orphanage (cage) for small size animals in the Park. Adequate orphanage for bigger animals and predator species is not available.

5.3.4.2 Issues

- There is frequent death of injured wildlife due to lack of medical services in the absence of well-equipped wildlife health centre and orphanage care facility;
- The grazing of livestock inside the Park can transfer foot and mouth disease to the wildlife; and
- The wildlife health management has been given less priority in the planning and budget allocation as it is sought as emergency medical services.

5.3.4.3 Strategies

- Develop wildlife health centre and orphanage care facility;
- Formulate a protocol for wildlife health monitoring and disease surveillance;
- Coordinate with District Veterinary Offices, and seek their support whenever required; and
- Build capacity of existing staff to provide effective medication to wildlife.

5.3.4.4 Activities

- Establish wildlife orphanage and rescue centre at least in two sectors for emergency treatment;
- Carry out regular checkup of captive elephants at Hattisar and treat them;
- Treat injured animal upon arrival at orphanage and rescue centre;
- Coordinate LSO and conservation partner to provide vaccine to livestock against potential diseases that can be transferred to wildlife;
- Support to establish a community based veterinary center with materials required in medical emergencies;
- Report and document mortality of wild animals immediately after it comes to notice of any staff as part of disease surveillance strategy; and
- Coordinate with DLSO to undertake postmortem of deceased endangered wild animals.

5.3.5 Encroachment

5.3.5.1 Status

Encroachment of the Park land is not a severe problem in the PNP, except in certain pockets at Nirmal basti where a few hectares of land are encroached near the extending cropland boundary. However, the adjacent national forests are severely encroached in a planned way. The villagers remove the standing trees adjoining the boundary of their field by means of tree-girdling followed by illicit felling. As soon as the trees start dying, they gradually convert the area into agricultural land and put up bio-fences by using thorny bushes. Absence of clear demarcation, unprecedented population growth and human greed are the main reasons of encroachment. Both Park and District Forest authority have to take coordinated actions and increase surveillances to discourage this trend. Otherwise the act will certainly put tremendous pressure in the resources.

5.3.5.2 Issues

- Encroachment fragments the habitat and acts as bottleneck in biological corridor;
- Encroachers can be involved in poaching directly or support poachers by providing information about Park patrols and stay with them in their house;
- The illegal or informal settlers increases encroachment areas as increased their numbers for agriculture land expansion; and
- Development of infrastructure in encroached area fragments the habitat.

5.3.5.3 Strategies

- Discourage encroachment of Park and BZ forest by immediate response in evacuation and restore evacuated areas;
- Collaborate with District Administration Office (DAO), NA, BZ communities, Political Parties, Local Non-Governmental Organization (NGOs), conservation partners to evacuate encroachment as per current government policy to control encroachment in more coordinated and effective manner; and
- Use information and communication strategy to aware the local people about consequences of encroachment.

5.3.5.4 Activities

- Mapping of encroachment areas;
- Issue notice to evacuate the encroached area;
- Coordinate with Local Government Authorities to resolve the encroachment problem;
- Form committee to address the issues of illegal settlers;
- Relocate the illegal settlers of Syaulibasti, Bhiman and Jyamirebasti if they are willing to move outside of the PA by providing skill based training and other livelihood options;
- Support to improve the livelihood of landless and flood victim people who have encroached the Park area for various reasons and evacuate them in win-win situation; and
- Evacuate and restore the encroachments in corridors.

Research, Monitoring and Capacity Building

VI CHAPTER

6.1 Research Priorities

As per the arrangement made by the DNPWC, there is well-spoken instruction that the researcher must get an approval from the DNPWC prior to conducting any research in the Park. The researcher is also obliged to report his/her progress of ongoing research to Park management. Though exercises have been done to work out the research needs and priorities for the Park, there is a lack of funding sources and less interest of researchers to conduct the research. Therefore the research activities are quite limited in the PNP. The population status of many endangered species is not adequately understood.

Thus, there is a need to set research priorities for PNP and it's BZ. The key steps to strengthen research and monitoring in PNP are as follows:

- Identification of gaps and areas for short and long-term research in the Park;
- Formulation of research plan for the Park;
- Collaboration with academic institutions and organizations for periodic researches.

The specific research priorities based on the present context and available information are as follows:

Species Conservation

- Update digital database, maps using latest topo sheets, satellite imageries for updating information on wild elephant, tiger, rhinoceros, wild dog and gaur;
- Carry out study to acquire knowledge on elephant population by using newly available genetic techniques such as genetic fingerprinting, photographic capture-recapture survey;
- Undertake studies to determine wild elephant population, composition and abundance of the resident herds;
- Create baseline information on movement patterns of migratory wild elephants with the help of national and regional experts;
- Undertake an assessment of tiger population viability in PNP;
- Undertake intensive research on trans-boundary movement of tigers and the use of corridors, BZ areas and human settlement through satellite radio telemetry;
- Conduct studies on the scale, extent and local variations in the intensity of HWC to help in identifying and designing effective mitigation measures;
- Study of distribution and abundance of various prey base species;
- Undertake detailed studies on ungulate-habitat relationships and the feeding behavior of ungulates;
- Carry out study on spatial distribution and abundance of four horned antelope;
- Identify indicator species to assess habitat condition;
- Study ecological processes that affect maintaining healthy wildlife population;

- Undertake study of gaur about its distribution, population dynamics, preferred grass and its behavior;
- Prepare Gaur Conservation Action Plan; and
- Identify critical pangolin habitat and map the priority sites.

Habitat Management

- Prepare land use management plans for critical habitats of tiger outside PA;
- Mapping of critical wildlife habitats and areas of high conservation significance with focus to PNP-CNP-VTR complex;
- Study distribution and abundance of palatable grass species, recording XY coordinate, favoured by various ungulates,
- Undertake study to identify the succession pattern of grasslands, forests and wetlands;
- Study the effect of invasive alien species to wildlife habitat;
- Collaborate with researchers and academician to find the appropriate measures for controlling invasive alien species;
- Conduct study on the effect of habitat fragmentation and degradation on wildlife survival.
- Carry out wetlands and grasslands mapping and assess their successional dynamics to inform management prescriptions; and
- Undertake study to identify suitable grass cutting machine or tractor.

Fire management

- Undertake spatial and temporal pattern of fire incidence; and
- Identify fire prone areas by using satellite imagery analysis or web-based fire mapper.

Encroachment

- Survey, map and demarcate the encroached area together with house and keep the record,

Tourism management

- Conduct survey to identify the perception of visitors about the tourism facilities and services from hotels and Park authorities;
- Study to identify potential tourism products and their packaging;
- Survey the aspiration of hotel operators regarding services and cooperation from the Park;
- Conduct study to identify potential site to promote homestay; and
- Undertake marketing strategy to attract visitors in the Park and BZ.

Climate Change

- Conduct study of climate change indicators and impact on biodiversity conservation along with identification of adaptation activities,
- Undertake vulnerability assessment with respect to climate change,
- Prepare community-based adaptation plans for most vulnerable sections/ areas

Buffer Zone

- Undertake assessment of socio-economic condition of local people in the areas where human-wildlife conflict is high;
- Carry out relationship between anthropogenic activities and maintenance of healthy and viable wildlife populations; and
- Conduct study to assess the optimum quantity of sand, gravel and boulder that can be extracted each year.

Institutional Strengthening

- Review and upgrade reporting and information sharing system;
- Undertake evaluation of five-year management plan;
- Prepare next five-year management plan including IEE;
- Undertake study of management effectiveness of the Park; and
- Produce a document regarding who is who at local, national and overseas institutions working in wild elephant conservation.

6.2 Monitoring

Monitoring of wildlife on regular basis is very important for the management purposes. Regular monitoring of wildlife population on periodic basis will be done as it is listed in endangered category. This monitoring produces time series data and enable us to know the trends in population size, number of male and female in the population, distribution, habitat condition. By analyzing the information or data, we know how the population is changing over time. Monitoring of the Park resources is done on a regular basis by the guard posts in their respective areas. Asurveillance team from the involvement of Park staff and Army post staff carry out patrolling in a daily or periodic basis by different means such as walking, vehicles, bicycles, etc. During the patrolling, they record the information on wildlife sightings, changes noticed in the resource conditions, and cases of human or livestock interferences and report to the headquarters in a standard format on monthly basis. Whenever deemed necessary, the frequency of patrolling is increased. At the end of every fiscal year, a progress report is sent to the DNPWC.

The following key areas and framework for monitoring of wildlife conservation are proposed:

Species Monitoring

- Conduct the monitoring of wild elephant on periodic basis by direct sightings and indirect signs;
- Monitor wild elephant movements annually and conduct spatio-temporal analysis to notice any shift in their home range for every 5 year to address elephant related issues;
- Monitoring of tiger on periodic basis using camera trap methods;
- Monitor tigers around the BZ with local community engagement;
- Monitoring of gaur on periodic basis based on direct count;
- Monitoring of four-horned antelope on periodic basis based on direct count and pellet count;
- Monitoring of indicator species;
- Monitor prey base species on regular interval;
- Monitoring of small mammals;

- Identification and long-term monitoring of climate sensitive species
- Monitoring of winter migratory water birds; and
- Monitoring of globally threatened and nationally protected birds.

Habitat Monitoring

- Undertake habitat monitoring, prepare check list of food plants, document physical and phenological changes in vegetation, quantity and quality of discharges in streams and biotic disturbance;
- Undertake monitoring of permanent plots, transect lines in forests, grasslands and other habitats;
- Periodic wetlands and water holes monitoring;
- Monitor extraction of soil, sand and gravel in coordination with local authority.

Fire monitoring

- Monitor spatial and temporal pattern of fire incidence;
- Monitor fire and fuel dynamics.

Tourism Impact Monitoring

- Monitor tourism impact on social, economic and cultural acpect;
- Monitor the contribution of tourism to the poor, women and marginalized community.

Weather monitoring

- Periodic monitoring of temperature using DHM data for every five years;
- Periodic monitoring of precipitation using DHM data for every five years.

Water Quality Monitoring

- Monitor of water quality of wetlands, water holes, rivers and streams on a regular basis.

6.3 Capacity Building

PA management involves complex issues to be addressed for the sustainability of the biodiversity conservation endeavors. Thus, the Park staff should have a range of skills on technical as well as managerial aspects of the PA management. Because of very limited experienced staffs available in the Park especially in field techniques, various knowledge and skills should be developed and transferred to them through appropriate trainings and outreach activities. Need based trainings increase the efficiency of the staff working in the Park. The need for training differs according to the position and roles given to the staff. Thus, training needs assessment should be conducted before planning for training programme. There is a need of both horizontal and vertical participant trainings. The horizontal type of training involves the participants of similar rank whereas vertical type of training involves participants of different ranks including Chief Conservation Officer to game scouts and from Battalion commander to soldiers. Vertical type of training is important to understand field staff of different tiers and share experiences and build mutual trust and relations. Some of the capacity building activities that are considered important to PNP staff are as follows:

Park Protection

- Orientation training to security troops for newly appointed Battalion before deployment in the field;
- Orientation training to Game Scouts on legal issues;
- Refreshment trainings to the field staffs and security personnels;
- Basic training to Game Scouts and Rangers to handle GPS equipment, camera, etc.;
- Conduct training on real-time SMART patrolling to Park staff and security troops;
- Conduct anti-poaching operation trainings to Park staffs security personnel and CBAPU members;
- Conduct crime scene investigation and interrogation trainings to investigators as per legal provision;
- Conduct human rights training to handle the convicted people;
- Organize judicial training to Park Officers.

Species Conservation

- Wildlife management and handling training with focus to birds, wild boar, deers, and python;
- Conduct training on pangolin habitat and population monitoring techniques;
- Training about field techniques, including signs, sound and other indirect evidences of different wildlife species;
- Train staff to collect sample of blood, fecal matter, urine or vital organs,
- CITES training.

Habitat Management

- Basic training on vegetation quantification for recording data in monitoring plots;
- Provide training to the Park staff in wildlife habitat monitoring.

Fire management

- Conduct forest fire management training to the Park staff, security personnel and BZCF members.

Wildlife health management

- Build capacity of frontline staffs to collect sample of blood, fecal matter, urine or vital organs;
- Build capacity of frontline staffs to identify, record and report disease or poor health condition of wildlife;

Tourism management

- Provide trainings to nature guides to enhance their capacity in nature interpretation specifically on wildlife, birds and plants etc.;
- Training on nature interpretation and display management.

Buffer Zone

- Social mobilization training;
- Appreciative enquiry training;
- Conflict management training;
- Organization development and management training;
- Leadership development training;
- Account keeping training.

Institutional Strengthening

- General and specialized Training of Trainers (ToT);
- Public administration and management training;
- Planning, monitoring and evaluation training;
- Database management Training to Rangers and Officers;
- Geographical Information System (GIS) training to Rangers and Officers.

Species Conservation Action Plan

VII CHAPTER

7.1 Asian Wild Elephant

7.1.1 Status

There are two living elephant species: Asian elephant (*Elephas maximus*) and African savanna elephant (*Loxodonta africana*). Asian elephant has four subspecies: 1) Indian elephant (*Elephas maximus bengalensis*), 2) Ceylon elephant (*Elephas maximus*), 3) Sumatran elephant (*Elephas maximus sumtrana*), and 4) Malaysian elephant *(Elephas maximus hirsutus*) (Macdonald, 1985). Recently, Borneo pygmy elephant (*Elephas maximus borneensis*) was discovered, making it the 5th Asian sub-species. In Nepal, wild elephants are protected species under NPWC Act, 2029. The International Union for Conservation of Nature (IUCN) has listed the Asian elephant as endangered Species (IUCN, 2006).Similarly, CITES has listed this species in appendix I.

In Nepal, huge forest loss that began in 1950s, culminated into restricting wild elephants into four small partially or completely isolated groups numbering less than 100 individuals each (Pradhan, 2007). The estimated elephant population of 107 - 145 Asian wild elephants in Nepal in four geographic areas include 7 -15 elephants in eastern Terai, 25 – 30 elephants in central Terai, 60 - 80 elephants in western Terai and 15 - 20 elephants in far western Terai (Pradhan, 2007; ten Velde, 1999; Yadav, 2002, 2005).

7.1.2 Significance

Elephants are among the world's most intelligent and sensitive animals and possess both empathy and self-awareness with whom we existed for centuries. They are also keystone species, playing an important role in maintaining the biodiversity of the ecosystems in which they live. Historically, forests of Terai enabled elephants in the north and northeast India to be in one contiguous, large population. Undoubtedly, Terai had a large resident population of elephant in the past. The clearing of forests for agriculture, settlement and infrastructure development has fragmented their habitat restricting their population only in some patches of forests and lowland protected areas.The Park offers a good habitat for the resident wild elephant population of Nepal and has become one of the last mainstay for the survival of this free-ranging elephant. They are free ranging and migratory in nature and often comes in conflict with local people. PNP has been conserving this species at landscape level approach for minimizing conflicts.

7.1.3 Conservation Efforts

In the last three decades, Nepal has put its efforts at best to address endangered species conservation particularly mega vertebrates faunas like elephant and rhinoceros through a multi-prong approaches that include national strategies, action plans and land-based management activities. As a result, elephants in Nepal, are protected by stringent laws, enabling them to survive in their habitats in PAs and landscape level conservation measures of Nepal Government, that facilitate long-term survival and their free-ranging habits.

The elephant conservation action plan attempts to develop long-term conservation of a flagship species whose survival is tied up with the land use change in Nepal's Terai (lowland). Therefore, Terai district forests and lowland PAs have become the last mainstay for the survival of free-ranging elephants.

7.1.4 Issues

- Despite the continued forest decline and ever-increasing threats to the remaining wild populations, little information is available on the extent of habitats;
- Isolated and small migratory herds which may range seasonally hundreds of kilometers of several administrative district boundaries including farm lands, forests and PAs, are difficult for any or all to come up with a comprehensive long-term plan that targets to make the population viable as well as to derive benefits of such maintenance, to local communities;
- Elephants travel farther in search of food and water that creates a chance of conflict with local people and damage agriculture crops propelling human–elephant conflict; and
- In retaliation, elephants are shot, poisoned, electrocuted to fatal injury and death.

7.1.5 Strategies,

- Provide sufficient habitat requirements such as water, food and cover inside the Park to retain resident wild elephants;
- Collaborate and coordinate with conservation partners and regional elephant experts for resource leverage and share information including research and study;
- Promote alternative land use practices and agriculture cropping systems and regulate relief mechanism efficiently to reduce human- elephant conflict;
- To aware infrastructure development agencies for promoting elephant movement friendly infrastructure designs such as underpass or overpass in road, railway and irrigation canals and maintain corridors while developing international airports;
- Coordinate with infrastructure development agencies for promoting elephant movement friendly infrastructure designs.

7.1.6 Activities

- Implement satellite based radio telemetry to problematic elephant and monitor to reduce human-elephant conflict;
- Maintain safe corridors and connectivity for wild elephant movement;
- Construct elephant bathing ponds;
- Support livelihood intervention to the households whose family has been injured or killed by wild elephant;
- Support bee-keeping as elephant deterring activities where wild elephant often gives trouble;

- Erect solar fence to prevent elephant strayed in the settlement especially in those areas where conflict is severe thereby reducing human-wild elephant conflict;
- Maintenance and repair of solar fence forming repair and maintenance committee;
- Prepare a contingency plan with the help of team of expert to manage large herds aided by a team of experts in handling wild elephants;
- Improve health care and management of all female captive elephants as they can potentially transmit their diseases to wild bull;
- Carry out piloting of early warning system of wild elephant straying nearby settlements
- Construct RCC watch towers to monitor movement of wild elephant;
- Provide subsidies for alternative agriculture crops which are unpalatable to elephant in the BZ;
- Implement conservation awareness activities to reduce human elephant conflict; and
- To provide the relief fund to the victims of human loss, agriculture loss, and property loss by wild elephant..

7.2 Royal Bengal Tiger

7.2.1 Status

Until the mid-twentieth century, Bengal tigers in Nepal were distributed along the contiguous lowland forests Char-Koshe Jhadi on the slopes of the Siwaliks, Bhawar and alluvial grasslands and riverine forests of Nepal (Smythies, 1942; James et. al., 1998 cited in Gurung et al. 2006). At present, the tiger distribution is more or less restricted to three PA complexes, that include 5 PA, TAL and adjoining forest areas; Chitwan-Parsa Complex (Barandabhar Corridor and Protected Forest, CNP and PNP), Banke-Bardia Complex (Khata Corridor and Protected Forest, BNP and Banke National Park) and Kailali-Kanchanpur Complex (Shuklaphanta National Park, Basanta corridor and Protected Forest, Laljhadi corridor and Protected Forest and Bramhadev Corridor). As forests in BZ and across TAL are restored, tigers have been reported to occupy 12 districts (Bara, Parsa, Chitwan, Makawanpur, Nawalparasi, Dang, Kapilvastu, Rautahat, Banke, Bardia, Kailali, and Kanchanpur) out of the 14 TAL districts (Barber-Meyer et al. 2013, Karki 2011).

Surveys between 1987 and 1997, documented that only three isolated tiger populations remain in Nepal (Smith et al. 1998). The tiger census of 1995-1996 revealed that 93-97 breeding adults were found in the country. In the census carried out in 1999-2000, the estimated population reached between 98-123 and the population slightly increased to 103-130 in the census of 2005. But in 2007, the population was estimated at 105-123 individuals, and the decrease in the population growth rate was attributed to

high poaching (NTRP 2010). From 2009, the tiger count has been initiated using camera traps over pug marks. The surveys conducted from 2009 onwards show an increase in tiger numbers in all PAs. The number rose from 121 in 2009 to 198 in 2013 (Karki et al. 2013, Dhakal et al. 2014)

The tiger census undertaken in 2013 revealed that the tiger population in PNP was about 7 and the prey density was 25.32/Km^2.

7.2.2 Significance

In the early 1990s, it became evident that so called medicinal trade in Tiger bone threatened to drive the already endangered tiger to extinction in the wild.

Nearly every part of the tiger has a value. It is believed that at least one tiger is killed daily for its use in traditional Chinese medicine. An increased demand for endangered tiger parts exists throughout the world. The rising demand for tiger parts and rapid increase in price of tiger bone continues to be an irresistible incentive to poachers. Poaching and smuggling of tiger parts are interrelated cases. A series of layers of networks play their roles from luring the local shooters to middle men to international smugglers to illegal sellers and finally the consumers.

Nepal obviously is a transit country for the illegal trade between India and China, and also a country of origin of tiger parts.

7.2.3 Conservation History

The status of tiger and their habitat was continually monitored showing gradual improvement in the quality of habitat. Prioritized tiger habitats were further improved and restored. Conservation efforts had shown that the tiger and prey base density have been increased in the Park. Studies were carried out in conflict and biological aspects in tiger and its prey base. Conservation education program along with the landscape approach including community based anti- poaching operation added by poaching control efforts and reduction of Park people conflict have improved the overall conservation approach of tiger. The development of domestic partnership and trans- boundary initiatives in local and national level may improve the trade control and conservation of the tiger.

The other conservation efforts that have eventually become favorable for tiger conservation are the successful community based forest management and sustainable livelihoods in the lowlands. There is a growing interest among the youths in conservation of tiger and other wildlife.

In the policy front, the 2002 Nepal Biodiversity Strategy (NBS) has stipulated for the keystone species conservation plan. The plan stresses upon the population surveys, monitoring, protecting key habitats, and relocation and restoration of certain species (NBS 2002). Similarly, the Nepal Biodiversity Strategy Implementation Plan which was finalized in 2006 contains project outlines on two major activities as follows:

- Implement the Tiger Action Plan 1999 (survey and monitoring, habitat improving, public awareness, community development, anti-poaching, trans-boundary cooperation and networking), and
- Upgrade the baseline information on tigers and its prey base outside PAs.

The Terai Arc Landscape (TAL) program is Nepal's largest landscape level initiative and involves a large number of partner organisations, donor agencies, stakeholders, community-based organisations and local people. The TAL programme was initiated in Nepal in 2001 by the GoN with the collaboration of

WWF Nepal. The TAL program is an exemplary model in conservation marking a shift from site-based conservation to a landscape-based one. TAL was conceived as a system of corridors and protected areas for landscape-scale conservation of tigers, rhinos and elephants. The TAL spans 600 km of international border, of which approximately 250 km is forested. These forests provide important opportunities for trans-boundary conservation of wildlife. Nine corridors between Nepal and India have been identified in the TAL and out of them Chitwan-Parsa-Valmiki is one of the important corridor. These corridors are meant to facilitate ecological connectivity and tiger dispersal between protected areas. The Chitwan-Parsa-Valmiki forest complex has a shared boundary of approximately 100 km. In addition to the protected area complex, the large forest patch in the Churia's Someshwor hills of Chitwan NP is also functioning as a corridor and connectivity.

Nepal's conservation strategies include engagement of local communities to improve their livelihood by involving themselves in participatory biodiversity conservation; partnerships with state and non-state conservation actors; institutional reforms from CBAPU to National Tiger Conservation Committee (NTCC) and outreach (people to prime minister). These strategies have been producing positive results on the grounds. New initiatives such as the introduction of real time SMART patrolling have improved the success of Park patrolling. Regular trans-boundary meetings with India and China and the establishment of the South Asia Wildlife Enforcement Network (SAWEN) have helped to coordinate trans-boundary law enforcement.

7.2.4 Issues

- Habitat degradation mainly due to drying up of wetlands, shrinkage of grassland by woody perennials and invasion of grassland by alien invasive species;
- Inadequate knowledge on tiger ecology, demographic patterns and population dynamics, particularly in surrounding areas;
- Inadequate human resources, technical skills and physical capacity to gather necessary information on tiger and prey base species;
- Inadequate information on prey population dynamics;
- Poor understanding of human and livestock implication of diseases on prey population at high density areas;
- Habitat fragmentation and dissection of habitats due to uncoordinated infrastructure development (such as roads, flood control measure and high tension lines);
- Increase use of chemical poisons, home-made explosives etc. to kill ungulates in agricultural landscapes outside of the core areas;
- The encroachment of forest corridors has disturbed the tiger movement;
- The illegal entry of local people for fire wood, fodder, grass, etc. disturbs the free movement of ungulates and ultimately to tiger as well;
- Direct compensation to the affected people has not been materialized due to lengthy relief delivery process to wildlife victims;
- Increasing trend of demand of tiger parts in the international black market;
- Although the number of poaching incidents was found to be comparatively low in the Park, the volume of tiger parts seizure was comparatively high and since all parts of tiger are consumed in various possible forms of medicines, poachers may collect almost everything of their 'kill' leaving virtually no evidences for the Park authority;

- Illegal trade in wildlife products has been possible due to various reasons such as porous boundary between Nepal and its neighbors, less informed custom officials on the wildlife products.

7.2.5 Strategies

- Develop landscape approach of habitat management to restore critical corridor connecting to stop further fragmentation and increase amount of suitable habitat for tiger and prey base;
- Collaborate academic/conservation institutions to enhance knowledge and information on tiger and its prey base on the basis of scientific works using tested methods;
- Regulate relief fund for the tiger related damage in effective and transparent manner;
- Develop information, education and communication strategy to address the issues pertinent to tiger-human conflicts;
- Strengthen institutional network and coordination for CITES enforcement to control illegal trade in wildlife and its derivatives with special reference to tiger body parts;
- Strengthen anti-poaching efforts in and around the PAs by mobilizing civil societies for the effective implementation of law enforcement to save tiger in the wild;
- Strengthen trans-boundary cooperation at the central and field levels to complement the efforts of controlling poaching of wildlife and smuggling of wildlife body parts;
- Coordinate with concerned line agencies and stakeholders through well-established district level wildlife crime control bureau.

7.2.6 Activities

- Manage grassland habitats and waterholes to maintain a healthy population of tiger and its prey species;
- Construct silt trapping low cost check dams to increase the water holding capacity of waterholes;
- Construct water recharge pond and water harvesting dams in Churia and foothills to provide water for animals during dry seasons;
- Construct dam in Khairi Khola to hold water for various endangered wildlife species including tiger;
- Evacuate and restore the encroachment areas in corridors including Syaulibasti;
- Support livelihood improvement programme that enhance greenery in BZ;
- Undertake tiger count in every four-five years using camera trap;
- Establish permanent experimental plots (control and treatment) to gather information pertaining to grassland management, carbon and biodiversity monitoring;
- Celebrate world tiger day on 29th July every year and take opportunity to promote tiger conservation awareness during other ceremonies such as (Wildlife Week, Environment Day, World Rhino Day, Wetland Day, Biodiversity Day);
- Erect signs of warning in the roads, trekking routes, jungle safari roads, highways, resource collection sites and shrines.

7.3 Gaur (*Bos Gaurus*)

7.3.1 Status

The gaur is the tallest species of wild cattle. The gaur is a strong and massively built species with a high convex ridge on the forehead between the horns, which bends forward, causing a deep hollow in the profile of the upper part of the head.

In Nepal, the gaur population was estimated to be 250–350 in the mid-1990s, with the majority in CNP and the PNP. In the PNP the population trends appeared to be increasing as gaur population increased from 37 in May 2008 and rose to 105 in 2016 head counts. Gauri gai is found to dwell in mixed deciduous hardwood forest, in the foothills of Churia range especially around Bhata, Charbhaiya and Mahadev Khola range (Chhetri, 1999) in the core area of the Park.

7.3.2 Significance

The gaur bison (*Bos gaurus*), is the largest extant bovine, native to South Asia and Southeast Asia. *Bos gaurus* is listed in CITES Appendix I. The species is listed as vulnerable by the IUCN Red List since 1986, as the population decline in parts of the species' range is likely to be well over 70% during the last three generations. Population trends are stable and in increasing trend in well-protected areas, and are rebuilding in a few areas which had been neglected. The gaur is a protected species in Nepal which is listed in the NPWC Act, 2029. Hunting of this animal is offence for which the accused shall be punished by 5 to 15 years imprisonment or penalty of Rupees 5 Lakh to 10 Lakh or both.

7.3.3 Conservation Efforts

Gaur historically occurred throughout mainland South and Southeast Asia, including Vietnam, Cambodia, Laos, China, Thailand, Peninsular Malaysia, Myanmar, India, Bangladesh, Bhutan, and Nepal. Today, the species is seriously fragmented within its range, and regionally extinct in Sri Lanka. Gaur are largely confined to evergreen forests or semi-evergreen and moist deciduous forests, but also occur in deciduous forest areas at the periphery of their range. Gaur habitat is characterized by large, relatively undisturbed forest tracts, availability of water, and an abundance of forage in the form of grasses, bamboo, shrubs, and trees. Their apparent preference for hilly terrain may be partly due to the earlier conversion of most of the plains and other low-lying areas to croplands and pastures.

Where gaurs have not been disturbed, they are basically diurnal. In other areas, they have become largely nocturnal due to forest molestation caused by people. During the dry season, herds congregate and remain in small areas, dispersing into the hills with the arrival of the monsoon. While gaur depends on water for drinking, they do not seem to bath or wallow. Gaur are said to be very bold and aggressive. They are frequently known to go into fields and graze alongside domestic cattle, sometimes killing them in fights. Further, a rare species with limited distribution and small genetic diversity such as Gaur is highly sensitive to climate change impacts in the long-run.

Wild gaur graze and browse on a wider variety of plants than any other ungulate species, with a preference for the upper portions of plants, such as leaf blades, stems, seeds and flowers of grass species, including kadam. They consume herbs, young shoots, flowers, fruits of elephant apple (Dillenia ssp.) with a high preference for leaves. They may debark trees due to shortages of preferred food and trace elements needed for their nutrition, or for maintaining an optimum fiber/protein ratio for proper digestion of food and better assimilation of nutrients.

Due to their formidable size and power, gaur has few natural enemies besides humans. Leopards (*Panthera pardus*) and wild dog (*Cuon alpinus*) packs occasionally attack unguarded calves or unhealthy animals, but only the tiger (*Panthera tigris*) have been reported to kill a full-grown adult.

7.3.4 Issues

- Gaurs are threatened by poaching for trade to supply meats, but also by opportunistic; hunting and specific hunting for home consumption;
- Habitat loss, fragmentation and degradation;
- Absence of population management due to inadequate information about it;
- Lack of water in Bhawar region during dry seasons;
- Forest fire destruction the core habitat of gaur.

7.3.5 Strategies

- Collaborate with Research institution to carry out research;
- Network, coordinate and collaborate with conservation partner to prepare separate action plan;
- Provide suitable habitat for gaur population through creating waterholes, damming streams to improve water availability in the dry season;
- Forest fire control establishing and maintaining fire lines.

7.3.6 Activities

- Conduct Gaur count in every five years and monitoring the population yearly;
- Designate waterholes in strategic locations of the Bhawar region by constructing stream dam, runoff water harvesting dam, dugout ponds recharging through piped water or water tanker;
- Maintenance of grasslands through regular opening of canopy to promote palatable grasses and herbs.

7.4 Pangolin

7.4.1 Status

Pangolins are popularly known as 'Salak' in Nepal. Only eight species of pangolins survive in the wild (Corbett & Hill 1992, Gaubert & Antunes 2005). Of these, four species occur in Asia - the Indian pangolin (*Manis crassicaudata*), the Palawan pangolin (*M. culionensis*), the Chinese or Formosan pangolin (*M. pentadactyla*), and the Malayan or Sunda pangolin (M. javanica). Only two species are recorded in Nepal: Chinese Pangolin or Formosan Pangolin (*Manis pentadactyla* Linnaeus, 1758) and

Chinese Pangolin ©Prativa Kaspal

Indian or thick tailed Pangolin (*M. crassicaudata* Gray, 1827) (Shrestha 2003). Chinese Pangolin prefers sub-tropical region (1000-2000m) whereas Indian Pangolin are found in tropical regions below 1000m (Chakraborty et al. 2002).

In Nepal, Pangolins are found in diverse areas ranging from Terai to the mid-hills occupying different habitats from grasslands, reforested areas, bamboo and coniferous forests and agricultural lands. Despite wide distribution of Pangolin, limited information is available on overall status of these species in Nepal, mainly due to insufficient studies focusing on the ecology of this species. Habitats of pangolins, however, are seen to be abundant. Since, habitats of pangolins are found close to human settlements; they have been threatened by humans. Their habitats outside Protected Areas (PA) are severely degraded due to climate induced disasters including prolonged drought, fire and landslides.

7.4.2 Significance

The GoN has listed both species of pangolins under schedule I of NPWC Act 2029. Both species of pangolins found in Nepal are categorized as endangered by National Red List of Mammals (Jnawali et al. 2011, Amin et al. 2018). CITES Act 2074 also prohibit any illegal taking, killing and trading of wildlife species. However, pangolins have been exploited locally for decorative material, food and traditional medicines through history. This continues today, and main threat to pangolins today is hunting and poaching for illegal international trade. This typically involves live pangolins, and their meat and scales, which are primarily destined to East Asia, most conspicuously China and Vietnam.

7.4.3 Conservation History

The Pangolins are under threats mostly due to poaching, illegal trade and loss and degradation of their habitats. The species is highly threatened due to high demand of its skins, scales, and meat in the local and international illegal wildlife trade market. Pangolin is one of the most elusive and poorly studied small mammals across its range. The GoN of Nepal is committed to conserve and safeguard threatened and endangered wildlife including pangolins. Both species are listed in schedule I of NPWC Act, 2029 included in Appendix I of Convention on Illegal Trade in Endangered Species of Wild Fauna and Flora (CITES). NPWC Act, 2029 has been referred to the illegal trade of Pangolin and its body parts. In 2074, GoN promulgated CITES Act, 2074 which has been considered important legal instrument to discourage the trade of body parts of Pangolin.

Pangolin poaching is rising with the increasing number of seizure cases, mainly around Kathmandu valley, indicating alarming state of this beautiful animal. DNPWC, CIB and WCCB have been working closely to control poaching and save this beautiful animal. Similarly, various NGOs have also been implementing community based pangolin conservation mainly nearby Kathmandu valley and CFs have started to include pangolin conservation in their Operational Plan (OP). Recently, study of status and distribution of Pangolin has been undertaken. Most notably, Pangolin Conservation Action Plan (2018-2022) has been prepared and is under implementation.

7.4.4 Issues

- Limited information and knowledge on pangolin ecology and population dynamics;
- Pangolins are hunted for local consumption of meat and medicinal purpose and use in garland such as boots, belts and handicrafts;
- Increasing demand for pangolin body parts in the international black market;
- Loss of habitats due to fragmentation and encroachment of forest and fringe areas for agricultural expansion and development of Infrastructures;

- Extraction of red soil for domestic use causing habitat degradation, loss of burrows and disturbance;
- Frequent wild fires;
- Climate change can cause prolonged dry spells, heavy rainfall, floods and flash floods resulting in possible scarcity of water resources;

7.4.5 Strategies

- Enhance understanding and knowledge on conservation status, ecology and habitat dynamics of pangolin through engaging academic and research institutions;
- Identify and manage priority sites to improve habitat quality for pangolin conservation;
- Curb poaching and control illegal trade of pangolin;
- Develop local stewardship for conservation of pangolin; and
- Develop awareness packages for policy makers, developers, local government and local communities.

7.4.6 Activities

- Design and conduct scientific studies on population status, distribution, space use, behavior and habitat requirement of pangolins in potential and priority areas;
- Conduct awareness campaigns on pangolin conservation;
- Organize regular coordination meetings at local and regional level for sharing information on pangolin related activities;
- Organize regular trans-boundary conservation cooperation meetings with neighboring countries;
- Formulate and implement mitigation measures for development and other construction works in the prime/designated pangolin habitats; and
- Assess local knowledge, traditions, attitude and perceptions on pangolin conservation.

Tourism and Interpretation

VIII
CHAPTER

8.1 Background

8.1.1 Tourism scenario

The link between PAs and tourism is as old as the history of PAs and they are established primarily to preserve a wildlife population, habitat, natural landscape, cultural and natural heritage. Tourists visit the Parks to understand and appreciate the values for which the area was established and to gain personal satisfaction. Though the relationship is complex and sometimes adversial, tourism is always a critical component to consider in the establishment and management of PAs.

Nowadays, tourism has become a major sector of economic activity which indicates that it will continue to grow in the years to come. This growth and new trend is expected to provide positive contribution for the development of potential surrounding areas and their communities by meaningful travel experience, including such aspects as cultural authenticity, contacts with local communities, and learning about flora, fauna, special ecosystems and natural beauty in general, and its conservation.

The major tourist attractions of the PNP are the pristine and rich biodiversity including endangered species like Asian wild elephant, gaur and Royal Bengal tiger. The cultural practices of the indigenous ethnic groups like Tharu (in southern parts), Tamang (in Handi Khola, Churiamai and Padampokhari in northern parts), and Praja and Bote (Chepang in Ramauli-Pratappur) are interesting for tourist attractions. The temples of Dugdeswor Mahadev inside the Park and other nearby attractons such as Ram Janaki temple, Gadhimai, and the temple of Bhairawi Parbati are important places for cultural tourism. Kamini Daha, Kali Daha, Gainda Dhap and Halkhoria Daha are also potential attractions for the tourists.

Although, the PNP was established in 1984 as a Wildlife Reserve and changed its status into National Park in 2017, it has not been a major tourist destination yet. To promote tourism in PNP, focus should be given in conserving the environment together with wildlife population, enhancing the livelihood of bufferzone community, and improving the tourism product and service. Tourism development is vital in generating resources for conservation and for economic development of the region. There is opportunity to experience wildlife tourism for visitors but there are very few tourism development activities taking place due to lack of infrastructure and the systems for managing tourism which is not sufficient enough to contribute towards income generation of local people. Thus, tourism in PNP has to be developed almost from scratch.

There are very few tourists visiting in the PNP (Annex X). However, tourist arrival is expected to increase after inclusion of Halkhoria Lake in the east and designation of National Park. It will attract many tourists after completion of Nijgadh-Kathmandu express highway, which will bring tourists from Kathmandu within an hour. Similarly, after the construction of airport in Nijgadh tourism is likely to flourish in the PNP.

8.1.2 Interpretation Facilities

Visitors travel to see, experience and learn about natural or cultural landscapes, sites, features, objects, people, events, heritage and stories. Interpretation facility centre provides them the potential tourism

products to see activity they can be involved, do's and don'ts inside the Park and BZ area. The PNP has no interpretation facilities and requires good interpretive plan for the long-term tourism success. PNP has planned to establish one multipurpose Visitor Information Centre (VIC), where there will be ticket counter, display centre providing information, video documentary showing hall, museum, souvenir shop, restaurant and rest room. In addition to this one VIC will be established in Simara Airport to provide first hand information about PNP. Similarly, one VIC of Hattisar, Amlekhgunj will be upgraded. In the entire ticket counter, minimum information providing display boards will also be placed so that visitor can get information while they wait in a queue. Similarly, big hoarding boards will be placed in major elephant corridor in the highway.

8.1.3 Issues

Despite the facts that there are plenty of tourist attractions in the PNP and it lies in close proximity to popular tourist centers like CNP and business centers like Birgunj and Hetauda, and it is easily accessible from all parts of Nepal and Indian State of Bihar, tourism development in the PNP is still insignificant. The Park is receiving only few international tourists every year. The Park is established in 1984 as a reserve with objective of protecting Asian wild elephant and providing extended habitat of CNP. It did not focus in tourism promotion and thus establishment of VIC, entrance points from sector offices, facility of elephant safari, adequate hotel and lodges nearby entry point, certification of nature guide had not been planned. Poor wildlife density and very low sighting of wildlife were also the factors affecting reduced number of tourists in the Park.

After the well-established management arrangement and intervention programs to improve the wildlife habitat, the number of charismatic wildlife species such as tiger, gaur, and elephant has been increased significantly. Thus the wildlife sighting chance is very high compared to its past.

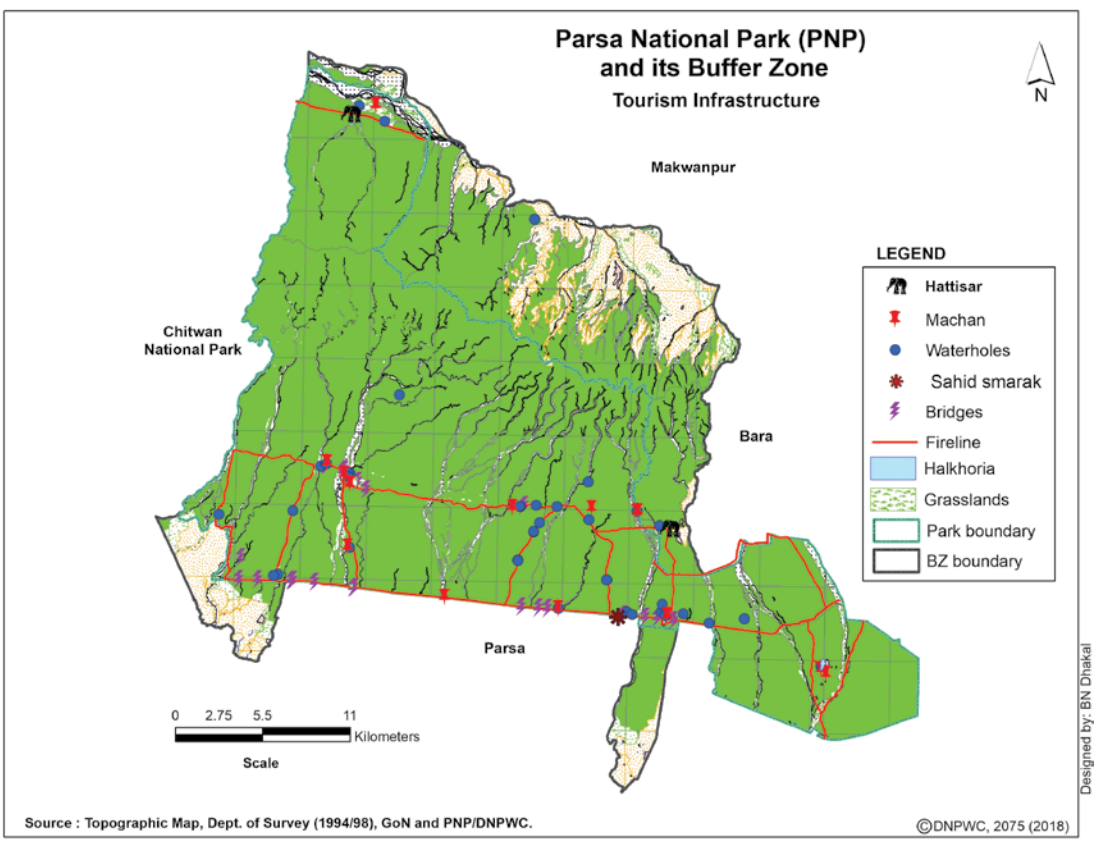

Figure 11: Existing Infrastructure for Tourists

8.2 Tourism Management

8.2.1 Strategies

- Develop tourism infrastructures in and around the Park through the collaboration with private sector;
- Promote private entrepreneurs to operate tourism business by providing conducive environment;
- Develop and market eco-friendly tourism packages through national and international tourism operators;
- Link with Sauraha of CNP by developing a long jeep drive route from Amlekhgunj-Bhata-Ramauli Pratappur-Machan-Sauraha; and
- Adopt information and communication to attract national and international tourist in the Park and its BZ.

8.2.2 Institutional Setup

The development of tourism provides an increase in revenue, stimulates development of new tourism enterprises, encourages development of various activities, encourages local producers and service providers, opens new markets, improves the life standards, allows an employee to acquire new knowledge and skills, and increases funds that will be offered for environmental protection. PNP will coordinate for encouraging private investor or community organizations to develop tourism to operate hotel for food and accommodation, tour guide operators, elephant safari operators, transport service to operate jeep drive, community organization to perform culture show, banks and health service. Similarly, travel operators are encouraged to operate bus from various places to Aadhavar more importantly Hetauda to Aadhavar, Birgunj to Aadhavar and Nijgadh to Aadhavar.

8.2.3 Impact Minimization

As tourism activities increase in and around the Park, there are bound to be negative impacts on the nature in the form of solid waste generation, noise, trampling of vegetation and cultural erosion. Therefore, Park management must work in the direction in such a way that only minimum impact will be posed to nature and culture side and find out the ways to mitigate the impact in the future. With various management and monitoring measures, a site should be able to manage and guide the development of tourism so that output of tourism is a positive force, not a negative one.

It is right time to initiate the impact minimization, since tourism in PNP is in the early stage. For this, PNP will work closely with BZ communities, hotel associations, local government to monitor the tourism activities in and around the Park and its BZ. Similarly, private entrepreneurs will also be consulted to discuss and review the impacts of tourism.

8.2.4 Tourism Product Diversification

Tourism development in PNP is recently initiated as various tourism products have been identified and infrastructure development is underway. PNP will work closely with CNP to diversify the tourism product in such a way that tourists visiting CNP also visit PNP. It will be done by providing information of the Park in the Visitors Information Centre (VIC) of CNP. Similarly, tourism operators of CNP will also be encouraged to make some round-trip tourism activities. A multipurpose fire line with gravel topping will be constructed that provides an opportunity for jungle safari from CNP to PNP to link the tourism activities between the two Parks. Homestay, hotels and lodges, cultural program, jungle safari, elephant safari, bird watching, wildlife sighting, and camping will be encouraged to provide diverse tourism activities in and around the Park.

8.2.5 Nature interpretation

Through nature interpretation, we can aware the visitors quickly about the nature, culture and importance of the Park and it will promote in-depth insight, respect, commitment, care and consideration for the natural and cultural environment. Therefore, interpretation of the nature will be passed through brochure, information about flora and fauna through display boards and signboards.

8.2.6 Activities

- Construct multipurpose Visitor Information Centre (VIC) at Aadhavar that includes ticket counter, display centre, museum, documentary showing hall, souvenir shop, refreshment centre, and rest room and upgradethe VIC at Hattisar, Amlekhgunj;
- Develop tourism products and facilities in Amlekhgunj by constructing elephant bathing ponds, showing elephant's extra activities, providing tourists an opportunity to feeding elephants, etc. near the Chiple Khola;
- Place information boards related showing important tourist destinations and tourism products at key locations such as Simara Airport, Hetauda, Birgunj and Bharatpur;
- Erect hoarding boards on the highway to aware wildlife corridor, wild elephant passes;
- Establish entry points (at Aadhavar, Pasaha, Ratanpuri, Amlekhgunj, Lamitar, Pratappur, Padampokhari, Charbhaiya, Gaduwaline and Nirmalbasti);
- Construction, upgrading and maintenance of fire lines near Khairi Khola, Shiva Khola and Bhata-Rambhori to Mashine-Pratappur;
- Construction, maintenance and repair of concrete or wooden watch towers at appropriate locations near grasslands and waterholes;
- Support to develop community cultural museum at Subarnapur Homestay, Amlekhgunj, and Ratanpuri;
- Place signage at appropriate locations in the Park to show direction to the visitors;
- Erect signboards disseminating information for the visitors;
- Place hoarding boards in Hetauda, Pathlaiya, Nijgadh and Birgunj to promote tourism in PNP;
- Construction of raised platforms to climb for elephant safari, at least, in two places;
- Undertake study to finalize the route of elephant safari, jeep safari, jungle walk, and bird watch, etc.;
- Advertise tourism products in the Park through Video Spot, Television, Radio and FM radio at national and local level;
- Organize meetings and training to promote local entrepreneur and nature guide to operate jeep safari and other facilities in the Park;
- Organize Clean-up campaign to manage waste in the highway (waste collection and disposal);
- Conduct nature guide trainings including refresher training and certification to local and interested individuals giving priority to marginalized, vulnerable and socially excluded sections of the community;
- Conduct home-stay, cook and house-keeping trainings;
- Organize cottage and small business development and management training;
- Provide support to journalists to visit PNP and publish article;
- Publish news and article in newspaper;
- Production of video documentary; and
- Establish Hattisars in Gaduwaline and Ratanpuri entry points to promote elephant safari.

Other Programme

IX
CHAPTER

9.1 Climate Change Adaptation

9.1.1. Context

The Himalayan regions is highly vulnerable to the impacts of global climate change in the form of increased occurrences of floods and extreme climatic events, extended dry spells, uncertainties over climatic phenomena. These changes are expected to result in shifting vegetation, species extinctions, and changes in ecosystem service delivery, with consequential cascading, downstream impacts on human livelihoods and lives (Shrestha et al., 2012). Nepal's National Adaptation Plan of Action (NAPA) predicts warmer winter temperatures and increased winter and monsoon precipitation in the country, which will occur in unpredictable and severe weather events (MoE 2010). Given these predicted trends in climatic conditions and their socio-ecological consequences, it is important to integrate unexpected impacts into protected area management plans and strategies. But, because of the uncertainties associated with trajectories of climate change, the plans should be adaptive and include 'no-regrets' strategies that will have conservation benefits even if climate change trajectories do not unfold as predicted (Hannah et al. 2002).

Climate change is likely to affect the vegetation and forest types, and the ecological communities they support (Thapa et al. 2015). Forest types that are resilient to climate change should be protected to conserve the ecological communities and species assemblages. Uncertain and unpredictable rainfall and the ensuing floods could cut off habitat connectivity and prevent animals from seeking refuge. During drought periods, wildlife should be able to move to water sources and escape fires. Therefore, any corridors identified for wildlife movement or to connect habitats should be above flood level and have access to water sources in the dry season.

The participatory vulnerability assessment identified Lokpriya, Manahari, Panchamukhi, Lokheet and Nirmal BZUCs more vulnerable to flashfloods and landslides. However, flooding and inundation is not very common in the area. River-cutting is a major issue around Chiuriyamai, Bhimeshwor, Janajagaran and Radhakrishna community bufferzone forests. Further, as the communities largely rely on farming and livestock rearing in the area, extension of services in relation to these sub-sectors is vital to enhance adaptive capacity as emphasized during the participatory assessment.

9.1.2. Issues

Major issues of concern in the face of likely impact of climate change at PNP are:

- Extended dry spells and drying up of wetlands and water holes;
- Drying of grasslands;
- Recurrence of flood due to erratic rainfall pattern and extreme weather event;
- Inundation of grasslands and human settlements during floods;
- Emergence and spread of invasive species in recent years;
- Inadequate preparedness for flood disasters;
- Extended dry spells increasing fire risks.

9.1.3 Strategies

- Enhance knowledge and understanding regarding climate change impacts on species, ecosystems and local communities through research and documentation;
- Improve ecosystem resilience through management of climate induced stresses mainly extended dry spells;
- Strengthen Community based disaster risk management and climate adaptation;
- Promote climate resilient livelihood diversification;
- Enhance the capacity of Park staffs, Security persons, and BZ communities to cope with the climate change impacts; and
- Coordinate and collaborate with key stakeholders and line agencies to mitigate impacts of climate induced disasters and change.

9.1.4 Activities

- Pilot early warning system of flash flood in the flood prone areas;
- Make formal and informal arrangements for collective security against the effects of climate change;
- Construct waterhole in the dry Bhawar region and arrange for permanent water holding either through natural or artificial water recharge;
- Study impacts of changes in precipitation and temperatures on species and ecosystems;
- Identify climate sensitive indicators in the Park and closely monitor;
- Undertake plantation to maintain the balance between fuel wood demand and supply for local house hold consumption;
- Provide seedlings of tree species to the BZ community to plant in public and private lands;
- Provide biogas support to household to reduce fuel wood consumption;
- Organize training to produce improved cook stove installers or builders and install improved cook stove to reduce fuel wood consumption;
- Study and documentation of indigenous wetland conservation knowledge, skills and practices;
- Identify and support implementation of adaptation priorities of BZ community forest user groups such as small-scale irrigation construction, repair and maintenance;
- Undertake soil conservation works in Churia to control sediment flow and landslide in downstream;
- Construct embankment, spur or any soil conservation measure in various streams/rivers to protect wildlife from flood;
- Carry out planation of soil binder species along river banks to control bank cutting in the BZ;
- Assess flood vulnerable zones and develop strategic plan to reduce damage to wildlife;
- Facilitate market linkages and voluntary carbon financing,

9.2 Solid Waste Management

9.2.1 Context

Most of the solid waste generated in and around PNP is composed of organic matter, paper, and minor reused waste that are mainly reused for cattle feeding and manure, while disposal of other non-degradable categories of collected waste (glass, metal, and plastic) is not properly managed.

Particularly, burning in open dumps poses a great hazard to environmental, human, and animal health. Similarly, dumping sites close to water courses contaminates and pollutes river.

The pollution problem is now no longer confined to solid waste. Water sources along the major trails are being contaminated from improper affluent discharge, human waste, and garbage dumping. Sewerage and toilet waste can be found piped into nearby streams and rivers. The BZ will actively participate in control of various forms of pollution and attempt to make the control system more sustainable by involving local people with support from other stakeholders and focus on reducing waste generation and proper disposal systems.

9.2.2 Issues

- Garbage management is an ongoing challenge to keep Park and BZ clean despite several initiatives already in place;
- Inadequate knowledge on proper disposal and recycling of the solid waste among local communities;
- Inadequacy of coordinated effort to address the issue of garbage and pollution management in highway sides, Simara industrial estate, Amlekhgunj areas around the Park;
- Problem of managing the garbage and other wastes in Bhata areas during the Mela time;
- Lack of guidelines for properly managing the garbage;
- Inadequacy of the fund required for maintaining sanitation in the Park and BZ.

9.2.3 Strategies

- Develop water, sanitation and hygiene guideline for local communities in PNP;
- Mobilize eco-clubs to raise awareness about importance of solid waste management;
- Work with local government, communities, private sector, and conservation partners to implement sanitation programme;
- Use high tech solid waste management techniques in collaboration with local government;
- Promote recycle, reuse, reduce, remove, and reject (5R) approach to manage wastes in the Park

9.2.4 Activities

- Provide support to demonstrate proper techniques of garbage disposal and recycling techniques;
- Provide support to manage garbage with special focus on reducing production, recycling, and destruction by prohibiting the use of polluting items such as plastic bags;
- Construct waste disposal pits or put waste collection pots near entry point, ticket counter, Hattisar, and view towers;
- Provide water supply, toilet, drainage, collection and recycling centre to schools, public buildings, and household with the support from conservation partners;
- Support eco-clubs to organize clean-up campaign regularly.

CHAPTER X

Buffer Zone Management

10.1 Introduction

For peoples' participation in the PA management, the government has brought BZ policy in 1993 with the Fourth Amendment in the NPWC Act 2029. It provides provisions for establishment of BZ around the NP and Reserves. In Nepal, BZs are determined on the basis of impact zone concept (Sharma and Shaw 1992 and 1996). Technically, the BZ is the area adjacent to a Park or Reserve encompassing forests, agricultural lands, settlements, village open spaces, and other land use forms on which land use is partially restricted to give an added layer of protection to the PA while providing valued benefits to neighboring rural communities (Mackinnon et al., 1986). It is an area of sustainable use but managed with some degree of regulation.

BZ Management Regulations promulgated in 1996 and BZ Management Guidelines brought forth in 1999 form legal basis of the management of the BZs. Accordingly, 30-50 % of the revenue generated by the PAs is ploughed back for the multi facet development of the BZ communities through community-based organizations of the respective Parks and Reserves. BZ Programs and activities are being implemented as per the provisions made by NPWC Act, 2029 (with the Fifth Amendment), BZ Management Regulation, 1996, BZ Management Guidelines, 1999 and Wildlife Damage Relief Guidelines, 2017 with recent amendment. The BZ programs are coordinated and managed by the BZ management Section of the Park under the guardianship of the CCO.

According to the clause (2e) of Section 2 of 1993 amendment of NPWC Act, 2029, the BZ for PNP has been declared in 2005. A first full-fledged BZMC was formed in 2006. So far a total of 339 BZUGs have been formed under 13 BZUCs. A BZMC has been formed for managing and coordinating the BZ programs. The BZMC has responsibility for buttom-up program planning and approving, then top-down resource allocating according to approved programs with prescribed criteria. The BZMC meetings are represented by Chief Conservation Office, Chairpersons of the UCs, and one District Coordination Committee (DCC) representative each from Makwanpur, Parsa and Bara districts since the BZ covers these three districts.

The PNP BZ comprises of 285.3 sq. km, covering 3 districts, which is Makwanpur (Hetauda Sub-metropolitan City and Manahari Rural Municipality), Bara (Jitpur-Simara Sub-metropolitan City), and Parsa (Thori Rural Municipality and Jeere Bhawani Rural Municipality).

Nearly two-third area of the BZ (67.35%) falls in Makwanpur, followed by Bara (21.29%) and Parsa (11.36%). The boundaries of the rural municipalities and sub-metropolitan city or wards included within the BZ serve as BZ boundary.

The PNP extended to the eastern part of national forest of Bara district up-to Bakaiya khola including Halkhoria Lake, which was degraded due to overuse. The extension area is shown in Figure 12.

Figure 12: The Administrative Boundary of PNP and BZ

10.2 Past and Present Management Practices

10.2.1 Forest Management

BZ comprises forest, agriculture land, settlement, village open spaces and any other land use. Forest in the BZ is very important as it is considered as corridor and connectivity areas between wildlife habitats. Further, the inhabitants surrounding such areas (the impact zone communities) have certain anticipated roles and responsibilities for conservation and management. It therefore implies for special policy and legal ground to support the management of these forests and livelihood improvement of surrounding communities.

The forest in the BZ are handed over to the community as BZ Community Forest (BZCF) after BZCF submit application to CCO to manage the forest to cater their basic needs of forest products so that they do not need to enter the Park. The Park provides technical assistance to support the community to prepare their constitution and OP. The users' group prepares the OP with the technical support of Park as per the guidelines and then it is approved from their general assembly. This OP will be in operation only when Chief Conservation Officer and respective BZUC Chairman sign on it and officially handed over to the forest user group. The BZCFs coordinates with BZUC to manage their forests.

In comparison to other PAs of the Terai, the PNP has significant amount of forest in the BZ area. Altogether there are 17502 ha of forest in the BZ including the plantation forests. Out of this, 61% lies in Makwanpur district and 36% in Bara district. Only about 3% forest area is included from Parsa district.

10.2.1.1 National Forest

Most of the forests in the BZ are natural forests and majority of these lie in Makwanpur district along the northern slope of Churia. Good natural forest is also present in the eastern side of the Bhedaha Khola. These forests provide extended habitat and migratory routes for many wildlife species of the Park. In the Park, the natural forests in the BZ are also dominated by Sal (*Shorea robusta*) and its associate species. Major forest types found in the BZ are also similar to the Park forests (Map 9b).

Among the natural forests of the BZ, forest area between Bhedaha Khola and Highway near Aadhavar supports populations of different wildlife species due to presence of water sources. At the same time, easy access to this area has threatened wildlife poaching. Similarly, a small island forest of nearly 2279 ha made by Bagau and Chaura Khola in the northern boundary in Handi Khola area provides refuge to many wildlife species. Because of difficult terrain, there is no settlement nearby this forest. Some of the natural forests are also handed over to local community as a community forests.

10.2.1.2 Community and Private Plantations

A total of 829.285 ha areas are under community and private plantations. Out of which, 88 community plantations have been established covering an area of 800.93 ha benefiting a population of nearly 4893 households. The situation of private plantation is not very encouraging. There are only 12 private plantations carried out in 28 ha area by 128 households (Figure 13). Both private and community plantation are dominated by fast growing timber and firewood producing species like Sissoo (*Dalbergia sissoo*), Eucalyptus (*Eucalyptus camaldulensis*) and Bakaino (*Melia azadirecta*). Some natural timber species such as Saj (*Terminalia tomentosa*), Simal (*Bombax ceiba*), and Sal (*Shorea robusta*) are also planted in small numbers. Fodder trees Ipil-ipil (*Leucaena leucocephala*), Badahar (*Artocarpus lakoocha*), Tanki (*Bauhinia purpurea*) and Mulberry (*Morus alba*) are also preferred in plantations.

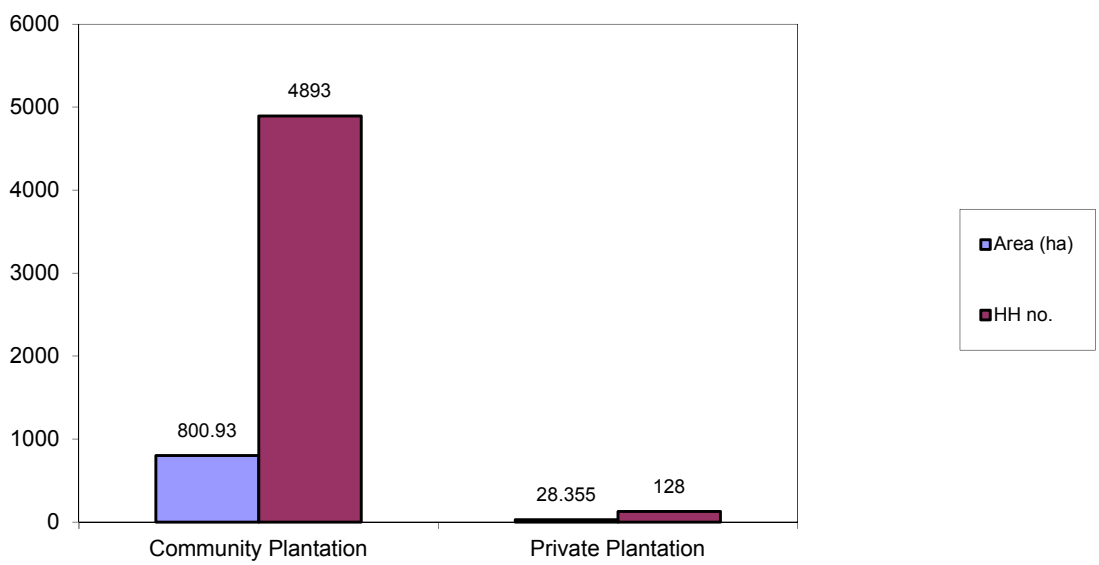

Figure 13: Status of Community and Private Plantation

10.2.2 Land Use and Land Cover

Out of total area of the BZ, 55% land is covered by forest. Similarly, 30% land comes under cultivation. The third highest land cover is sand which is 10%. Whereas, the grassland, shrub land, pond, waterbodies are insignificant (Figure 14 & 15).

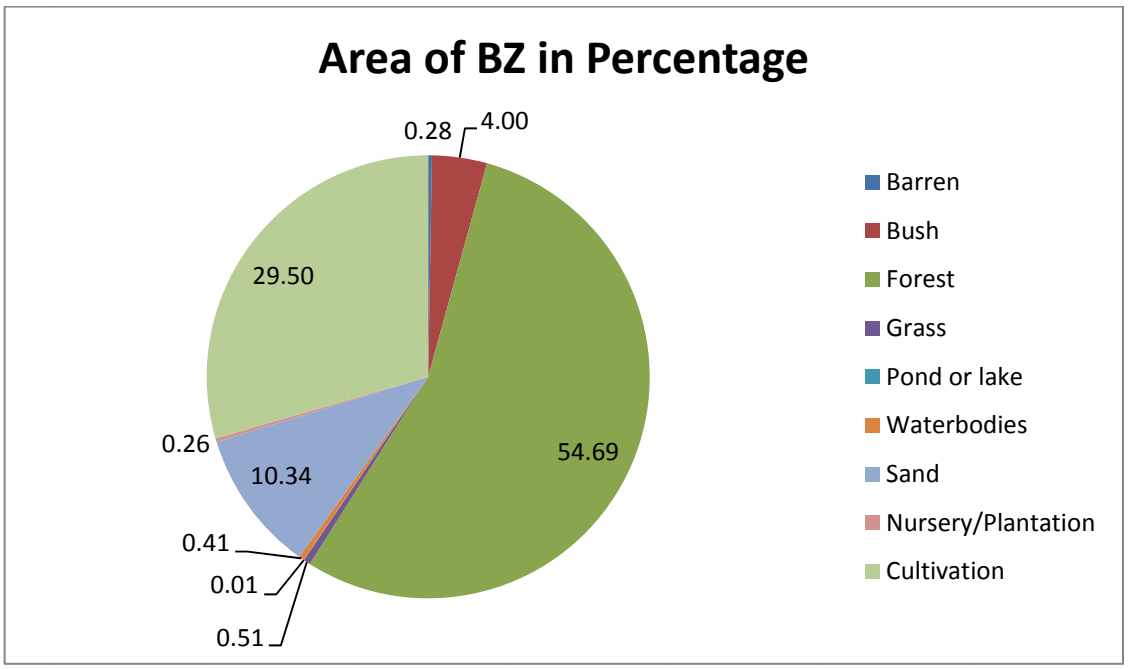

Figure 14: Land Cover of BZ

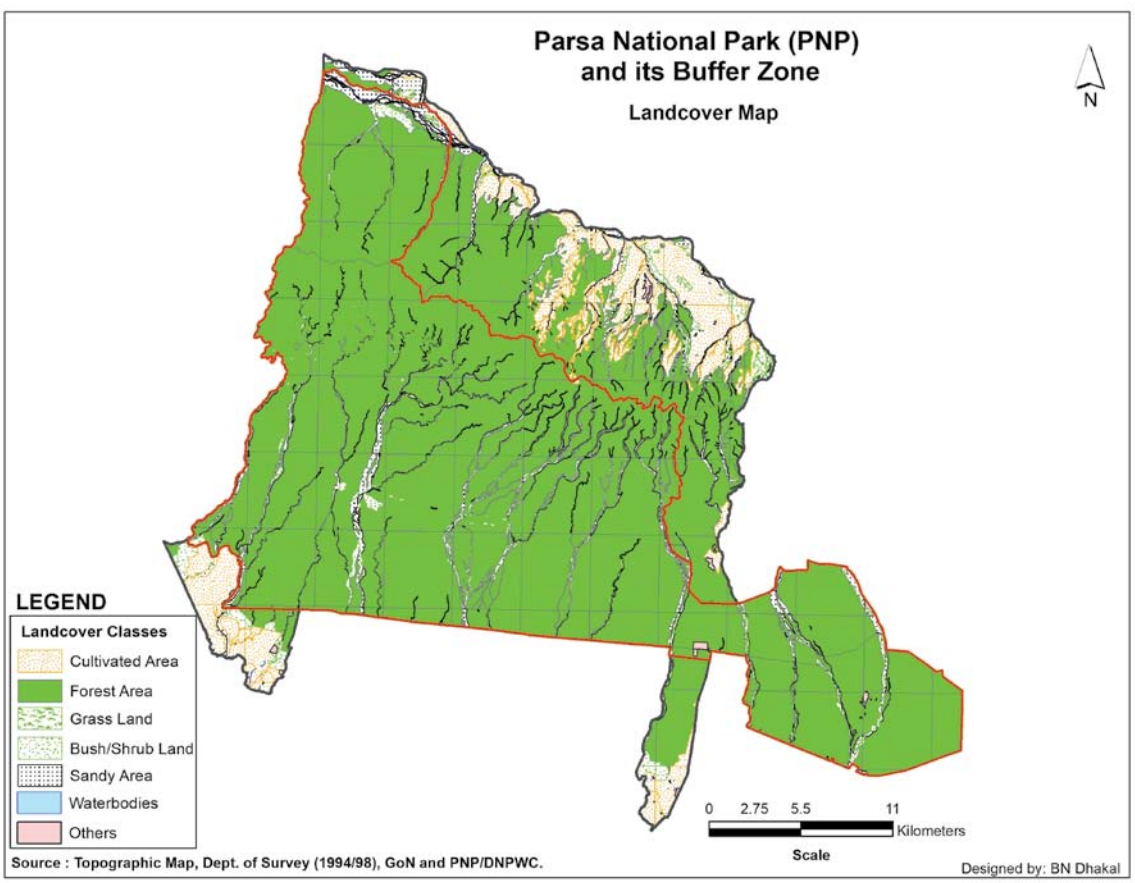

Figure 15: Land Cover Map of PNP and BZ

The land use change in the BZ between the period of 1978 and 1992 (Table 2) shows that there is considerable increase in cultivated land (756 ha) and shrub land (1135 ha) but at the cost of forestland, which has declined by 1697 ha. Between the same periods, the grassland has decreased by 32 ha and others (river/sand areas) have decreased by 162 ha. There is no change in the situation of fruit orchard.

Table 2: Land-use Changes in the BZ VDCs between 1978 and 1992

Land use	1978 Area (ha)	% covered	1992 Area (ha)	% covered	Changes Area (ha)
Cultivated land	7501	25.15	8257	27.69	+756
Forestland	18680	62.65	17502	56.95	-1697
Grassland	159	.53	127	.42	-32
Shrub land	0	0	689	3.80	+1135
Orchard	0	0	0	0	0
Others (river. sand)	3480	11.67	3253	11.13	-162
Total	**29820**	**100**	**29820**	**100**	

10.3 Management Strategies

10.3.1 Zonation

The area of the BZ is duly notified and clearly delineated. For management purpose, BZ will be further divided into conservation zone, sustainable use zone and intensive use zone.

10.3.2.1 Conservation Zone

The large forest patches in BZ, for example forests near Kamini Daha, is equally good as core area for wildlife habitat. Thus, these areas will be basically managed as extended wildlife habitat where extraction of forest products will be restricted but the area will be allowed for regulated tourism activities if needed.

10.3.2.2 Sustainable Use Zone

The forested area in BZ which is managed by community for dual purpose of meeting the need of forest products for the BZ households and providing refuge for dispersing population of wildlife falls under this category of zonation. The BZ community forests handed over to the forest user group falls on this category.

10.3.2.3 Intensive Use Zone

This is the area in the BZ, including all the settlements and private lands, where environmental friendly development activities will be carried out to enhance the livelihoods of the people living in the area through various developmental inputs.

10.3.2 Biodiversity Conservation

One of the major objectives to bring the concept of BZ management is to develop partnership between Park and the people in biodiversity conservation. The involvement and active participation of local people is the main thrust of biodiversity conservation in the BZ. The forest in the BZ will be handed over to local community as CF to meet UG's daily needs of timber, fuel wood and fodder so that to reduce the pressure on forests on core area of the Park. Similarly, river training works will also be carried out to combat recurring flash floods during monsoon season.

10.3.3 Community Development

To reduce rural poverty, community development will be focused in BZ with especial focus to small infrastructure. For this, need-based and site specific intervention will be undertaken garnering support of local people. Site specific plans for school support, drinking water facility, support of small irrigation, culvert, small bridge, hume pipes, cause way, drainage construction, river training, and toilet construction will be the guiding document for implementing developmental initiatives in the respective BZUCs and BZUGs.

10.3.4 Income Generation and Skill Development

Income generation and skill development activities have been identified as one of the important component of BZ program to reduce poverty and improve the economic condition of local people. The income generation and skill development activities will be carried out targeting poor, women, socially excluded and marginalized communities. Income generations activities will mainly focus in diversifying agriculture and livestock programme due to the fact that majority of the local people are dependent on agriculture and livestock for livelihood. These diversification initiatives will also increase the adaptive capacity of local communities where there are existing risks of floods. Similarly, skill based job which has market in the rural areas will be identified and trainings will be provided to local people so that they can have self-employment.

10.3.5 Capacity Building

Training of members of BZ communities is recognized as a vital component of efficient protected area management. The principal goal of the training is to raise the capacity of executive committee members to enhance knowledge, attitudes, skills, capabilities and tools to plan, manage and monitor BZ programmes. The chairman, secretary and other members of executive committee need to develop the skills to establish and maintain the relationships and networks with stakeholders that are essential for sustainable and effective management. Identifying training needs should precede any learning initiative. The leadership development, account keeping, record keeping, office management, participatory planning, monitoring and evaluation are some of the important trainings required for the BZ communities.

10.3.6 Conservation Education

Conservation education is important for several reasons; it fosters a sense of connection to the natural environment, promotes sustainable development and encourages conservation of irreplaceable natural resources and vulnerable plant and animal species. Conservation awareness essentially serves as an educational tool, helping local people understand economic, aesthetic and biological importance of preserving resources and reducing or eliminating the harmful impacts of man-made alterations. Conservation awareness or education helps people understand the consequences of human activities on various lands and identifies remedial solutions.

Several awareness raising activities will be conducted focusing on different section of the society, e.g. BZ communities, eco-clubs, mother groups, and social activists to increase awareness towards participatory biodiversity conservation and develop positive attitude towards the Park. The activities such as celebration of conservation days, organizing rally, radio programme, exchange visits and school level environmental programme will be carried out.

10.3.7 Tourism Promotion

Although, BZ of PNP has its own tourism potential, there are only few tourism activities till now. Recently, few hotels, lodges and home stays have been established targeting visitors. To promote community based eco-tourism in BZ as a means of sustainable livelihoods for the people living in BZ. Diverse of tourism products and additional potential areas will be explored.

10.3.8 Functional Coordination

The BZMC is an apex body of the BZ with an elected body of members representing the BZUC. BZUG is the grass root level organization of the community people living in the BZ. These BZUGs are further federated to form BZUC at the unit level. The chairpersons of these BZUCs will form a BZMC at Park level. Apart from this, there are also community forests, cooperatives which work under the BZUC as functional unit.

All the UG under each BZUC will prepare their plan with broader consensus which will then combine to make the plan of BZUC. The plan thus prepared from bottom-up planning process will be endorsed from BZUC and sent to BZMC. Participation of women and underprivileged community will be ensured in planning and implementation. In order to prioritize the needs and support to be provided, participatory ranking of the users will be done based on their well-being and proximity of the settlement to the Park. Prior to approval, the provision for reviewing the plan by BZMC will be made for its refinement and aligning the activities to be supported by other line agencies. Similarly, BZMC will also prepare their five year management plan which will be approved by DNPWC.

10.3.9 Conflict Minimization

The reduction of human-wildlife conflict arising in the BZ of the Park is of primary importance to ensure the cordial relation between the Park and people. Human-wildlife conflict is not a pronounced issue in the BZ of PNP. However, there are few reported cases of wildlife damage recorded in the BZ. Killing of human and livestock by tiger and wild elephant is a management issue in the BZ over the period. Crop and cattle depredation by wildlife in the BZ is in increasing order. Therefore, it should be properly addressed.

10.3.10 Regulation of BZ Resources

10.3.10.1 Management of Forest Products

The management and conservation of BZ forest resources is a matter of great concern. The demand of the forest resources right from the fuel wood and timber is realized to be the major challenge in managing forest resources. The use of forest product is carried out as per the OP of community forest. In the absence of community forest, the UC will play bridging role with posts to provide forest product from BZ forest.

10.3.10.2 Management of Sand, Gravel and Stone

Sand, Gravel and Stones are the major resources used for the construction of roads, buildings and other purposes, which play a vital role in the socio-economic and infrastructure development of the community as well as the nation. Alongside that, it is also a good source of revenue for the local bodies as well.

An increase in demand for sand and gravel for construction purposes has placed immense pressure on river-base natural resources. Therefore, the extraction of these three important construction aggregates

is bound to have considerable negative effect on the place where they occur. Although these aggregates are of paramount importance, studies have shown over-exploitation of these aggregates affect the water table, reduce water quality, alter the land use and degrade the channel bed and banks. Rivers shift their courses from time to time, resulting in natural cycles of erosion and deposition of sand and gravel. The extraction of sand and gravel from rivers, streams, floodplains and channels conflict with the functionality of river ecosystems.

The excavation and use of sand, stone and gravel in BZ is limited to its users in regulated way for their own purpose other than commercial. Regulated excavation of such products from rivers is allowed to the BZ communities only after charging royalty. These excavation activities are prohibited in areas where it could affect habitat, breeding and mobility of the aquatic life. Besides this, the excavation is limited to certain months and allowed only in designated river sections. Excavation should be in small scale more closely to the existing annual quantity of permission (supply). The standards enshrined in the Environmental Protection Act, 2053, and Environment Protection Regulation, 2054, should be adhered to while executing the excavation related activities. Regular monitoring, supervision and relevant studies are necessary to take right decisions in this matter. In any case, transportation and use of sand, stone and gravel should not be extended outside the BZ. The use of mechanized equipment could be made available subject to the Park's permission.

Earlier, Local Self Governance (LSG) Act, 2055 allowed DCC to manage the sand, gravels and stone in the district. Currently, while province restructure is already implemented through elected executives in local bodies, they have right to formulate Acts and Rules as per their needs. In this context, LSG ACT, 2055 has been replaced by Local Government Operation Act, 2074 and empowers the local Government to coordinate and implement development program and for rationale utilization of locally available natural resources. However, in the PA, BZ management Regulation, 2052 gives BZUC the authority to manage forest resources including sand, gravels and stone and this can be comfortably exercised for local consumption. The BZUC will prepare their management plan with the support of technical staff of the Park including the management of natural resources in the BZ. BZUC plans the use of resources in such a way that it will not affect biodiversity conservation. The total quantity of river materials (sand, stone and gravel) that can be collected from the rivers and streams of PNP border and BZ for the period of five years (2075/76-2079/80) is presented in Annex XIII. The BZUC will extract the sand, stone and gravel equally for five years coordinating with sectors or head quarter. The quantity of the river resources to be extracted for each year can be revised in any point of time (year) if it is not extracted equally every year.

10.3.11 Activities

- Provide support to BZCF to develop and renew constitutions and OPs;
- Restore degraded forests in the BZ/national forests and CFs in BZ by artificial or natural regeneration;
- Support in institutional strengthening of BZ communities;
- Support to operate 3 private nurseries in 3 districts;
- Provide seedlings and organize plantation in the corridor, public lands to enhance greenery in degraded corridors;
- Support fruit tree plantation and alternative cropping to reduce the wildlife attractions in the agricultural field;
- Provide support to bee keeping to deter wild elephant;
- Organize sensitization programme in the BZ to restore and manage wetlands in the corridors and other potential tiger habitats;
- Install improved cooking stoves and biogas;

- Construction of culvert and cause way;
- Construct cultural houses and museums;
- Construct fire lines, watch towers, create grasslands and wetlands in BZ forests to develop tourism;
- Implement Churia conservation program in BZ to mitigate impacts of flash floods and landslides;
- Strengthen, institutionalize and develop a network of community based anti-poaching and intelligence CBAPUs;
- Pilot rain water harvesting program in selected Churia region to address water stress and extended dry spells;
- Prepare livelihood improvement strategy;
- Construct electric fence to reduce human-elephant conflict;
- Implement or deliver relief fund in efficient manner for victims of HWC;
- Organize nature guide trainings for BZ people;
- Initiate conservation focused programme in schools of BZ through ToT on biodiversity conservation;
- Organize learning visits for BZUC, CFUG, CBAPU, Eco-Clubs and tourism entrepreneurs;
- Form, strengthen and mobilize Eco-clubs in clean-up campaigns, awareness and capacity building events and plantation initiatives;
- Produce and disseminate Information Education and Communication (IEC) material; and
- Celebrate Conservation Days.

Activity, Budget and Logical Framework

XI
CHAPTER

11.1 Activity and Budget

The budget required for the implementation of the activities prescribed by the plan for the period of five years is estimated and presented in Annex VIII. The summary of the activities and budget of the management plan 2075/76-2079/80 (2018-2022) for PNP and its BZ for the period of five years is presented in Table 3. For the implementation of activities a total of NRs. 94,73,27,166.00 (Ninety Four Crore Seventy Three Lakhs Twenty Seven Thousand One Hundred and Sixty Six) is required giving much weightage to the Park protection followed by habitat management which are around 33% and 23% respectively. The next priority is given to tourism development, species conservation and BZ management, which are about 14%, 8% and 7% respectively.

Table 3: Activity and Budget of Management Plan

(Amount in Thousand Rupees)

	Activities	1st Year	2nd Year	3rd Year	4th Year	5th Year	Total Amount	%
1	Park Protection	49673	50850	52801	89824	71555	314702	33.22
2	Habitat management	40665	40546	42477	44982	47538	216208	22.82
3	Species Conservation	10940	16658	12694	19366	14088	73746	7.78
4	Fire Management	2175	2334	2993	4076	3190	14768	1.56
5	Wildlife Health Management	1247	1309	1372	3009	2496	9434	1.00
6	Encroachment Management	3575	3701	3878	4054	4230	19438	2.05
7	Research, monitoring and capacity building	10093	10723	12093	9644	15855	58408	6.17
8	Tourism	39356	22946	24561	24326	20404	131593	13.89
9	Climate Change and Solid Waste Management	4905	5675	5219	7341	6593	29733	3.14
10	Buffer Zone Management	20501	11598	12573	11356	13218	69245	7.31
11	Office Operation	2090	1932	1924	2011	2098	10055	1.06
	Total	**185219**	**168271**	**172584**	**219988**	**201265**	**947327**	**100.00**

The budget mentioned in Table 3 includes only programme budget. It is estimated that Government allocates annually Rs. 4,46,55,000.00 for administrative budget (salary, travel allowance, uniform and ration) and this is projected in five years with 5% increment for every year. The estimated amount of both administrative and program budget are presented in Table 4. The total budget including administrative comes to NRs. 121,52,57,170.00 (One Hundred Twenty One Crore Fifty Two Lakhs Fifty Seven Thousands One Hundred and Seventy). It shows that for planned period the administrative cost comes around 22% while program cost is 78%. In an average allocated budget from the Government is only

45% and thus 55% deficit budget is sought to come from conservation partners and other sources. However, the budget of BZUCs are not mentioned here which are presented in Annex VIII-B.

Table 4: Program and Administrative Budget (Thousands)

Budget Heading	Year 1	Year 2	Year 3	Year 4	Year 5	Total	%
Administrative Cost	46887.75	46887.75	66982.50	49120.50	51353.25	53586.00	22.05
Program Cost	185218.75	168271.31	172583.79	219988.29	201265.02	947327.17	77.95
Total	232106.50	235253.81	221704.29	271341.54	254851.02	1215257.17	100
Government Allocation	47.39	46.76	49.62	40.54	43.16	45.49	

11.2 Logical Framework Analysis

The logical framework of PNP and its BZ Management Plan for five years period 2075/76-2079/80 is presented in Table 5.

Table 5: Log Frame of PNP Management Plan

Narrative Summary	Objectively Verifiable Indicators (OVI)	Means of Verification (MOV)	Assumptions
Goal			
Conserve and enhance biodiversity at species, ecosystem and landscape levels through the sustainable use and management of its ecosystem services giving high priority to nationally protected and globally threatened wildlife species linking with other ecological networks and delivering benefits essential for all people	• Enhanced diversity richness and status of endangered species, • Increased value of PNP and BZ, • Improved living standard of local community	• Species inventory reports (National and Park level) • Annual progress report • Progress report of conservation partners • Human Development Index reports • Living standard survey reports • Study reports and research papers	Supportive policy and priority of the GoN No occurrence of natural disaster especially flood
Purpose			
To conserve biological diversity of the Park with special focus on protected wildlife species including wild elephant, gaur and tiger through restoration, improvement and management of wildlife habitat so as to maintain healthy ecosystem of Terai	• Improved habitat for wildlife, • Increased frequency of tiger sighting • Celebration of cultural events inside core area is shifted in BZ	• Annual progress report • Progress report of conservation partners • Minutes of the stakeholder meetings	Adequate budget and staff provided to implement management activities

Narrative Summary	Objectively Verifiable Indicators (OVI)	Means of Verification (MOV)	Assumptions
	• Bhata and Halkhoria site is restored, maintained and improved, • Additional no. of wetland and grassland created • Invasive species is treated and controlled	• Study reports and research papers • Satellite data analysis • Articles in the newspaper • Documentary	Political parties support the conservation initiatives
To ensure maintenance of a viable population of wild elephant and tiger including all flora and fauna by restoring corridors to ensure connectivity, reduce illegal killing and illegal trade.	• Increased number of wild elephant and tiger, • Livestock grazing inside the Park is controlled • Livestock are vaccinated regularly • Reduced number of poaching and illegal trade of wildlife parts • Overpass and underpass for wildlife movement in the east west highway is piloted • Corridor and connectivity are maintained and improved	• Annual progress report • Progress report of conservation partners • Study reports and research papers • Records of poaching incident and illegal wildlife trade • Articles in the newspaper • Documentary	GoN allocate sufficient fund to pilot overpass and underpass in the east-west highway
To develop tourism infrastructure in order to promote sustainable tourism by involving private entrepreneur so that locals can enjoy increased socio-economic benefits with minimizing and mitigating negative impacts in the society in such a way that it maintains ecological integrity and cultural heritage	• Increased km. of fire line constructed for tourism activity in the utility zone • Increased no. of watch towers constructed and maintained, • No. of increased tourism based private entrepreneurs	• Progress reports • Visitors survey reports • Economic survey reports • Media reports • DNPWC reports,	Conservation-friendly tourism promotion

Narrative Summary	Objectively Verifiable Indicators (OVI)	Means of Verification (MOV)	Assumptions
	• No. of cultural events organized, • Increased visitors' satisfaction, • increased employment opportunities		
To promote participatory biodiversity conservation by institutional strengthening of key stakeholders to take stewardship on conservation by increasing awareness at the same time improving livelihood of local people,	• Socio-economic condition of local community improved, • Increased participation of local people in conservation activities, • Increased conservation awareness • increased conservation friendly livelihood opportunities, • Conservation communities are strengthened and institutionalized,	• Annual progress report • Progress report of conservation partners • Interview of local people in newspaper, radio and TV • Best practice and lesson learnt reports	BZ communities are unified and positive to cooperate with effective coordination, collaboration and networking
To strengthen institutional capacity to carry out integrated conservation and development activities through research, training and cooperation among stakeholders	• Updated database • The PNP staffs delivers both technical and management services effectively and efficiently • The delivery of services provided by Conservation committers are improved • Increased joint venture activities, projects and programmes	• Annual progress report • Progress report of conservation partners • HRD reports • Media reports • DNPWC reports, records of correspondence	The staffs are not frequently transferred Staff motivation is continued

Narrative Summary	Objectively Verifiable Indicators (OVI)	Means of Verification (MOV)	Assumptions
Output 1			
1.1 Improvement of habitat required for wild elephant, tiger and ungulates 1.2 Management of extended habitat in Halkhoria and Bhata 1.3 Relocation of cultural event outside of Park 1.4 Controlled alien invasive species 1.5 Reduction of fire hazards as per fire management plan	• Ha. of grassland increased • No. of wetlands restored and created • Celebration of cultural event in the BZ area • Ha. of invasive species treated or controlled by uprooting, burning and removal, • Reduced fire incidents	• Progress report, • Conservation partners progress report, • PNP habitat monitoring report, • Activity completion report • Report of fire hazard • News and articles in the media • Research reports	Climate change does not induce invasive species, forest fire and shortage of water
Output 2			
2.1 Restoration and Maintenance of biological corridor of wild elephant 2.2 Maintenance of viable population of tigers in 2.3 Reduction of illegal trade of wildlife parts in Nepal-India border 2.4 Livestock grazing inside Park is controlled	• Updated database of flora and fauna • Increased No. of elephant, tiger harbored at PNP • No. of illegal trade of wildlife parts decreased • No. of trans-boundary meeting held • No. of livestock vaccinated • Reduced No. of livestock owner penalized for illegal entry	• Progress report, • Conservation partners progress report, • Monitoring report, • Regular count of wild elephant and tiger, • Records of illegal wildlife parts confiscated, • Meeting minutes • DLSO/Municipality progress report,	
Output 3			
3.1 Establishment and upgrade of VIC 3.2 Increased tourism based private entrepreneurs 3.3 Operation of cultural events and establishment of cultural museum	• No. of VIC established, • No. of tourism based private entrepreneurs increased • No. of cultural events organized • No. of tourist expressing satisfaction in visiting PNP	• Progress report, • Conservation partners progress report, • Tourism products, • No. of tourism services operated, • Clippings of news articles,	Political stability is maintained and improved

Narrative Summary	Objectively Verifiable Indicators (OVI)	Means of Verification (MOV)	Assumptions
3.4 Satisfaction of visitors through nature based tourism and services and facilities received 3.5 Increased coverage of PNPin media	• No. of news, article, interview and video documentary published, aired and broadcasted in newspaper, radio and TV respectively	• Cultural Museum, • Visitor satisfaction reports	
Output 4			
4.1 CFUGs are handed over to the local community 4.2 Forest and grassland developed in private and public land 4.3 Increased income of local people 3.4 Reduced human-wildlife conflict 4.5 Increased participation of local people in conservation activities	• No. of CFs handed over to local people • Ha. of forest and grassland in public land, • No. of drinking water scheme supported to community people, • No. of toilets supplied with water facility, • No. of children going to school, • No. of people benefitted by health post, • No. of people operating small enterprise • No. of people involved in conservation activities rises,	• Progress report, • Monitoring report, • Progress reports of other GoN offices, • Public audit reports, • Meeting minutes	There is adequate forest to be handed over as Community forest and available of public land to develop forest resources
Output 5			
5.1 PNPstaffs and BZUC members are trained in both technical and management aspect 5.2 Law enforcement is smooth without any conflict 5.3 Increased involvement of conservation partners in institutional strengthening	• No. of PNP staffs and Conservation Committee members benefitted, • No. of reduced conflict between PNP and community members while law enforcement in place, • Resources pooled in conservation	• Training reports, • Progress reports • Records of conflict between PNP and community members	Political members cooperate with PNP

Activities	Budget (Rs.)
Park Protection • Construct office building (additional) in Aadhavar, and two sector offices in Lamitaar (Northern) and Gaduwaline (Western); • Construction of 7 additional posts (Dambarpur-Bara, Thulothali-Makwanpur, Thadekhola-Makwanpur, Masinekhola-Makwanpur, Churiyamai-Makwanpur, Khairee khola-Parsa, Dilliipur Chaurahakhola-Makwanpur) for PNP staffs and security personnels; • Repair and maintenance of office buildings in HQ, Sector office, Range post, Guard post and security posts including fencing; • Construct and upgrade facilities such as drinking water, solar power for lighting and charging batteries of communication and mobile phone at sector offices and security posts; • Maintain kitchen, toilet and fence of posts and sector office regularly; • Construct 10 Km overhead bridges (Amlekhgunj to Churiamai -3 Km, Nirmalbasti to Brahma nagar-1 Km, Amlekhgunj to Pathlaiya-2 Km, Pathlaiya to Tamagadi-2 Km, Ratanpuri to Tamagadi-2 Km) in elephant corridor in with coordination with Department of Road (DoR); • Upgrade existing 60 Km fire line to all-weather otta-shield road and construct additional 70 km of all-weather road networks inside the Park; • Construct fireline from Bhata to Pratappur; • Maintenance of 125 km of fire line throughout the year; • Construct 5 RCC watch towers in sensitive areas from security point of view and use them during night camps; • Repair and maintain existing 15 watch towers; • Improve wooden bridge with RCC or Cement mortar foundation; • Repair and maintain building required in elephant management units (Hattisar); • Procure equipment required for elephant riding on a yearly basis; • Provide hauddha, gaddi, and other materials for elephant safari and management; • Undertake meeting with Nepal Telecom, NCELL or other mobile company and install 5 Base Transceiver Station (BTS) inside the Park; • Support Nepal Telecom to carry out survey to make effective communication using CDMA phone; • Install walky-talky radio communication throughout the Park including repair and maintenance; • Installation, repair and maintenance of additional CCTV cameras in the highway from Amlekhgunj to Pathlaiya; • Carryout short, medium and long range patrol including sweeping and camping operation during by bicycle, foot, vehicle and elephant;	31,47,01,500

Activities	Budget (Rs.)
• Implement real time and SMART patrolling with changing the time and route on random basis; • Demarcate PNP and Settlement area; • Procure metal detector to identify iron set leg traps probably used by poachers to trap wildlife (especially for tiger); • Piloting of drone to take pictures of sensitive areas; • Procure four wheel vehicle (two) for sectors to make effective patrolling and Park management; and • Procure 20 night vision binoculars.	
Habitat Management • Undertake inventory of grassland and wetlands recording XY coordinate; • Undertake inventory and mapping of IAS and record XY coordinate; • Manage grassland by: control burning (500 hectares) removing woody species (750 hectares); uprooting trees and clearing shrubs and unwanted vegetation on the both sides of fire lines (1900 hectare); uprooting trees and clearing shrubs and unwanted vegetation on the both sides of stream flowing from north to south (2000 hectare); • Clean shrub of 10 m transects on the both sides of east-west highway to promote visibility of/for wildlife species to reduce road kills; • Organize Khar-Khadai on annual basis, if required, for grassland management intervention; • Removal and control of IAS in an area of 500 hectare; • Create alternative grazing land and ponds in appropriate areas of BZ for cattle to reduce pressure on core area; • Undertake river embankment of 1 km to reduce and mitigate river cutting; • Construct 12 intakes in the upstream of Churia to establish 5 water recharge pond and RCC or Cement Mortar dam in the foot-hills of Churia to provide water for animals during dry seasons; • Construct additional 15 RCC or Cemented water holes at water deficient areas; • Clean and remove weeds in wetlands and maintain cemented water holes by and supply water by water tanker on periodic basis; • Pilot solar water pump to recharge water holes at certain areas; • Assess water quality in regular intervals; • Procure high density water tanks to store water for dry seasons; and • Celebrate world Wetland Day on February 02.	21,62,07,500

Activities	Budget (Rs.)
Species Conservation • Update Flora and Fauna of PNP • Implement satellite based radio telemetry to problematic elephant and monitor to reduce human elephant conflict; • Construct elephant bathing site • Support livelihood intervention to the households whose family has been injured or killed by wild elephant, • Support bee-keeping as elephant deterring activities where wild elephant often gives trouble • Undertake satellite-tracking to determine optimal habitat areas • Provide information about habitat selection by wild elephant • Erect solar fence, especially in those areas where conflict is severe, to reduce human-wild elephant conflict, • Maintenance and repair of solar fence forming committee, • Prepare a contingency plan to manage large herds aided by a team of experts in handling wild elephants, • Improve health care and management of all female captive elephants as they can potentially transmit their diseases to wild male elephants • Carry out piloting of early warning system of wild elephant straying nearby settlements • Restore degraded forests in the BZ/national forests and CFs outside PAs by artificial or natural regeneration • Take a 'man-eater' tiger under control immediately • Undertake tiger count in every five years using camera trap; • Maintenance of biological corridor connecting other PAs • Erect signs of warning to the passersby in the major rights of ways, resource collection sites and shrines • Organize regular trans-boundary conservation cooperation meetings with neighboring countries; • Conduct Gaur bison count in every five years • Conduct awareness campaigns on Pangolin conservation • Organize regular coordination meetings at local and regional level for sharing information on pangolin related activities • Formulate and implement mitigation measures for development and other construction works in the prime/designated pangolin habitats • Fooding and caring for orphan and injured wildlife • Vaccinate domestic animal in collaboration with DLSO to reduce communicable diseases • Collaborate with District Livestock Office (DLSO) to replacing unproductive livestock. • Promote stall feeding in PNP to reduce grazing pressure	7,37,46,250

Activities	Budget (Rs.)
• Distribute grass seed to create grassland in private and public land • Promote fodder tree plantation in private land • Procure camera • Procure GPS • Procure 10 bird watching binoculars • Celebrate world wild elephant day and world tiger day including other conservation events (Wildlife Week, Environment Day, World Rhino Day, Wetland Day, Biodiversity Day)	
Fire management • Prepare fire-fighting strategic and management plan and implement it; • Clear fire line or undertake control burning in the fire lines before the onset of fire season; • Early burning of grasslands and other burning materials along the fire lines; • Provide firefighting equipment to Park Post and CFUGs; • Mobilize fire-fighting team with equipment in order to stop spreading of fire in grasslands; • Establish forest fire early warning systems; • Establish fire occurrence reporting databases; • Construct 4 multipurpose ponds that provides water for wildlife including birds and for extinguishing fire; • Construct fire hydrant supported by solar pump nearby ponds; and • Carry out fire prevention education and awareness activities.	1,47,67,500
Wildlife health management • Establish wildlife orphanage and rescue centre at least in two sectors for emergency treatment; • Carry out regular checkup of captive elephants at Hattisar and treat them; • Treat injured animal upon arrival at orphanage and rescue centre; • Coordinate LSO and conservation partner to provide vaccine to livestock against potential diseases that can be transferred to wildlife; • Support to establish a community based veterinary center with materials required in medical emergencies; • Report and document mortality of wild animals immediately after it comes to notice of any staff as part of disease surveillance strategy; and • Coordinate with DLSO to undertake postmortem of deceased endangered wild animals.	94,33,500

Activities	Budget (Rs.)
Encroachment • Mapping of encroachment areas; • Issue notice to evacuate the encroached area; • Coordinate with Local Government Authorities to resolve the encroachment problem; • Form committee to address the issues of illegal settlers; • Relocate the illegal settlers of Syaulibasti, Bhiman and Jyamirebasti if they are willing to move outside of the PA by providing skill based training and other livelihood options; • Support to improve the livelihood of landless and flood victim people who have encroached the Park area for various reasons and evacuate them in win-win situation; and • Evacuate and restore the encroachments in corridors.	1,94,37,500
Study and Research • Update digital database, maps using latest topo sheets, satellite imageries for updating information on wild elephant, tiger, rhinoceros, wild dog and gaur; • Carry out study to acquire knowledge on elephant population by using newly available genetic techniques such as genetic fingerprinting, photographic capture-recapture survey; • Undertake studies to determine Wild elephant population, composition and abundance of the resident herds; • Create baseline information on movement patterns of migratory wild elephants with the help of national and regional experts; • Undertake an assessment of tiger population viability in PNP; • Undertake intensive research on trans boundary movement of tigers and the use of corridors, BZ areas and human settlement through satellite radio telemetry; • Conduct studies on the scale, extent and local variations in the intensity of HWC to help in identifying and designing effective mitigation measures; • Study of distribution and abundance of various prey base species; • Undertake detailed studies on ungulate-habitat relationships and the feeding behavior of ungulates; • Carry out study on spatial distribution and abundance of four horned antelope; • Identify indicator species to assess habitat condition; • Study ecological processes that affect maintaining healthy wildlife population; • Undertake study of Gaur about distribution, population dynamics, preferred grass and its behavior; • Prepare Gaur Action Plan; and • Identify critical pangolin habitat and map the priority sites. • Prepare land use management plans for critical habitats of tigers outside PA's;	2,26,37,500

Activities	Budget (Rs.)
• Mapping of critical wildlife habitats and areas of high conservation significance with focus to PNP-CNP-VTR complex; • Study distribution and abundance of palatable grass species, recording XY coordinate, favoured by various ungulates, • Undertake study to identify the succession pattern of grasslands, forests and wetlands; • Study the effect of invasive alien species to wildlife habitat; • Collaborate with researchers and academician to find the appropriate measures for controlling invasive alien species; • Conduct study on the effect of habitat fragmentation and degradation on wildlife survival. • Carry out wetlands and grasslands mapping and assess their successional dynamics to inform management prescriptions; and • Undertake study to identify suitable grass cutting machine or tractor. • Undertake spatial and temporal pattern of fire incidence; and • Identify fire prone areas by using satellite imagery analysis or web-based fire mapper. • Survey, map and demarcate the encroached area together with house and keep the record, • Perception of visitors about the tourism facilities and services from hotels and Park authorities; • Study to identify potential tourism products and their packaging; • Aspiration of hotel operators regarding services and cooperation from the Park; • Conduct study to identify potential site to promote homestay; and • Undertake marketing strategy to attract visitors in the Park and BZ. • Conduct study of climate change indicators and impact on biodiversity conservation along with identification of adaptation activities, • Undertake vulnerability assessment with respect to climate change, • Prepare community-based adaptation plans for most vulnerable sections/ areas • Undertake assessment of socio-economic condition of local people in the areas where human-wildlife conflict is high; • Carry out relationship between anthropogenic activities and maintenance of healthy and viable wildlife populations; and • Conduct study to assess the optimum quantity of sand, gravel and boulder that can be extracted each year. • Undertake evaluation of five-year management plan; • Prepare next five-year management plan including IEE; • Undertake study of management effectiveness of the Park; and • Review and upgrade reporting and information sharing system;	

Activities	Budget (Rs.)
• Produce a document regarding who is who at local, national and overseas institutions working in wild elephant conservation **Monitoring** • Monitoring of Wild elephant on periodic basis by direct sightings and indirect signs; • Monitor Wild elephant movements annually and conduct spatio-temporal analysis to notice any shift in their home range for every 5 year to address elephant related issues; • Monitoring of tiger on periodic basis based on camera trap; • Monitor tigers around the BZ with local community engagement; • Monitoring of Gaur on periodic basis based on direct count; • Monitoring of four horned antelope on periodic basis based on direct count; • Monitoring of indicator species; • Monitor prey base species on regular interval; • Monitoring of small mammals; • Identification and long-term monitoring of climate sensitive species • Monitoring of winter migratory water birds; and • Monitoring of globally threatened and nationally protected birds. • Undertake habitat monitoring, prepare check list of food plants, document physical and phenological changes in vegetation, quantity and quality of discharges in streams and biotic disturbance; • Undertake monitoring of permanent plots, transect lines in forests, grasslands and other habitats; • Periodic wetlands and water holes monitoring; • Monitor extraction of soil, sand and gravel in coordination with local authority. • Monitor spatial and temporal pattern of fire incidence; • Monitor fire and fuel dynamics. • Monitor tourism impact on social, economic and culture; • Monitor the contribution of tourism to the poor, women and marginalized community. • Periodic monitoring of temperature using DHM data for every five years; • Periodic monitoring of precipitation using DHM data for every five years. • Monitor of water quality of wetlands, water holes, rivers and streams on a regular basis. **Capacity building** • Orientation training to security troops for newly appointed Battalion before deployment in the field; • Orientation training to Game Scouts on legal issues; • Refreshment trainings to the field staffs and security personnels;	

Activities	Budget (Rs.)
• Basic training to Games Scouts and Rangers to handle GPS equipment, camera, etc.; • Training on Real-time SMART patrolling to Park staff and security troops; • Conduct anti-poaching operation trainings to Park staffs security personnel and CBAPU members; • Conduct crime scene investigation and interrogation trainings to investigators as per legal provision; • Human rights training to handle the convicted people; • Judicial training to Park Officers. • Wildlife management and handling training with focus to wild elephant; • Conduct training on pangolin habitat and population monitoring techniques; • Training about field techniques, including signs, sound and other indirect evidences of different wildlife species; • Train staff to collect sample of blood, fecal matter, urine or vital organs, • CITES training. • Basic training on vegetation quantification for recording data in monitoring plots; • Provides training to the Park staff in wildlife habitat monitoring. • Conduct forest fire management training to the Park staff, security personnel and BZCF members. • Build capacity of frontline staffs to collect sample of blood, fecal matter, urine or vital organs; • Build capacity of frontline staffs to identify, record and report disease or poor health condition of wildlife; • Provide trainings to nature guides to enhance their capacity in nature interpretation specifically on wildlife, birds and plants etc.; • Training on nature interpretation and display management. • Social mobilization training; • Appreciative enquiry training; • Conflict management training; • Organization development and management training; • Leadership development training; • Account keeping training. • General and specialized Training of Trainers (ToT); • Public administration and management training; • Planning, monitoring and evaluation training; • Database management Training to Rangers and Officers; • Geographical Information System (GIS) training to Rangers and Officers.	

Activities	Budget (Rs.)
Tourism • Construct multipurpose Visitor Information Centre (VIC) at Aadhavar that includes ticket counter, display centre, museum, documentary showing hall, souvenir shop, refreshment centre, and rest room • Upgrade VIC at Hattisar ; • Place information boards related showing important tourist destinations and tourism products at key locations such as Simra Airport, Hetauda, Birgunj and Bharatpur; • Erect hoarding boards on the highway to aware elephant corridor, wild animal passes; • Establish entry points (at Aadhavar, Pasaha, Ratanpuri, Amlekhgunj, Lamitar, Pratapur, Padampokhari, Gaduwaline and Charbhaiya), • Construction of fire line to link CNP-PNP; • Gravelling of fire line; • Maintenance, repair of fire line for 5 years ; • Construction of watch towers (concrete); • Maintenance, repair of watch towers; • Support to develop community cultural museum at Subarnapur Homestay, Amlekhgunj, and Ratanpuri; • Place signage at appropriate location in the Park to show direction to the visitors; • Erect signboards disseminating information to the visitors; • Place hoarding boards in Hetauda, Pathlaiya, Nijgadh and Birgunj to promote tourism in PNP; • Construction of raised platforms to climb for elephant safari, at least, in two places; • Undertake study to finalize the route of elephant safari, jeep safari, jungle walk, and bird watching etc. ; • Undertake feasibility study of jeep safari and finalization of the route; • Place advertisement of elephant and jeep safari at PNP; • Prepare Video Spot to promote tourism in PNP; • Place advertisement of tourism in PNP through Television at national level; • Advertise in radio/FM to promote local tourism; • Organize meetings and training to promote local entrepreneur and nature guide to operate jeep safari and other facilities in the Park; • Organize exchange visit of tourism operators to CNP; • Conduct nature guide trainings to local and interested individuals giving priority to back warded community; • Certify nature guide giving priority to local people; • Enhance capacity of nature guides in nature interpretation specifically on wildlife, birds, plants through trainings and some experience sharing activities;	13,15,92,875

Activities	Budget (Rs.)
• Conduct home-stay and house-keeping trainings; • Conduct cook training; • Organize small business development and management training; • Organize Cleanup campaign to manage waste in the highway (waste collection and disposal); • Provide fellowship to journalist to visit PNP and publish article; • Publish news and article in newspaper; • Production of video documentary	
Climate Change Adaptation • Pilot early warning system of flash flood in the flood prone areas • Study impacts of changes in precipitation and temperatures on species and ecosystems; • Identify climate sensitive indicators in the park and closely monitor, • Undertake plantation to maintain the balance between fuel wood demand and supply for local house hold consumption; • Provide seedlings of tree species to the BZ community to plant in public and private lands; • Provide biogas support to household to reduce fuel wood consumption, • Organize training to produce improved cook stove installers or builders and install improved cook stove to reduce fuel wood consumption; • Identify and support implementation of adaptation priorities of BZ community forest user groups such as small-scale irrigation construction, repair and maintenance; • Undertake soil conservation works in Churia to control sediment flow and landslide in downstream; • Carry out planation of soil binder species along river banks to control bank cutting; • Assess flood vulnerable zones and develop strategic plan to reduce damage to wildlife; • Facilitate market linkages and voluntary carbon financing.	1,87,35,000
Solid waste management • Provide support to demonstrate proper techniques of garbage disposal and recycling techniques; • Construct waste disposal pits or put waste collection pots near entry point, ticket counter, Hattisar, and view towers; • Provide support to manage garbage with special focus on reducing production, recycling, and destruction by prohibiting the use of polluting items such as plastic bags; • Provide water supply, toilet, drainage, collection and recycling centre to schools, public buildings, and household with the support from conservation partners; • Support eco-clubs to organize clean-up campaign regularly.	1,09,98,234

Activities	Budget (Rs.)
Buffer zone • Provide support to BZCFUG to develop and renew constitutions and OPs; • Restore degraded forests in the BZ/national forests and CFs in BZ by artificial or natural regeneration; • Support in institutional strengthening of BZ communities; • Support to operate 3 private nurseries in 3 districts; • Provide seedlings and organize plantation in the corridor, public lands to enhance greenery in degraded corridors; • Support fruit tree plantation and alternative cropping to reduce the wildlife attractions in the agricultural field; • Organize sensitization programme in the BZ to restore and manage wetlands in the corridors and other potential tiger habitats; • Construction of culvert and cause way; • Construct cultural houses and museums • Construct fire lines, watch towers, create grasslands and wetlands in BZ forests to develop tourism; • Pilot rain water harvesting program in selected Churia region to address water stress and extended dry spells; • Implement Churia conservation program in BZ to mitigate impacts of flash floods and landslides; • Strengthen, institutionalize and develop a network of community based anti-poaching and intelligence CBAPUs; • Prepare livelihood improvement strategy; • Implement relief fund for victims of human wildlife conflict; • Strengthen 'Eco-club' programme in schools of BZ designing PNP specific nature conservation course; • Initiate conservation focused programme in schools of BZ through Training of Trainer (ToT) on biodiversity conservation • Form, strengthen and mobilize Eco-clubs in clean-up campaigns; awareness and capacity building events and plantation initiatives; • Support Community Based Anti-poaching Unit Organize learning visits to BZUC, CFUG, CBAPU, Eco-Clubs and tourism enterpreuners • Produce and disseminate Information Education and Communication (IEC) material; • Celebrate Conservation Days.	6,92,45,307

Activities	Budget (Rs.)
Office operation (excluding administrative) • Annual progress report publication; • Website development and hosting ; • Coordination meeting with Stakeholders; • Trimester level staff meeting; • Procure computer; • Procure multimedia projector; • Procure cycles; • Procure motorbikes; • Maintenance of vehicle, motorbikes, cycles; • Fuel for vehicle; • Management of office equipment ; • Stationeries; • Procure furniture; • Payment of electricity, telephone, Internet.	1,00,54,500
Total Amount	94,73,27,166

11.3 Gender Equity and Social Inclusion

Gender inequality and social exclusion are issues of global concern. Over the last decade, the Asia and the Pacific region has made a remarkable progress on these issues. Nepal is not an exception to this regard. Since last decade, it has been moving ahead by fulfilling all commitments made in the international arena towards nondiscrimination, gender equality and social justice. In this regard, PNP needs to better target the delivery of conservation outcomes to the hardest segments of society, those who have been excluded from the development outcomes and those who have been overlooked.

PNP will adopt Gender Equality and Social Inclusion(GESI) strategy as a core cross-cutting theme. The implementation of GESI strategy will be participatory and inclusive as possible. At the program level the focus will be laid to identify whether the program is GESI responsive, embraces inclusive approaches in program appraisal, design, implementation, monitoring and evaluation. In terms of organizational preparedness, building conceptual clarity and operational skills for GESI issues is a common concern for all partners. The management plan will mainstream GESI strategy to engage and empower women and marginalized people in equitable benefit sharing through meaningful participation in participatory biodiversity conservation activities.

11.4 Implementation and Mainstreaming Strategy

The Park will adopt biodiversity conservation at landscape approach involving BZ communities in participatory manner from. The BZ institutions will be strengthened and institutionalized in participatory planning, implementation and monitoring. The BZ institution will maintain transparency about their programme to local community including local Government. The Park will continue to work together with Nepal Army to protect the biodiversity adopting innovative technology in patrolling. Pooling the resources to implement the activities with conservation partners will be one of the key strategies followed by implementation in the ground in partnership approach. Similarly, BZ institution will also coordinate with local Government to pool the resources to develop infrastructure in the BZ. The Park will adopt communication strategy to orient legislations related to conservation to local people involving BZ communities and Eco-clubs. The strategy will be taken to involve Universities and Colleges to

carry out research and studies in the areas of conservation. The Park will take all possible measures to maintain Park- people amity. In this regard, relief fund will be delivered in effective manner.

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Annexes

Annex I
Floral Diversity in PNP

Dicotyledons

S.N.	Botanical Name	Local Name	Habit	Family
1	*Dicliptera bupleuroides*		H	Acanthaceae
2	*Echinacanthus attenuatus*		H	
3	*Eranthemum pulchellum*	Chitohar	H	
4	*Hygrophila auriculata*	Bakas	H	
5	*Justicaca adhatoda*		S	
6	*J. procumbens*		H	
7	*Lepidagathis incurva*		H	
8	*Thunbergia fragrans*		Cl	
9	*Achyranthus aspera*	Chirchiri	H	Amaranthaceae
10	*Alternanthera sessilis*		H	
11	*Amaranthus spinosus*	Kataiya	H	
12	*A. viridis*		H	
13	*Gomphrena velosoides*		H	
14	*Rhus javanica*	Bhak amila	T	Anacardiaceae
15	*Semecarpus anacardium*	Bhela	T	
16	*Spondias pinnata*	Amar	T	
17	*Annona reticulata*	Sarifa	T	Annonaceaaae
18	*Alstonia scholaris*	Chhtaun	T	Apocynaceae
19	*Carrisa carandas*	Karaona	S	
20	*Holarrhena pubescens*	Dudhkoriya	T	
21	*Ichnocarpus frutescens*	Gahumani	Cl	
22	*Rauwolfia serpentina*	Jharbaruwa	S	
23	*Tracheiospermum lucidum*	Dudhlati	Cl	
24	*Vallaris solanacea*	Dudhlati	Cl	
25	*Wrightia arborea*	Dudhkhiri	T	
26	*Calotropis gigantea*	Akon	S	Asclepiadaceae
27	*C. procera*	Akon	S	
28	*Cryptolepis buchanani*		Cl	
29	*Ageratum conyzoides*	Rawuna	H	Asteraceae
30	*Artimisia indica*		H	
31	*Caesulia axillaries*	Thukaha	H	
32	*Conyza Canadensis*		H	
33	*C. leucantha*	Bantori	H	
34	*Eclipta prostrata*		H	
35	*Elephantopus scaber*	Khotila khar	H	
36	*Eupatorium odoratum*	Banmara	S	
37	*Sonchus wightiana*		H	

S.N.	Botanical Name	Local Name	Habit	Family
38	*Spilanthus calva*	Pirpire	H	
39	*Tridax procumbens*		H	
40	*Vernonia squarrosa*			
41	*Basella alba*	Poye ke sag	Cl	Basellaceae
42	*Oroxylum indicum*	Totelo	T	Bignoniaceae
43	*Steriospermum personatum*	Panar	T	
44	*Bombax ceiba*	Simal	T	Bombaceae
45	*Cyanoglossum lanceolatum*	Kanike	H	Boragenaceae
46	*Heliotropium strigosum*		H	
47	*H. species*	Lapta	H	
48	*Garuga pinnata*	Dabdabe	T	Burseraace
49	*Cannabis sativa*	Ganja	H	Cannabaceae
50	*Cleome gynandra*		H	Capparaceae
51	*C. speciosa*		H	
52	*C. viscosa*	Hurhur	H	
53	*Sagina species*		H	Caryophyllaceae
54	*Celastrus paniculatus*	Pilaphal	T	Celastraceae
55	*Reissantia arborea*	Chatpatia	Cl	
56	*Chenopodium album*	Bathuwa	H	Chenopodiaceae
57	*C. ambrosioides*	Gahuna	H	
58	*Annogeissus latifolius*	Banjhi	T	Combretaceae
59	*Combretum roxburghii*		Cl	
60	*Terminalia alata*	Asna/Saj	T	
61	*T bellerica*	Barro	T	
62	*T. chebula*	Harro	T	
63	*Argyreia argentea*		Cl	Convolvulaceae
64	*A. hookeri*		Cl	
65	*A. species*		Cl	
66	*Ipomea aquatica*	Karmi ke sag	Cl	
67	*I. murikata*	Gidhawar	Cl	
68	*I. quqmoclit*		Cl	
69	*Merremia emarginata*	Mamarkhi	H	
70	*M. hederacea*		Cl	
71	*Porana paniculata*		Cl	
72	*Rivea spp.*		Cl	
73	*Ehretia laevis*		T	Cordiaceae
74	*Citrullus lanatus*	Gurmi	Cl	Cucurbitaceae
75	*Coccinea grandis*	Tilkor	Cl	
76	*Cucumis prophetarum*		Cl	
77	*Momordica balsamina*	Chathel	Cl	
78	*Mukia maderaspatana*		Cl	
79	*Cuscuta reflexa*	Akash lati	Cl	Cuscutaceae

S.N.	Botanical Name	Local Name	Habit	Family
80	*Dillenia pentagyna*	Dhori/Tatari	T	Dilleniaceae
81	*Shorea robusta*	Sal/ Sakhuwa	T	Dipteriocarpaceae
82	*Arachne cordifolia*		S	Euphorbiaceae
83	*Antidesma acidum*	Banmusri	T	
84	*Bridelia stipularis*	Khaji	S	
85	*Croton bonplandiannus*	Mirchaira	H	
86	*C. roxburghii*	Mahson	T	
87	*Euphorbia hirta*	Dudhiya	H	
88	*E. proatrata*	Dudhiya	H	
89	*Jatropha gossypifolia*	Bangrera	S	
90	*J. curcas*	Bangrera	S	
91	*Macaranga denticulate*	Marar	T	
92	*Mallotus phillippensis*	Sindure	T	
93	*Phyllanthus amarus*		H	
94	*P. emblica*	Amla	T	
95	*P. reticulates*	Sikat	S	
96	*Ricinus communis*	Arari	T	
97	*Trewia nudiflora*	Bhilor	T	
98	*Abrus precatorius*	Karjani	Cl	Fabaceae
99	*A. pulchellus*		Cl	
100	*Acacia caechu*	Khair	T	
101	*A. rugata*	Sikakai	T	
102	*Albizia gamblei*	Siris	T	
103	*A.lucidior*		T	
104	*A. procera*		T	
105	*Alysicarpus vaginalis*		H	
106	*Atylosia scarabaeoides*		Cl	
107	*A. volubilis*	Jangali sem	Cl	
108	*Baauhinia malabarica*	Amilo	T	
109	*B. purpurea*	Koilar	T	
110	*B. vahlii*	Malhon/ Bhorla	Cl	
111	*Butea monosperma*	Paras	T	
112	*Caeslpinia bonduc*	Tairi	S	
113	*C. cucullata*		S	
114	*C. decapitala*		S	
115	*Cassia fistula*	Rajbriksah	T	
116	*C. occidentalis*	Chakor	S	
117	*C. tora*	Chakor	S	
118	*Crotolaria alata*	Jhunjhuna	H	
119	*C. albida*		H	
120	*C. calycina*		H	
121	*C. pallida*		H	

S.N.	Botanical Name	Local Name	Habit	Family
122	*C. prostrata*		H	
123	*C. spectabilis*		H	
124	*C. tetragona*	Sanethi	S	
125	*Dalbergia latifolia*	Satisal	T	
126	*D. sissoo*	Sisau	T	
127	*D. volubilis*		S	
128	*Desmodium species*		H	
129	*D. heterocarpon*		H	
130	*D. laxiflorum*	Kuro	H	
131	*D.oojeinense*	Panna	T	
132	*D. triflorum*		H	
133	*D. velutinum*		H	
134	*Erythrina stricta*		T	
135	*Flemengia macrophylla*		S	
136	*F. strbilifera*		H	
137	*Indigofera hirsuta*		S	
138	*I. pulchella*		S	
139	*Milletia extensa*	Bhanbhaniya	S	
140	*M. fruticosa*		S	
141	*Mimosa pudica*	Lajjaune jhar	S	
142	*M. rubicaulis*	Arar	S	
143	*Mucuna pruriens*	Kabachhua	Cl	
144	*Phyllodium pulchellum*	Kanani	S	
145	*Pongamia glabra*	Karuyaini	T	
146	*Saraca asoca*	Ashok	T	
147	*Smithia sensitive*		H	
148	*Tamarandus indica*	Imli	T	
149	*Uraria lagapidiodes*		H	
150	*U. lagopus*		H	
151	*Swertia angustifolia*	Chiraita	H	Gentianaceae
152	*Coleibrookia oppositifolia*	Dhurselo	S	Lamiaceae
153	*Hyptis suaveolens*	Bantulsi	H	
154	*Leonotis nepetaefolia*		H	
155	*Leonurus japonicus*	Guma	S	
156	*Leucas cephalotes*	Guma	H	
157	*Leucas sp.*		S	
158	*Pogostemon benghalensis*	Utjar	S	
159	*Careya arborea*	Kumhi	T	Lecithydaceae
160	*Leea compactiflora*	Rajbans	S	Leeaceae
161	*L. crispa*		S	
162	*L. macrophylla*	Diniya khar	S	
163	*Leea sp*		H	

S.N.	Botanical Name	Local Name	Habit	Family
164	*Dendropthoe falcata*	Banjhi	T	Loranthaceae
165	*Taxillus vestitus*		T	
166	*Visum album*	Hadchur	T	
167	*Lagestromia parviflora*	Botdhayaro	T	Loranthaceae
168	*Woodfordia fructicosa*	Burghairo	S	
169	*Abelmoschus manihot*		H	Malvaceae
170	*Abutilon indicus*		S	
171	*Kydia calicina*	Patar	T	
172	*Sida acuta*	Bariyar	H	
173	*S. cf. acuta*	Bariyar	H	
174	*S. cordata*	Bariyar	H	
175	*Thespesia lampus*	Bankapas	H	
176	*Urena lobata*	Lapta	H	
177	*Osbeckia nepalensis*	Seto chulesi	S	Melastomatacea
178	*Oxyspora paniculata*	Pannisar	S	
179	*Azadirachta indica*	Neem	T	Meliaceae
180	*Dysoxylum gobara*	Dhamina	T	
181	*Cissampelos pariera*		Cl	Menispermaceae
182	*C. pariera hirsuta*		Cl	
183	*Pericampylos glaucus*		Cl	
184	*Tinospora sinensis*	Gurguj	Cl	
185	*Ficus benghalensis*	Bargaj	T	Moraceae
186	*F. hispida*	Kothedumar	T	
187	*F. racemosa*	Gular	T	
188	*F. semicordata*	Khanayo	T	
189	*Ficus species*	Khurhur	T	
190	*Strebus asper*	Sihora	T	
191	*Ardisia solanacea*		S	Myrsinaceae
192	*Ardisia sp*	Sikata	T	
193	*Eugenia kurzii*		T	Myrtaceae
194	*Syzygium cumini*	Jamun	T	
195	*S. sp.*		T	
196	*Boerhavia diffusa*	Punarwa	H	Nyctaginaceae
197	*Nyctanthes arbor - tristis*	Harsingar/ Parijat	T	Oleaceae
198	*Ludwigia hyssopifolia*	Loyange jhar	H	Onagraceae
199	*L. octavalvis*		H	
200	*Aeginetia indica*		H	Orobanchaceae
201	*Oxalis corniculata*	Amta	H	Oxalidaceae
202	*Argemone mexicana*	Kataiya	H	Papaveraceae
203	*Piper longum*	Pipla	Cl	Piperaceae
204	*Polygala sp*		H	Polygalaceae
205	*Persicaria barbata*	Bisnar	H	Polygonaceae

S.N.	Botanical Name	Local Name	Habit	Family
206	*P. lapathifolia*	Mirmiriya	H	
207	*Portulaca oleracea*	Nuniya ke sag	H	Portulacaceae
208	*Potamogeton sp*		H	Potamogetonaceae
209	*Zyzyphus mauritiana*	Bayer	S	Rhamnaceae
210	*Adina cordifolia*	Karma	T	Rubiaaceae
211	*Anthocephalus chinensis*	Kadam	T	
212	*Borreria alata*		H	
213	*Hymenodactylon excelsum*	Bhurkut	T	
214	*Mitragyna parvifolia*	Tikul	T	
215	*Pavetia tomentosa*		T	
216	*Randina sp*	Maidal	S	
217	*Uncaria sessilifructus*			
218	*Xeromphis spinisa*	Manphar	T	
219	*X. uliginosa*	Pirar	T	
220	*Wendlandia exserta*	Bakkhre		
221	*Aegle marmelos*	Bel	T	Rutaceae
222	*Murraya koenigi*	Mitha neem	S	
223	*Cardiospermum halicacabum*	Tilkor	Cl	Sapindaceae
224	*Schleichera oleosa*	Athiyar	T	
225	*Madhuca longifolia*	Banmahuwa	T	Sapotaceae
226	*Scoparia dulcis*	Mithuwa khar	H	Scrophulariaceae
227	*Lindernia anagallis*		H	
228	*L. crustacea*		H	
229	*L. ruelloides*		H	
230	*Datura metal*	Dhatur	S	Solanaceae
231	*Physatis divaricata*		H	
232	*Solanum nigrum*	Bhtkaiya	H	
233	*S. surattense*	Rengani	H	
234	*S. torvum*	Banbhanta	S	
235	*Duabanga grandiflora*	Lampate	T	Sonneratiaceae
236	*Bischofia javanica*	Kaijal	T	Staphyleaceae
237	*Sterculia hamiltonii*	Chop	T	Sterculiaceae
238	*Tamarix dioca*		S	Tamaricaceae
239	*Schima wallichii*	Chilaune	T	Theaceae
240	*Grewia disperma*	Phorsa	T	Tiliaceae
241	*G. helicterifolia*		S	
242	*G. sclerophylla*	Harsa	S	
243	*G. subinaqualis*	Glaphar	H	
244	*Triumfetta rhomboides*			
245	*Celtis tetrandra*	Jingara	T	Ulmaceae
246	*Callicarpa arborea*		S	Verbenaceae
247	*C. macrophylla*	Guyalo	S	

S.N.	Botanical Name	Local Name	Habit	Family
248	*Clerodendrum indicum*	Babhnaithi	H	
249	*C. viscosum*	Bhat	H	
250	*Caryopteris odorata*		S	
251	*Gmelina arborea*	Ghamar	T	
252	*Lantana camera*	Phuljhar	S	
253	*Viteex negundo*	Senuwar	T	
254	*Ampelocissus latifolia*		Cl	Vitaceae
256	*Cayrantia trifolia*	Panlati	Cl	
257	*Cissus javanica*		Cl	
Monocotyledons				
258	*Arisaema tortuosum*	Sarpa ko amkai	H	Araceae
259	*Remusatia vivipara*	Kachu	H	
260	*Rhaphidophora glauca*		Cl	
261	*Calamus acanthospathus*	Bet	S	Arecaceae
262	*Phoenix humilis*	Khajur	T	
263	*P. sylvestris*	Khajur	T	
264	*Commelina spp.*		H	Commelinaceae
265	*Murdania nudiflora*		H	
266	*Cyperus anabilis*		H	Cyperaceae
267	*C. compressus*		H	
268	*C. difformis*		H	
269	*C. digitatus*		H	
270	*C. distans*		H	
271	*C. iria*		H	
272	*C. niveus*		H	
273	*Fimbristylis dichotoma*		H	
274	*F. falcata*		H	
275	*Kyllinga nemoralis*		H	
276	*Mariscus sp*		H	
277	*Scirpus sp*		H	
278	*Scleria parvula*		H	
279	*Dioscorea bulbifera*	Githa	Cl	Dioscoreaceae
280	*D. deltoidea*		Cl	
281	*D. pentaphylla*	Ban tarul	Cl	
282	*Asparagus racemosus*	Santawar/ Kurilo	S	Liliaceae
283	*Chlorophytum arundinaceum*		H	
284	*C. nepalense*	Dalchini	H	
285	*Smilax ovalifolia*	Ram datiwan/ Kukurd-aino	Cl	
286	*Urginea indica*	Banpyaj	H	
287	*Musa sp*	Bankera	H	Musaceae
288	*Aerides multifera*		H	Orchidaceae

S.N.	Botanical Name	Local Name	Habit	Family
289	*A. odorata*		H	
290	*Arachnis cathcartii*		H	
291	*Eulophia sp*		H	
292	*Peristylis goodyeroides*		H	
293	*Brachiera ramosa*		H	Poaceae
294	*Chrysopogon gryllus*		H	
295	*Coix lachryma-jobi*		H	
296	*Cymbopogon sp.*	Dhaddi	H	
297	*Cynodon dactylon*	Dubo	H	
298	*Dactyloctenium aegypticum*		H	
299	*Desmostachya bipinnata*	Kush	H	
300	*Dendrocalamus strictus*	Bans	H	
301	*Digitaria abludens*		H	
302	*D. ciliaris*		H	
303	*D. violascens*		H	
304	*Echinochloa colona*		H	
305	*Eragrostis ciliaris*		H	
306	*E.nigra*		H	
307	*E. tremula*		H	
308	*E. unioloides*		H	
309	*E sp*		H	
310	*Eulaiopsis binata*	Babiyo	H	
311	*Iseilema laxum*		H	
312	*Ophismanus burmanii*	Banos	H	
313	*Ophismanus compositus*	Banos	H	
314	*Panicum notatum*		H	
315	*Paspadium flavidum*		H	
316	*Perotis hordeifusca*		H	
317	*Phragmites karka*	Narkat	H	
318	*Saccharum bengalense*	Munj	H	
319	*S.spontaneum*	Kans	H	
320	*Setaria pallidifusca*	Bankauri	H	
321	*Sporobolus dionder*		H	
322	*Thysanolaena maxima*	Amliso	H	
323	*Vetiveeria lawsonii*	Katarighans	H	
324	*Monochoria vaginalis*		H	pontederiaceae
325	*Costusspeciosus*		H	Zingiberaceae
326	*Curcuma angustifolia*		H	
327	*C. leucorhiza*		H	
328	*Hedychium coccineum*		H	
329	*H. stenopetalum*		H	

S.N.	Botanical Name	Local Name	Habit	Family
Gymnospermeae				
330	*Pinus roxiburghii*	Sallo	T	Pianceae
Pteridophytes				
331	*Diplazium esculentum*	Lamtusia	H	Aspidiaceae
332	*Ophioglossum reticulatum*	Jibre ko sag	H	Ophioglossaceae
333	*Adiantum phillippense*	Ratjari	H	Polypodiaceae
334	*Cryptogramma crispa*		H	Pteridaceae
335	*Lygodium japonicum*		Cl	Schizaeceae
336	*Equisetum sp.*	Kurkure jhar		Equisetaceae

Source: Nepal Biodiversity Resource Book (2007)

Legend: H= Herb, S = Shrub, T = Tree, and Cl = Climber

Annex II
List of Mammal Species of PNP

Family	Scientific Name	Common Name	Status				
			GoN	NRDB	IUCN	CITES	local status
Bovidae	*Bos gaurus* *Tetraceros quadricornis* Boselaphus tragocamelus	Indian bison (*gaurigai*) Four-horned antelope Blue bull (*nilgai*)	P P -	E E V	V E -	I III -	Ra Ra Ra
Canidae	*Canis aureus* *Vulpes benghalensis* *Cunis lupus* *Cuon alpines*	Golden jackal Bengal fox Wolf (*boaso*) *Wild dog (ban kukur)*	- - P -	- S - -	- I V V	III III I II	Co Oc Ra Oc
Cercopithecidae	*Macaca mulatta* *Semnopithecus entellu*	Rhesus macaque (b*andar*) Hanuman langur	- -	S S	- -	II I	Co Co
Cervidae	*Axis axis* *Axis porcinus* *Muntiacus muntjak* *Cervus unicolor*	Spotted deer (*chital*) Hog deer (*laguna*) Barking deer (*ratuwa*) Sambar (*jarayo*)	- - - -	- S - S	- - - -	- I - -	Co Oc Co Oc
Elephantidae	*Elephus maximus*	Asiatic elephant (j*ungali hatti*)	P	E	E	I	Oc
Felidae	*Felis chaus* *Felis bengalensis* *Panthera pardus* *Panthera tigris*	Jungle cat (*ban biralo*) Leopard cat (*chari biralo*) Leopard (*chituwa*) Tiger (*bagh*)	- P - P	S V S E	- - - E	II I I I	Oc Ra Oc Ra
Hystricidae	*Hystrix indica*	Indian crested porcupine (*dumsi*)	-	-	-	-	Ra
Herpestedae	*Herpestes edwardsii* *Herpestes javanicus*	Indian grey mongoose (*neuri musa)* Small Asian mongoose	- -	- -	- -	- -	Co Co
Leporidae	*Caprolagus hispidus* *Lepus nigricollis*	Hispid hare (*kharayo*) Indian hare (*kharao*)	- -	- -	- -	- -	Ra Co
Sciuridae	*Funambulus pennati*	Five stripe squirrel (*lokharke*)	-	-	-	-	Co

Family	Scientific Name	Common Name	Status				
			GoN	NRDB	IUCN	CITES	local status
Suidae	*Sus scrofa*	*Wild boar (*badel*)*	-	-	-	-	Co
Verspertilioni-dae	*Pipistrellus coromandra* *Scotophilus heathi*	Indian pipistrelle (*chamero*) Yellow hose bat (*cahmero*)	- _	- -	- -	- -	- -
Viverridae	*Viverricula indica*	Small Indian civet (*rasse*)	-	-	-	-	Oc
Ursidae	*Melursus ursinus*	*Sloth bear* (*bhalu*)	-	-	V	I	Oc
Rhinoceotidae	*Rhinoceros unicornis*	Asian one-horned Rhinoceros (*gaida*)	P	E	E	I	Ra
Manidae	*Manis crassicaudata*	*Scaly ant eater* (*salak*)	P	E	S	II	Ra
Muridae	*Bandicota bengalensis* *Bandicota indica* *Rattus rattus* *Mus musculus* *Vadeleuria oleracea*	Indian mole rat (*musa*) House rat (*musa*) Mouse (*musa*) Tree mouse	- - - -	- - - -	- - - -	- - - -	Co Co Co Co Co
Hyaenidae	*Hyaena hyaena*	Striped hyaena (*hundar*)	P	V	-	-	Ra

Source: Nepal Biodiversity Resource Book (2007)

P= GON protected, E = endangered, I = indeterminate, V = vulnerable, K= insufficiently known, S= Susceptible, I, II, III= CITES, Ra= rare, Oc= occasional, Co = common

Annex III
List of Bird Species Found in PNP

SN	Family	Scientific Name	Common Name	GON	IUCN	CITES
				1973	1994	1994
1	Podicipedidae (Grebes)	*Tachybatus ruficollis*	Little Grebe			
2		*Podiceps cristatus*				
3	Phalacrocoracidae (Cormorants)	*Phalacrocorax carbo*	Great Cormorant			
4		*Phalacrocorax niger*	Little darter			
5		*Anhinga melanogaster*	Darter			
6	Ardeidae (Bitterns)	*Botaurus stellaris*	Eurasian Bittern			1
7		*Ixobrychus sinensis*	Yellow Bittern			
8		*Ixobrychus cinnamomeus*	Cinnamon bittern			
9		*Dupetor flavicollis*	Black Bittern			
10	Herons	*Nycticorax nycticorax*	Black-crowned night heron			
11		*Butorides striatus*	Green-backed heron			
12		*Ardeola grayii*	Indian Pond Heron			
13	Egrets	*Bubulcus ibis*	Cattle egret			
14		*Egretta garzetta*	Little Egret			
15		*Mesophoyx intermedia*	Intermediate Egret			
16		*Casmerodius albus*	Great Egret			
17		*Ardea cinerea*	Grey Heron			
18		*Ardea purpurea*	Purple Heron			
19	Coconiidae(Storks)	*Mycteria leucocephala*	Painted Stork			
20		*Anastomus oscitans*	Asian Open-bill Stork			
21		*Ciconia nigra*	Black Stork	P	E	
22		*Ciconia episcopus*	Wooly-necked Stork			
23		*Ciconia ciconia*	White Stork	P	E	
24		*Ephippiorhynchus asiaticus*	Black Necked Stork			
25		*Leptoptelis dubius*	Greater Adjutant Stork		E	
26		*Leptoptelis javanicus*	Lesser Adjutant Stork		V	
27	Threskiornithidae(Ibis)	*Pseudibis papillos*	Red-naped Ibis			
28	Anatidae(Ducks & Gees)	*Dendrocygna javanica*	Lesser Whistling Duck			

SN	Family	Scientific Name	Common Name	GON	IUCN	CITES
				1973	1994	1994
29		Cygnus columbianus				
30		Anser fabalis				
31		*Anser anser*	Greylag goose			
32		*Anser indicus*	Bar headed goose			
33		*Tadorna ferruginea*	Ruddy Shelduck			
34		*Tadorna tadorna*	Common Shelduck			
35		*Nettapus coromandelianus*	Cotton Pigmy Goose			
36		*Anas penelope*	Eurasian Wigeon			2
37		*Anas falcata*	alcated duck			
38		*Anas strepera*	Gad wall			
39		*Anas crecca*	Common Teal			
40		*Anas platyrhynchos*	Mallard			
41		*Anas poecilorhyncha*	Spotbill			
42		*Anas acuta*	Northern Pintail			
43		*Anas querquedula*	Garganey			
44		*Anas clypeata*	Northern shoveler			
45		*Netta rufina*	Red crested Pochard			
46		*Aythya ferina*	Common Pochard			
47		*Athya nyroca*	Ferruginous Duck			
48		*Athya filigula*	Tufted duck			
49		*Bucephala clangula*	Common Golden eye			
50		*Mergellus albelus*	Smew			
51		*Mergus merganser*	Goosander			
52	Accipitridae (Birds of prey)	*Aviceda leuphotes*	Black Baza			
53		*Pernis ptilorhyncus*	Crested Honey Bizzard			
54		*Elanus caeruleus*	Black Shouldered Kite			2
55		*Milvus migarns*	Black Kite			
56		*Haliaeetus leucoryphus*	Pallas's Fish Eagle			
57		*Haliaeetus indus*	Brahmini Kite			
58		*Haliaeetus albicilla*	White tailed eagle		V	1
59		*Ichthyophaga humilus*	Eagle			
60		*Ichthyophaga ichthyaetus*	Grey headed fishing eagle			
61		*Neophron percnopterus*	Egyptian vulture			

SN	Family	Scientific Name	Common Name	GON	IUCN	CITES
				1973	1994	1994
62		*Gyps bengalensis*	Oriental white blacked vulture			
63		*Gyps fulvus*	Eurasian Griffon Vulture			
64		*Gyps indicus*	Indian Griffon			
65		*Sarcogyps calvus*	Red headed vulture			
66		*Aegypius monachus*	Eurassian Black Vulture		V	2
67		*Circaetus gallicus*	Short toed eagle			
68		*Spilornis cheela*	Crested Serpent Eagle			2
69		*Cicus aeruginosus*	Eurasian Marsh Harrier			
70		*Cicus cyaneus*	Hen Harrier			
71		*Cicus macrourus*	Pallid Harrier			
72		*Cicus pygargus*	Montagu's Harrier			
73		*Cicus melanoleucus*	Pied Harrier			2
74		*Accipiter gentilis*	Northern Goshok			
75		*Accipiter nisus*	Shikra			
76		*Accipiter virgatus*	Besra			
77		*Accipiter trivigatus*	Crested Goshawk			2
78		*Accipiter badius*	Common Buzzard			2
79		*Butastur teesa*	White eyed Buzzard			2
80		*Buteo buteo*	Common Buzzard			2
81		*Buiteo rufinus*	Long legged buzzard			2
82		*Buteo hemilasius*	Upland buzzard			2
83		*Ictinaetus malayensis*	Black eagle			
84		*Aquila pomarina*	Lesser spotted eagle			2
85		*Aquila clanga*	Greater spotted eagle			
86		*Aquila nipalensis*	Steppe Eagle			
87		*Hieraaetus pennatus*	Booteed eagle			
88		*Aquila vindhiana*	Tawny eagle			
89		*Hieraatus kienerii rufosus*	Bellied eagle			
90		*Aquila heliaca*	Imperial Eagle		R	1
91		*Aquila chrysaetos*	Golden Eagle			
92		*Spizaetus cirrhatus*	Changeable hawk eagle			2
93		*Spizaetus nipalensis*	Mountain Hawk eagle			2
94		*Pandion haliaetus*	Osprey			2

SN	Family	Scientific Name	Common Name	GON	IUCN	CITES
				1973	1994	1994
95	Falconidae	*Microhirex caerulescens*	Red-thighed falconet			
96		*Falco tinnunculus*	Common crestrel			
97		*Falco chicquera*	Red-necked Falcon			2
98		*Falco amurensis*	Amur Falcon			2
99		*Falco subbuteo*	Eurrasian Hobby			
100		*Falco severus*	Oriental hobby			2
101		*Falco naumanni*	Lesser Kestral			2
102		*Falco jugger*	Lagger			2
103		*Falco peregrinus*	Peregrine			1
104	Phasianidae (Game birds)	*Francoplinus francolinus*	Black francolin			
105		*Lophura leucomelana*	Kalij Pheasant			
106		*Francoplinus gularis*	Swamp Francolin		V	
107		*Coturnix coturnix*	Common quail			
108		*Coturnix coromandelica*	Black breasted Quail			
109		*Coturnix chinensis*	Blue breasted Quail			
110		*Gallus gallus*	Red jungle Fowl			
111		*Pavo cristatus*	Blue peafowl			
112	Turnicidae (Button quails)	*Turnix sylvatica*	Striped button Quail			
113		*Turnix tanki*	Yellow legged button quail			
114	Rallidae (Rails & Crakes)	*Porzana pusilla*	Bailon's crakes			
115		*Porzana fusca*	Ruddy breasted Crake			
116		*Amaurornis akool*	Brown crake			
117		*Amaurornis phoenicurus*	White brested water hen			
118		*Gallinula chloropus*	Common moorhen			
119		*Porphyrio porphyrio*	Purple Gallinule			
120		*Fulica arta*	Common Coot			
121	Gruidae	*Grus grus*	Common Crane	P		
122		*Anthropoides virgo*	Demoiselle Crane			2
123		*Grus antigone*	Sarus Crane	P		
124	Otitidae (Bustards)	*Houbaropsis bengalensis*	Bengal Florican	P	E	1
125		*Sypheotides indica*	Lesser florican	P	E	1
126	Jacanidae (Jacane)	*Hydrophasianus chirurgrus*	Pheasant tailed Jacana			

SN	Family	Scientific Name	Common Name	GON	IUCN	CITES
				1973	1994	1994
127		*Metopidus indicus*	Bronze winged Jacabna			
128	Rostratudilae (Painted snipe)	*Rostratula benghalensis*	Greater Painted snipe			
129	Recurvirostridae (Ibisbil &Stilts)	*Haematopus himantopus*	Black-wing Stilt			
130		*Recurvirostra avoretta*	Avocet			
131	Burhinidae (Stone curlew)	*Burhinus oedicnemus*	Northern Stone curlew			
132		*Esacus recorvirostris*	Great stone plover			
133	Glaereolidae (Pratincole)	*Glareola maldivarum*	Oriental Pratincole			
134		*Glareola lactea*	Little Pratincole			
135	Charadriidae (Waders)	*Charadrius mongolus*	Lesser sand plover			
136		*Pluvialis fulva*	Pacific Golden Plover			
137		*Himantopus himantopus*	Black winged stilt			
138		*Recorvirostra avosetta*	Pied avocet			
139		*Hoplopterus duvauceli*	River Plover			
140		*Hoplopterus malabaricus*	Yellow wattled plover			
141		*Hoplopterus cinereus*	Grey headed plover			
142		*Hoplopterus indicus*	Red wattled plover			
143		*Vanellus vanellus*	Northern lapwing			
144	Scolopacidae	*Calidris alba*	Sanderling			
145		*Calidris minuta*	Little stint			
146		*Calidris temminckii*	Temminck's Stint			
147		*Calidris ferruginea*	Curlew Sandpiper			
148		*Calidris alpina*	Dunlin			
149		*Philomachus pugnax*	Ruff			
150		*Lymnocryptes minimus*	Jack snipe			
151		*Gallinago gallinago*	Common snipe			
152		*Gallinago stenura*	Pintail snipe			
153		*Scolopax rusticola*	Eurasian wood cock			
154		*Numenius phaepus*	Whimbrel			
155		*Numenius arquata*	Eurasian curlew			
156		*Tringa erythropus*	Spotted redshank			
157		*Tringa totanus*	Common Redshank		1	
158		*Tringa stagnatilis*	Marsh Sandpiper			
159		*Tringa nebularia*	Common Greenshank			

SN	Family	Scientific Name	Common Name	GON	IUCN	CITES
				1973	1994	1994
160		*Tringa achropus*	Green sanpiper			
161		*Tringa glareola*	Wood sandpiper			
162	Laridae (Gulls)	*Larus ichthyaetus*	Great black headed Gull			
163		*Larus ridibundus*	Common black headed Gull			
164		*Larus brunnicephalus*	Brown headed Gull			
165		*Gelochelidon nilotica*	Gull bill ed Tern			
166	Terns	*Sterna caspia*	Caspian Tern			
167		*Sterna aurantia*	River Tern			
168		*Sterna hirundo*	Common Tern			
169		*Sterna acuticauda*	Black bellied Tern			
170		*Sterna albifrons*	Little Tern			
171		*Chlidonias leucopterus*	White winged Black Tern			
172		*Rynchops albicollis*	Indian Skimmer			
173	Columbidae (Doves)	*Cloumba livia*	Rock Pigeon			
174		*Streptopelia decaocto*	Eurasian collared Dove			
175		*Streptopelia tranquebarica*	Red turtle dove			
176		*Streptopelia orientalis*	Oriental(Rufous) Turtle dove			
177		*Streptopelia chinensis*	Spotted Dove			
178		*Streptopelia senegalensis*	Laughing Dove			
179		*Chalcophas indica*	Emerald dove			
180		*Treron bicincta*	Orange breasted green pigeon			
181	Pigeons	*Treron pompadora*	Pompador green pigeon			
182		*Treron phoenicoptera*	Yellow footed green pigeon			
183		*Treron curvirostra*	Thick billed Green Pigeon			
184		*Treron apicauda*	Pin- tail Green Pigeon			
185		*Ducul badia*	Imperial Pigeon			
186	Psittaculidae (Parakeets)	*Psitta eupatria*	Alexandrine Parakeet			
187		*Psittacula krameri*	Ring necked Parakeet			

SN	Family	Scientific Name	Common Name	GON	IUCN	CITES
				1973	1994	1994
188		*Psittacula himalayana*	Slaty headed Parakeet			
189		*Psittacula cyanocephala*	Blossom headed Parakeet			
190		*Psittacula alexandrii*	Moustached Parakeet			
191		*Psittacula roseata*	Blossom headed Parakeet			
192	Cuculidae (Cuckoos)	*Clamator coromandus*	Chestnut winged cuckoo			
193		*Clamato jacobinus*	Pied crested (Jacobin)			
194		*Chrysococcyx malculatus*	Emerald Cuckoo			
195		*Cocomantis sonneratii*	Banded Bay Cukcoo			
196		*Hieococcyx varius*	Common Hawk cuckoo			
197		*Hieococcyx sparverioides*	Large Hawk Cuckoo			
198		*Cacomantis paserinus*	Grey bellied Plaintive Cockoo			
199		*Cacomantis merulinus*	Rufous bellied plaitive cockoo			
200		*Cuculus micropterus*	Indian cuckoo			
201		*Cuculus canorus*	Common cuckoo			
202		*Surnculus lugubris*	Drongo cuckoo			
203		*Eudynamys scolopacea*	Common koel			
204		*Phaenicophaeus tristis*	Green billed Malcoha			
205		*Phaenicophaeus leschenaultii*	Sirkeer Malkoha			
206	Centropodae	*Centropus sinensis*	Greater Coucal			
207		*Centropus bengalensis*	Lesser Coucal			
208	Strigidae (Owls)	*Otus bakkamoena*	Collared scops owl			
209		*Tyto capensis*	Grass owl			
210		*Bubo coromandus*	Dusky eagle owl			
211		*Bubo nipalensis*	Forest eagle owl			
212		*Ketupa flavipes*	Tawny fish owl			
213		*Ketupa zylonensis*	Brown fish owl			
214		*Glaucidium radiatum*	Jungle owlet			
215		*Glaucidium cuculoides*	Asian barred owlet			
216		*Ninox scutulata*	Brown Hawk owl			
217		*Athene brama*	Spotted little owl			
218		*Asio flammeus*	short eared owl			

SN	Family	Scientific Name	Common Name	GON	IUCN	CITES
				1973	1994	1994
219	Caprimulgidae (Nightjars)	*Caprimulgus asiaticus*	Indian Nightjar			
220		*Caprimulgus macrurus*	Large tailed Nightjar			
221		*Caprimulgus affinus*	Franklin's Nightjar			
222		*Caprimulgus indicus*	Jungle Nightjar			
223	Apopidae (Swifts)	*Zoonavena sylvatica*	White-rumped Needletail			
224		*Hirundapus caudacutus*	White throated Needletail			
225		*Hirundapus cochinchinensis*	white vented needletail			
226		*Colocallia brevirostris*	Himalayan Swiftlet			
227		*Apus apus*	Common Swift			
228		*Apus pacificus*	Pacific Swift			
229		*Apus melba*	Alpine Swift			
230		*Apus affinis*	Little Swift			
231		*Cypsiurus balasiensis*	Asian Palm Swift			
232	Hemiprocnidae	*Hemiprocne coronata*	Crested Tree Swift			
233	Trogonidae	*Hapactes erythrocephalus*	Red Headed Trogon			
234	Alcedinidae (Kingfishers)	*Halcyon symmensis*	White brested kingfisher			
235		*Halcyon pileata*	Black capped kingfisher			
236		*Pelargopsis capensis*	Stork billed kingfisher			
237		*Alcedo meninting*	Blue Eared Kingfisher			
238		*Alcedo atthis*	Common kingfisher			
239		*Ceryle lugubris*	Large pied Kingfisher			
240		*Ceryle rudis*	Pied kingfisher			
241	Meropidae (Bee eaters)	*Meropes orientalis*	(Little) Green bee eater			
242		*Meropes phillipinus*	Blue tailed bee eater			
243		*Meropes leschenaulti*	Chestnut headed bee eater			
244	Coracidae (Rollers)	*Eurystomus benghalensis*	Dark Roller			
245		*Coracias bengalensis*	Indian Roller			
246	Bucerotidae (Horn Bills)	*Buceros bicornis*	Gaint Horn Bill			

SN	Family	Scientific Name	Common Name	GON	IUCN	CITES
				1973	1994	1994
247		*Anthracoceros malabricus*	Pied Hornbill			
248		*Tockus biristris*	Indian Grey hornbill			
249	Upupidae (Hoopoes)	*Upupu epops*	Hoopoe			
250	Capitonidae	*Mengalaima haemacephala*	Crimson-breasted Barbet			
251	Picidae (Wood peckers)	*Jynx torquilla*	Eurasian Wryneck			
252		*Picus canus*	Grey headed woodpecker			
253		*Picus flavinucha*	Large Yellow-napped woodpecker			
254		*Picus mymencophoneus*				
255		*Picus chlorophus*	lSmall Yellownaped woodpecker			
256		*Celeus brachyurus*	Rufous woodpecker			
257		*Dinopium shorii*	Three-toed Golden-back woodpecker			
258		*Dinopium benghalense*	Lesser Golden backed woodpecker			
259		*Dendrocopos mahrattensis*	Yellow-fronted Pied Woodpecker			
260		*Dendrocopos canicapillus*				
261		*Dendrocopos molucconsis*				
262		*Dendrocopos macei*	Fulvous breasted			
263		*Chrysocalaphas lucidus*	Large Golden-backed Woodpecker			
264		*Mulleripicus pulverulentus*	Great Slaty Woodpecker			
265		*Picumnus innominatus*				
266		*Sesia ochracea*				
267	Eurylaimidae	*Parisomus dalhousae*	Long-tailed Broad Bill			
268	Pittidae	*Pitta sordida*	Green Breasted Pitta			
269		*Pitta Prachyura*	Indian Pitta			
270	Alaudidae (Lark)	*Mirafra assamica*	Bengal bush lark			
271		*Eremopterix grisea*	Ashy crowned Finchlark			

SN	Family	Scientific Name	Common Name	GON	IUCN	CITES
				1973	1994	1994
272		*Calendrella brachydactyla*	Greater shorttoed lark			
273		*Calendrella raytal*	Sandlark			
274		*Alauda gulgula*	Oriental skylark			
275	Hirundinidae (Swallows)	*Riparia paludicola*	Brown throated Sand Martin			
276		*Riparia riparia*	Collard Sand Martin			
277		*Ptyonoprogne rupestris*	Crag Martin			
278		*Hirundo rustica*	Barn Swallow			
279		*Hirundo smithii*	Wire tailed Swallow			
280		*Hirundo daurica*	Red rumped Swallow			
281		*Hirundo fluvicola*	Indian cliff Swallow			
282		*Delichon nipalensis*	Nepal house Martin			
283		*Delichon dasypus*				
284		*Delichon urbica*	Common house Martin			
285	Motacillidae (pipits)	*Anthus richardi*	Richard's Pipit			
286		*Anthus novaeseclandie*	paddyField Pipit			
287		*Anthus cervinus*				
288		*Anthus hodgsoni*	Olive backed pipit			
289		*Anthus trivialis*	Tree pipit			
290		*Anthus roseatus*	Rosy pipit			
291		*Anthus spinoletta*	water pipit			
292		*Dendronanthus indicus*	Red Throated Pipit			
293	Ploceidae (Wagtails)	*Motacilla flava*	Yellow wagtail			
294		*Motacilla citreola*	Citrine wagtail			
295		*Motacilla cinerea*	Grey wagtail			
296		*Motacilla alba*	White wagtail			
297		*Motacilla maderaspatensis*	White browed Wagtail			
298	(Sparrow)	*Passer domesticus*	House sparrow			
299		*Passer montanus*	Eurasian Tree Sparrow			
300		*Passer hispaniolensis*	Spanish Sparrow			
301		*Ploceus philippinus*	Baya weaver			
302		*Ploceus benghalensis*	Black breasted Weaver			
303		*Ploceus manyar*	Streaked weaver			
304	(Munias)	*Amandava amandava*	Red Avadavat			

SN	Family	Scientific Name	Common Name	GON	IUCN	CITES
				1973	1994	1994
305		*Euodice malabarica*	Indian silverbill			
306		*Lonchura striata*	Striated Munia			
307		*Lonchura punctulata*	Scaly breasted Munia			
308		*Lonchura malacca*	Chestnut Mania			
309	Fringillidae	*Carpodacus erythrinus*	Common Rose Finch			
310	Campaphagadae (Cuckoo-shrikes)	*Coracina melanoptera*	Black headed Cuckoo shrike			
311		*Coracina melaschistos*	Black winged Cuckoo shrike			
312		*Coracina novaehollandiae*	Large Cuckoo shrike			
313		*Tephrodornis pondicerianus*	Lesser Wood Shrike			
314		*Tephrodornis gularis*	Large wooded Shrike			
315		*Hemipus picatus*	Pied wood Shrike			
316	(Minivets)	*Pericrocotus cinnanomes*	Small Minivet			
317		*Pericrocotus flammeus*	Scarlet minivet			
318		*Pericrocotus ethologus*	Long-tailed Minivet			
319		*Pericrocotus roseus*	Rosy minivet			
320	Pyctonotidae (Bulbul)	*Pycnonotus cafer*	Red whiskered Bulbul			
321		*Pycnonotus leucogenys*				
322		*Pycnonotus jocosus*	Red vented Bulbul			
323		*Pycnonotus melanicterus*	Black crested Bulbul			
324		*Criniger flaveolus*	White Throated bulbul			
325		*Hypsipetes madagascariensis*	Grey Bulbul			
326	Irenidae (lora)	*Chloropsis aurifrons*	Golden throated leafbird			
327		*Chloropsis hardwickii*	Orange-belied leafbird			
328		*Aegithina tiphia*	Common lora			
329	Turdidae (Ruby throats)	*Brachypteryx montana*	White Browed Shortwing			
330		*Luscinia calliope*	Eurasian Rubythroat			
331		*Luscinia svecica*	Blue throat			
332		*Luscinia pectoralis*	Himalayan bubythroat			
333		*Luscinia brunneas*	Blue Chat			

SN	Family	Scientific Name	Common Name	GON	IUCN	CITES
				1973	1994	1994
334		*Copsychus saularis*	Robin Dhyal			
335		*Copsychus malabaricus*	White rumped Shama			
336	(Redstarts)	*Phoenicurus ochruros*	Black Redstarts			
337		*Rhyacornis fuliginosus*	Plumbeous Redstsrt			
338		*Cinclidium leucura*	White tailed Robin			
339	(Bushchats)	*Saxicola torquata*	Common Stonechat			
340		*Saxicola leucura*	White tailed Stonechat			
341		*Saxicola insignis*	Hodgson'sBushchat			
342		*Saxicola caprata*	Pied Bushchat		K	
343		*Saxicola ferrea*	Grey Bushchat			
344		*Oenanthe oenanthe*	Isbelline Wheatear			
345		*Oenanthe Deserti*	Desert Wheater			
346		*Chaimaromis leucocephalus*	White capped Redstart			
347		*Saxicoloides fulicata*	Indian Robin			
348	(Thrus)	*Monticola cinclorhyncha*	Blue headed Rock Thrus			
349		*Monticola solitarius*	Blue Rock Thrus			
350		*Myiophoneus caeruleus*	Blue Whistling Thrus			
351		*Zoothera monticola*	Large Billed Thrush			
352		*Zoothera dauma*	Scaly (White's) Thrus			
353		*Zoothera citrina*	Orange headed Grond Thrus			
354		*Turdus boulboul*	Gray winged Blackbird			
355		*Turdus ruficollis*	Dark throated			
356		*Enicurus immaculatus*	Black-back forktail			
357	Sylvidae (Warblers)	*Tesia cyaniventer*	Slaty-bellied Ground Wabler			
358		*Tesia castaneo-coronata*	Chestnut -headed Ground Warbler			
359		*Cettia pallidipes*	Pale fotted Bush Warbler			
360		*Cettia major*	Chestnut crowned Bush Warbler			
361		*Cettia flavolivacea*	Aberrent Bush Warbler			
362		*Cettia brunnifrons*	Grey sided Bush Warbler			

SN	Family	Scientific Name	Common Name	GON	IUCN	CITES
				1973	1994	1994
363		*Bradypterus thoracicus*	Spotted Bush Warbler			
364		*Bradypterus taczanowskius*	Chinese Bush Warbler			
365		*Locustella lanceolata*	Lanceolated Warbler			
366		*Locustella naevia*	Grasshopper Warbler			
367		*Cisticola exilis*	Bright capped Cisticola			
368		*Cisticola juncidis*	Fan tailed Cisticola			
369		*Prinia gracilis*	Graceful Prinia			
370		*Prinia inornata*	Plain Prinia			
371		*Prinia socialis*	Ashy Prinia			
372		*Prinia hodgsonii*	Grey breasted Prinia			
373		*Prinia flaviventris*	Yellow bellied Prinia			
374		*Prinia criniger*	Striated Prinia			
375		*Prinia cinereocapilla*	Grey-capped Prinai			
376		*Graminicola bengalensis*	Large Grass Warbler			
377		*Orthotomus sutorius*	Common Tailor bird			
378		*Megalurus palustris*	Striated Marsh Warbler			
379		*Acrocephalus bistrigiceps*	Black browed Reed Warbler			
380		*Acrocephalus agricola*	Paddyfield Warbler			
381		*Acrocephalus concinens*				
382		*Acrocephalus dumetorum*	Blyth's Reed Warbler			
383		*Acrocephalus stentoreus*	Clamorous Reed Warbler			
384		*Acrocephalus aedon*	Thick billed Warbler			
385		*Hippolais caligata*	Booted warbler			
386		*Seicercus burkii*	Golden spectacled Warbler			
387		*Seicercus castaniceps*	Chestnut-Crowned Warbler			
388		*Seicercus xanthoscheistos*	Gray Headed Warbler			
389		*Abroscopus superciliaris*	Yellow bellied Warbler			
390		*Phylloscopus occipitalis*	Large Crowned Leaf Warbler			

SN	Family	Scientific Name	Common Name	GON	IUCN	CITES
				1973	1994	1994
391		*Phylloscopus reguloides*	Greenish warbler			
392		*Phylloscopus cantator*	Dull Green Leaf Warbler			
393		*Phylloscopus magnirostris*	Large billed Leaf Warbler			
394		*Phylloscopus inomatus*	Yellow Warbler			
395		*Phylloscopus fuscatus*	Dusky's Warbler			
396		*Phylloscopus fuligiventer*	Smoky Warbler		S	
397		*Phylloscopus griseolus*	Sulphur bellied Warbler			
398		*Phylloscopus affinis*	Tickell's Warbler			
399		*Phylloscopus collybita*	Chiff Chaff			
400		*Phylloscopus proregulus*	Yellow-rumped Leaf Warbler			
401		*Chaetornis striatus*	Bristled Grass bird			
402		*Sylvia curruca*	Lesser Whitethroate			
403		*Sylvia hortensis*	Orphean Warbler			
404	Muscicapidae (Flycatchers)	*Cyornis rubeculoides*	Blue throated flycatcher			
405		*Cyornis tickelliae*	Tickell's Blue Flycatcher			
406		*Cyornis poliogenyse*				
407		*Muscicapa thalassina*	Verditer Flycatcher			
408		*Muscicapa sibirica*	Asian Sooty Flycatcher			
409		*Muscicapa latirostris*	Brown Flycatcher			
410		*Muscicapa ruficauda*	Rusty-tailed Flycatcher			
411		*Ficeluda superciliaris*	White Browed Flycatcher			
412		*Ficeluda tricolor*	Blue flycatcher			
413		*Ficeluda huperythra*	Rufous-breasted Blue Flycatcher			
414		*Ficeluda stophiata*	Orange Gorgetted flycatcher			
415		*Ficeluda hodgsonii*	Slaty backed Flycatcher			
416		*Ficeluda subrubra*	Little Pied Flycatcher			

SN	Family	Scientific Name	Common Name	GON	IUCN	CITES
				1973	1994	1994
417		*Ficeluda westermanii*	Red breasted Flycatcher			
418		*Culicicappa ceylonensis*	Grey headed Flycatcher			
419		*Rhipidura hypoxantha*	Yellow-bellied Fantail Flycatcher			
420		*Rhipidura aureola*	White-breasted Fantail Flycatcher			
421		*Rhipidura albicollis*	White throated fantail			
422		*Terpisphone paradisi*	Asian paradise Flycatcher			
423	Timaliidae (Babbler and Thrush)	*Pellorneus ruficeps*	Spotted Babbler			
424		*Pomatorhinus erythronenys*	Rusty-checked Schimiter Babbler			
425		*Pomatorhinus schisticeps*	Slaty-headed Babbler			
426		*Pnoepyga pusilla*	Lesser Scaly-breasted Babbler			
427		*Stachyris pyrrhops*	Babbler-chinned Babbler			
428		*Stachyris nigriceps*	Black-throated Babbler			
429		*Dumetia hyperythra*	Rufous-bellied Babbler			
430		*Timelia pileata*	Red-capped Babbler			
431		*Chrysomna sinensis*	Yellow-eyed Babbler			
432		*Turdoides earlei*	Striated Babbler			
433		*Turdoides striatus*	Jungle Babbler			
434		*Turdoides longirositris*	Slender-billed Babbler			
435		*Garrulax moniligerus*	Lesser Necklaced Laughing Thrush			
436		*Garrulax pectoralis*	Large Necklaced Laughing Thrush			
437		*Garrulax rufogularis*	Rufous-chinned Laughing Thrush			
438		Alcippe nipalensis	Abbott"s Babbler			
439		Yuhina zantholeuca	White Bellied Yuhina			
440	Paridae (Tits)	*Parus ater*	Great tit			
441		*Melanochlora sultanea*	Sultan Tit			

SN	Family	Scientific Name	Common Name	GON	IUCN	CITES
				1973	1994	1994
442	Sittidae (Nuthatch)	*Sitta frontalis*	Velvet-fronted Nuthatch			
443		*Sitta castanea*	Chestnut-bellied Nuthatch			
444	Nectarinidae (Sunbirds)	*Nectarinia asiatica*	Purple Sunbird			
445		*Aracchnothera longirostra*	Little spiderhunter			
446		*Anthreptes singalensis*	Rubycheek			
447		*Aethopyga saturata*	Black-breasted Sunbird			
448		*Aethopyga siparaji*	Scarlet-breasted Sunbird			
449		*Arachnothera magna*	Streaked Spiderhunter			
450	Dicidae (Flowerpeckers)	*Dicaeum erythrorynchos*	Pale billed Flowerpecker			
451		*Dicaeum agile*	Thick billed Flowerpecker			
452		*Dicaeum ignipectus*	Free-breasted Flowerpecker			
453	Zosteropidae	*Zosterops palpebrosa*	Oriental white eyed			
454	Oriolidae (Orioles)	*Oriolus xanthomus*	Black hooded Oriole			
455		*Oriolus oriolus*	Golden Oriole			
456		*Oriolustrailii*	Maroon Oriole			
457		*Oriole chinensis*	Black napped Oriole			
458	Laniidae (Shrikes)	*Lanius cristatus*	Brown Shrike			
459		*Lanius vittatus*	Bay backed Shrike			
460		*Lanius tephronotus*	Grey-backed Shrike			
461		*Lanius schach*	Long tailed Shrike			
462	Dicruridae (Drongo)	*Dicrurus macrcercus*	Black Drongo			
463		*Dicrurus caerulescens*	White bellied Drongo			
464		*Dicrurus annectans*	Crow billed Drongo			
465		*Dicrurus paradiseus*	Greater Racket tailed Drongo			
466		*Dicrurus leucophaeus*	Ashy Drongo			
467		*Dicrurus aeneus*	Bronzed Drongo			

SN	Family	Scientific Name	Common Name	GON	IUCN	CITES
				1973	1994	1994
468		*Dicrurus hottentottus*	Spangled Drongo			
469		*Dicrurus remifer*	Small Racquet-tailed Drongo			
470	Artamidae (Wood Swallow)	*Artamus fuscus*	Ashy wood swallow			
471	Corvidae (Magpies)	*Urocissa erythrorhyncha*	Red billed Blue Magpie			
472		*Dendrocitta vagabunda*	Rufous Treepie			
473		*Cissa chinenis*	Green Magpie			
474	(Crows)	*Corvus splendens*	House crow			
475		*Corvus macrorynchos*	Jungle crow			
476	Sturnidae (Mynah and Starlings)	*Saroglossa spiloptera*	Spot-winged Stare			
477		*Sturnus malabaricus*	Chestnut tailed Starling			
478		*Sturnus pagodarum*	Brahminy Satarling			
479		*Sturnus vulgaris*	Common Starling			
480		*Sturnus contra*	Asian Pied Starling			
481		*Acridotheres tristis*	Common Mynah			
482		*Acridotheres lascus*	Bank Myna			
483		*Acridotheres fuscus*	Jungle Mynah			
484		*Gracula religiosa*	Hill Myna			
485	Emberizidae (Bunting)	*Emberiza spodocephala*	Black faced Bunting			
486		*Emberiza fucata*	Chestnut eared Bunting			
487		*Emberiza aureola*	Yellow breasted Bunting			
488		*Emberiza rutila*	ChesnutBunting			
489		*Emberiza bruniceps*	Red headed Bunting			
490		*Melophus lathami*	Crested Bunting			

Annex IV
List of Herpetofauna in PNP

SN	Scientific Names	Local Names	Family	CITES	IUCN	NRDB*
	ORDER : ANURA					
1	*Kaloula pulchra*	Painted bullfrog	*Microhylidae*			
2	*Rana crassa*	Jerdons Bull Frog	*Microhylidae*			
3	*Uperodon globulosus*	Globular frog	*Microhylidae*			
	ORDER : SAURIA					
4	*Mabuya macularia*	Speckled Forest Skink	*Scincidae*			
5	*Calotes versicolor*	Common Garden Lizard	Agamidae			
6	*Varanus bengalensis*	Monitor Lizard	Varanidae		S	
7	*Varanus flavescens*	Golden Monitor	Varanidae	I		S
	ORDER : SERPENTES					
8	*Rhamphotyphlops braminus*	Brahminy Blind Snake	*Typhlopidae*			
9	*Eryx conicus*	Russell's Earth Boa	*Boidae*			
10	*Python molurus molurus*	Asiatic Rock Python	*Boidae*			
11	*Bungarus caeruleus*	Blue Krait	Elapidae			
12	*Bungarus fasciatus*	Banded Krait	Elapidae			
13	*Naja naja*	Common Cobra	Elapidae			
14	*Ophiophagus hannah*	King Cobra	Elapidae	III		V
15	*Ptyas mucosus*	Asiatic Rat Snake	Colubridae			S

Source:BPP(1995No.12)

* NRDB = Nepal Red Data Book

Annex V
List of Fishes reported in PNP

SN	Order/Family/Local Names	Scientific Names	NRDB	Region	Sites
	ORDER: CLUPEIFORMES				
	Family - Clupeidae				
1	Suia, Sidhri	Gudusia chapra		TS	6
2	Suia	Gudusia godanahiae			5
	Family - Notopteridae				
3	Golhi, Patara, Mohi	Notopterus notopterus		TS	8
	ORDER : CYPRINIFORMES				
	Family - Cyprinidae				
4	Bhakur, Katla	Catla catla		TS	5
5	Naini, Mrigal, Jhilke	Cirrhinus mrigala		TS	5
6	Rewa	Cirrhinus reba		TS	8
7	Kande, Bhitti, Sidhri	Puntius sarana			6
8	Pothi, Sidhri	Puntius sophore			6

Source: BPP (1995 No. 12)

Annex VI
List of Butterflies of PNP

SN	Family	Scientific Name	Common Name
1	Danidae	*Danaus chrysippus*	Plain Tiger
2		*Euploea core*	Common Indian Crow
3		*Parantica melaneus*	Chocolate Tiger
4	Hesperiidae	*Borbo cinnara*	Rice Swift
5		*Caprona agama*	Spotted Angle
6		*Oriens goloides*	Ceylon Darltlet
7		*Sarangesa dasahara*	Common Small Flat
8	Lacaenidae	*Spindasis vulcanus*	Common Silverline
9		*Zizeeria karsandra*	Dark Grass Blue
10		*Zizeeria maha*	Pale Grass Blue
11	Nymphalidae	*Ariadne merione*	Common Castor
12		*Athyma perius*	Common Sergeant
13		*Cupha erymanthis*	Rustic
14		*Hypolimnas bolina*	Great Eggfly
15		*Hypolimnas misippus*	Danaid Eggfly
16		*Neptis hylas*	Common Sailer
17		*Precis almana*	Peacock Pansy
18		*Precis hierta*	Yelllow Pansy
19		*Precis lemonias*	Lemon Pansy
20		*Tanaecia lepidea*	Common Earl
21	Papilionidae	*Chilasa clytia*	Common Mime
22		*Papilio demoleus*	Line Swallowtail
23		*Papilio polytess*	Common Mormon
24	Pieridae	*Catopsilia pyranthe*	
25		*Eurema hacabe*	
26	Satyridae	*Elymnias hypermnestra*	Common Palmfly
27		*Melanitis leda*	Common Evening Brown
28		*Mycalesis mamerta*	Blind Eye Bushbrown
29		*Mycalesis mineas*	
30		*Orsotrioena medus*	Jungle Brown
31		*Ypthima baldus*	Common Five Ring

Source: Budha et. al. (1998).

Annex VII-A
Parsa Wildlife Reserve Declaration Gazette

नेपाल राजपत्र

भाग ३

श्री ५ को सरकारद्वारा प्रकाशित

खण्ड ३४) काठमाडौं, जेठ ८ गते २०४१ साल (संख्या ६

श्री ५ को सरकार

वन तथा भू-संरक्षण मन्त्रालयको

सूचना

श्री ५ को सरकारले राष्ट्रिय निकुञ्ज तथा वन्यजन्तु संरक्षण ऐन, २०२९ को दफा ३ को उपदफा (१) ले दिएको अधिकार प्रयोग गरी नारायणी अञ्चलको पर्सा, मकवानपुर र चितौन जिल्लाको केही भागलाई समावेश गरी बेहायको चारकिल्ला-भित्रको क्षेत्रलाई पर्सा वन्यजन्तु आरक्ष घोषित गरेको छ ।

किल्ला :

उत्तरः साविकको शाही चितवन राष्ट्रिय निकुञ्जको सिमाना हस्ता खोला र राप्ती नदीको दोभानबाट राप्ती नदीको उत्तर किनार हुँदै पूर्वतर्फ गई आवादी बाहिर पार्दै बगी खोलासम्म, त्यहाँबाट बगी खोला हुँदै चुरे पहाडको टुप्पामा पुगी डाँडै डाँडा पूर्वतर्फ गई चुरेबाट दक्षिण बग्ने भेराह खोलाको शीरसम्म ।

पूर्वः भेराह खोला हुँदै आधाभारको वन पथसम्म ।

दक्षिणः आधाभार वन पथ (फायर लाइन) हुँदै शिकारीवासको शाही चितवन राष्ट्रिय निकुञ्जको सिमानासम्म (राममारी भाटा गाउँलाई सिमाना लगाई घेर्ने गरी) ।

पश्चिमः शाही चितवन राष्ट्रिय निकुञ्जको सिमाना (धराङ र हस्ता खोला) ।

आज्ञाले,

जितेन्द्रलाल मास्के

श्री ५ को सरकारको सचिव

Annex VII-B
Buffer Zone Declaration Gazette

खण्ड ५५ संख्या ११ नेपाल राजपत्र भाग ३ मिति २०६२।३।१३

श्री ५ को सरकार
वन तथा भू-संरक्षण मन्त्रालयको सूचना

श्री ५ को सरकारले राष्ट्रिय निकुञ्ज तथा वन्यजन्तु संरक्षण ऐन, २०२९ को दफा ३क. को उपदफा (१) ले दिएको अधिकार प्रयोग गरी पर्सा वन्यजन्तु आरक्ष क्षेत्रको वरिपरी पर्सा जिल्ला समेत तीन जिल्लाका देहायको चार किल्ला भित्रको क्षेत्रलाई पर्सा वन्यजन्तु आरक्ष मध्यवर्ती क्षेत्र तोकेकोले यो सूचना प्रकाशन गरेको छ।

(क) पर्सा जिल्ला अन्तर्गतः

पूर्वः गढुवालाईन जाने वनपथबाट शुरू भई वसन्तपुरतर्फ जाने वनपथ हुँदै सेढवा गा.वि.स. वडा नं. ९ को काठमाडौं टोलासम्म।

पश्चिमः शाही चितवन राष्ट्रिय निकुञ्जको मध्यवर्ती क्षेत्रको पूर्वी सीमानामा पर्ने दोरम खोला।

उत्तरः पर्सा वन्यजन्तु आरक्षको दक्षिणी सीमाना।

दक्षिणः सेढवा गा वि स को काठमाडौं टोल हुँदै महादेवपट्टि गा.वि.स. को वार्ड नं ७, ८ र ९ को आवादी क्षेत्र हुँदै सुवर्णपुर गा.वि.स. को दक्षिणी सीमाना भई नेपाल भारतको अन्तर्राष्ट्रिय सीमाना हुँदै निर्मल वस्ती गा.वि.स.को दोरम खोलासम्म।

(ख) वारा जिल्ला अन्तर्गतः

पूर्वः चुरियामाई मन्दिरबाट शुरू हुने दुधौरा खोला हुँदै आधाभारबाट हलखोरिया वह जाने वनपथसम्म र आधाभारबाट वीरगञ्ज जाने राजमार्ग हुँदै जीतपुर गा.वि.स. वडा नं. ४ नगौं गाउँसम्म।

पश्चिमः पर्सा वन्यजन्तु आरक्षको सीमाना भेराहा खोला (पर्सा र वारा जिल्लाको सीमाना)।

उत्तरः चुरियाको उत्तरी रिज।

दक्षिणः जीतपुर गा.वि.स.वडा नं.४ को नगौल गाउँको दक्षिणी सीमाना हुँदै भेराहा खोलासम्म।

(ग) मकवानपुर जिल्ला अन्तर्गतः

पूर्वः चुरीयामाई गा.वि.स. वडा नं. १ स्थित कुखुराना खोलाको पहिलो पुलबाट (चुरिया वस्क कट)शुरू हुने कुखुराना खोलैखोला हुँदै राप्ती नदीको दोभानसम्म।

पश्चिमः शाही चितवन राष्ट्रिय निकुञ्जको मध्यवर्ती क्षेत्रको पूर्वी सीमानासम्म।

उत्तरः कुखुराना खोला र राप्ती नदीको दोभानदेखि राप्ती नदीको उत्तरी किनारा हुँदै रजैयासम्म र त्यहाँबाट महेन्द्र राजमार्गको हेटौडा-नारायणगढ खण्ड हुँदै सुनाचुरी स्थित शाही चितवन राष्ट्रिय निकुञ्जको मध्यवर्ती क्षेत्रको पूर्वी सीमानासम्म।

दक्षिणः पर्सा वन्यजन्तु आरक्षको उत्तरी सीमाना।

आज्ञाले,
फणीन्द्र गौतम
उपसचिव (कानून)

Annex VII-C
Parsa Wildlife Reserve Extension Gazette

भाग ५

नेपाल सरकार

वन तथा भू-संरक्षण मन्त्रालयको

सूचना १

नेपाल सरकारले राष्ट्रिय निकुञ्ज तथा वन्यजन्तु संरक्षण ऐन, २०२९ को दफा ३ को उपदफा (२) ले दिएको अधिकार प्रयोग गरी हाल कायम रहेको पर्सा वन्यजन्तु आरक्षको क्षेत्रफलमा संलग्न बसौजिम चारकिल्ला भित्रको राष्ट्रिय वन क्षेत्रको ११३.६२ वर्ग कि.मी., मध्यवर्ति क्षेत्रबाट आरक्षमा समाबेश गरिने १२.८७ वर्ग कि.मी., आरक्ष भित्रको बस्ती स्थानान्तरण भै कायम हुन आएको १.९० वर्ग कि.मी. र साबिकको ४९९ वर्ग कि.मी. सहित पर्सा वन्यजन्तु आरक्षको कुल क्षेत्रफल ६२७.३९ वर्ग कि.मी. कायम हुनेगरी सिमाना हेरफेर गरेकोले यो सूचना प्रकाशन गरिएको छ।

<u>पर्सा वन्यजन्तु आरक्षमा कायम हुने क्षेत्रको चारकिल्ला</u>

पूर्वः काठमाडौं तराई द्रुतमार्ग (fast track) देखी पश्चिमपट्टी बकैया र नागमणी सामुदायीक वनले गरेको तारवारको दक्षिण पश्चिम सिमाना पथलैया-निजगढ राजमार्ग स्थित बिन्दु (GPS Location 27^0 10.73' N - 85^0 08.44' E) देखि कछडिया सामुदायिक वनको दक्षिण पश्चिमी किनारा (GPS Location - 27^0 12.6' N - 85^0 08.40' E) स्थित अग्निपथको बिन्दुसम्म ।

पश्चिमः आधाभार निर्मलबस्ती वनपथमा भेटिने भेडाहा खोलाबाट ५०० मिटर दक्षिणदेखि गई खोलैखोला उत्तरतर्फ मझौनाबाट पुरानो रेलवे लीग नं. ३ हुँदै भेडाहा खोलासम्म पुग्ने बिन्दु (GPS Location - 27^0 15.720' N - 84^0 58.487' E) सम्म ।

४

उत्तरः मझौनाबाट पुरानो रेलवे लीग नं. ३ हुँदै भेडाहा खोलामा भेटिने बिन्दु (GPS Location - 27^0 15.720' N - 84^0 58.487' E) बाट हेटौंडा – पथलैया राजमार्गको पश्चिमी किनारामा अवस्थित मझौना हुंदै सिधा दुधौरा खोलासम्म र त्यहाबाट बंगेरी र दुधौरा खोलाको पूर्वी भंगालोको मिलन बिन्दु (GPS Location - 27^0 15.84' N - 85^0 01.53' E) सम्म र त्यसपछि बंगरी खोलाको पश्चिमी किनारा हुँदै कैलाशपति सामुदायीक वनको दक्षिण पूर्वी सिमानासम्म (GPS Location - 27^0 16.435' N - 85^0 61.913' E) र उक्त कैलाशपति सामुदायीक वनको दक्षिणी सिमाना हुँदै शिवशक्ती सामुदायीक वनको दक्षिण पूर्वी किनारासम्म (GPS Location - 27^0 16.782' N - 85^0 62.778' E) त्यसपछि उक्त वनको दक्षिणी सिमाना हुँदै धारापानी सामुदायीक वनको दक्षिण पूर्वी सिमानासम्म र धारापानी सामुदायीक वनको दक्षिण पूर्वी किनारामा स्थित पसाहा खोलाको पश्चिमी किनारा (GPS Location - 27^0 16.646' N - 85^0 63.841' E) बाट पूर्वी किनारा पार गरी पशुपति सामुदायीक वन र तपोभूमी सामुदायीक वनको उत्तर पश्चिमी सिमाना हुँदै आधाभारबाट पूर्वतर्फ गएको पुरानो वनपथ भेटिने स्थानसम्म र उक्त वनपथ बाट १५ मि. दक्षिण गई (GPS Location - 27^0 16.602' N - 85^0 64.190' E) त्यहाँबाट सिधा पूर्वतर्फ जनमूखी सामुदायीक वनको दक्षिण पश्चिम किनारासम्म (GPS Location 27^0 13.87' N - 85^0 06.47' E) त्यसपछि बुद्धज्योती सामुदायीक वन र कल्की सामुदायीक वनको पश्चिम दक्षिण सिमानामा अवस्थित वनपथ हुँदै कछडिया सामुदायीक वनको दक्षिण पश्चिम सिमाना भएर दक्षिणी पूर्वी किनारा सम्म ।

दक्षिणः आधाभार निर्मलबस्ती वनपथमा भेटीने भेडाहा खोलाबाट खोलैखोला ५०० मिटर दक्षिण तर्फ (GPS Location 27^0 13.626' N - 85^0 57.792' E) गई सो स्थानबाट सिधै पूर्व हेटौंडा पथलैया राजमार्गमा भेटिने बिन्दु (GPS Location 27^0 13.499' N - 84^0 59.247' E) सम्म र त्यहाँबाट सो राजमार्ग हुँदै पथलैया स्थित थानीमाई मन्दिरसम्म (GPS Location 27^0 12.14' N - 84^0 58.86' E) र पथलैयामा रहेको राजमार्गको संगम बिन्दुदेखि उत्तरपूर्वमा रहेका बिभिन्न संस्था (सशस्त्र प्रहरी, नेपाल प्रहरी, खानेपानी संस्था, इलाका बन कार्यालय , टि. सि. एन.) तथा आवादी जग्गालाई बाहिर पार्दै ३ नं. खोल्सीसम्म (GPS Location 27^0 11.870' N - 85^0 59.11' E) र सो खोल्सीबाट पथलैया निजगढ राजमार्गसम्म र उक्त राजमार्गलाई बाहिर पार्दै पूर्वतर्फ बालगंगा खोलाको पुल हुँदै बिद्युत प्राधिकरणले ओगटेको क्षेत्रलाई बाहिर पार्दै (GPS Location $27^0$10.29' N – 85^0 3.71' E, $27^0$10.38' N – 85^0 3.75' E, $27^0$10.35' N – 85^0 3.82' E, $27^0$10.26' N – 85^0 3.78' E, क्षेत्रफल २.३९ हेक्टर) पूर्वतर्फ पर्ने पसाहा खोलाको पुल पार गरी पसाहा रेञ्ज पोष्टले ओगटेको क्षेत्र (GPS Location $27^0$10.057' N – 85^0 4.374' E, $27^0$10.155' N – 85^0 4.463' E, $27^0$10.032' N – 85^0 4.705' E, $27^0$9.957' N – 85^0 4.657' E, क्षेत्रफल १० हेक्टर) लाई बाहिर पारी पुनः राजमार्ग हुँदै पूर्वतर्फ बकैया नागमणी सामुदायीक वनको राजमार्गमा अवस्थित पश्चिम दक्षिण सिमाना बिन्दु (GPS Location $27^0$10.73' N - $85^0$08.44' E) सम्म ।

सूचना २

नेपाल सरकारले राष्ट्रिय निकुञ्ज तथा वन्यजन्तु संरक्षण ऐन, २०२९ को दफा ३क. को उपदफा (२) ले दिएको अधिकार प्रयोग गरी हाल कायम

Annex VII-D
Parsa National Park Declaration Gazette

खण्ड ६७) संख्या १४ नेपाल राजपत्र भाग ५ मिति २०७४।३।१९

नेपाल सरकार
वनतथा भू–संरक्षण मन्त्रालयको सूचना

नेपाल सरकारले राष्ट्रिय निकुञ्ज तथावन्यजन्तु संरक्षण ऐन, २०२९ को दफा ३ को उपदफा (१) बमोजिमपर्सा वन्यजन्तु आरक्षको साविकबमोजिमको क्षेत्रफल र चार किल्लाकायम राखी यस आरक्षलाई "पर्सा राष्ट्रिय निकुञ्ज" घोषणा गरेकाले यो सूचनाप्रकाशनगरिएको छ।

आज्ञाले,
प्रकाशमाथेमा
नेपाल सरकारको सचिव

Annex VIII-A
Five Year Plan of PNP

Activities	Unit	No.	Rate	1st Year	2nd Year	3rd Year	4th Year	5th Year	Total Amount
Park Protection									
Construct office building in Aadhavar, HQ	No.	1	17500000				20125000		20125000
Construct two sector offices in Lamitaar (Northern) and Gaduwa (Western)	No.	2	10000000				10000000	10000000	20000000
Construction of 7 (14 buildings) additional posts for PNP staffs and security forces,	No.	14	5000000	25000000	26250000	27500000	28750000	30000000	137500000
Fence the post and sector offices,	No.	15	500000	500000	525000	550000	575000	600000	2750000
Repair and maintenance of office buildings in HQ, Sector office, Range post, Guard post and security posts,	No.	20	350000	1750000	1837500	1925000	2012500	2100000	9625000
Upgrade facilities such as solar electricity for lighting and charging batteries of communication and mobile phone at security posts	No.	15	250000	3937500	4125000	4312500	4500000	4725000	21600000
Construct drinking water supply system for Sector office and posts,	Place	1	700000	1000000	1050000	550000	575000	600000	3775000
Construction for drinking water (Sector office and posts)	Place	7	350000	250000	262500	275000			787500
Electrification at offices of Sector, Gulma, Range post, post, Hattisar,	No.	15	425000	45000	47250	49500	51750	54000	247500
									0
Maintain kitchen, toilet and fence of posts and sector office regularly,	No.	100	25000	625000	656250	687500	718750	750000	3437500

Activities	Unit	No.	Rate	1st Year	2nd Year	3rd Year	4th Year	5th Year	Total Amount
Construct 10 Km overhead bridges (Amlekhgunj to Churiamai -3 Km, Nirmalbasti to Brahma nagar-1 Km, Amlekhgunj to Pathlaiya-2 Km, Pathlaiya to Tamagadi-2 Km, Ratanpuri to Tamagadi-2 Km) in elephant corridor in with support of Department of Road (DoR)									
Upgrade existing 60 Km fire line to all-weather otta-shield road	Km.	60	300000	3600000	3780000	3960000	4140000	4320000	19800000
Construct 70 km of all-weather road networks inside the park,	Km.	70	200000	2800000	2940000	3080000	3220000	3360000	15400000
Maintenance of 125 km of fire line throughout the year,	Km	125	150000	750000	787500	825000	862500	900000	4125000
Construct 5 RCC watch towers in sensitive areas from security point of view and use them during night camps,	No.	5	1000000	1000000	1050000	1100000	1150000	1200000	5500000
Repair and maintain existing 15 watch towers,	No.	15	200000	600000	630000	660000	690000	720000	3300000
Improve wooden bridge with RCC or Cement mortar foundation,	No.	10	400000	800000	840000	880000	920000	960000	4400000
Repair and maintain building required in elephant management units (Hattisar),	No.	5	250000	250000	262500	275000	287500	300000	1375000
Procure equipment required for elephant riding on a yearly basis,	Times	2	600000	600000		660000			1260000
Provide hauddha, gaddi, and other materials for elephant safari and management,	Times	2	500000		525000		575000		1100000

Activities	Unit	No.	Rate	1st Year	2nd Year	3rd Year	4th Year	5th Year	Total Amount
Provide food for all the elephants as per the required quota for each elephant,	Years	5	2500000	2500000	2625000	2750000	2875000	3000000	13750000
Undertake meeting with Telecom Companies and install 5 Base Transceiver Station (BTS) inside the Park (with support from Telecom Companies),	No.	5							0
Support Nepal Telecom to carry out survey to make effective communication using CDMA phone	Times	1	500000	500000					500000
Install walky-talky radio communication throughout the Park,	No.	15	50000	150000	157500	165000	172500	180000	825000
Repair and maintenance of radio communication,	No.	15	10000	30000	31500	33000	34500	36000	165000
Install additional CCTV cameras in the highway from Amlekhgunj to Pathlaiya,	No.	15	35000		262500	262500			525000
Install spy camera (poacher's cam) at strategic location,	No.	10	35000	35000					35000
Maintenance of CCTV cameras in the highway from Amlekhgunj to Pathlaiya,	No.	10	5000	10000	10000	2000	10000	10000	42000
Sweep operations from the respective posts once in a month and use metal detectors as required,	Year	5	250000	250000	262500	275000	287500	300000	1375000
Camping operation during rainy season when most of the Park's area becomes inaccessible by vehicle,	Year	5	250000	250000	262500	275000	287500	300000	1375000
Implement real time and SMART patrolling with changing the time and route on random basis,	Year	5	75000	75000	78750	82500	86250	90000	412500

Activities	Unit	No.	Rate	1st Year	2nd Year	3rd Year	4th Year	5th Year	Total Amount
Conduct camping and sweeping operation/joint medium and long range patrol	Year	30	75000	450000	472500	495000	517500	540000	2475000
Demarcate PNP and Settlement area,	Times	1	850000	850000					850000
Procure metal detector to identify iron set leg traps probably used by poachers to trap wildlife	No.	15	25000	125000	131250	137500	143750	150000	687500
Piloting of drone to take pictures of sensitive areas,	Times	5	800000	800000	840000	880000	920000	960000	4400000
Procure four wheel vehicle (two) for sectors to make effective patrolling and Park management,	No.	2	4500000				5175000	5400000	10575000
Procure 20 night vision binoculars	No.	20	35000	140000	147000	154000	161000		602000
Sub Total				**49672500**	**50849500**	**52801000**	**89823500**	**71555000**	**314701500**
Habitat management									
Undertake inventory of grassland, recording XY coordinate	No.	2	500000	1050000			575000		1625000
Undertake inventory of wetlands and water holes, recording XY coordinate	Times	2	500000	500000				600000	1100000
Undertake inventory and mapping of Invasive Alien Species (IAS) and record XY coordinate	Times	2	500000	500000				600000	1100000
Create 750 hectares grassland by removing woody species in the next five years	Ha.	750	40000	6000000	6300000	6600000	6900000	7200000	33000000
Create 2000 hectare grassland on both sides of stream (flowing from north to south) by clearing shrubs of 100 m transects in the both sides of stream	Ha	1900	10000	3800000	3990000	4180000	4370000	4560000	20900000

Activities	Unit	No.	Rate	1st Year	2nd Year	3rd Year	4th Year	5th Year	Total Amount
Clean shrub of 10 m transects in the both sides of east-west highway to promote visibility of/for wildlife species along the highway to reduce wild animal collision with vehicle	Km	50	25000	250000	262500	275000	287500	300000	1375000
Manage 1500 hectare of grassland by manual cutting and/or controlled burning in the next five years	Ha.	1500	7500	2250000	2362500	2475000	2587500	2700000	12375000
Organize Khar-Khadai, if required, on annual basis for grassland management intervention and supplying need of local people	Times	5	750000	750000	787500	825000	862500	900000	4125000
Removal and control of IAS in an area of 500 hectare in next five years,	Ha.	500	100000	10000000	10500000	11000000	11500000	12000000	55000000
Create alternative grazing land and ponds in appropriate areas of BZ for cattle to reduce pressure on core area	No.	10	250000	500000	525000	550000	575000	600000	2750000
Implement effective measure to irrigate grassland in dry season	Ha.	150	25000	750000	787500	825000	862500	900000	4125000
Undertake plantation by soil binder native species along river/stream banks to mitigate soil erosion	Ha.	50	75000	750000	787500	825000	862500	900000	4125000
Construct water recharge pond in Churia and foothills to provide water for animals during dry seasons and water recharge as well	No.	5	250000	250000	262500	275000	287500	300000	1375000
Construct intake in the upstream of Churia and create wetlands by channeling/piping water at12 points,	No.	10	1500000	7500000	7875000	8250000	8625000	9000000	41250000

Activities	Unit	No.	Rate	1st Year	2nd Year	3rd Year	4th Year	5th Year	Total Amount
Construct RCC or Cement Mortar dam for holding runoff water in upstream	No.	5	400000	400000	420000	440000	460000	480000	2200000
Construct additional RCC or Cemented water holes at water deficient areas,	No.	25	200000	1000000	1050000	1100000	1150000	1200000	5500000
Undertake activities to enhance, maintain and restore wetlands including its functions,	Times	5	300000	300000	315000	330000	345000	360000	1650000
Clean and remove weeds in wetlands	Times	5	750000	750000	787500	825000	862500	900000	4125000
Maintenance of waterholes	No.	25	150000	1250000	1312500	1375000	1437500	1500000	6875000
Supply water to RCC wetlands by water tank	Times	50	25000	750000	787500	825000	862500	900000	4125000
Regular maintenance of cemented water holes and supplying water by water tanker on periodic basis;	Years	5	100000	100000	105000	110000	115000	120000	550000
Pilot solar water pump to recharge water holes	No.	5	800000	800000	840000	880000	920000	960000	4400000
Maintenance and repair of pump	No.	5	10000	10000	10500	11000	11500	12000	55000
Construction of water holes in the BZ so that local livestock does not enter into the park in search of water	No.	5	150000	150000	157500	165000	172500	180000	825000
Assess water quality in regular intervals,	Years	5	40000	40000	42000	44000	46000	48000	220000
Procure high density water tanks to store water for dry seasons,	No.	10	20000	40000	42000	44000	46000	48000	220000
Celebrate world Wetland Day on February 02	Times	5	150000	150000	157500	165000	172500	180000	825000
District Level Wildlife Crime Control Bureau Meeting	years	5	75000	75000	78750	82500	86250	90000	412500

Activities	Unit	No.	Rate	1st Year	2nd Year	3rd Year	4th Year	5th Year	Total Amount
Sub Total				**40665000**	**40545750**	**42476500**	**44982250**	**47538000**	**216207500**
Species Conservation									
Update Flora and Fauna of PNP	Times	2	300000	300000				360000	660000
Implement satellite based radio telemetry to problematic elephant and monitor to reduce human elephant conflict;	Times	2	5000000		5250000		5750000		11000000
Construct elephant bathing site	No.	5	5000000	5000000	5250000	5500000	5750000	6000000	27500000
Support livelihood intervention to the households whose family has been injured or killed by wild elephant,	No.	75	50000	750000	787500	825000	862500	900000	4125000
Support bee-keeping as elephant deterring activities where wild elephant often gives trouble	No.	500	10000	1000000	1050000	1100000	1150000	1200000	5500000
Undertake satellite-tracking to determine optimal habitat areas	Times	1	400000				460000		460000
Provide information about habitat selection by wild elephant	Times	1	300000			330000			330000
Erect solar fence, especially in those areas where conflict is severe, to reduce human-wild elephant conflict,	Km	10	600000	1200000	1260000	1320000	1380000	1440000	6600000
Maintenance and repair of solar fence forming committee,	Years	5	100000	100000	105000	110000	115000	120000	550000
Prepare a contingency plan to manage large herds aided by a team of experts in handling wild elephants,	Times	1	225000		236250				236250
Improve health care and management of all female captive elephants as they can potentially transmit their diseases to wild male elephants	Years	5	175000	175000	183750	192500	201250	210000	962500

Activities	Unit	No.	Rate	1st Year	2nd Year	3rd Year	4th Year	5th Year	Total Amount
Carry out piloting of early warning system of wild elephant straying nearby settlements	No.	1	600000			660000			660000
Restore degraded forests in the BZ/ national forests and CFs outside PAs by artificial or natural regeneration	No.	5	250000	250000	262500	275000	287500	300000	1375000
Take a 'man-eater' tiger under control immediately	Times	5	50000	50000	52500	55000	57500	60000	275000
Undertake tiger count in every five years using camera trap;	Times	1	500000					600000	600000
Maintenance of biological corridor connecting other PAs	Years	1	250000	250000	262500	275000	287500	300000	1375000
Erect signs of warning to the passersby in the major rights of ways, resource collection sites and shrines	No.	25	1500	7500	7875	8250	8625	9000	41250
Organize regular trans-boundary conservation cooperation meetings with neighboring countries;	Years	5	150000	150000	157500	165000	172500	180000	825000
Conduct Gaur bison count in every five years	Times	1	500000				575000		575000
Conduct awareness campaigns on Pangolin conservation	Years	5	100000	100000	105000	110000	115000	120000	550000
Organize regular coordination meetings at local and regional level for sharing information on pangolin related activities	Years	5	125000	125000	131250	137500	143750	150000	687500
Formulate and implement mitigation measures for development and other construction works in the prime/ designated pangolin habitats	Times	10	100000	200000	210000	220000	230000	240000	1100000

Activities	Unit	No.	Rate	1st Year	2nd Year	3rd Year	4th Year	5th Year	Total Amount
Fooding and caring for orphan and injured wildlife	Years	5	50000	50000	52500	55000	57500	60000	275000
Vaccinate domestic animal in collaboration with DLSO to reduce communicable diseases	No.	750	250	62500	65625	68750	71875	75000	343750
Collaborate with District Livestock Office (DLSO) to replacing unproductive livestock.	Times	5	400000	400000	420000	440000	460000	480000	2200000
Promote stall feeding in PNP to reduce grazing pressure	Times	2	300000				345000	360000	705000
Distribute grass seed to create grassland in private and public land	HHs	250	500	25000	26250	27500	28750	30000	137500
Promote fodder tree plantation in private land	No.	2500	50	25000	26250	27500	28750	30000	137500
Procure camera	No.	5	50000	100000	105000	110000	115000	120000	550000
Procure GPS	No.	10	30000	60000	63000	66000	69000	72000	330000
Procure 10 bird watching binoculars	No.	10	30000	60000	63000	66000	69000	72000	330000
Celebrate world wild elephant day and world tiger day including other conservation events (Wildlife Week, Environment Day, World Rhino Day, Wetland Day, Biodiversity Day)	Years	5	500000	500000	525000	550000	575000	600000	2750000
Sub Total				**10940000**	**16658250**	**12694000**	**19366000**	**14088000**	**73746250**
Fire Management									
Prepare and implement fire-fighting management plan	No.	1	500000				575000		575000
Clear fire line or undertake control burning in the fire lines before the onset of fire season	Ha.	100	20000	400000	420000	440000	460000	480000	2200000

Activities	Unit	No.	Rate	1st Year	2nd Year	3rd Year	4th Year	5th Year	Total Amount
Identify fire prone areas by using mapping based on satellite imagery analysis or using the web-based fire mapper	Times	1	500000			550000			550000
Early burning of grasslands and other burning materials along the fire lines	Ha.	100	10000	200000	210000	220000	230000	240000	1100000
Provide firefighting equipment to Park Post and CFUGs	Times	2	50000		50000	50000			100000
Mobilize fire-fighting team with equipment in order to stop spreading of fire in grasslands	Years	5	200000	200000	210000	220000	230000	240000	1100000
Establish forest fire early warning systems	No.	2	1000000				1000000	1000000	2000000
Establish fire occurrence reporting databases	Times	5	50000	50000	52500	55000	57500	60000	275000
Construct 4 multipurpose ponds that provides water for wildlife including birds and for extinguishing fire	No.	4	350000	350000	367500	385000	402500		1505000
Construct fire hydrant supported by solar pump nearby ponds	No.	5	750000	750000	787500	825000	862500	900000	4125000
Carry out fire prevention education and awareness activities.	Times	5	225000	225000	236250	247500	258750	270000	1237500
Sub Total				**2175000**	**2333750**	**2992500**	**4076250**	**3190000**	**14767500**
Wildlife Health Management									
Establish wildlife orphanage and rescue centre at least in two sectors for emergency treatment	No.	2	1000000				1000000	1000000	2000000
Carry out regular checkup of captive elephants at Hattisar and treat them	Times	36	10000	72000	75600	79200	82800	86400	396000

Activities	Unit	No.	Rate	1st Year	2nd Year	3rd Year	4th Year	5th Year	Total Amount
Treat injured animal upon arrival at orphanage and rescue centre	Times	5	25000	25000	26250	27500	28750	30000	137500
Undertake research and development works towards management of wildlife health	Times	5	350000	350000	367500	385000	402500	420000	1925000
Coordinate DLSO and conservation partner to provide vaccine to livestock against potential diseases that can be transferred to wildlife	Times	5	275000	275000	288750	302500	316250	330000	1512500
Support to establish a community based veterinary center with materials required in medical emergencies	No.	1	500000				575000		575000
Build capacity of frontline staff to recognize, record and report disease or poor health condition of animals or plants	No.	5	250000	250000	262500	275000	287500	300000	1375000
Report and document mortality of wild animals immediately after it comes to notice of any staff as part of disease surveillance strategy	No.	5	150000	150000	157500	165000	172500	180000	825000
Coordinate with DLSO to undertake postmortem of deceased endangered wild animals.	Years	5	125000	125000	131250	137500	143750	150000	687500
Sub Total				**1247000**	**1309350**	**1371700**	**3009050**	**2496400**	**9433500**
Encroachment Management									
Survey, map and demarcate the encroached area together with house and keep the record	Times	5	325000	325000	341250	357500	373750	390000	1787500

Activities	Unit	No.	Rate	1st Year	2nd Year	3rd Year	4th Year	5th Year	Total Amount
Issue notice to evacuate the encroached area	Times	5	125000	125000	131250	137500	143750	150000	687500
Coordinate with Local Government Authorities to resolve the encroachment problem	Times	5	75000	75000	78750	82500	86250	90000	412500
Form committee to address the issues of illegal settlers	No.	1	50000	50000					50000
Relocate the illegal settlers of Syaulibasti, Bhiman and Jyamirebasti if they are willing to move outside of the PA by providing skill based training and other livelihood options	HH	150	30000	900000	945000	990000	1035000	1080000	4950000
Support to improve the livelihood of landless and flood victim people who have encroached the Park area for various reasons and evacuate them in win-win situation	HH	100	30000	600000	630000	660000	690000	720000	3300000
Evacuate and restore the encroachments in corridors	Ha.	150	50000	1500000	1575000	1650000	1725000	1800000	8250000
Sub Total				**3575000**	**3701250**	**3877500**	**4053750**	**4230000**	**19437500**
Research, monitoring and capacity building									
Update digital database, maps using latest topo sheets, satellite imageries for updating information on wild elephant, tiger, rhinoceros, wild dog and gaur	Times	2	500000		525000			600000	1125000

Activities	Unit	No.	Rate	1st Year	2nd Year	3rd Year	4th Year	5th Year	Total Amount
Carry out study to acquire knowledge on elephant population by using newly available genetic techniques such as genetic fingerprinting, photographic capture-recapture survey;	Times	1	500000		525000				525000
Undertake studies to determine Wild elephant population, composition and abundance of the resident herds	Times	1	500000			550000			550000
Create baseline information on movement patterns of migratory wild elephants with the help of national and regional experts	Times	2	300000		315000			360000	675000
Undertake an assessment of tiger population viability in PNP	Times	1	300000	300000					300000
Undertake intensive research on trans boundary movement of tigers and the use of corridors, BZ areas and human settlement through satellite radio telemetry	Times	1	400000			440000			440000
Conduct studies on the scale, extent and local variations in the intensity of HWC to help in identifying and designing effective mitigation measures	Times	1	350000			385000			385000
Study of distribution and abundance of various prey base species	Times	2	400000	400000				480000	880000
Undertake detailed studies on ungulate-habitat relationships and the feeding behavior of ungulates	Times	2	300000		315000		345000		660000

Activities	Unit	No.	Rate	1st Year	2nd Year	3rd Year	4th Year	5th Year	Total Amount
Undertake study regarding various aspects of four horned antelope,	Times	1	500000	500000					500000
Carry out study on spatial distribution and abundance of four horned antelope	Times	2	400000		420000			480000	900000
Identify indicator species to assess habitat condition;	Times	2	500000	500000				600000	1100000
Study ecological processes that affect maintaining healthy wildlife population	Times	1	350000				402500		402500
Undertake study of Gaur about distribution, population dynamics, preferred grass and its behavior;	Times	1	300000	300000					300000
Prepare Gaur Action Plan; and	Times	1	500000		525000				525000
Habitat mapping of important (critical) wildlife habitat and areas of high conservation significance	Times	3	300000	300000		330000		360000	990000
Prepare land use management plans for critical habitats of tigers outside PA's	Times	3	150000	150000		165000		180000	495000
Study the effect of invasive alien species to wildlife habitat;	Times	1	200000	200000					200000
Collaborate with researchers and academician to find the appropriate measures for controlling invasive alien species;	Times	3	300000	300000		345000		360000	1005000
Conduct study on the effect of habitat fragmentation and degradation on wildlife survival.	Times	1	350000			385000			385000
Undertake study to identify suitable grass cutting machine or tractor.	Times	1	750000			825000			825000

Activities	Unit	No.	Rate	1st Year	2nd Year	3rd Year	4th Year	5th Year	Total Amount
Establish permanent experimental plots (control and treatment) to gather information pertaining to grassland management, carbon and biodiversity monitoring	Times	1	1000000			1100000			1100000
Undertake spatial and temporal pattern of fire incidence	Times	1	450000		472500				472500
Identify fire prone areas by using satellite imagery analysis or web-based fire mapper.	Times	1	500000			550000			550000
Perception of visitors about the tourism facilities and services from hotels and Park authorities	Times	1	250000		262500				262500
Study to identify potential tourism products and their packaging	Times	1	300000	300000					300000
Aspiration of hotel operators regarding services and cooperation from the Park	Times	1	300000			330000			330000
Conduct study to identify potential site to promote homestay		1	300000	300000					300000
Undertake marketing strategy to attract visitors in the Park and BZ.	Times	1	350000		367500				367500
Conduct study of climate change indicators and impact on biodiversity conservation along with identification of adaptation activities	Times	1	300000	300000					300000
Undertake vulnerability assessment with respect to climate change	Times	1	350000		367500			420000	787500
Prepare community-based adaptation plans for most vulnerable sections/ areas	Times	1	500000			550000			550000

Activities	Unit	No.	Rate	1st Year	2nd Year	3rd Year	4th Year	5th Year	Total Amount
Carry out relationship between anthropogenic activities and maintenance of healthy and viable wildlife populations	Times	1	500000	500000				600000	1100000
Undertake assessment of socio-economic condition of local people in the areas where human-wildlife conflict is high	Times	2	150000				172500	180000	352500
Conduct study to assess the optimum quantity of sand, gravel and boulder that can be extracted each year	Times	2	150000			165000		180000	345000
Review and upgrade reporting and information sharing system	Times	3	150000	150000		165000		180000	495000
Undertake evaluation of five-year management plan;	Times	1	500000				575000		575000
Prepare next five-year management plan (2023-2027) including IEE;	Times	1	1000000					1200000	1200000
Undertake study of management effectiveness of the Park	Times	1	1000000					1200000	1200000
Produce a document regarding who is who at local, national and overseas institutions working in wild elephant conservation.	Times	1	200000		210000				210000
Sub Total				**4500000**	**4305000**	**6285000**	**1495000**	**7380000**	**23965000**
Monitoring									
Monitoring of Wild elephants by direct sightings and indirect signs	Years	5	250000	250000	262500	275000	287500	300000	1375000
Monitoring of tiger on periodic basis based on camera trap	Times	2	200000	200000				240000	440000

Activities	Unit	No.	Rate	1st Year	2nd Year	3rd Year	4th Year	5th Year	Total Amount
Monitor tigers around the BZ with local community engagement	Times	5	50000	52500	55000	57500	60000	63000	288000
Monitoring of Gaur on periodic basis based on direct count	Times	2	20000		22000			24000	46000
Monitoring of four horned antelope on periodic basis based on direct count	Times	1	20000			23000			23000
Monitoring of small mammals	Times	5	50000	52500	55000	57500	60000	63000	288000
Identification and long-term monitoring of climate sensitive species	Times	5	250000	262500	275000	287500	300000	315000	1440000
Monitoring of indicator species to assess habitat condition	Times	5	225000	225000	236250	247500	258750	270000	1237500
Monitoring of winter migratory water birds	Times	5	300000	300000	315000	330000	345000	360000	1650000
Undertake habitat monitoring, prepare check list of food plants, document physical and phenological changes in vegetation, quantity and quality of discharges in streams and biotic disturbance	Years	5	350000	350000	367500	385000	402500	420000	1925000
Undertake monitoring of permanent plots	Times	5	75000	75000	78750	82500	86250	90000	412500
Periodic wetlands and water holes monitoring	Times	5	75000	75000	78750	82500	86250	90000	412500
Conduct regular monitoring of water quality of different wetlands	Times	5	75000	75000	78750	82500	86250	90000	412500
Monitor the contribution of tourism to the poor, women and marginalized community	Times	1	50000					60000	60000

Activities	Unit	No.	Rate	1st Year	2nd Year	3rd Year	4th Year	5th Year	Total Amount
Monitor the extraction of soil, sand and gravel in coordination with local authority,	Years	5	250000	250000	262500	275000	287500	300000	1375000
Periodic monitoring of temperature and precipitation using DHM data for every five years;	Times	1	350000					420000	420000
Sub Total				**2167500**	**2087000**	**2185500**	**2260000**	**3105000**	**11805000**
Training									
Orientation training to security troops for newly appointed Battalion before deployment in the field	Times	5	25000	25000	26250	27500	28750	30000	137500
Orientation training to Game Scouts on legal issues	Times	3	150000	150000		165000		180000	495000
Basic training to Games Scouts and Rangers to handle GPS equipment, camera, etc	Times	3	250000	250000		275000		300000	825000
Training on Real-time SMART patrolling to Park staff and security troops	Times	2	250000		262500	575000			837500
Conduct anti-poaching operation trainings to Park staffs security personnel and CBAPU members;	Times	2	300000		315000		600000		915000
Conduct crime scene investigation and interrogation trainings to investigators as per legal provision;	Times	3	250000	250000		250000		300000	800000
Human rights training to handle the convicted people;	Times	5	250000	250000	262500	250000	287500	300000	1350000
Wildlife management and handling training	Times	2	200000	200000			200000		400000

Activities	Unit	No.	Rate	1st Year	2nd Year	3rd Year	4th Year	5th Year	Total Amount
Conduct training on pangolin habitat and population monitoring techniques	Times	3	250000	200000		220000		240000	660000
Training about field techniques, including signs, sound and other indirect evidences of different wildlife species;	Times	5	300000	300000	315000	330000	345000	360000	1650000
Train staff to collect sample of blood, fecal matter, urine or vital organs	Times	5	100000	100000	105000	110000	115000	120000	550000
CITES training	Times	2	50000	50000		55000			105000
Basic training on vegetation quantification for recording data in monitoring plots	Times	2	250000		262500		287500		550000
Provides training to the Park staff in wildlife habitat monitoring.	Times	3	200000		210000		230000	240000	680000
Conduct forest fire management training to the Park staff, security personnel and BZCFUG members.	Times	3	200000		210000		230000	240000	680000
Build capacity of frontline staffs to identify, record and report disease or poor health condition of wildlife;	Times	5	300000	300000	315000	300000	345000	360000	1620000
Provide trainings to nature guides to enhance their capacity in nature interpretation specifically on wildlife, birds and plants etc	Times	3	250000	250000			287500	300000	837500
Training on nature interpretation and display management	Times	2	200000				230000	240000	470000
Training on social mobilization	Times	2	500000		525000		575000		1100000
Training on appreciative enquiry	Times	3	150000	150000		150000		180000	480000
Training on conflict management	Times	3	200000	200000		220000		240000	660000

Activities	Unit	No.	Rate	1st Year	2nd Year	3rd Year	4th Year	5th Year	Total Amount
Training on organization development and management	Times	2	500000	500000				600000	1100000
Training of Trainers (general and specialized)	Times	2	500000		525000		575000		1100000
Public administration and management training	Times	2	400000				460000	480000	940000
Training for community based anti-poaching units	Times	3	400000		420000	440000	460000		1320000
Planning, monitoring and evaluation training	Times	5	200000	200000	210000	200000	230000	240000	1080000
Database management Training to Rangers and Officers	Times	5	50000	50000	52500	55000	57500	60000	275000
GIS training to Rangers and Officers	Times	3	300000		315000		345000	360000	1020000
Sub Total				**3425000**	**4331250**	**3622500**	**5888750**	**5370000**	**22637500**
Tourism									
Construct multipurpose Visitor Information Centre (VIC) at Aadhavar that includes ticket counter, display centre, museum, documentary showing hall, souvenir shop, refreshment centre, and rest room	No.	1	15000000	15000000					15000000
Upgrade VIC at Hattisar	No.	1	1500000	1500000					1500000
Place information boards related showing important tourist destinations and tourism products at key locations such as Simra Airport, Hetauda, Birgunj and Bharatpur;	No.	1	500000	500000					500000

Activities	Unit	No.	Rate	1st Year	2nd Year	3rd Year	4th Year	5th Year	Total Amount
Erect hoarding boards on the highway to aware elephant corridor, wild animal passes	No.	5	7500	37500					37500
Establish entry points (at Aadhavar, Pasaha, Ratanpuri, Amlekhgunj, Lamitar, Pratapur, Padampokhari, Gaduwaline and Charbhaiya),	No.	8	1500000	6000000	6300000	6600000	6900000		25800000
Construction of fire line to link CNP-PNP	Km	75	200000	2240000	2352000	2464000	2576000	2688000	12320000
Gravelling of fire line	Km	50	300000	8760000	9198000	9636000	10074000	10512000	48180000
Maintenance, repair of fire line for 5 years	Km	50	2000	352000	369600	387200	404800	422400	1936000
Construction of watch towers (concrete)	No.	5	1200000	1200000	1260000	1320000	1380000	1440000	6600000
Maintenance, repair of watch towers	No.	9	150000	260000	273000	286000	299000	312000	1430000
Support to develop community cultural museum at Subarnapur Homestay, Amlekhgunj, and Ratanpuri,	No.	1	750000					900000	900000
Place signage at appropriate location in the Park to show direction to the visitors,	No.	125	750	3750	3938	4125	4313	4500	20625
Erect signboards disseminating information to the visitors,	No.	25	7500	37500	39375	41250	43125	45000	206250
Place hoarding boards in Hetauda, Pathlaiya, Nijgadh and Birgunj to promote tourism in PNP,	No.	3	25000	75000					75000
Construction of raised platforms to climb for elephant safari, at least, in two places.	No.	2	350000		367500			420000	787500

Activities	Unit	No.	Rate	1st Year	2nd Year	3rd Year	4th Year	5th Year	Total Amount
Undertake study to finalize the route of elephant safari, jeep safari, jungle walk, and bird watching etc.	Times	1	250000	250000					250000
Undertake feasibility study of jeep safari and finalization of the route	Times	1	400000		420000				420000
Place advertisement of elephant and jeep safari at PNP	Times	10	75000	750000	787500	825000	862500	900000	4125000
Prepare Video Spot to promote tourism in PNP	Times	1	250000	250000					250000
Place advertisement of tourism in PNP through Television at national level	Times	5	350000	350000	367500	385000	402500	420000	1925000
Advertise in radio/FM to promote local tourism	Times	60	15000	75000	78750	82500	86250	90000	412500
Organize meetings and training to promote local entrepreneur and nature guide to operate jeep safari and other facilities in the Park,	Years	5	100000	100000	105000	110000	115000	120000	550000
Organize exchange visit of tourism operators to CNP	Times	4	300000	315000		330000		360000	1005000
Conduct nature guide trainings to local and interested individuals giving priority to back warded community	Times	3	250000	250000		275000		300000	825000
Certify nature guide giving priority to local people,	Times	2	75000	75000		82500			157500
Enhance capacity of nature guides in nature interpretation specifically on wildlife, birds, plants through trainings and some experience sharing activities,	Times	2	300000			330000		360000	690000

Activities	Unit	No.	Rate	1st Year	2nd Year	3rd Year	4th Year	5th Year	Total Amount
Conduct home-stay and house-keeping trainings	Times	3	250000	250000	262500	275000			787500
Conduct cook training	Times	3	400000	400000	420000	440000	460000		1720000
Organize small business development and management training	Times	3	300000			330000	345000	360000	1035000
Organize Cleanup campaign to manage waste in the highway (waste collection and disposal)	Times	15	50000	150000	157500	165000	172500	180000	825000
Provide fellowship to journalist to visit PNP and publish article	Times	5	75000	75000	78750	82500	86250	90000	412500
Publish news and article in newspaper	Times	5	100000	100000	105000	110000	115000		430000
Production of video documentary	Times	1	400000					480000	480000
Sub Total				**39355750**	**22945913**	**24561075**	**24326238**	**20403900**	**131592875**
Climate Change and Solid Waste Management									
Climate change adaptation									
Pilot early warning system of flash flood in the flood prone areas	No.	2	750000		787500		862500		1650000
Study impacts of changes in precipitation and temperatures on species and ecosystems;	Times	2	250000	250000				300000	550000
Identify climate sensitive indicators in the park and closely monitor,									
Undertake plantation to maintain the balance between fuel wood demand and supply for local house hold consumption,	Ha	25	50000	50000	52500	55000	57500	60000	275000

Activities	Unit	No.	Rate	1st Year	2nd Year	3rd Year	4th Year	5th Year	Total Amount
Provide seedlings of tree species to the BZ community to plant in public and private lands,	Times	5	50000	50000	52500	55000	57500	60000	275000
Provide biogas support to household to reduce fuel wood consumption,	No.	500	15000	1500000	1575000	1650000	1725000	1800000	8250000
Organize training to produce improved cook stove installers or builders and install improved cook stove to reduce fuel wood consumption,	No.	1500	1200	360000	378000	396000	414000	432000	1980000
Identify and support implementation of adaptation priorities of BZ community forest user groups such as small-scale irrigation construction, repair and maintenance,	Times	5	250000	250000	262500	275000	287500	300000	1375000
Undertake soil conservation works in Churia to control sediment flow and landslide in downstream,	Times	5	500000	500000	525000	550000	575000	600000	2750000
Carry out planation of soil binder species along river banks to control bank cutting,	Times	5	150000	150000	157500	165000	172500	180000	825000
Assess flood vulnerable zones and develop strategic plan to reduce damage to wildlife;	Times	1	300000				345000		345000
Facilitate market linkages and voluntary carbon financing,	Times	1	400000				460000		460000
Solid waste management									
Provide support to demonstrate proper techniques of garbage disposal and recycling techniques	No.	5	100000	100000	105000	115500	132825	159390	612715

Activities	Unit	No.	Rate	1st Year	2nd Year	3rd Year	4th Year	5th Year	Total Amount
Construct waste disposal pits or put waste collection pots near entry point, ticket counter, Hattisar, and view towers,	No.	25	15000	75000	78750	86625	99619	119543	459536
Provide support to manage garbage with special focus on reducing production, recycling, and destruction by prohibiting the use of polluting items such as plastic bags,	Times	5	500000	500000	525000	577500	664125	796950	3063575
Provide water supply, toilet, drainage, collection and recycling centre to schools, public buildings, and household with the support from conservation partners,	Years	5	1000000	1000000	1050000	1155000	1328250	1593900	6127150
Support eco-clubs to organize clean-up campaign regularly,	Years	5	120000	120000	126000	138600	159390	191268	735258
Sub Total				**4905000**	**5675250**	**5219225**	**7340709**	**6593051**	**29733234**
Buffer Zone									
Provide support to BZCFUG to develop and renew constitutions and OPs;	No.	25	30000	60000	63000	66000	69000	72000	330000
Restore degraded forests in the BZ/ national forests and CFs in BZ by artificial or natural regeneration;	Ha.	250	25000	250000	262500	275000	287500	300000	1375000
Support in institutional strengthening of BZ communities;	Year	5	400000	400000	420000	441000	463050	486203	2210253
Support to operate 3 private nurseries in 3 districts;	Times	3	500000	500000	525000	550000			1575000

Activities	Unit	No.	Rate	1st Year	2nd Year	3rd Year	4th Year	5th Year	Total Amount
Provide seedlings and organize plantation in the corridor, public lands to enhance greenery in degraded corridors;	No.	10000	50	100000	105000	110250	115763	121551	552563
Support fruit tree plantation and alternative cropping to reduce the wildlife attractions in the agricultural field;									
Organize sensitization programme in the BZ to restore and manage wetlands in the corridors and other potential tiger habitats;	Times	5	175000	175000	183750	192938	202584	212714	966985
Construction of culvert and cause way;	No.	15	500000	1500000	1575000	1650000	1725000	1800000	8250000
Construct cultural houses and museums	No.	5	500000	500000	525000	550000	575000	600000	2750000
Construct fire lines, watch towers, create grasslands and wetlands in BZ forests to develop tourism;	Years	5	1500000	1500000	1575000	1650000	1725000	1800000	8250000
Pilot rain water harvesting program in selected Churia region to address water stress and extended dry spells;	Times	5	500000	500000	525000	550000	575000	600000	2750000
Implement Churia conservation program in BZ to mitigate impacts of flash floods and landslides;	Years	5	500000	500000	525000	550000	575000	600000	2750000
Strengthen, institutionalize and develop a network of community based anti-poaching and intelligence CBAPUs;	Times	3	200000	200000		220000		240000	660000
Prepare livelihood improvement strategy	No.	1	500000	500000					500000

Activities	Unit	No.	Rate	1st Year	2nd Year	3rd Year	4th Year	5th Year	Total Amount
Implement relief fund for victims of human wildlife conflict	Year	5	500000	500000	525000	550000	575000	600000	2750000
Strengthen 'Eco-club' programme in schools of BZ designing PNP specific nature conservation course	Times	1	30000	30000					30000
Initiate conservation focused programme in schools of BZ through Training of Trainer (ToT) on biodiversity conservation	years	5	500000	500000	525000	550000	575000	600000	2750000
Form, strengthen and mobilize Eco-clubs in clean-up campaigns, awareness and capacity building events and plantation initiatives;	years	5	60000	60000	63000	66000	69000	72000	330000
Support Community Based Anti-poaching Unit	years	5	100000	100000	105000	110000	115000	120000	550000
Organize learning visits to BZUC, CFUG, CBAPU, Eco-Clubs and tourism entrepreneurs	Years	5	375000	375000	393750	412500	431250	450000	2062500
Produce and disseminate Information Education and Communication (IEC) material;	Times	1	300000			300000			300000
Celebrate Conservation Days	Years	5	250000	250000	262500	275000	287500	300000	1375000
BZMC activities				12001001	3439051	3504601	2990151	4243201	26178006
Sub Total				**20501001**	**11597551**	**12573289**	**11355798**	**13217668**	**69245307**
Administrative									
Annual progress report publication	years	5	150000	150000	157500	165000	172500	180000	825000
Website development and hosting	Times	1	350000	350000	10000	10000	10000	10000	390000

Activities	Unit	No.	Rate	1st Year	2nd Year	3rd Year	4th Year	5th Year	Total Amount
Coordination meeting with Stakeholders	Times	5	150000	150000	157500	165000	172500	180000	825000
Trimester level staff meeting	Times	15	150000	150000	157500	165000	172500	180000	825000
Procure computer	No.	5	80000	80000	84000	88000	92000	96000	440000
Procure multimedia projector	No.	1	90000		94500				94500
Procure cycles	No.	100	8000	160000	168000	176000	184000	192000	880000
Procure motorbikes	No.	5	250000	250000	262500	275000	287500	300000	1375000
Maintenance of vehicle, motorbikes, cycles	Years	5	300000	300000	315000	330000	345000	360000	1650000
Fuel for vehicle	Litre	10000	100	250000	262500	275000	287500	300000	1375000
Management of office equipment	Years	5	50000	50000	52500	55000	57500	60000	275000
Stationeries	Years	5	50000	50000	52500	55000	57500	60000	275000
Procure furniture	Years	5	100000	100000	105000	110000	115000	120000	550000
Payment of electricity, telephone, Internet	Years	5	50000	50000	52500	55000	57500	60000	275000
Sub Total				**2090000**	**1931500**	**1924000**	**2011000**	**2098000**	**10054500**
Total				**185218751**	**168271314**	**172583789**	**219988294**	**201265018**	**947327166**

Annex VIII-B
Five Year Plan of Buffer Zone Management Committee, PNP

S.N.	Activities	Unit	Quantity	Rate	Year I	Year II	Year III	Year IV	Year V	Total amount
1	Organize BZMC meetings	Times	15	75000	375000	393750	412500	431250	450000	2062500
2	Orientation training regarding conservation legislation to BZ communities	Times	3	25000	25000		27500		30000	82500
3	Organize Buffer CFUG management trainings	No.	5	75000	75000	78750	82500	86250	90000	412500
4	Provide support to train BZUC to prepare five year management plan	Times	10	150000	150000	157500			180000	487500
5	Provide leadership training to Presidents and Vice Presidents of BZUG and BZUC	Times	10	175000	175000	183750	192500	201250	210000	962500
6	Provide account keeping training to Secretary or Treasurer	Times	10	175001	175001	183751.05	192501.1	201251.15	210001.2	962505.5
7	Provide support to organize cooperative management training	Times	5	150000	150000	157500	165000	172500	180000	825000
8	Provide support to construct differently abled friendly toilets at school	No.	5	250000	250000	262500	275000	287500	300000	1375000
9	Construct drinking water supply at schools of BZ	No.	5	125000	125000	131250	137500	143750	150000	687500
10	Construct BZMC building at PNP	No.	1	7500000	7500000					7500000

S.N.	Activities	Unit	Quantity	Rate	Year I	Year II	Year III	Year IV	Year V	Total amount
11	Organize training and distribute seeds to promote crops that are not preferred by wildlife	Times	2	300000		330000		45000		375000
12	Organize training and distribute seeds to promote high value agriculture crops (not preferred by wildlife) farming training	Times	2	75000	300000		330000			630000
13	Learning Visit of PNP staffs and BZMC members	Times	5	500000	500000	525000	550000	575000	600000	2750000
14	Educational tour of Eco-Club members to learn participatory biodiversity conservation	Times	3	300000	315000		330000		360000	1005000
15	Produce documentary of BZ programme giving priority to best practices and broad-casting	No.	1	500000					600000	600000
16	Produce monthly radio documentary of BZ pro-gramme	No.	60	15000	75000	78750	82500	86250	90000	412500
17	Advertisement on newspa-pers	Times	10	10000	20000	21000	22000	23000	24000	110000
18	Purchase of furniture	Times	1	500000	500000					500000
19	Procure computer and printer	No.	2	200000	400000					400000
20	Procure office supplies	Years	5	75000	75000	78750	82500	86250	90000	412500

S.N.	Activities	Unit	Quantity	Rate	Year I	Year II	Year III	Year IV	Year V	Total amount
21	Motorcycle purchase for BZ management committee's chairperson and secretary	No.	2	250000	250000	262500				512500
22	Fuel for vehicle (program monitoring)	Years	5	100000	100000	105000	110000	115000	120000	550000
23	Repair and maintenance	Years	5	50000	50000	52500	55000	57500	60000	275000
24	Tea and cookies for visitors	Years	5	60000	60000	63000	66000	69000	72000	330000
25	Wage for office secretary	Years	5	260000	260000	273000	286000	299000	312000	1430000
26	Water and electricity	Months	60	3000	36000	37800	39600	41400	43200	198000
27	Telephone and Internet	Months	61	5000	60000	63000	66000	69000	72000	330000
	Total				12001001	3439051.05	3504601.1	2990151.15	4243201.2	**26178005.5**

Annex VIII-C
Five Year Plan of BZUCs

Annex VIII-C1

Amlesswor BZUC

S.N.	Activities	Unit	Quantity	Rate	Year I	Year II	Year III	Year IV	Year V	Total Amount
A	**Conservation Program**									
1	Erect barbed wire fence around plantation area	Km	8	200000	800000	840000				1640000
2	Check dam construction	m3	450	9500	855000	897750	940500	983250	1026000	4702500
3	Cleaning of wetlands	m	31.5	200000	3150000	3307500				6457500
4	Grassland management	Ha	10	30000					300000	300000
5	Construct water hold in CF	No.	1	30000	30000					30000
6	Fire line construction	No.	10	20000	40000	42000	44000	46000	48000	220000
7	View tower construction	No.	3	500000			750000	787500	825000	2362500
8	Bamboo plantation on the banks of Dudhoura river	Ha	4	75000	60000	63000	66000	69000	72000	330000
9	Eco garden in school	m	1500	1000		750000	787500			1537500
10	Encroachment control (fence)	Km	10	20000	40000	42000	44000	46000	48000	220000
11	Forest guard	Years	5	120000	600000	120000	126000	132000	138000	144000
B	**Community Development**									
1	Entry gate construction	No.	1	300000	60000	63000	66000	69000	72000	330000
2	Maintenance and repair of small Irrigation	m	2500	1200	600000	630000	660000	690000	720000	3300000
3	Hume pipe installation	No.	10	15000	30000	31500	33000	34500	36000	165000
4	Culvert construction	Set	3	600000	360000	378000	396000	414000	432000	1980000
5	Playground establishment	No.	1	100000	100000					100000

S.N.	Activities	Unit	Quantity	Rate	Year I	Year II	Year III	Year IV	Year V	Total Amount
6	Construction of cultural building	No.	1	1500000			1500000			1500000
7	Repair and maintenance of Temple	No.	3	100000	60000	63000	66000			189000
8	Kriyaputri house construction	No.	1	300000	300000					300000
		Place								
C	**Skill Development and Income Generation**									
1	Guide training	No.	18	6944.44		125000				125000
2	Cook training	No.	18	6944.44		125000				125000
3	Waiter training	No.	18	6944.44		125000				125000
4	House wiring training	No.	24	20000		480000				480000
5	Home stay initiation training	No.	12	20000	240000					240000
6	Furniture/Labour training	No.	12	20000		240000				240000
7	Leadership development training	No.	27	2777.78	75000					75000
8	Account training	No.	27	2777.78	75000					75000
9	Fish farming and pond management training	No.	3	50000		50000	52500	55000		157500
10	Organic vegetable farming training	No.	24	10000	240000					240000
11	Beautician training	No.	12	20000		240000				240000
12	Tailoring training	No.	12	20000	240000					240000
13	Mobile repair training	No.	12	20000	240000					240000
14	Agarbatti making training	No.	12	10000	120000					120000
15	Bio gas initiation training	No.	12	10000		120000				120000
D	**Conservation education**									
1	Observation tour	No.	54	9259.26				500000		500000
2	School wise competition	No.	5	50000	50000	52500	55000	57500	60000	275000
3	Hoarding board installation	No.	6	15000			30000	31500	33000	94500
4	Conservation education on radio program	Times	10	6000	12000	12600	13200	13800	14400	66000

S.N.	Activities	Unit	Quantity	Rate	Year I	Year II	Year III	Year IV	Year V	Total Amount
5	Celebration of wetland day	Times	5	40000	40000	42000	44000	46000	48000	220000
6	Teej program focusing conservation	Times	5	50000	50000	52500	55000	57500	60000	275000
7	Organize wildlife week	Times	5	50000	50000	52500	55000	57500	60000	275000
8	Organize street drama	Times	5	50000	50000	52500	55000	57500	60000	275000
9	Seminar and workshop regarding community based anti-poaching	Times	5	50000	50000	52500	55000	57500	60000	275000
10	Mobilize CBAPU	Years	5	150000	150000	157500	165000	172500	180000	825000
11	Mobilize Eco clubs	No.	11	50000	110000	115500	121000	126500	132000	605000
E	**Administration Cost**									
1	Stationery	Years	5	50000	50000	52500	55000	57500	60000	275000
2	Communication	Years	5	24000	24000	25200	26400	27600	28800	132000
3	Newspaper and periodicals	Years	5	5000	5000	5250	5500	5750	6000	27500
4	Furniture	Times	2	75000	75000				78750	153750
5	Electricity	Years	5	20000	20000	21000	22000	23000	24000	110000
6	Field gear	Times	1	60000		60000				60000
7	Conservation coordination	Years	5	30000	30000	31500	33000	34500	36000	165000
8	Office assistant	Years	5	130000	130000	136500	143000	149500	156000	715000
9	Computer	Set	1	50000	50000					50000
10	Miscellaneous	Years	5	60000	60000	63000	66000	69000	72000	330000
	Total				**8841000**	**9723800**	**6536600**	**4876900**	**4891950**	**34870250**

Annex VIII-C2

Janahit BZUC

S.N.	Activities	Unit	Quantity	Rate	Year I	Year II	Year III	Year IV	Year V	Total Amount
A	**Conservation Program**									
1	Maintenance and repair of fence in CF	Km	4	300000	240000	252000	264000	276000	288000	1320000
2	Cleaning to avoid fire near fencing area	Km	9	10000	18000	18900	19800	20700	21600	99000
3	Plantation	Ha	8	35000	56000	58800	61600	64400	67200	308000
4	Support of forest guard	Pax	4	130000	104000	109200	114400	119600	124800	572000
5	Fire line construction	Km	10	100000	200000	210000	220000	230000	240000	1100000
6	Fire line repair and maintenance	Km	15	20000	60000	63000	66000	69000	72000	330000
7	Check dam construction/repair (for landslide prevention)	Meter	50	4000	40000	42000	44000	46000	48000	220000
8	Fencing of Plantation area	Km	3	300000	900000					900000
9	Bio gas installation	No.	100	50000	1000000	1050000	1100000	1150000	1200000	5500000
10	Grazing area management and fencing	Ha	1	300000	300000					300000
11	Grassland construction and fencing	Ha	1	300000	300000					300000
12	Simsar area construction	No.	4	300000	240000	252000	264000	276000	288000	1320000
13	Boring for water for wetland	Years	4	700000	700000	735000	770000	805000		3010000
14	View tower construction	Years	4	300000			400000	420000	440000	1260000
B	**Community Development**									
1	Road Gravelling	Km	10	300000	600000	630000	660000	690000	720000	3300000

S.N.	Activities	Unit	Quantity	Rate	Year I	Year II	Year III	Year IV	Year V	Total Amount
2	Road repair and maintenance	Km	5	300000	300000	315000	330000	345000	360000	1650000
3	Drinking water pipe installation	No.	10	200000	400000	420000	440000	460000	480000	2200000
4	Support of culvert	No.	10	300000	600000	630000	660000	690000	720000	3300000
5	Provide hume pipe	No.	16	15000	48000	50400	52800	55200	57600	264000
6	Improve irrigation canal	Meter	200	2000	200000	210000				410000
7	Boring for small irrigation	Meter	4	700000	560000	588000	616000	644000	672000	3080000
8	CF building construction	No.	4	400000	400000	420000	440000	460000		1720000
9	Construction of Public toilet	No.	2	200000	200000	210000				410000
C	**Skill Development and Income Generation**									
1	Home stay training	Pax	10	5000	50000					50000
2	Livestock farming training	Pax	100	1000	100000					100000
3	Off season vegetable farming training	Pax	50	1000		50000				50000
4	Mushroom farming training	Pax	50	1000	50000					50000
5	Veterinary training	Pax	50	1000	50000					50000
6	Crystal jewelry making training	Pax	30	3000	90000					90000
7	Micro enterprise development training	Pax	100	1000	100000					100000
8	Cooperative management training	Pax	30	2000	60000					60000
9	Motorbike repair training	Pax	25	5000	125000					125000
10	Mobile repair training	Pax	25	5000	125000					125000
11	Wool weaving training	Pax	25	2000	50000					50000

S.N.	Activities	Unit	Quantity	Rate	Year I	Year II	Year III	Year IV	Year V	Total Amount
12	Leaf plate making training	Pax	10	2000	20000					20000
13	Khada making training	Pax	10	2000	20000					20000
14	Driving training	Pax	20	15000		150000	157500			307500
15	Agarbatti training	Pax	50	1500	75000					75000
16	Sewing and tailoring training	Pax	50	15000				787500		787500
17	Computer training	Pax	50	10000					600000	600000
18	House wiring training	Pax	50	10000					600000	600000
19	Plumbing training	Pax	50	10000		250000		262500		512500
20	Announcement training	Pax	50	3000	150000					150000
21	Leadership development training	Pax	50	1000	50000					50000
22	Accountant training	Pax	50	1000	50000					50000
D	**Conservation Education**									
1	Celebration of conservation days	Times	10	15000	30000	31500	33000	34500	36000	165000
2	Discussion about conservation in groups	No.	55	10000	110000	115500	121000	126500	132000	605000
3	Radio program development/broadcasting	Times	24	6000	28800	30240	31680	33120	34560	158400
4	Eco club learning visit	Years	3	25000	15000	15750	16500	17250	18000	82500
5	School level Eco club competition	Years	3	50000	30000	31500	33000	34500	36000	165000
6	Hoarding board installation	No.	4	15000	60000					60000
7	Patrolling by community based anti-poaching unit.	Times	10	15000	30000	31500	33000	34500	36000	165000
8	Interaction regarding anti-poaching	Times	15	15000	45000	47250	49500	51750	54000	247500

S.N.	Activities	Unit	Quantity	Rate	Year I	Year II	Year III	Year IV	Year V	Total Amount
9	Orientation about conservation regulations	Times	5	20000	20000	21000	22000	23000	24000	110000
10	Conservation education regarding human wildlife conflict	No.	5	30000	30000	31500	33000	34500	36000	165000
11	Appreciate honorary person in the community	Years	5	50000	50000	52500	55000	57500	60000	275000
E	**Administration Cost**									
1	Stationery	Years	5	50000	50000	52500	55000	57500	60000	275000
2	Communication	Years	5	50000	50000	52500	55000	57500	60000	275000
3	Solar pv for electricity	Times	1	150000	1500000					1500000
4	Conservation related expense	Years	5	50000	50000	52500	55000	57500	60000	275000
5	Reformation of group and committee	Times	1	5000	5000					5000
6	Management plan preparation	Times	1	50000	50000					50000
7	Multimedia Projector	No.	1	25000	25000					25000
8	Laptop	No.	1	75000	75000					75000
9	Office assistant	Years	5	225000	225000	236250	247500	258750	270000	1237500
	Total				11109800	7516290	7520280	8749270	7915760	42811400

Annex VIII-C3

Kusum Batika BZUC

S.N.	Activities	Unit	Quantity	Rate	Year I	Year II	Year III	Year IV	Year V	Total Amount
A	**Conservation Program**									
1	Undertake plantation	Ha	60	10000	300000	315000				615000
2	Fencing of Plantation	Km	15	400000	1200000	1260000	1320000	1380000	1440000	6600000
3	Recruit Forest guard	Pax	5	120000	120000	126000	132000	138000	144000	660000
4	Shallow tube well (including pipe, motor for plantation)	No.	1	100000	100000					100000
5	Deep boring	No.	3	1000000	750000	787500	825000	862500		3225000
6	Electric fencing	Km	7	500000	700000	735000	770000	805000	840000	3850000
7	View tower construction	No.	5	1200000	2000000	2100000	2200000			6300000
8	Provide Search light	No.	15	5000	25000	26250	27500			78750
9	Nursery construction	No.	1	200000	200000					200000
10	Procure digital camera	No.	5	20000	100000					100000
11	Night vision Binocular	No.	5	60000	300000					300000
12	Check dam (3*5*1 m)	No.	60	13000	260000	273000	286000			819000
13	Bio gas installation	No.	50	25000	250000	262500	275000	287500	300000	1375000
B	**Community Development**									
1	Community building construction for group	No.	5	500000	833333.33	875000	916666.67			2625000
2	Public community building construction	No.	1	2000000				2000000		2000000
3	Temple/monastery repair	No.	4	150000		150000	157500	165000	172500	645000
4	Resting place construction	No.	5	500000	500000	525000	550000	575000	600000	2750000
5	Temple construction	No.	3	200000		200000	210000	220000		630000

S.N.	Activities	Unit	Quantity	Rate	Year I	Year II	Year III	Year IV	Year V	Total Amount
6	Committee building construction	No.	2	250000	500000					500000
7	Road repair and maintenance	Km	5	500000	500000	525000	550000	575000	600000	2750000
8	Establish eco garden in school	No.	1	1000000		500000	525000			1025000
9	Construct Green belt including play ground	No.	1	1000000		500000	525000			1025000
10	Old age home construction	No.	1	2000000	2000000					
11	Public Toilet	No.	1	250000	250000					250000
12	Market place repair	No.	1	500000	500000					500000
13	Repair and maintenance of cemetery	No.	1	500000		500000				500000
14	Causeway construction	No.	2	200000			200000	210000		410000
15	Culvert construction	No.	4	300000				600000	630000	1230000
16	Round house for groups	No.	5	200000	200000	210000	220000	230000	240000	1100000
17	Deep boring repair for irrigation	No.	3	250000	375000	787500				1162500
C	**Skill Development and Income Generation**									
1	Leadership development training	Pax	52	1000	26000		27300			53300
2	Account keeping training	Pax	52	1000	26000		27300			53300
3	Parlour training	Pax	26	15000		390000				390000
4	Sewing and tailoring training	Pax	26	10000	260000					260000
5	House wiring training	Pax	26	10000	260000					260000
6	Off season vegetable farming training	Pax	52	1000	26000		27300			53300
7	Herbal farming training	Pax	26	1000		26000				26000
8	Ginger, Turmeric farming training	Pax	52	1000	26000		27300			53300
9	Chicken farming training	Pax	26	1000	26000					26000
10	Hybrid buffalo distribution	No.	2	40000	80000					80000
11	Hybrid goat distribution	No.	3	15000	45000					45000

S.N.	Activities	Unit	Quantity	Rate	Year I	Year II	Year III	Year IV	Year V	Total Amount
12	Hybrid ox distribution	No.	1	25000	25000					25000
13	Plumbing training	Pax	26	10000		260000				260000
14	Veterinary training	Pax	26	1000	26000					26000
15	Furniture/Laborer training	Pax	26	10000		260000				260000
16	Mobile repair training	Pax	26	10000	260000					260000
17	Computer training	Pax	26	10000	260000					260000
18	Television repair training	Pax	13	5000		65000				65000
19	Cooperative management training	Pax	30	2000	60000					60000
20	Home stay training	Pax	15	2000	30000					30000
D	**Conservation Education**									
1	Orientation of conservation legislations	Times	10	35000	70000	73500	77000	80500	84000	385000
2	Mobilize Eco clubs	Years	5	30000	30000	31500	33000	34500	36000	165000
3	School level competition	Times	10	20000	40000	42000	44000	46000	48000	220000
4	Scholarship for wildlife victimized students	Pax	4	25000	20000	21000	22000	23000	24000	110000
5	Hoarding board erection	No.	7	10000	70000					70000
6	Observation tour	Times	1	400000	400000					400000
7	Awareness on conservation education	Times	1	250000	50000	52500	55000	57500	60000	275000
8	Observation tour of Eco club members	Years	4	25000	20000	21000	22000	23000	24000	110000
9	Celebration of conservation days	Times	10	25000	50000	52500	55000	57500	60000	275000
10	Organize Clean-up campaign	Times	15	10000	30000	31500	33000	34500	36000	165000
11	Competition among school students regarding conservation	Years	5	25000	25000	26250	27500	28750	30000	137500
12	Mobilize CBAPU	Years	5	50000	50000	52500	55000	57500	60000	275000

S.N.	Activities	Unit	Quantity	Rate	Year I	Year II	Year III	Year IV	Year V	Total Amount
13	Patrolling by CBAPU	Times	60	14000	168000	176400	184800	193200	201600	924000
14	Radio program development/ broadcasting	Times	60	10000	120000	126000	132000	138000	144000	660000
E	**Administration Cost**									
1	Stationery	Years	5	50000	50000	52500	55000	57500	60000	275000
2	Communication	Years	5	25000	25000	26250	27500	28750	30000	137500
3	Furniture	Years	5	25000	25000					25000
4	Conservation related expenses	Years	5	50000	50000	52500	55000	57500	60000	275000
5	Formation of groups and committee	Times	1	50000	5000					5000
7	Preparation of five year management plan	Times	1	50000	50000					50000
8	Computer and printer	Times	1	75000	75000					75000
9	Office assistant	Years	5	130000	130000	136500	143000	149500	156000	715000
	Total				**14952333**	**12633150**	**10819667**	**9115200**	**6080100**	**51600450**

Annex VIII-C4

Lokhit BZUC

S.N.	Activities	Unit	Quantity	Rate	Year I	Year II	Year III	Year IV	Year V	Total Amount
A	**Conservation Program**									
1	Carry out plantation (Different species in 8 CF)	Km	50	30000	300000	315000	330000	345000	360000	1650000
2	Nursery operation	m3	1	400000	400000					400000
3	Fencing of plantation	meter	4	300000	240000	252000	264000	276000	288000	1320000
4	Bio engineering (Gully control)	No.	160	8000	256000	268800	281600	294400	307200	1408000
5	Water source conservation	No.	30	10000	60000	63000	66000	69000	72000	330000
6	Bio gas	Pax	250	15000	750000	787500	825000	862500	900000	4125000
7	Pangolin conservation (habitat conservation)	Years	5	50000	50000	52500	55000	57500	60000	275000
8	Improved Cook Stove	No.	200	5000	200000	210000	220000	230000	240000	1100000
9	Fire line repair and cleaning	Km	40	10000	80000	84000	88000	92000	96000	440000
10	Invasive species control (rowing and plucking)	Ha	10	10000	300000	315000	330000	345000	360000	1650000
11	Study in insect feeding on Pangolin species' leaf	Times	1	100000	100000					100000
12	Ponds for wildlife	No.	4	200000	200000	210000	220000	230000		860000
13	Pillar to stop encroachment	No.	30	1000	30000					30000
14	View tower	No.	8	200000	320000	336000	352000	368000	422400	1798400
15	Check dam for river training	Km	3	200000	120000	126000	200000	210000	220000	876000
		Set								
B	**Community Development**									
1	UG house construction	No.	9	125000	225000	236250	247500	258750	270000	1237500
2	Road repair	Km	8	100000	160000	168000	176000	184000	192000	880000

S.N.	Activities	Unit	Quantity	Rate	Year I	Year II	Year III	Year IV	Year V	Total Amount
3	Hyum pipe installation	No.	25	15000	75000	78750	82500	86250	90000	412500
4	Culvert construction	Place	1	200000	200000					200000
5	Ladder construction	meter	150	1500	225000					225000
6	Small irrigation repair	meter	8000	300	480000	504000	528000	552000	576000	2640000
7	Drinking water repair	No.	18	150000	540000	567000	594000	621000	648000	2970000
8	Water source construction	No.	9	50000	150000	157500	165000			472500
9	School toilet construction (including handicapped service)	No.	8	150000	300000	315000	330000	345000		1290000
10	Drinking water construction in school	No.	8	150000	300000	315000	330000	345000		1290000
11	Resting place construction (chautara)	No.	4	150000	150000	157500	165000	172500		645000
12	Cooling Station	No.	1	300000					300000	300000
C	**Skill Development and Income Generation**									
1	Plumbing training	Pax	9	15000	135000					135000
2	House wiring training	Pax	9	15000	135000					135000
3	Wood carving training	Pax	9	15000		135000				135000
4	Veterinary training	Pax	2	150000		300000				300000
5	Agro vet training	Pax	2	30000					60000	60000
6	Motor/cycle training	Pax	4	2000				8000		8000
7	Unseasonal vegetable farming training	Pax	27	2000	54000					54000
8	Farm improvement training	Pax	27	2000		54000				54000
9	Kurilo farming training	Pax	27	15000			405000			405000
10	Computer training	Pax	4	15000		60000				60000
11	Mobile repair training	Pax	4	50000	200000					200000
12	Income generation fruits, herbal seeds, seedling distribution	Times	1	2000		2000				2000

S.N.	Activities	Unit	Quantity	Rate	Year I	Year II	Year III	Year IV	Year V	Total Amount
13	Mushroom farming training	Pax	18	2000	36000					36000
14	Chicken farming training	Pax	27	2000			54000			54000
15	Fish farming training	Pax	18	2000		36000				36000
16	Goat farming training	Pax	18	2000				36000		36000
17	Hybrid goat distribution	No.	8	15000	120000					120000
18	Hybrid buffalo distribution	No.	4	40000	160000					160000
19	Leadership development training	Pax	72	1000	72000					72000
20	accountant training	Pax	72	1000	72000					72000
21	CF management training	Pax	24	1000	24000					24000
22	Community based anti-poaching	Pax	15	1000	15000					15000
23	Women development training for conservation	Pax	18	1000	18000					18000
24	Bee keeping training	Pax	18	2000		36000				36000
25	Hair dresser training	Pax	4	15000	60000					60000
26	Sewing training	Pax	9	20000			180000			180000
27	Pickle making training	Pax	9	2000	18000					18000
28	Ginger farming training	Pax	18	3000				54000		54000
29	Amriso farming training	Pax	17	2000		34000				34000
30	Herbs farming training	Pax	18	2000		36000				36000
31	Support for income generation for victims of wildlife	Pax	10	30000	60000	63000	66000	69000	72000	330000
D	**Conservation Education**									
1	Hoarding board	No.	9	10000	90000					90000
2	Biodiversity conservation orientation	Times	5	30000	30000	31500	33000	34500	36000	165000
3	Conservation seminar	Times	5	30000	30000	31500	33000	34500	36000	165000
4	Celebration day	Times	10	50000	100000	105000	110000	115000	120000	550000

S.N.	Activities	Unit	Quantity	Rate	Year I	Year II	Year III	Year IV	Year V	Total Amount
5	Eco club formation	No.	3	15000	45000					45000
6	Eco club mobilization	Years	5	50000	50000	52500	55000	57500	60000	275000
7	School level quiz and elocution contest	Years	5	50000	50000	52500	55000	57500	60000	275000
8	Community based anti-poaching	Years	5	50000	50000	52500	55000	57500	60000	275000
9	Patrolling for anti-poaching	Times	20	20000	80000	84000	88000	92000	96000	440000
10	Expenses for informer initiation	Years	5	60000	60000	63000	66000	69000	72000	330000
11	Learning observation tour	Times	2	30000		30000		31500		61500
12	Educational tour (committee, antitheft, CF, Eco club)	Times	1	300000			300000			300000
13	Informative program	Times	15	15000	45000	47250	49500	51750	54000	247500
E	**Administration Cost**									
1	Furniture	Years	5	50000	50000	52500	55000	57500	60000	275000
2	Computer, printer	Years	1	75000	75000					75000
3	Stationery	Years	5	25000	25000	26250	27500	28750	30000	137500
4	Camera	Years	1	25000	25000					25000
5	Support for forest guard	Years	5	25000	25000	26250	27500	28750	30000	137500
6	Office assistant	Years	5	130000	130000	136500	143000	149500	156000	715000
7	Communication	Years	5	25000	25000	26250	27500	28750	30000	137500
8	Conservation related expenses	Years	5	50000	50000	52500	55000	57500	60000	275000
9	Reformation of groups and committee	Times	1	50000					50000	50000
10	Management plan of committee	Times	1	50000					50000	50000
11	Register distribution of groups	Times	72	10000	144000	151200	158400	165600	172800	792000
12	Reformation of groups' policy	Times	72	10000	144000	151200	158400	165600	172800	792000
	Total				8713000	7447200	8051400	7393600	6939200	38544400

Annex VIII-C5

Churiyamai BZUC

S.N.	Activities	Unit	Quantity	Rate	Year I	Year II	Year III	Year IV	Year V	Total Amount
A	**Conservation Program**									
1	Fire line construction	Km	8	10000	80000					80000
2	Fire line repair and cleaning	m3	12	5000	12000	12600	13200	13800	14400	66000
3	Plantation	meter	8	50000		200000	210000			410000
4	Fencing for plantation	Ha	8	100000	400000	420000				820000
5	Forest guard	No.	6	96000	115200	120960	126720	132480	138240	633600
6	Patrolling for anti-poaching	Pax	240	2000	96000	100800	105600	110400	115200	528000
7	View tower construction	No.	1	500000	500000					500000
8	View tower repair	Ha	1	250000	125000		131250			256250
9	Round house for UG (Gol ghar)	No.	3	150000	225000	236250				461250
10	Check dam	m3	400	3000	600000	630000				1230000
11	View tower fencing	No.	2	100000	200000					200000
12	Pond construction	No.	1	100000	33333.33	35000	36666.67			105000
B	**Community Development**									
1	User group building	No.	3	500000	750000	787500				1537500
2	Monastery/Temple repair	Set	6	150000	180000	189000	198000	207000	216000	990000
3	Road repair	Km	20	100000	400000	420000	440000	460000	480000	2200000
4	Drinking water repair	No.	3	150000	150000	157500	165000			472500
5	Morgue burning place construction	No.	5	200000	333333.33	350000	366666.67			1050000
6	Waiting station	No.	3	100000	100000	105000	110000			315000
7	Slab construction	Place	210	15000	630000	661500	693000	724500	756000	3465000
8	Eco garden in school	No.	4	150000	120000	126000	132000	138000	144000	660000
9	Support for play ground in school	No.	4	20000	16000	16800	17600	18400	19200	88000

S.N.	Activities	Unit	Quantity	Rate	Year I	Year II	Year III	Year IV	Year V	Total Amount
10	Picnic spot	No.	3	500000	500000	525000	550000			1575000
C	**Skill Development and Income Generation**									
1	Sewing training	Pax	50	30000		500000	525000	550000		1575000
2	Home stay training	Pax	25	3000		37500	39375			76875
3	Vegetable production training	Pax	60	2000	60000	63000				123000
4	Small Industry training	Pax	25	1000	25000					25000
5	Parlour training	Pax	25	1000		25000				25000
6	Mobile repair training	Pax	10	2000	20000					20000
7	Electronic training	Pax	10	2000	20000					20000
8	Plumbing training	Pax	10	2000		20000				20000
9	Animal farming training	Pax	50	2000		100000				100000
10	Computer training	Pax	15	1000			15000			15000
11	Doll and cushion training	Pax	25	1000	25000					25000
12	Knitting training	Pax	25	1000	25000					25000
13	Candle training	Pax	20	1000		20000				20000
14	Chicken farming training	Pax	25	1000			25000			25000
15	Home stay training	Pax	5	2000	10000					10000
16	Seed distribution	Pax	1300	500	325000	341250				666250
17	Provide support for rain water harvesting	Pax	150	10000	500000	525000	550000			1575000
18	Mushroom farming training	Pax	15	2000		15000	15750			30750
19	Handicraft training	Pax	10	2000			10000	10500		20500
20	Fabric painting training	Pax	5	5000		8333.33	8750	9166.67		26250
21	Basket small industry training	Pax	5	1000	5000					5000
22	Account keeping training	Pax	60	1000	30000	31500				61500
23	Leadership development training	Pax	30	1000	30000					30000

S.N.	Activities	Unit	Quantity	Rate	Year I	Year II	Year III	Year IV	Year V	Total Amount
24	Cooperative management training	Pax	20	2000	40000					40000
25	Finance training	Pax	20	5000	100000					100000
26	Distribution of machine for making basket	Times	5	30000	75000	78750				153750
D	**Conservation Education**									
1	Hoarding board	No.	10	10000	100000					100000
2	Radio program broadcasting	Times	60	5000	60000	63000	66000	69000	72000	330000
3	Street drama for conservation	Times	5	50000	50000	52500	55000	57500	60000	275000
4	Conservation observation	Pax	70	5714.29	80000	84000	88000	92000	96000	440000
5	Conservation rally	Times	10	15000	30000	31500	33000	34500	36000	165000
6	Celebration day	Times	10	15000	60000	63000	66000	69000	72000	330000
7	School level contest	Times	5	40000	40000	42000	44000	46000	48000	220000
8	Eco club mobilization	Years	5	50000	50000	52500	55000	57500	60000	275000
9	Conservation related folk song	Set	5	40000	40000	42000	44000	46000	48000	220000
E	**Administration Cost**									
1	Field gear	Times	1	50000	50000					50000
2	Mike and sound system	Times	1	60000	60000					60000
3	Stationery	Years	5	15000	15000	15750	16500	17250	18000	82500
4	Conservation related expenses	Years	5	15000	15000	15750	16500	17250	18000	82500
5	Communication	Years	5	12000	12000	12600	13200	13800	14400	66000
6	Unidentified expenses	Years	5	60000	60000	63000	66000	69000	72000	330000
7	Furniture	Set	2	50000	100000					100000
8	Hand mike set	No.	2	10000	20000					20000
	Total					7396843	5047778	2963047	2497440	25602975

Annex VIII-C6

Lokpriya BZUC

S.N.	Activities	Unit	Quantity	Rate	Year I	Year II	Year III	Year IV	Year V	Total Amount
A	**Conservation Program**									
1	Fencing of forest area	Km	6	225000	450000	472500	495000			1417500
2	Check dam	m3	900	4000	1800000	1890000				3690000
3	Electric fence	meter	2	500000	1000000					1000000
4	Plantation	Ha	5	150000	375000	393750				768750
5	Forest guard	No.	4	120000	96000	100800	105600	110400	115200	528000
6	Fire line cleaning	Pax	5	75000	75000	78750	82500	86250	90000	412500
7	View tower	No.	2	1000000	400000	200000	440000			1040000
8	Search light/Binoculars/Camera	Ha	4	25000	100000					100000
B	**Community Development**									
1	Road repair	Km	3	300000	180000	189000	198000	207000	216000	990000
2	Drinking water tank construction	No.	1	1000000	1000000					1000000
3	Furniture for school	Set	1	60000	30000	31500				61500
4	Eco garden in school	m	250	1000	125000		131250			256250
5	Temple construction	No.	2	300000	300000	315000				615000
6	Waiting station	Set	6	150000		300000	315000	330000	0	945000
7	Irrigation repair	Km	2	250000	100000	105000	110000	115000	120000	550000
8	Scholarship for wildlife victim students	Pax	5	20000	20000	21000	22000	23000	24000	110000
9	Hume pipe	No.	10	20000	40000	42000	44000	46000	48000	220000
10	Bio gas	No.	50	25000	250000	262500	275000	287500	300000	1375000
11	Improved fireplace	Place	100	5000	100000	105000	110000	115000	120000	550000
12	Committee building repair	No.	2	250000		250000	262500			512500

S.N.	Activities	Unit	Quantity	Rate	Year I	Year II	Year III	Year IV	Year V	Total Amount
C	**Skill Development and Income Generation**									
1	Sewing/knitting training	Pax	10	2000	20000					20000
2	Mobile repair training	Pax	5	2000		10000				10000
3	Plumbing training	Pax	5	3000	15000					15000
4	Electrician training	Pax	6	3000			18000			18000
5	Veterinary training	Pax	3	5000		15000				15000
6	Computer training	Pax	10	1000		10000				10000
7	Animal farm training	Pax	50	1000	50000					50000
8	Vegetable farm training	Pax	50	1000	50000					50000
9	Parlour training	Pax	10	2000	20000					20000
10	Leadership development training	Pax	35	1000	35000					35000
11	Account keeping training	Pax	6	2000	12000					12000
12	Handicraft training	Pax	4	2000		8000				8000
13	Hybrid buffalo distribution	No.	2	40000				80000		80000
14	Hybrid goat distribution	No.	2	15000			30000			30000
15	Hybrid cow farming	No.	2	50000		100000				100000
16	Fish farm	No.	5000	6	30000					30000
D	**Conservation Education**									
1	Street drama for conservation	Times	5	50000	50000	52500	55000	57500	60000	275000
2	Brochure distribution	Times	5	10000	10000	10500	11000	11500	12000	55000
3	Hoarding board	No.	10	10000	100000					100000
4	Documentary production	No.	1	100000		100000				100000
5	Celebration of conservation days	Times	10	20000	40000	42000	44000	46000	48000	220000
6	School level competition	Times	5	30000	60000	63000	66000	69000	72000	330000

S.N.	Activities	Unit	Quantity	Rate	Year I	Year II	Year III	Year IV	Year V	Total Amount
7	Informative folk song program	Times	5	30000	30000	31500	33000	34500	36000	165000
8	Conservation class initiation	Times	10	10000	20000	21000	22000	23000	24000	110000
9	Observation regarding conservation	Pax	35	10000	70000	73500	77000	80500	84000	385000
		Times								
E	**Administration Cost**									
1	Furniture	LS	1	100000	100000					100000
2	Stationery	Years	5	20000	20000	21000	22000	23000	24000	110000
3	Computer	No.	1	75000	75000					75000
4	Office assistant	Pax	1	84000	16800	17640	18480	19320	20160	92400
5	Electricity expenses	Years	5	50000	50000	52500	55000	57500	60000	275000
6	Communication	Years	5	12000	12000	12600	13200	13800	14400	66000
7	Conservation related expenses	Years	5	12000	12000	12600	13200	13800	14400	66000
8	CBAPU management	Years	5	120000	120000	126000	132000	138000	144000	660000
9	CF renewal	Times	3	50000		150000				150000
10	Unidentified expenses	Set	5	120000	120000	126000	132000	138000	144000	660000
11	Mike and sound system	Times	1	30000	30000					30000
	Total					5812140	3332730	2125570	1790160	20669400

Annex VIII-C7

Manahari BZUC

S.N.	Activities	Unit	Quantity	Rate	Year I	Year II	Year III	Year IV	Year V	Total Amount
A	**Conservation Program**									
1	Barbed wire fence around plantation area	Km	8	200000	800000	840000				1640000
2	Check dam construction	m3	450	9500	855000	897750	940500	983250	1026000	4702500
3	Management of wetlands (fence, cleaning)	m	31.5	200000	3150000	3307500				6457500
4	Grassland management	Ha	10	30000					300000	300000
5	Pond in CF	No.	1	30000	30000					30000
6	Fire line construction	No.	10	20000	40000	42000	44000	46000	48000	220000
7	View tower construction	No.	3	500000			750000	787500	825000	2362500
8	Bamboo plantation on banks of Manahari river	Ha	4	75000	60000	63000	66000	69000	72000	330000
9	Eco garden in school	m	1500	1000		750000	787500			1537500
10	Encroachment control (fence)	Km	10	20000	40000	42000	44000	46000	48000	220000
B	**Community Development**									
1	Entry gate construction	No.	1	300000	60000	63000	66000	69000	72000	330000
2	Irrigation system repair	m	2500	1200	600000	630000	660000	690000	720000	3300000
3	Hume pipe installation	No.	10	15000	30000	31500	33000	34500	36000	165000
4	Culvert construction	Set	3	600000	360000	378000	396000	414000	432000	1980000
5	Playground initiation	No.	1	100000	100000					100000
6	Cultural building construction	No.	1	1500000			1500000			1500000
7	Temple repair and improved	No.	3	100000	60000	63000	66000			189000
8	Kriyaputri house construction	No.	1	300000	300000					300000
		Place								

S.N.	Activities	Unit	Quantity	Rate	Year I	Year II	Year III	Year IV	Year V	Total Amount
C	**Skill Development and Income Generation**									
1	Guide training	No.	18	6944.44		125000				125000
2	Cook training	No.	18	6944.44		125000				125000
3	Waiter training	No.	18	6944.44		125000				125000
4	House wiring training	No.	24	20000		480000				480000
5	Home stay initiation training	No.	12	20000	240000					240000
6	Furniture/Labour training	No.	12	20000		240000				240000
7	Leadership development training	No.	27	2777.78	75000					75000
8	Account keeping training	No.	27	2777.78	75000					75000
9	Fish farming and pond management training	No.	3	50000		50000	52500	55000		157500
10	Organic vegetable farming training	No.	24	10000	240000					240000
11	Beautician training	No.	12	20000		240000				240000
12	Sewing training	No.	12	20000	240000					240000
13	Mobile repair training	No.	12	20000	240000					240000
14	Agarbatti training	No.	12	10000	120000					120000
15	Bio gas initiation training	No.	12	10000		120000				120000
D	**Conservation Education**									
1	Learning observation tour	No.	54	9259.26				500000		500000
2	School level competition	No.	5	50000	50000	52500	55000	57500	60000	275000
3	Hoarding board installation	No.	6	15000			30000	31500	33000	94500
4	Conservation education on radio program	Times	10	6000	12000	12600	13200	13800	14400	66000
5	Simsar day	Times	5	40000	40000	42000	44000	46000	48000	220000
6	Teej program relating conservation	Times	5	50000	50000	52500	55000	57500	60000	275000
7	Wildlife week program	Times	5	50000	50000	52500	55000	57500	60000	275000

S.N.	Activities	Unit	Quantity	Rate	Year I	Year II	Year III	Year IV	Year V	Total Amount
8	Street drama show	Times	5	50000	50000	52500	55000	57500	60000	275000
9	Seminar and discussion on theft control	Times	5	50000	50000	52500	55000	57500	60000	275000
10	CBAPU initiation	Years	5	150000	150000	157500	165000	172500	180000	825000
11	Eco club initiation	No.	11	50000	110000	115500	121000	126500	132000	605000
E	**Administration Cost**									
1	Stationery	Years	5	50000	50000	52500	55000	57500	60000	275000
2	Office assistant	Years	5	130000	130000	136500	143000	149500	156000	715000
3	Furniture	Times	2	75000	75000				78750	153750
4	Computer	Set	1	50000	50000					50000
5	Field gear	Times	1	60000		60000				60000
6	Communication	Years	5	24000	24000	25200	26400	27600	28800	132000
7	Newspaper and periodicals	Years	5	5000	5000	5250	5500	5750	6000	27500
8	Electricity	Years	5	20000	20000	21000	22000	23000	24000	110000
9	Conservation coordination	Years	5	30000	30000	31500	33000	34500	36000	165000
10	Miscellaneous	Years	5	60000	60000	63000	66000	69000	72000	330000
	Total				**8721000**	**9597800**	**6404600**	**4738900**	**4747950**	**34210250**

Annex VIII-C8

Nirmalbasti BZUC

S.N.	Activities	Unit	Quantity	Rate	Year I	Year II	Year III	Year IV	Year V	Total Amount
A	**Conservation Program**									
1	CF formation (operational plan preparation)	Km	1	30000	30000					30000
2	Fencing and repair on CF	m3	3	450000	270000	283500	297000	310500	324000	1485000
3	View tower construction	meter	2	300000		300000	315000			615000
4	Solar fence to reduce human elephant conflict	Km	10	100000	200000	210000	220000	230000	240000	1100000
5	Pond construction for wildlife	No.	1	600000	120000	126000	132000	138000	144000	660000
6	Boring for pond (Solar pump)	pax	1	2000000	2000000					2000000
7	Plantation on CF	Ha	1500	50	37500		39375			76875
8	Solar Fence repair	Ha	5	200000				500000	525000	1025000
9	Bio gas	No.	300	20000	1200000	1260000	1320000	1380000	1440000	6600000
10	Check dam	meter	1000	2000	300000	315000	330000	345000	360000	1650000
11	Support for forest guard	pax	5	120000	300000	315000	330000	345000	360000	1650000
12	Fencing for encroachment control	Km	10	450000	900000	945000	990000	1035000	1080000	4950000
13	Policy formation of group and committee	No.	13	10000	130000					130000
14	Pass book and ledger distribution	Years	13	5000	13000	13650	14300	14950	15600	71500
B	**Community Development**									
1	Roundhouse construction for UG	No.	13	100000	260000	273000	286000	299000	312000	1430000
2	Community building	No.	1	700000				700000		700000

S.N.	Activities	Unit	Quantity	Rate	Year I	Year II	Year III	Year IV	Year V	Total Amount
3	Community library construction	No.	1	350000					350000	350000
4	Books support for school	No.	1	350000				350000		350000
5	Tube well for small irrigation	Place	3	700000		700000	735000	735000		2170000
6	Monastery construction support (nirmal basti 5)	No.	1	500000					500000	500000
8	Vegetable collection station	No.	1	500000		500000				500000
9	Agriculture road construction	Km	3	100000			100000	105000	110000	315000
10	BZUC building repair	Times	1	300000	300000					300000
11	Chautara repair	No.	3	30000	30000	31500	33000			94500
12	Support for repairing building of Community FM	Times	1	200000	200000					200000
13	Culvert	No.	2	600000		600000	630000			1230000
C	**Skill Development and Income Generation**									
1	Animal farming training	pax	30	1000	30000					30000
2	Farm improvement training	pax	30	1000		30000				30000
3	Farm improvement donation	Years	24	20000	160000	168000	176000			504000
4	Beautician training	pax	30	10000	300000					300000
5	Sewing training	pax	30	10000		300000				300000
6	House wiring training	pax	30	5000	150000					150000
7	Plumbing training	pax	30	5000		150000				150000
8	Mobile repair training	pax	20	5000	100000					100000
9	Computer training	pax	30	5000	150000					150000
10	Mushroom farming training	pax	30	1000	30000					30000

S.N.	Activities	Unit	Quantity	Rate	Year I	Year II	Year III	Year IV	Year V	Total Amount
11	Agriculture farming training	pax	30	1000	30000					30000
12	Motor/Cycle repair training	pax	15	5000	75000					75000
13	Turmeric, Ginger farming	pax	30	2000	60000					60000
D	**Conservation Education**									
1	Learning observation tour (group, committee members)	pax	104	3365.38	350000					350000
2	Orientation on conservation policy, rules and regulation	Times	15	25000	75000	78750	82500	86250	90000	412500
3	Celebration of conservationday	Years	5	50000	50000	52500	55000	57500	60000	275000
4	Eco club mobilization	Times	10	20000	40000	42000	44000	46000	48000	220000
5	Eco club education tour	pax	50	4000		200000				200000
6	Leadership development training	pax	52	2000		52000	54600			106600
7	Conservation leader radio program formation and broadcast	Times	60	10000	120000	126000	132000	138000	144000	660000
8	Account keeping training	pax	52	10000	260000			273000		533000
9	Group initiation for theft control	Years	5	50000	50000	52500	55000	57500	60000	275000
10	Sensitization on anti-poaching	Times	60	10000	120000	126000	132000	138000	144000	660000
11	Hoarding board	No.	3	10000	10000	10500	11000			31500
12	Rewards for best group in conservation	Years	5	10000	10000	10500	11000	11500	12000	55000
13	Entry gate (CF Boundary) including conservation information	No.	1	150000	150000					150000
14	Informative program for women	Times	15	10000	30000	31500	33000	34500	36000	165000
15	Tour for conservation news reporter	Times	10	10000	20000	21000	22000	23000	24000	110000

S.N.	Activities	Unit	Quantity	Rate	Year I	Year II	Year III	Year IV	Year V	Total Amount
E	**Administration Cost**									
1	Computer, printer	Set	1	75000	75000					75000
2	Stationery	Years	5	36000	36000	37800	39600	41400	43200	198000
3	Communication	Years	5	25000	25000	26250	27500	28750	30000	137500
4	Conservation related expenses	Years	5	25000	25000	26250	27500	28750	30000	137500
						7414200	6674375	7451600	6481800	36843475
E	**Administration Cost**									
1	Computer, printer	Set	1	75000	75000					75000
2	Stationery	Years	5	36000	36000	37800	39600	41400	43200	198000
3	Communication	Years	5	25000	25000	26250	27500	28750	30000	137500
4	Conservation related expenses	Years	5	25000	25000	26250	27500	28750	30000	137500
	Total					**7414200**	**6674375**	**7451600**	**6481800**	**36843475**

Annex VIII-C9

Padam Milan BZUC

S.N.	Activities	Unit	Quantity	Rate	Year I	Year II	Year III	Year IV	Year V	Total Amount
A	**Conservation Program**									
1	Plantation on CF/LF	Km	10	50000	100000	105000	110000	115000	120000	550000
2	Check dam	m3	200	13000	520000	546000	572000	598000	624000	2860000
3	Fire line construction	meter	15	5000	15000	15750	16500	17250	18000	82500
4	Electric fence	Km	2	500000	200000			100000	105000	405000
5	View tower	No.	2	100000		50000	52500			102500
6	Pond construction	pax	2	500000	500000			525000		1025000
7	Bio gas	No.	150	30000	900000	945000	990000	1035000	1080000	4950000
8	Improved fireplace for cooking	Ha	100	5000	100000	105000	110000	115000	120000	550000
9	Habitat improvement for Pangolin	Ha	15	100000	300000	315000	330000	345000	360000	1650000
10	Encroachment control	Times	5	50000	50000	52500	55000	57500	60000	275000
B	**Community Development**									
1	Road construction	Km	15	150000	450000	472500	495000	517500	540000	2475000
2	Culvert	Km	20	200000	800000	840000	880000	920000	960000	4400000
3	Monastery/Temple construction	No.	5	500000	500000	525000	550000	575000	600000	2750000
4	Community Building construction	Set	2	1000000	1000000		1050000			2050000
5	Drinking water improvement	No.	3	500000	300000	315000	330000	345000	360000	1650000
6	Picnic spot	No.	2	1500000	1500000	1575000				3075000
7	Public resting spot	No.	5	200000	200000	210000	220000	230000	240000	1100000
8	Public toilet	No.	2	500000	500000	525000				1025000
9	Eco garden in school area	Place	4	100000	80000	84000	88000	92000	96000	440000
10	Dustbin for waste management in public place	No.	20	3000	12000	12600	13200	13800	14400	66000

S.N.	Activities	Unit	Quantity	Rate	Year I	Year II	Year III	Year IV	Year V	Total Amount
11	Community forest /leasehold forest renewal	No.	19	20000	380000					380000
12	Committee building repair	Times	2	200000	200000		210000			410000
C	**Skill Development and Income Generation**									
1	Computer training	pax	5	30000	75000	78750				153750
2	Veterinary training	pax	48	1000	9600	10080	10560	11040	11520	52800
3	Brigade training	pax	40	1500	60000					60000
4	Sewing/knitting training	pax	40	2000	40000	42000				82000
5	Parlour training	pax	40	2000	80000					80000
6	Leadership development training	pax	50	2000	100000					100000
7	Account keeping training	pax	50	2000	100000					100000
8	House wiring training	pax	10	10000		100000				100000
9	Cooperative management training	pax	10	10000	100000					100000
10	Organic farming training	pax	40	2000	26666.67	28000	29333.33			84000
11	Mobile repair training	pax	60	15000				90000		90000
12	Electronic repair training	pax	5	5000		25000				25000
13	Animal farming training	pax	10	10000	50000	52500				102500
14	cook training	pax	20	1000	20000					20000
15	Handicraft of bamboo training	pax	20	1500	30000					30000
D	**Conservation Education**									
1	Hoarding board	No.	5	10000	50000					50000
2	Discussion about conservation in group	Times	30	10000	300000					300000
3	Radio program formation/broadcast	Times	120	20000	480000	504000	528000	552000	576000	2640000
4	Celebration of conservation day	Times	10	30000	60000	63000	66000	69000	72000	330000

S.N.	Activities	Unit	Quantity	Rate	Year I	Year II	Year III	Year IV	Year V	Total Amount
5	Eco club mobilization	Times	10	30000	60000	63000	66000	69000	72000	330000
6	Hoarding board	Years	5	20000	60000	63000	66000	69000	72000	330000
7	Patrolling for CBAPU	Times	5	5000	5000	5250	5500	5750	6000	27500
8	Brochure distribution by students	Years	5	5000	5000	5250	5500	5750	6000	27500
9	Pangolin conservation information	Times	5	30000	30000	31500	33000	34500	36000	165000
10	Information/observation regarding encroachment control	Years	5	50000	50000	52500	55000	57500	60000	275000
E	**Administration Cost**									
1	Computer	No.	1	50000	50000					50000
2	Furniture	No.	30	10000	300000					
3	Projector	No.	1	35000	35000					35000
4	Communication	Years	5	3000	3000	3150	3300	3450	3600	16500
5	Stationery	Years	5	2000	2000	2100	2200	2300	2400	11000
6	Conservation related expenses	Years	5	20000	20000	21000	22000	23000	24000	110000
7	Unidentified expenses	Years	5	20000	20000	21000	22000	23000	24000	110000
8	Carpet	Set	1	20000	20000					20000
9	Office assistant	Years	5	120000	120000	126000	132000	138000	144000	660000
	Total				10968267	7990430	7118593	6754340	6406920	38938550

Annex VIII-C10

Panchamukhi BZUC

S.N.	Activities	Unit	Quantity	Rate	Year I	Year II	Year III	Year IV	Year V	Total Amount
A	**Conservation Program**									
1	Barbed wire fence on CF	Km	8	200000	320000	336000	352000	368000	384000	1760000
2	Pond	m3	2	450000	450000	472500				922500
3	View tower for tourist	meter	1	350000		350000				350000
4	View tower for controlling elephant	No.	1	350000	350000					350000
5	Plantation	No.	3	15000	15000	15750	16500			47250
6	CF renewal	pax	3	50000	30000	31500	33000	34500	36000	165000
7	Fire line Cleaning	Km	15	10000	30000	31500	33000	34500	36000	165000
8	Emergency fire control	Ha	10	10000	900000					900000
9	Access of water from canal in Bisarniya	meter	200	2500				250000	262500	512500
10	Spur construction	No.	15	10000	30000	31500	33000	34500	36000	165000
11	Bio gas	No.	150	20000	600000	630000	660000	690000	720000	3300000
B	**Community Development**									
1	Culvert	No.	10	80000	160000	168000	176000	184000	192000	880000
2	Drainage construction	meter	500	2500	250000	262500	275000	287500	300000	1375000
3	Road repair	Set	6	10000	12000	12600	13200	13800	14400	66000
4	Drinking water	No.	12	25000	60000	63000	66000	69000	72000	330000
5	Boring for irrigation	No.	10	35000	70000	73500	77000	80500	84000	385000
6	Chautara	meter	5	30000	30000	31500	33000	34500	36000	165000
7	Committee building construction	meter	1	1500000					1500000	1500000
8	Round house for group	Place	1	100000	20000	21000	22000	23000	24000	110000
9	Irrigation canal repair	No.	7	30000	42000	44100	46200	48300	50400	231000

S.N.	Activities	Unit	Quantity	Rate	Year I	Year II	Year III	Year IV	Year V	Total Amount
C	**Skill Development and Income Generation**									
1	Sewing and tailoring training	pax	20	15000			300000			300000
2	Computer training	pax	20	5000	100000					100000
3	House wiring training	pax	20	10000		200000				200000
4	Mobile repair training	pax	20	10000			200000			200000
5	Hybrid buffalo distribution	No.	10	40000	400000					400000
6	Buffalo farm training	pax	40	500	20000					20000
7	Chicken farming training	pax	40	500	20000					20000
8	Boar farming training	pax	40	500	20000					20000
9	Motor/cycle repair training	pax	40	500	20000					20000
10	Plumbing training	pax	40	500	20000					20000
11	Agriculture farming training	pax	40	500	20000					20000
12	Fish farming training	pax	40	500	20000					20000
13	Furniture/Laborer training	pax	40	1000	40000					40000
D	**Conservation Education**									
1	Eco club mobilization	Years	5	50000	50000	52500	55000	57500	60000	275000
2	Mobilization of	Years	5	50000	50000	52500	55000	57500	60000	275000
3	Conservation related essay, quiz, poem	Times	10	25000	50000	52500	55000	57500	60000	275000
4	Celebration day	Times	10	30000	60000	63000	66000	69000	72000	330000
5	Information regarding policy and rules to user group members	Times	2	25000	25000			26250		51250
6	Radio program about conservation	No.	20	5000	60000	63000	66000	75900	72000	336900
7	Hoarding board	No.	6	10000	60000					60000
8	Brochure	No.	1000	50	50000					50000

S.N.	Activities	Unit	Quantity	Rate	Year I	Year II	Year III	Year IV	Year V	Total Amount
E	**Administration Cost**									
1	Computer and printer purchase	No.	4	75000	75000					75000
2	Office helper	No.	5	130000	130000	136500	143000	149500	156000	715000
3	Furniture	Times	5	30000	30000	31500	33000	34500	36000	165000
4	Stationery	Years	5	60000	60000	63000	66000	69000	72000	330000
5	Communication	Years	5	12000	12000	12600	13200	13800	14400	66000
6	Solar	Times	1	100000	33333.33			35000	36666.67	105000
7	Reformation of group and committee	Times	2	50000	100000			105000	110000	315000
8	Fan installation	Times	3	3000	9000					9000
	Total					**3302050**	**2888100**	**2902550**	**4496367**	**18492400**

Annex VIII-C11

Prakritik BZUC

S.N.	Activities	Unit	Quantity	Rate	Year I	Year II	Year III	Year IV	Year V	Total Amount
A	**Conservation Program**									
1	Fencing on Plantation	Km	2	300000	300000	315000				615000
2	Fire line construction	m3	6	15000	18000	18900	19800	20700	21600	99000
3	Mesh wire fence	meter	1	300000	150000	157500				307500
4	Grass plantation on private land	No.	5000	15	75000					75000
5	Nursery establishment and conduct	No.	5	300000	300000	315000	330000	345000	360000	1650000
6	Check dam construction	Pax	300	7000	420000	441000	462000	483000	504000	2310000
7	Wetland management	No.	1	50000	50000					50000
8	Grassland management	Ha	5	20000		100000				100000
9	View tower	No.	1	300000			300000			300000
10	Invasive species (theft)	Ha	5	50000	50000	52500	55000	57500	60000	275000
11	River control	No.	8	15000	24000	25200	26400	27600	28800	132000
12	CF patrolling (for theft)	Times	100	1000	20000	21000	22000	23000	24000	110000
13	CF operational plan renewal	No.	8	50000	80000	84000	88000	92000	96000	440000
14	Group legislation renewal	No.	52	10000	104000	109200	114400	119600	124800	572000
B	**Community Development**									
1	Road repair	Km	10	250000	500000	525000	550000	575000	600000	2750000
2	Drinking water	No.	15	40000	120000	126000	132000	138000	144000	660000
3	Solar pump for pumping drinking water	No.	4	500000	400000	420000	440000	460000	480000	2200000
4	Canal repair	meter	1000	2500	500000	525000	550000	575000	600000	2750000
5	Pump for small irrigation	Place	8	25000	40000	42000	44000	46000	48000	220000
6	Hyum pipe	No.	12	15000	36000	37800	39600	41400	43200	198000

S.N.	Activities	Unit	Quantity	Rate	Year I	Year II	Year III	Year IV	Year V	Total Amount
7	School compound repair	No.	5	300000	300000	315000	330000	345000	360000	1650000
8	Fence for school compound	meter	400	1500	300000	315000				615000
9	Expansion support of school toilet	No.	5	200000	200000	210000	220000	230000	240000	1100000
10	School's drinking water repair	No.	4	50000	40000	42000	44000	46000	48000	220000
11	Support for cooperative building through user committee	Times	1	200000				200000		200000
12	Toilet in User committee building	No.	1	200000		200000				200000
13	Statue of Elephant establishment	No.	1	350000		350000				350000
C	**Skill Development and Income Generation**									
1	Leadership development training	Pax	52	1000	26000	27300				53300
2	Account keeping training	Pax	52	1000		52000				52000
3	Pulse training	Pax	52	1000			52000			52000
4	Motor/cycle training	Pax	10	10000				100000		100000
5	Home stay training	Pax	10	5000					50000	50000
6	Theft control training	Pax	11	5000	55000					55000
7	Sewing/knitting training	Pax	30	7500	225000					225000
8	Computer training	Pax	20	6000	120000					120000
9	Agriculture training	Pax	30	1500	45000					45000
10	Cushion making training	Pax	30	1500		45000				45000
11	Veterinary training	Pax	30	1500			45000			45000
12	Mobile repair training	Pax	30	1500	45000					45000
13	Animal farming training	Pax	30	1500	45000					45000
14	Chicken farming training	Pax	30	1500		45000				45000
15	Beauty parlor training	Pax	30	1500	45000					45000
16	House wiring training	Pax	30	1500			45000			45000

S.N.	Activities	Unit	Quantity	Rate	Year I	Year II	Year III	Year IV	Year V	Total Amount
17	Plumbing training	Pax	30	1500				45000		45000
18	Furniture training	Pax	30	1500					45000	45000
D	**Conservation Education**									
1	Education tour for Committee and group members	Times	52	9615.38			500000			500000
2	Eco club education tour	Pax	25	10000				250000		250000
3	Eco club mobilization	Years	5	25000	25000	26250	27500	28750	30000	137500
4	School level conservation program	Times	10	20000	40000	42000	44000	46000	48000	220000
5	Mobilization of CBAPU	Years	5	15000	15000	15750	16500	17250	18000	82500
6	Information on theft control	Times	25	10000	50000	52500	55000	57500	60000	275000
7	Orientation on Policy and rules regarding conservation	Pax	52	1000	52000					52000
8	Hoarding board	No.	5	10000	10000	10500	11000	11500	12000	55000
9	Information of conservation	Times	10	10000	20000	21000	22000	23000	24000	110000
10	Celebration day	Times	10	20000	40000	42000	44000	46000	48000	220000
E	**Administration Cost**									
1	Office assistant	Years	5	130000	75000	78750	82500	86250	90000	412500
2	Stationery	Years	5	50000	25000	26250	27500	28750	30000	137500

Annex VIII-C12

Sunakhari BZUC

S.N.	Activities	Unit	Quantity	Rate	Year I	Year II	Year III	Year IV	Year V	Total Amount
A	**Conservation Program**									
1	Fencing on Plantation	Km	2	300000	300000	315000				615000
2	Fire line construction	m3	6	15000	18000	18900	19800	20700	21600	99000
3	Mesh wire fence	meter	1	300000	150000	157500				307500
4	Grass plantation on private land	No.	5000	15	75000					75000
5	Nursery establishment	No.	5	300000	300000	315000	330000	345000	360000	1650000
6	Check dam construction	Pax	300	7000	420000	441000	462000	483000	504000	2310000
7	Wetland management	No.	1	50000	50000					50000
8	Grassland management	Ha	5	20000		100000				100000
9	View tower	No.	1	300000			300000			300000
10	Invasive species control	Ha	5	50000	50000	52500	55000	57500	60000	275000
11	Ravine control	No.	8	15000	24000	25200	26400	27600	28800	132000
12	CF patrolling	Times	100	1000	20000	21000	22000	23000	24000	110000
13	CF operational plan renewal	No.	8	50000	80000	84000	88000	92000	96000	440000
14	Group legislation renewal	No.	52	10000	104000	109200	114400	119600	124800	572000
B	**Community Development**									
1	Road repair	Km	10	250000	500000	525000	550000	575000	600000	2750000
2	Drinking water	No.	15	40000	120000	126000	132000	138000	144000	660000
3	Solar pump for pumping drinking water	No.	4	500000	400000	420000	440000	460000	480000	2200000
4	Canal repair	meter	1000	2500	500000	525000	550000	575000	600000	2750000

S.N.	Activities	Unit	Quantity	Rate	Year I	Year II	Year III	Year IV	Year V	Total Amount
5	Pump for small irrigation	Place	8	25000	40000	42000	44000	46000	48000	220000
6	Hyum pipe	No.	12	15000	36000	37800	39600	41400	43200	198000
7	School compound repair	No.	5	300000	300000	315000	330000	345000	360000	1650000
8	Fence for school compound	meter	400	1500	300000	315000				615000
9	Expansion support of school toilet	No.	5	200000	200000	210000	220000	230000	240000	1100000
10	School's drinking water repair	No.	4	50000	40000	42000	44000	46000	48000	220000
11	Support for cooperative building through user committee	Times	1	200000				200000		200000
12	Toilet in User committee building	No.	1	200000		200000				200000
13	Statue of Elephant establishment	No.	1	350000		350000				350000
C	**Skill Development and Income Generation**									
1	Leadership development training	Pax	52	1000	26000	27300				53300
2	Account keeping training	Pax	52	1000		52000				52000
3	Pulse training	Pax	52	1000			52000			52000
4	Motor/cycle training	Pax	10	10000				100000		100000
5	Home stay training	Pax	10	5000					50000	50000
6	Anti-poachingtraining	Pax	11	5000	55000					55000
7	Sewing/knitting training	Pax	30	7500	225000					225000

S.N.	Activities	Unit	Quantity	Rate	Year I	Year II	Year III	Year IV	Year V	Total Amount
8	Computer training	Pax	20	6000	120000					120000
9	Agriculture training	Pax	30	1500	45000					45000
10	Cushion training	Pax	30	1500		45000				45000
11	Veterinary training	Pax	30	1500			45000			45000
12	Mobile repair training	Pax	30	1500	45000					45000
13	Animal farming training	Pax	30	1500	45000					45000
14	Chicken farming training	Pax	30	1500		45000				45000
15	Beauty parlor training	Pax	30	1500	45000					45000
16	House wiring training	Pax	30	1500			45000			45000
17	Plumbing training	Pax	30	1500				45000		45000
18	Furniture training	Pax	30	1500					45000	45000
D	**Conservation Education**									
1	Education tour for Committee and group members	Times	52	9615.38			500000			500000
2	Eco club education tour	Pax	25	10000				250000		250000
3	Eco club mobilization	Years	5	25000	25000	26250	27500	28750	30000	137500
4	School level conservation program	Times	10	20000	40000	42000	44000	46000	48000	220000
5	Mobilization of CBAPU	Years	5	15000	15000	15750	16500	17250	18000	82500
6	Sensitization on anti-poaching	Times	25	10000	50000	52500	55000	57500	60000	275000
7	Orientation on Policy and rules regarding conservation	Pax	52	1000	52000					52000

S.N.	Activities	Unit	Quantity	Rate	Year I	Year II	Year III	Year IV	Year V	Total Amount
8	Hoarding board	No.	5	10000	10000	10500	11000	11500	12000	55000
9	Information of conservation	Times	10	10000	20000	21000	22000	23000	24000	110000
10	Celebration day	Times	10	20000	40000	42000	44000	46000	48000	220000
E	**Administration Cost**									
1	Stationery	Times	5	75000	75000	78750	86625	99618.75	119542.5	459536.25
2	Meeting expenses	Years	5	100000	100000	105000	115500	132825	159390	612715
3	Fuel/communication expense	Years	5	80000	80000	84000	92400	106260	127512	490172
4	Conservation reward	Years	5	50000	50000	52500	57750	66412.5	79695	306357.5
5	Office furniture	Years	5	90000	90000	94500	103950	119542.5	143451	551443.5
6	Office helper	Years	5	120000	120000	126000	138600	159390	191268	735258
7	Emergency health facilities expense for conservationist	Years	5	20000	20000	21000	23100	26565	31878	122543
8	Unidentified expense	Set	5	100000	100000	105000	115500	132825	159390	612715
9	Proposal for conservation	Times	5	50000	50000	52500	57750	66412.5	79695	306357.5
	Total				13059333	9242300	9073358	8797201.3	19347555	59519747.75

Annex VIII-C13

Ujjwal Bhabischya BZUC

S.N.	Activities	Unit	Quantity	Rate	Year I	Year II	Year III	Year IV	Year V	Total Amount
A	**Conservation Program**									
1	Plantation	Km	25	100000	500000	525000	550000	575000	600000	2750000
2	Check dam	m3	500	9000	900000	945000	990000	1035000	1080000	4950000
3	Water source conservation	meter	10	200000	400000	420000	440000	460000	480000	2200000
4	Fencing of plantation	Km	4	1500000	1200000	1260000	1320000	1380000	1440000	6600000
5	Fencing for encroachment	No.	16	6000000	32000000	33600000	35200000			100800000
6	Forest guard	Pax	4	120000	96000	100800	105600	110400	115200	528000
7	Fire line construction/cleaning	Km	10	250000	500000	525000	550000	575000	600000	2750000
8	View tower	Ha	5	1000000	2500000	2625000	2750000			7875000
9	Pond repair/construction	No.	4	225000	450000	472500				922500
10	Patrolling for theft control	Years	60	300000	300000	315000	330000	345000	360000	1650000
B	**Community Development**									
1	Drinking water construction	No.	3	500000	750000	787500				1537500
2	Drinking water repair	No.	25	150000	1875000	1968750				3843750
3	Eco garden in school	No.	9	200000	360000	378000	396000	414000	432000	1980000
4	School furniture	Set	50	5000			83333.33	87500	91666.67	262500
5	Group building construction	No.	4	1500000	3000000	3150000				6150000
6	Irrigation management	No.	12	500000	3000000	3150000				6150000

S.N.	Activities	Unit	Quantity	Rate	Year I	Year II	Year III	Year IV	Year V	Total Amount
7	Check dam for river training	meter	600	9000	1080000	1134000	1188000	1242000	1296000	5940000
8	Road repair	Km	5	400000	400000	420000	440000	460000	480000	2200000
9	Market management	Place	2	1000000	666666.67	700000	733333.33			2100000
10	Culvert construction	No.	2	700000	280000	294000	308000	322000	336000	1540000
11	Causeway construction	No.	10	300000	600000	630000	660000	690000	720000	3300000
12	Picnic spot	No.	3	1000000		1000000	1050000	1100000		3150000
13	Monastery/Temple repair	No.	13	100000	260000	273000	286000	299000	312000	1430000
14	Public toilet	No.	3	400000	600000	630000				1230000
C	**Skill Development and Income Generation**									
1	Mobile repair training	Pax	10	3000	30000					30000
2	House wiring training	Pax	10	3000		30000				30000
3	Parlour training	Pax	15	2000	30000					30000
4	Sewing/knitting training	Pax	25	800	30000					30000
5	Agriculture training	Pax	50	500	25000					25000
6	Animal farming training	Pax	50	600	30000					30000
7	Veterinary training	Pax	4	25000		100000				100000
8	Leadership development training	Pax	50	600	30000					30000
9	Account keeping training	Pax	50	1000	50000					50000
10	Guide training	Pax	10	2000			20000			20000
11	Home stay training	Pax	25	2000				50000		50000

S.N.	Activities	Unit	Quantity	Rate	Year I	Year II	Year III	Year IV	Year V	Total Amount
12	Computer training	Pax	15	1000	15000					15000
13	Handicraft training	Pax	15	3000		45000				45000
14	Ginger, turmeric, vegetable seed distribution	Pax	150	2000		300000				300000
15	Fish (bhura) distribution	Pax	15	5000	75000					75000
16	Hybrid goat	Pax	20	20000				400000		400000
17	Pig farming	Pax	10	45000					450000	450000
18	Hybrid cow	Pax	5	10000			50000			50000
19	Chicken farming	Pax	50	12000		600000				600000
20	Banana, amriso, lemon farming	Pax	50	6000	300000					300000
D	**Conservation Education**									
1	Hoarding board	No.	5	10000	50000					50000
2	Brochure	Times	10	20000	40000	42000	44000	46000	48000	220000
3	Street drama regarding conservation	Times	5	50000	50000	52500	55000	57500	60000	275000
4	Folk song about conservation	Times	10	25000	50000	52500	55000	57500	60000	275000
5	Teej song competition	Times	5	25000	25000	26250	27500	28750	30000	137500
6	Celebration day	Times	10	50000	100000	105000	110000	115000	120000	550000
7	Radio program about conservation	Times	60	5000	60000	63000	66000	69000	72000	330000
8	Conservation education for students	Times	5	15000	15000	15750	16500	17250	18000	82500
9	Conservation observation for committee and group	Pax	20	60000		600000		630000		1230000

S.N.	Activities	Unit	Quantity	Rate	Year I	Year II	Year III	Year IV	Year V	Total Amount
E	**Administration Cost**									
1	Fire controlling equipment	Times	1	100000	100000					100000
2	Forest guard dress	Set	5	75000	75000	78750	82500	86250	90000	412500
3	Furniture	Set	1	150000	150000					150000
4	Computer and printer	No.	1	60000	60000					60000
5	Camera	No.	4	10000	40000					40000
6	Field gear	No.	1	100000	20000	21000	22000	23000	24000	110000
7	Stationery	Years	5	60000	60000	63000	66000	69000	72000	330000
8	Mike and speaker	No.	1	35000	35000					35000
9	Conservation related expenses	Years	5	12000	12000	12600	13200	13800	14400	66000
10	Communication	Years	5	12000	12000	12600	13200	13800	14400	66000
11	Unidentified expense	Years	5	60000	60000	63000	66000	69000	72000	330000
12	CF renewal	Times	1	200000		66666.67		70000	73333.33	210000
	Total				**53286667**	**57523500**	**48021167**	**10771750**	**9415667**	**179018750**

Annex IX
Land Cover of PNP and its BZ

SN	Land cover Class	Area of Park (km^2)	Percent	Area of BZ (km^2)	Percent
1	Barren	0.58	0.08	0.8	0.28
2	Bush	8.04	1.18	11.39	4.00
3	Forest	625.87	91.55	155.7	54.69
4	Grass	1.37	0.20	1.44	0.51
5	Pond or Lake	0.01	0.00	0.03	0.01
6	Water bodies	0.81	0.12	1.16	0.41
7	Sand	46.52	6.80	29.44	10.34
8	Nursery/Plantation	0.45	0.07	0.73	0.26
9	Cultivation			83.98	29.50
Total		**683.65**	**100**	**284.67**	**100.00**

Annex X
Tourist Visiting of PNP

Year	Number of Tourists		
	Nepali	*Foreigners	Total
2057/058	329	4	333
2058/059	275	1	276
2059/060	81	3	84
2060/061	35	0	35
2061/062	10	6	16
2062/063	87	0	87
2063/064	197	0	197
2064/065	34	0	34
2065/066	7	11	18
2066/067	78	6	84
2067/068	110	2	112
2068/069			343
2069/070			192
2070/071			379
2071/072			263
2072/073			235
2073/074	171	37	208
2074/075	410	95	505

Note: *Foreigners also include Indian nationals.

Annex XI
Park and Security Posts

SN	HQ / Sector / Range Post / Guard Post / Security Post	Place	No. of Posts	
			Park	NA
1	NP Headquarter	Aadhavar, Bara	1	1
2	Mahadev Post	Mahadev khola, Parsa	1	1
3	Charbhaiya Post	Charbhaiya, Parsa	1	1
4	Western Sector	Gaduwaline, Parsa	1	1
5	Bhata Post	Bhata, Parsa	1	1
6	Nirmalbasti Post	Nirmalbasti, Parsa	1	1
7	Pratappur Post	Manahari, Makwanpur	1	1
8	Northern Sector	Lamitar, Makwanpur	1	1
9	Chakari Post	Chakari, Makwanpur	1	1
10	Padampokhari Post	Padampokhari, Makwanpur	1	-
11	Amlekhgunj Post	Amlekhgunj, Bara	1	1
12	Dudhaura Post	Dudhaura, Bara	-	1
13	Pasaha Post	Sahajnath, Bara	1	1
14	Ratanpuri Post	Ratanpuri, Bara	1	1
15	Tamagadhi	Tamagadhi. Bara	-	1
	Total		**13**	**14**

Note: NA= Nepal Army

Annex XII
Organization Structure of PNP

SN	Designation	Level	Approved Position	Status of fulfillment	
				Fulfilled	Vacant
1	Chief Conservation Officer	Gazetted Class II/Under Secretary	1	1	
2	Assistant Conservation Officer	Gazetted Class III / Officer	3	3	
3	Account Officer	Gazetted Class III / Officer	1	1	
4	Veterinarian	Gazetted Class III / Officer	1	0	1
5	Ranger	Non-gazetted class I	9	4	5
6	Computer Operator	Non-gazetted class I	1		1
7	Subba	Non-gazetted class I	2	2	
8	Subba (Hattisar)	Non-gazetted class I	1	1	
9	Khardar	Non-gazetted class II	3	2	1
10	Daroga	Non-gazetted class II	1	1	
11	Senior Game scout	Non-gazetted class II	15	3	12
12	Senior Game scout	Non-gazetted class IV	4	0	4
13	Fanit	Non-gazetted class IV	9	7	2
14	Pachhuwa	Class less	10	0	10
15	Fanit	Class less	1	0	1
16	Mahut	Class less	10	9	1
17	Game Scout	Class less	57	54	3
18	Office Assistant	Class less	1	1	0
19	Driver	Class less	3	2	1
	Total		**133**	**91**	**42**

Annex XIII
Allowable Quantity of Stone, Sand and Gravel from different Rivers of BZ

SN	Name of UC	Name of the Rivers and Rivulets	Length	Width	Depth	Vol in m^3
1	Manahari	Manhari to Rapti dovan	2800	150	1	420000
2	Manahari	Rapti khola	6000	125	1	750000
3	Lok priya	Chauraha khola (Sano bagai to school khahare)	1000	125	1	125000
4	Ujjwal bhavishya	Rapti - Basantapur to Rajaiya	6000	125	1	750000
5	Lok hit	Khahare khola	6000	125	1	750000
6	Lok hit	Makari khola	900	60	1	54000
7	Lok hit	Chakari khola	500	125	1	62500
8	Lok hit	Rapti river	800	125	1	100000
9	Prakiti samrakchhyan	Rapti river (bastipur bridge to Kukhreni khola)	6000	125	1	750000
10	Prakiti samrakchhyan	Gaidadhap khola	4500	60	1	270000
11	Prakiti samrakchhyan	Sugaura khola	200	50	1	10000
12	Padam milan	Rapti	3500	125	1	437500
13	Padam milan	Kukhreni	6000	100	1	600000
14	Kusum batika	Oriya khola	4500	125	1	562500
15	Kusum batika	Bire khola	2000	125	1	250000
16	Kusum batika	Shikaribas khola	3000	125	1	375000
17	Amleshwor	Churia khola (Dhudhaura khola 2 no. bridge to thute simal)	2000	125	1	250000
18	Amleshwor	Bijaure - chure tir to 1 no. bridge	500	50	1	25000
19	Sunakhari	Oriya to Latigade	3500	30	1	105000
20	Panchamukhi	Churiamai to uttarpane - kukhreni	200	30	1	6000
21	Jan jagaran	Bhedaha khola	3500	60	1	210000
	Total					**6862500**
	Total allowable volume (50% of the total) in m^3					**3431250**

Annex XIV-A
Participants of staff meeting

Date: 14/07/2074

Venue: PNP, Aadhavar

SN	Name	Designation	Organization
1	Hari Bhadra Acharya	Chief Conservation Officer	PNP
2	Ashok Kumar Ram	Asst. Conservation Officer	PNP
3	Shiva Narayan Shah	Asst. Conservation Officer	PNP
4	Birendra Prasad Kandel	Asst. Conservation Officer	PNP
5	Saurav Shrestha	Consultant	
6	Sagar Pathak	Account Officer	PNP
7	Binaya Kuamr Jha	Ranger	PNP
8	Resma Maskey	Ranger	PNP
9	Birendra Bahadur Karki	Nayeb Subba	PNP

Annex XIV-B
Participants of PNP-CNP-VTR Trans-boundary Meeting

Date: 12/2074/07

Venue: PNP, Aadhavar

SN	Name	Designation	Organization
1	Hari Bhadra Acharya	Chief Conservation Officer	PNP
2	Saroj Kumar Adhikari	Lt. Colonel	Nepal Army
3	Shiv Narayan Shah	Assistant Conservation Officer	PNP
4	Ashok Ram	Assistant Conservation Officer	PNP
5	Birendra Kandel	Assistant Conservation Officer	PNP
6	Abhinaya Pathak	Assistant Conservation Officer	CNP
7	Sagar Kumar Pathak	Account Officer	PNP
8	Binaya Kumar Jha	Ranger	PNP
9	Megh Nath Lamichhane	Senior Game Scout	PNP
10	Birendra Bahadur Karki	Admin Assistant	PNP
11	Reshma Maskey	Ranger	PNP
12	Shanta Thing	Ranger	PNP
13	Chandra Sekhar	Field Director	Valmiki Tiger Reserve
14	Gaurav Ojha	Deputy Director	Valmiki Tiger Reserve
15	M.D. Afsar	F. Range Officer	Valmiki Tiger Reserve
16	Shashank Poudel	Conservation Officer	NTNC
17	Pramod Raj Regmi	NRCA	NTNC
18	Ram Kumar Aryal	Administrative Officer	NTNC
19	Prakash Sigdel	Monitoring and Surveillance officer	ZSL Nepal
20	Prachanda Maharjan	Admin/Finance Assistant	ZSL Nepal
21	Saurav Shrestha	Consultant	SDIC

Annex XIV-C
Participants of the BZMC Meeting

Date: 23/05/2074

Venue: PNP, Aadhavar

SN	Name	Designation	Organization
1	Padam Bahadur Titung	Chair/Chairman	BZMC/Manahari BZUC
2	Amrit Lal Shrestha	Member/Chairman	BZMC/Janahit BZUC
3	Gopal Subedi	Member/ Chairman	BZMC/Ujjwal Bhabisya BZUC
4	Hem Prasad Ghimire	Member/ Chairman	BZMC/Lokhit BZUC
5	Raj Kumar Manandhar	Member/ Chairman	BZMC/Amleshwor BZUC
6	Ram Prasad Kalakheti	Member/ Chairman	BZMC/Lokpriya BZUC
7	Tanka Prasad Timilsina	Member/ Chairman	BZMC/Kusum Batika BZUC
8	Raj Kumar Thing	Member/ Chairman	BZMC/Padam Milan BZUC
9	Aasabir Bal	Member/ Chairman	BZMC/Prakiti Samrakchhyan BZUC
10	Rajendra Pd. Shah Kanu	Member/ Chairman	BZMC/Panchamukhi BZUC
11	Devi Prasad Dahal	Member/ Chairman	BZMC/Sunakhari BZUC
12	Min Bahadur Ghalan	Member/ Chairman	BZMC/Churiyamai BZUC
13	Man Bahadur Shrestha	Member/ Chairman	BZMC/Nirmalbasti BZUC
14	Hari Bhadra Acharya	Member Secretary/Chief Conservation Officer	BZMC/PNP
15	Kishor Kumar Mehata	Project Manager	TAL-PABZ
16	Ram Prit Yadav	Social Mobilization Officer	TAL-PABZ
17	Narayan Rupakheti	Management Officer	DNPWC
18	Ashok Kumar Ram	Asst. Conservation Officer	PNP
19	Shashank Paudel	Conservation Officer	NTNC
20	Prakash Sigdel	Field Manager	ZSL Nepal
21	Pramod Raj Regmi	Ranger	NTNC
22	Prachanda Maharjan	Account Officer	ZSL Nepal
23	Ishowr Pratap Lama	Member	Jan Jagaran CF
24	Binaya Kumar Jha	Ranger	PNP
25	Dhurba Khadka		
26	Kancha Lama		
27	Heera Lal Shyangtan	Chairman	Manakamana CF

SN	Name	Designation	Organization
28	Chola Bahadur Pandit	Chairman	Radhakrishna CF
29	Shyam Bahadur Thing	Chairman	Pragatishil CF
30	Abatar Singh Lama	Chairman	Rapti CF
31	Rana Bahadur Lama	Chairman	Kobrang CF
32	Rajan Pandey	Chairman	
33	Ram Prasad Dhakal	Chairman	Dhaneshowri CF
34	Bakhan Singh Ghalan	Chairman	Amar CF
35	Bala Ram Praja	Chairman	Sagarmatha BZUC
36	Saurav Shrestha	Consultant	SDIC
37	Sher Bahadur Shyangtan		
38	Krishna Bahadur Karki	Chairman	Citu BZCF
39	Bala Ram Praja	Chairman	Sagarmatha BZCF

Annex XIV-D
Participants of Central level Consultation Meeting

Date: 14/03/2074

Venue: DNPWC, Kathmandu

SN	Name	Designation	Organization
1	Man Bahadur Khadka	Director General	DNPWC
2	Gopal P. Bhattarai	Deputy Director General	DNPWC
3	Sher Singh Thagunna	Deputy Director General	DNPWC
4	Shyam Bajimaya	Former DG/PA Management Expert	DNPWC
5	Dipak Singh	Executive Director	NTNC
6	Yuba Raj Regmi	Chief Conservation Officer	LNP
7	Amir Maharjan	Planning Officer	DNPWC
8	Narayan Rupakheti	Management Officer	DNPWC
9	Bishnu Pd. Shrestha	Conservation Education Officer	DNPWC
10	Hari Bhadra Acharya	Chief Conservation Officer	PNP
11	Dr. Naresh Subedi	Manager	NTNC
12	Dr. Bhagwan Raj Dahal		ZSL, Nepal
13	Bishnu Prasad Thapaliya	Asst. Management Officer	DNPWC
14	Bhoj Raj Pantha	Asst. Conservation Education Officer	DNPWC
15	Kedar Nath Kattel	Asst. Monitoring Officer	DNPWC
16	Anjani Kumar Ghimire	Legal Officer	DNPWC
17	Rupak Maharjan	Asst. Investigation Officer	DNPWC
18	Sushma Rana	Investigation Officer	DNPWC
19	Rabindra Karki	Computer Officer	DNPWC
20	Pramila Neupane	Ranger	DNPWC
21	Sarita Lama	Ranger	DNPWC
22	Ajaya Kumar Yadav	Ranger	DNPWC
23	Santosh Kumar Bhagat	Ranger	DNPWC
24	Saurav Kumar Shrestha	Consultant	SDIC

Annex XIV-E
Participants of BZMC Consultation Meeting

Date: 19/03/2074

Venue: PNP, Aadhavar

SN	Name	Designation	Organization
1	Padam Bahadur Titung	Chairman	BZMC/Manahari BZUC
2	Amrit Lal Shrestha	Member/ Chairman	BZMC/Janahit BZUC
3	Gopal Subedi	Member/ Chairman	BZMC/Ujjwal Bhabisya BZUC
4	Hem Prasad Ghimire	Member/ Chairman	BZMC/Lokhit BZUC
5	Raj Kumar Manandhar	Member/ Chairman	BZMC/Amleshwor BZUC
6	Ram Prasad Kalakheti	Member/ Chairman	BZMC/Lokpriya BZUC
7	Tanka Prasad Timilsina	Member/ Chairman	BZMC/Kusum Batika BZUC
8	Raj Kumar Thing	Member/ Chairman	BZMC/Padam Milan BZUC
9	Aasabir Bal	Member/ Chairman	BZMC/Prakiti Samrakchhyan BZUC
10	Rajendra Pd. Shah Kanu	Member/ Chairman	BZMC/Panchamukhi BZUC
11	Devi Prasad Dahal	Member/ Chairman	BZMC/Sunakhari BZUC
12	Min Bahadur Ghalan	Member/ Chairman	BZMC/Churiyamai BZUC
13	Man Bahadur Shrestha	Member/ Chairman	BZMC/Nirmalbasti BZUC
14	Shiva Narayan Shah	Invitees	Asst. Conservation Officer
15	Ashok Kumar Ram	Invitees	Asst. Conservation Officer
16	Birendra Prasad Kandel	Invitees	Asst. Conservation Officer
17	Binaya Kumar Jha	Invitees	Ranger
18	Reshma Maskey	Invitees	Ranger
19	Sagar Pathak	Invitees	Account Officer, PNP
20	Gun Maya Thing	Invitees	Anter Samuha Padam Pokhari
21	Suraj Lama Thing	Invitees	TAL-PABZ
22	Lila Magrati	Invitees	Khardar, PNP
23	Subina Maharjan	Invitees	Computer Operator, PNP
24	Arman Ansari	Invitees	Khardar PNP
25	Uday Pudasaini	Invitees	Senior Game Scout
26	Rajendra Subedi	Invitees	Office Assistant

Annex XIV-F
Participants of Staff Meeting

Date: 15/11/2073

Venue: PNP, Aadhavar

SN	Name	Designation	Organization
1	Hari Bhadra Acharya	Chief Conservation Officer	PNP
2	Shiva Narayan Saha	Asst. Conservation Officer	PNP
3	Ashok Kumar Ram	Asst. Conservation Officer	PNP
4	Birendra Prasad Kandel	Asst. Conservation Officer	PNP
5	Sagar Kumar Pathak	Account Officer	PNP
6	Binaya Kumar Jha	Ranger	PNP
7	Birendra Bahadur Karki	Nayeb Subba	PNP
8	Gauri Shanker Bhagat	Game Scout	PNP
9	Manoj Kafle	Game Scout	PNP
10	Saurav Shrestha	Consultant	SDIC
11	Sunam Shrestha	Consultant	SDIC

Annex XIV-G
Participants of Task Force Meeting

Date: 09/10/2073

Venue: DNPWC, Kathmandu

SN	Name	Designation	Organization
1	Hari Bhadra Acharya	Chief Conservation Officer/Team Leader	PNP
2	Amir Maharjan	Planning Officer/ Member	DNPWC
3	Narayan Rupakheti	Management Officer/ Member	DNPWC
4	Bishnu Prasad Thapaliya	Assistant Management Officer	DNPWC
5	Santosh Kumar Bhagat	Ranger	DNPWC

Annex XV
Reviewer of the Management Plan

SN	Name	Designation	Office
1	Mr. Man Bahadur Khadka	Director General	DNPWC
2	Mr. Gopal Prakash Bhattarai	Deputy Director General	DNPWC
3	Mr. Sher Singh Thagunna	Deputy Director General	DNPWC
4	Mr. Shyam Bajimaya	External Reviewer/Protected Area Management Expert	Former DG, DNPWC
5	Mr. Fanindra Kharel	Internal Reviewer	Former DG, DNPWC

Annex XVI
Management Plan Preparation Team

SN	Name	Designation	Office
1	Mr. Hari Bhadra Acharya	Chief Conservation Officer/Team Leader	PNP
2	Mr. Amir Maharjan	Planning Officer/Member	DNPWC
3	Mr. Narayan Rupakheti	Management Officer	DNPWC
4	Mr. Ashok Ram	Assistant Conservation Officer	PNP
5	Mr. Saurav Shrestha	Consultant/Management Plan Preparation Expert	SDIC
6	Mr. Bhola Nath Dhakal	GIS Expert	SDIC
7	Mr. Tika Ram Poudel	Consultant/BZ	SDIC
8	Ms. Smrita Acharya	Support staff	SDIC
9	Mr. Sunam Shrestha	Support staff	SDIC
10	Ms. Ushman Gyawali	Support staff	SDIC

PARSA NATIONAL PARK AND ITS BUFFER ZONE MANAGEMENT PLAN

Government of Nepal
Ministry of Forests and Environment
Department of National Parks and Wildlife Conservation

Parsa National Park Office

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FY 2075/76-2079/80