SHIVAPURI NAGARJUN NATIONAL PARK AND BUFFER ZONE

MANAGEMENT PLAN

2024-2029

Government of Nepal
Ministry of Forests and Environment
Department of National Parks and Wildlife Conservation
Shivapuri Nagarjun National Park Office
Panimuhan, Budhanilkantha, Kathmandu, Nepal

IBA
BIRDLIFE IMPORTANT BIRD AND BIODIVERSITY AREA

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Fiscal Year 2080/81-2084/85 (2024/25-2028/29)

Government of Nepal
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FOREWORD

Initially, Shivapuri Watershed Conservation Area was established in 1976 to protect the watershed of holy rivers-Bagmati and Bishnumati. In 2002, an area of 144 km^2 was gazetted as the Shivapuri National Park, which was renamed Shivapuri Nagarjun National Park after the addition of the Nagarjun Forest patch (15 km^2) in 2009. The Buffer Zone of the park was declared in 2016 to garner local people's support in watershed and biodiversity conservation and improve the livelihood opportunities of the communities.

A comprehensive management plan for Shivapuri Nagarjun National Park and Buffer Zone is crucial in addressing emerging issues and challenges and for translating the legislative provisions into actions. This management plan (Fiscal Year 2080/81 to 2084/85 BS) is the continuation of the previous management plan (Fiscal Year 2074/75 to 2078/79). This plan has opened up an avenue and paved the way forward for maintaning core values of biodiversity conservation and watershed management promoting sustainable and wise use principle of natural resources, including wetlands, regulating tourism, and fulfilling the development aspirations of local communities in the buffer zone.

This five-year plan has been developed and is an outcome of the hard work and dedication of the Management Plan Preparation Team. I would like to take this opportunity to thank for the generous support provided by local stakeholders, buffer zone communities, conservation partners, service providers, and civil society organizations. Besides, a large number of professionals, practitioners, and key stakeholders have made valuable contributions in shaping this document.

The plan was prepared employing an intensive literature review, wider consultation with the stakeholders, and including expert review. My sincere thanks to the reviewers of this plan who have contributed their time and valuable insights in preparing this plan. Management Plan preparation team of SNNP deserves special appreciation for their continuous efforts in the process to update and prepare this plan.

Last but not least, I would like to extend my sincere thanks to all who were directly engaged in preparing this plan.

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Sindhu Prasad Dhungana, PhD
Director General

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

ACKNOWLEDGEMENTS

Shivapuri Nagarjun National Park is considered as a lifeline for Kathmandu Valley because of a range of ecosystem services it provides, primarily safe drinking water and clean air. Management planning for any protected area is a dynamic process, and we must be prepared to accommodate the changes in the management based on new facts. In this regard, the management plan for Shivapuri Nagarjun National Park and its Buffer Zone for the period of 2024-2029 has not only given emphasis on key wildlife species and their habitat conservation but also the watershed management for maintaining the ecological function and process. Likewise, the plan attempts to address the issues associated with the likely impacts of climate change in order to safeguard the National Park from the vulnerability it faces.

First and foremost, I would like to express my sincere gratitude to Dr. Sindhu Prasad Dhungana, Director General of DNPWC, and the team at DNPWC for entrusting us with the task of preparing the management plan. During the plan preparation process, various institutions, organizations, and individuals provided their valuable inputs. In this regard, I would like to thank all the institutions and experts consulted as the key informants for their time and contribution. I would like to extend my sincere thanks to Deputy Director Generals Mr. Bed Kumar Dhakal and Mr. Ajay Karki for their continuous support and input in reviewing the draft management plan. Further, a special thanks to Mr. Haribhadra Acharya, Senior Planning Officer, Mr. Ashok Bhandari, Senior Management Officer, and Management Officers Mr. Rishi Ranabhat and Ms. Shrijana Shrestha.

I highly acknowledge the entire Service Provider Team led by Mr. Puran Bhakta Shrestha, Former Chief Conservation Officer, SNNP for their untiring efforts in preparing this plan. I take this opportunity to sincerely thank Bagmati Improvement Project, Project Implementation (Irrigation Unit) for the financial support to prepare this plan. Similarly, I am grateful to the distinguished participants of the consultation meetings for constructive comments and suggestions.

Finally, I would like to thank SNNP staff, particularly Mr. Shivalal Gaire, Conservation Officer, and Mr. Manjit Bista, Ranger together with the BZ Management Committee members as well as the BZ User Committee members, and the local communities for their valuable inputs in the process of management plan preparation.

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IBA BIRDLIFE IMPORTANT BIRD AND BIODIVERSITY AREA Four decades of conservation action

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

फोन नं. : ४२२०२१६, ४२२०८५०, ४२२०९१२, ४२२७९२६
फ्याक्स नं. ४२२७६७५

संकेत नं. :-
पत्र संख्या :- २०८०/८१ व्य. ३९८८
चलानी नं. :- ३२९५

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मिति : २०८०/१२/०८

विषय: व्यवस्थापन योजना स्वीकृत सम्बन्धमा।

श्री शिवपुरी नागार्जुन राष्ट्रिय निकुञ्ज कार्यालय,
पानीमुहान, काठमाडौं ।

प्रस्तुत विषयमा तहाँ कार्यालयको प.सं. ०८०/८१ च.नं १७८ मिति २०८०/१०/२८ गतेको पत्र साथ शिवपुरी नागार्जुन राष्ट्रिय निकुञ्ज तथा मध्यवर्ती क्षेत्रको पञ्चवर्षिय व्यवस्थापन योजना (२०८०/०८१-२०८४/८५) स्वीकृतीको लागि पेश हुन आएको टिप्पणी फाईल उपर कार्वाही हुँदा व्यवस्थापन योजनाको प्रारम्भिक वातावरणीय परिक्षण (IEE) प्रतिवेदन स्वीकृत भए पश्चात लागु हुने गरि राष्ट्रिय निकुञ्ज तथा वन्यजन्तु संरक्षण नियमावली,२०३० को नियम ३ क. को उपनियम (२) बमोजिम पेश हुन आएको व्यवस्थापन योजना स्वीकृत भएको र स्वीकृत व्यवस्थापन योजनाको वातावरण संरक्षण ऐन, २०७६ तथा वातावरण संरक्षण नियमावली,२०७७ अनुसार प्रारम्भिक वातावरणीय परिक्षण (IEE) अध्ययन प्रकिया अगाडि बढाउने भनि मिति २०८०/१२/०७ मा विभागिय निर्णय भएको व्यहोरा निर्णयानुसार अनुरोध छ ।

(सिर्जना श्रेष्ठ)
व्यवस्थापन अधिकृत

नेपाल सरकार
वन तथा वातावरण मन्त्रालय
राष्ट्रिय निकुञ्ज तथा वन्यजन्तु संरक्षण विभाग
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पत्र संख्या :- २०८१/८२ व्य. ५०
चलानी नं. :- १९१

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मिति: २०८१।४।२१
नेपाल सम्वत् ११४४

विषय: प्रारम्भिक वातावरणीय परीक्षण (IEE) प्रतिवेदन सम्बन्धमा।

श्री शिवपुरी नागार्जुन राष्ट्रिय निकुञ्ज कार्यालय
पानीमुहान, काठमाडौं।

प्रस्तुत विषयमा तहाँ कार्यालयको प.सं. ०८०/०८१ च.नं. १८७८ मिति २०८०/३/३१ को पत्रबाट टिप्पणी सहित पेश हुन आएको शिवपुरी नागार्जुन राष्ट्रिय निकुञ्ज तथा मध्यवर्ती क्षेत्रको व्यवस्थापन योजना (२०८०/८१-२०८४/८५) को प्रारम्भिक वातावरणीय परीक्षण (IEE) प्रतिवेदन यस विभागको मिति २०८१/४/१७ को निर्णयानुसार स्वीकृत भएको व्यहोरा अनुरोध छ। स्वीकृत प्रारम्भिक वातावरणीय परीक्षण प्रतिवेदन थान १ कार्यान्वयनका लागी यसैसाथ संलग्न राखी पठाईएको व्यहोरा समेत निर्णयानुसार अनुरोध छ ।

ऋषि रानाभाट
व्यवस्थापन अधिकृत

EXECUTIVE SUMMARY

The first official document on the conservation of wildlife with patently for violating the regulation was scripted in a stone in the 1850s AD by King Surendra Shah at Nagarjun Forest of Shivapuri Nagarjun National Park. In modern Nepal, the Shivapuri Mountain Range was declared as Shivapuri Watershed Conservation Area in 1976 initially to protect the watershed of holy rivers Bagmati and Bishnumati from heavy deforestation and encroachment. Later, in 1978, it was declared Shivapuri Protected Watershed Area and as Shivapuri Watershed and Wildlife Reserve in 1983. In 2002, this area of 144 km^2 was gazetted as the Shivapuri National Park which was renamed Shivapuri Nagarjun National Park (SNNP) after the addition of a Nagarjun Forest patch (15 km^2) in 2009. To achieve the people's active participation in the watershed and biodiversity conservation, a Buffer Zone (BZ) area around the park was declared in 2016 encompassing an area of 118.61 km^2.

The salient features of SNNP include a) a major source of fresh water for BZ communities, fulfilling about 50% of surface water demand of Kathmandu valley, underground water recharge, irrigation, and hydroelectricity, b) a sink for the air pollution generated by Kathmandu valley, c) an important watershed of holy rivers Bagmati and Bishnumati, d) a region of the rich biodiversity of the mid–hill region, e) an important biological corridor that links north-south, f) an important bird area (IBA), g) one of the major tourist destination nearby capital city, h) a potential area for research and exploration, and i) a site for conservation education for students, researchers and scholars.

The SNNP comprises four types of forests, which support rich floral and faunal diversity. The SNNP is estimated to house 1,273 species of plants, of which 1,114 species are flowering plants, and 159 species are non-flowering plants of gymnosperm, pteridophytes, and fungi. It is home to one third of orchid species of Nepal (123 species). Similarly, 131 species of pteridophytes, 129 species of mushrooms, have been documented from SNNP. It protects 124 species of butterflies, 122 species of insects, 320 species of birds, and 65 species of mammals, including nine threatened species, such as Pangolin, Leopard cat, Clouded leopard, Common leopard, Goral, Himalayan black bear, and Assamese monkey.

The buffer zone (BZ) is spread over two Rural Municipalities (Gaunpalika) and nine Municipalities of four Districts, viz., Kathmandu, Sindhupalchowk, Nuwakot, and Dhading. The Buffer Zone Management Committee (BZMC) is the apex body under which 11 Buffer Zone User Committees (BZUCs) and 307 User Groups (UGs) are formed and institutionalized. It is predominantly inhabited by Tamang, Brahmin, Chhetri, and other ethnic communities.

The COVID pandemic impacted in visitor records of SNNP but in recent years the number of visitors has increased. In 2022, a total of 1,72,803 visitors were recorded in the park. Among them, 1,67,333 were domestic visitors, and 5470 were international visitors of which 548 were from SAARC countries and 4922 were from countries outside the SAARC. The major attractions of tourism in the park are Bagdwar, Bishnudwar, Nagigumba, Shivapuri Peak and Sundarijal, and in the Nagarjun area are Ichangu Narayan, Nagarjun, and Jamacho.

The overall objective of the National Park is to protect and conserve biodiversity, watersheds, wetlands, and natural and cultural heritage through capacity building, research, community participation, and community development to achieve sustainable management of Shivapuri Nagarjun National Park and Buffer Zone. Specific objectives are:

- To protect, conserve, and document biodiversity with a special focus on nationally protected, globally threatened, and locally valuable, endangered, and endemic species, critical ecosystems, and diverse wildlife habitats;
- To manage the representative terrestrial and aquatic wildlife habitats and assess habitat to maintain ecological functions and processes of the mid-mountain ecosystem;

- To manage the watershed of holy rivers such as Bagmati and Bishnumati to improve water quality, hydrological functions, and processes in perpetuity;
- To regulate and promote sustainable eco-tourism retaining wilderness within the least acceptable change on natural environment and socio-cultural heritage of SNNP and buffer zone;
- To enhance public participation in biodiversity conservation by raising awareness, improving livelihoods, and minimizing human-wildlife conflicts through initiating effective measures in collaboration with local communities and local-level government agencies; and
- To strengthen the institutional capacity of park, security personnel, and buffer zones institution through research, and capacity building in collaboration with relevant agencies and organizations.

Park Management

The objective of park management is to conserve ecosystem species diversity and genetic resources. Three outputs have been proposed to achieve the objectives i) to conserve the unique watershed ecosystems of Shivapuri Nagarjun National Park, ii) to ensure viable populations of protected and endangered species, and iii) to improve wildlife habitats. To achieve these outputs various activities have been proposed.

Buffer Zone Management

The objective of Buffer Zone management is to achieve active people's participation in biodiversity conservation. The twin objectives of BZ are conservation and development of forests in the buffer zone to fulfill the basic needs of daily forest products of BZ communities and to uplift socio-economic condition of BZ communities through 30-50% park revenue ploughed back, with the eight outputs: i) to ensure sustainable management of natural resources, ii) to enhance socio-economic opportunities, iii) to increase people's engagement in biodiversity conservation, iv) to manage biological corridors and connectivity, v) to reduce human wildlife conflict vi) to promote ecotourism in the buffer zone, and vii) to create conservation awareness among the local communities. Various activities have been proposed to achieve the objectives.

Tourism Management

The objective of tourism management is to enhance eco-friendly tourism in SNNP and BZ, with three outputs. The outputs are: i) to preserve cultural heritages, ii) to diversify tourism products, and iii) to increase employment and income generation opportunities. Various activities have been proposed to achieve the objective.

Institutional Development

The objective of the institutional development is to enhance the management capacity of the park, security personnel, and BZ institutions, with four outputs. The outputs are: i) to strengthen the management capacity of the park and security personnel, ii) to strengthen BZ institutions, iii) to enhance research and database, and iv) to strengthen monitoring and evaluation system. Various activities have been proposed to contribute towards this objective.

Administrative Framework

The current strength of the SNNP management is 116 field staff led by the Senior Conservation Officer (Gazetted Second Class Officer). There are two battalions of Nepali Army for the protection of national park resources. The institional arrangement in BZ includes 307 BZUGs, 11 BZUCs, one BZMC, 76 BZCFUGs, 11 office assistants, and six social mobilizers in all BZUCs. The SNNP is the main authority for the implementation of the management plan. A total budget of NRs. 1,16,57,71 (in thousands) has been proposed for five years, including Rs. 85,66,70 (in thousands) for Park management, Rs 30,91,01 (in thousands) for Buffer Zone management. The local governments (DCCs and the Gaunpalikas, Nagarpalikas), the Ministries and their field offices are expected to augment in their respective sectors such as agriculture, forests, livestock, plant resources, public health, soil and watershed conservation, tourism, and women development. The I/NGOs are expected to contribute in their specific fields of interests in biodiversity conservation and sustainable development.

सारांश

सन् १८५० को दशकमा शिवपुरी नागार्जुन राष्ट्रिय निकुञ्जको नागार्जुन वनमा राजा सुरेन्द्र शाहले वन्यजन्तु संरक्षणको नियम उल्लङ्घन गरेमा दिइने सजाँय बारे स्पष्ट रूपमा पहिलो आधिकारिक दस्तावेज लेखेका थिए । आधुनिक नेपालमा, बागमती र बिष्णुमती नदीको जलाधारलाई शुरुमा अत्याधिक वन फँडानी र अतिक्रमणबाट जोगाउन सन् १९७६ मा शिवपुरी जलाधार संरक्षण क्षेत्र घोषणा गरिएको थियो । यस् क्षेत्रलाई सन् १९७८ मा शिवपुरी संरक्षित जलाधार क्षेत्र र सन् १९८३ मा शिवपुरी जलाधार तथा वन्यजन्तु आरक्ष घोषणा गरियो । सन् २००२ मा १४४ वर्ग कि.मि. क्षेत्रलाई शिवपुरी राष्ट्रिय निकुञ्जको रूपमा घोषित गरिएको थियो । जसलाई सन् २००९ मा नागार्जुन वनको १५ वर्ग कि.मि. क्षेत्रफल जोडेर कुल १५९ वर्ग कि.मि. क्षेत्रफलको शिवपुरी नागार्जुन राष्ट्रिय निकुञ्ज नामाकरण गरिएको थियो । जलाधार र जैविक विविधता संरक्षणमा जनताको सक्रीय सहभागिता हासिल गर्न सन् २०१६ मा निकुञ्ज वरपरको ११८.६१ वर्ग कि.मि. क्षेत्रफलमा मध्यवर्ती क्षेत्र घोषणा गरिएको थियो ।

शिवपुरी नागार्जुन राष्ट्रिय निकुञ्जको मुख्य विशेषताहरुमा निम्न छनः क) मध्यवर्ती क्षेत्र समुदायहरुको लागि शुद्ध खानेपानीको एक प्रमुख स्रोत, काठमाडौ उपत्यकाको लगभग ५०% भूमिगत जलभरण, सिंचाई र जलविद्युतको लागि आवश्यक पानीको माग पुरा गर्ने, ख) काठमाडौ उपत्यकामा उत्सर्जित वायु प्रदूषण नियन्त्रण गर्ने, ग) पवित्र नदीहरू बागमती र बिष्णुमतीको महत्वपूर्ण जलाधार क्षेत्र, घ) मध्य-पहाडी क्षेत्रको समृद्ध जैविक विविधताको क्षेत्र, ङ) उत्तर-दक्षिण जोड्ने महत्वपूर्ण जैविक कोरिडोर, च) महत्वपूर्ण पंक्षी क्षेत्र छ) राजधानी नजिकैको प्रमुख पर्यटकीय गन्तव्यहरू, ज) अनुसन्धान र अन्वेषणको लागि सम्भावित क्षेत्र, र झ) विद्यार्थी, अनुसन्धानकर्ता र विद्वानहरूका लागि संरक्षण शिक्षाको लागि उपयुक्त क्षेत्र ।

शिवपुरी नागार्जुन राष्ट्रिय निकुञ्जमा चार प्रकारका वनहरू रहेका छन् । यहाँ १४०२ प्रजातिका बिरुवाहरू रहेको अनुमान गरिएको छ, जसमध्ये १११४ प्रजातिहरू फूल फुल्ने बिरुवाहरू र २८२ प्रजातिहरू फूल नफुल्ने बिरुवाहरू जिम्नोस्पर्म, टेरिडोफाइट र च्याउ ढुसी हुन् । नेपालको सुनाखरीको एक तिहाइ प्रजाति (१२३ प्रजाति) यहाँ पाईन्छ । त्यसैगरी, टेरिडोफाइटका १३१ प्रजाति, च्याउका १२९ प्रजातिहरू यहाँ पाइएको छ । त्यसै गरी १२४ प्रजातिका पुतलीहरू, १२२ प्रजातिका कीराहरू, ३२० प्रजातिका चराहरू र ६५ प्रजातिका स्तनपायीहरूले शिवपुरी नागार्जुन राष्ट्रिय निकुञ्जलाई आफ्नो बासस्थान बनाएको छ । जसमा कालो सालक, चरी बाघ, ध्वाँसे चितुवा, चितुवा, घोरल, हिमाली कालो भालु, र असामी बाँदर जस्ता संकटमा परेका प्रजातिहरू छन् ।

यस राष्ट्रिय निकुञ्जको मध्यवर्ती क्षेत्र काठमाडौं, सिन्धुपाल्चोक, नुवाकोट र धादिङ गरी चार जिल्लाका दुई गाउँपालिका र नौ नगरपालिकामा फैलिएको छ । मध्यवर्ती क्षेत्र व्यवस्थापन समिति एक शीर्ष निकाय हो जस अन्तर्गत ११ मध्यवर्ती क्षेत्र उपभोक्ता समितिहरू र ३०७ वटा उपभोक्ता समूहहरू आवद्ध छन् । यहाँ तामाङ, ब्राह्मण र क्षेत्री जातजातिहरुको बाहुल्यता रहेको छ ।

कोभिड महामारीले शिवपुरी नागार्जुन राष्ट्रिय निकुञ्जमा भ्रमण गर्ने पर्यटकको संख्यामा नकरात्मक प्रभाव पारेको देखिन्छ तर हालैका वर्षहरूमा आगन्तुकहरूको संख्या बढ्दै गएको छ । सन् २०२२ मा कुल १,७२,८०३ आगन्तुकहरूले निकुञ्जको भ्रमण गरे। जसमध्ये १,६७,३३३ आन्तरिक आगन्तुक थिए भने ५,४७० अन्तर र्राष्ट्रिय आगन्तुक (५४८ सार्क देशका र ४९२२ सार्क बाहिरका मुलुकका) थिए । शिवपुरी क्षेत्रका प्रमुख पर्यटकीय गन्तव्यमा बागद्वार, विष्णुद्वार, नागीगुम्बा, शिवपुरी चुचुरो र सुन्दरीजल रहेका छन् भने नागार्जुन क्षेत्रका इचंगुनारायण, नागार्जुन र जामाचो रहेका छन् ।

शिवपुरी नागार्जुन राष्ट्रिय निकुञ्ज र यसको मध्यवर्ती क्षेत्रको दीगो व्यवस्थापन हासिल गर्न क्षमता अभिवृद्धि, अनुसन्धान, सामुदायिक सहभागिता र सामुदायिक विकासमार्फत जैविक विविधता, जलाधार, सिमसार तथा प्राकृतिक तथा सांस्कृतिक सम्पदाको जर्गेना र संरक्षण गर्नु निकुञ्ज व्यवस्थापनको मुख्य उद्देश्य हो । शिवपुरी नागार्जुन राष्ट्रिय निकुञ्जका विशिष्ट उद्देश्यहरू निम्न छन् :

- राष्ट्रिय रूपमा संरक्षित, विश्वव्यापी रूपमा खतरामा परेका र स्थानीय रूपमा मूल्यवान, लोपोन्मुख र स्थानीय प्रजातिहरू, महत्वपूर्ण पारिस्थिकीय प्रणालीहरू, र विविध वन्यजन्तुहरूको बासस्थानहरूलाई विशेष ध्यान दिएर जैविक विविधताको संरक्षण र अभिलेखिकरण गर्न;
- स्थलचर र जलचरको बासस्थानको व्यवस्थापन गर्न र मध्य पहाडी पारिस्थिकीय प्रणालीको प्राकृतिक प्रक्रियाहरू कायम राख्न बासस्थानको मूल्याङ्कन गर्ने;
- पानीको गुणस्तर, जलीय कार्यहरू र प्रक्रियाहरूलाई स्थायी रूपमा सुधार गर्न बागमती र बिष्णुमती जस्ता पवित्र नदीहरूको जलाधार व्यवस्थापन गर्ने;
- प्राकृतिक वातावरण, निकुञ्ज र मध्यवर्ती क्षेत्रको सामाजिक-सांस्कृतिक सम्पदा बचाई दीगो पर्यापर्यटनलाई नियमन र प्रवर्द्धन गर्ने;
- स्थानीय समुदाय र स्थानीय तहका सरकारी निकायहरूसँगको सहकार्यमा जनचेतना अभिवृद्धि, जीविकोपार्जनमा सुधार र मानव-वन्यजन्तु द्वन्द्व न्यूनीकरण गरी जैविक विविधता संरक्षणमा जनसहभागिता अभिवृद्धि गर्ने; र
- सम्वन्धित निकाय र संस्थाहरुसँगको सहकार्यमा अनुसन्धान, क्षमता अभिवृद्धि गरी निकुञ्जको संरक्षण र मध्यवर्ती क्षेत्रको संस्थागत क्षमता सुदृढ गर्ने ।

व्यवस्थापन योजनाका लक्ष्य र उद्देश्यहरु निकुञ्ज व्यवस्थापन, जलाधार र सिमसार क्षेत्र व्यवस्थापन, मध्यवर्ती क्षेत्र व्यवस्थापन, पर्यापर्यटन व्यवस्थापन र संस्थागत विकास गरी मुख्यतः पाँच खण्डमा बाँडिएको छ । व्यवस्थापन योजनाका लक्ष्य हासिल गर्न निश्चित क्रियाकलाप सहित कार्यगत उद्देश्यहरु तर्जुमा गरिएको छ । वर्तमान योजनामा समेटिएका क्रियाकलापहरु, व्यवस्थापन प्रणाली, छलफल, अन्तर्क्रिया र कार्य क्षेत्रको अवलोकन तथा निरीक्षणलाई आत्मसात गर्दै रणनीतिका आधारमा क्रियाकलापहरु निर्धारण गरिएका छन् । निकुञ्जको संरक्षण र मध्यवत्ती क्षेत्रको व्यवस्थापनको लागि कुल बजेट रु.१,१६,५७,७१ (हजारमा) पाँच वर्षका लागि प्रस्ताव गरिएको छ जसमा निकुञ्ज व्यवस्थापनका लागि रु ८५,६६,७० (हजारमा), मध्यवर्ती क्षेत्र व्यवस्थापनका लागि रु ३०,९१,०१ (हजारमा) को बजेट प्रस्ताव गरिएको छ ।

ACRONYMS

^{0}C	Degree Centigrade
APU	Anti-Poaching Unit
BCN	Bird Conservation Nepal
BRBIP	Bagmati River Basin Integrated Programme
BS	Bikram Sambat
BZ	Buffer Zone
BZMC	Buffer Zone Management Committee
BZCFUG	Buffer Zone Community Forest User Group
BZUC	Buffer Zone User Committee
BZUG	Buffer Zone User Group
CBAPU	Community Based Antipoaching Unit
CF	Community Forest
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
DAG	Disadvantaged Group
DCC	District Coordination Committee
DFO	Division Forest Office
DLSO	District Livestock Service Office
DNPWC	Department of National Parks and Wildlife Conservation
FAO	Food and Agriculture Organization
FY	Fiscal Year
GESI	Gender Equality and Social Inclusion
GIS	Geographical Information System
GO	Government Organization
GPS	Global Positioning System
GoN	Government of Nepal
Ha.	Hectare
HH	Household
HRD	Human Resource Development
HWC	Human-Wildlife Conflict
ICIMOD	International Centre for Integrated Mountain Development
IGA	Income Generation Activity
INGO	International Non-Governmental Organization
IUCN	International Union for Conservation of Nature and Natural Resources
IoF	Institute of Forestry

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Management Plan Preparation Process

The review and updating of the management plan for Shivapuri Nagarjun National Park and Buffer Zone (Fiscal Year 2080/081-2084/085 BS (2024/025-2028/029) was precisely completed by employing a comprehensive seven-step process to ensure its robustness and effectiveness. This process included:

Literature Review:

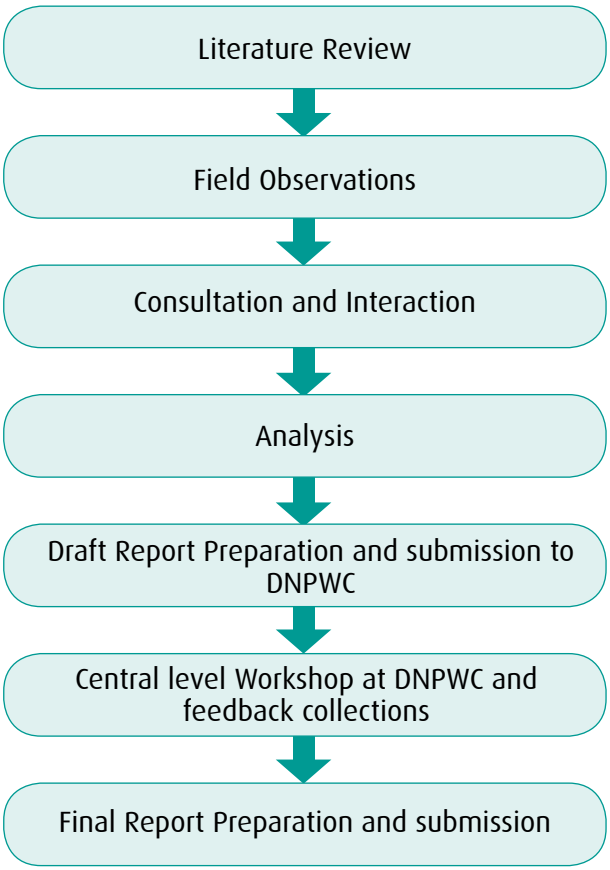
The process initiated with a thorough examination of existing literature and historical data related to the park and Buffer Zone. This step laid the foundation for understanding the park's ecosystem, past management strategies, past management plan's implementation status and emerging challenges.

Field Observations:

Field observations were conducted to gain firsthand insights into the current state of the park's environment, wildlife, infrastructure, and any current or emerging issues or concerns. This allowed for an accurate assessment of on-ground conditions.

Consultations with Stakeholders:

A critical aspect of the process was engaging with a wide range of stakeholders that included local communities, community forest user groups, security personnels, environmental NGOs, Kathmandu Upatyaka Khanepani Limited (KUKL), local government agencies, and park staff. This ensured that diverse perspectives and local knowledge were integrated into the planning process. The steps of planning process were follows:



Analysis:

The data collected from the literature review, field observations, and stakeholder consultations were subjected to analysis. This involved assessing trends, identifying challenges, and evaluating the effectiveness of previous management strategies.

Draft Preparation and Review:

A preliminary draft of the management plan was drafted, incorporating the insights gathered during the previous steps. This draft underwent a rigorous internal review process to ensure that it addressed the park's unique challenges and aligned with conservation goals.

Local and Central Workshops:

To promote transparency and to gather additional feedback, two local level consultation meetings – one at Panimuhan Buddanilkantha in presence of former Senior Conservation Officer and another in presence of current Senior Conservation Officer and a central-level workshop (at DNPWC) were organized, inviting experts, and stakeholders to discuss the draft plan. This workshop facilitated a collaborative approach in refining the plan.

Incorporation of Feedback and Finalization:

Valuable feedback and suggestions obtained from the workshop participants were incorporated into the draft management plan. This process ensured that the plan was robust and responsive to emerging issues and stakeholder concerns. After final revisions, the plan was officially finalized.

By following these seven-step process, the Shivapuri Nagarjun National Park Management Plan has been stimulated to effectively address current and future challenges while promoting sustainable conservation practices. The involvement of diverse stakeholders and the incorporation of local knowledge have contributed to its resilience and adaptability in safeguarding this valuable natural resource.

Part A
The Existing Situation

CHAPTER 1

Introduction of the Protected Area

1.1 Name, Location, Constitution and Extent

1.1.1 Name

Shivapuri Nagarjun National Park and Buffer Zone

1.1.2 Location

Shivapuri Nagarjun National Park (SNNP) includes Shivapuri forest and Nagarjun forest along the Shivapuri Mountain and Nagarjun mountain respectively located to the north of the Kathmandu valley. Shivapuri forest is situated between latitudes 27°45' and 27°52' N and between longitudes 85°16' and 85°45' E; while Nagarjun forest is situated between latitudes 27°43' and 27°46' N and between longitudes 85°13' and 85°18' E (Figure 1). The elevation ranges from 914 masl (Narsingh Ghat, Nuwakot) to 2732 m asl (Shivapuri peak) (SNNP, 2017), and includes parts of the Kathmandu, Sindhupalchowk, Nuwakot, and Dhading Districts of Bagmati Province. It is the only protected area (PA) among the existing 20 protected areas of Nepal that entirely lies within the middle mountain physiographic zone of Nepal (DNPWC, 2006).

1.1.3 Constitution and Extent

In 1976, an area of 144 km^2 of Shivapuri range along the Mahabharat Range including the Shivapuri Peak was declared as the Shivapuri Watershed Conservation Area in order to protect the watershed of the two holy rivers - Bagmati and Bishnumati. The area was renamed as the Shivapuri

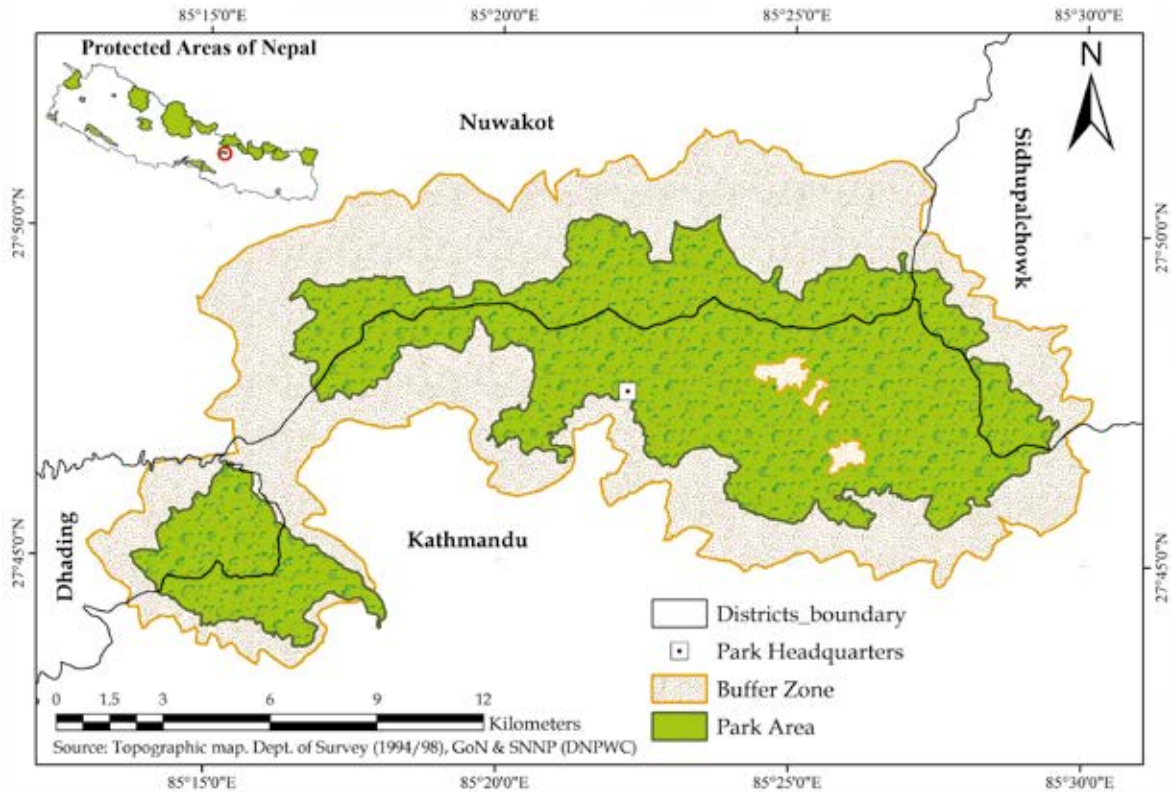


Figure 1: Location Map of Shivapuri Nagarjun National Park and its Buffer Zone

Protected Watershed Area in 1978, and again as the Shivapuri Watershed and Wildlife Reserve in 1983, and in 2002 the area was declared as the Shivapuri National Park under the National Parks and Wildlife Conservation Act, 2029 B.S. (1973). In 2009, an area of 15 km^2 of the Nagarjun forest patch including the Nagarjun hill to the west of the existing national park was annexed and renamed as the Shivapuri Nagarjun National Park (SNNP). The park is surrounded by a 111 km long mud mortar stone wall boundary in Shivapuri area and a 29 km long mud mortar stone wall in Nagarjun area. Later in 2016, 118.61 km^2 area around the existing national park was declared as the buffer zone (BZ) of the park under the NPWC Act, 2029. The total area of the protected area is 277.61 km^2; Core- 159 km^2 and BZ- 118.61 km^2 area.

The buffer zone covers parts of the four Districts of Bagmati Province, namely Kathmandu (102.7 km^2 – 64.59%), Sindhupalchowk (13 km^2 – 8.18%), Nuwakot (36 km^2 – 22.64%), and Dhading (7.3 km^2 – 4.59%). The BZ is the suburb of Kathmandu with dense human population.

1.2 Access

The National Park Headquarters at Panimuhan is only about 12 km far from the Kathmandu City Center 'Sundhara'. The capital city Kathmandu is connected by air with many cities of the world (Figure 2).

The park headquarters is at Panimuhan, Budanilkantha and other park's entrance gates are at Chisapani, Manichur, Jhule, Sundarijal, Mahankal, Lipikot/Tokha, Gurje bhanjyang, Kakani, Ain Danda, Mudkhu and the Fulbari gate/Nagarjun. All these entrance gates are well connected by road networks from Kathmandu valley Ring-Road. The park has a 95-kilometer-long forest road and 83-kilometer-long trekking trails.

The park's entrance gates can be reached by regular city and intercity buses available at several bus stations of the city. Common routes from the city center are:

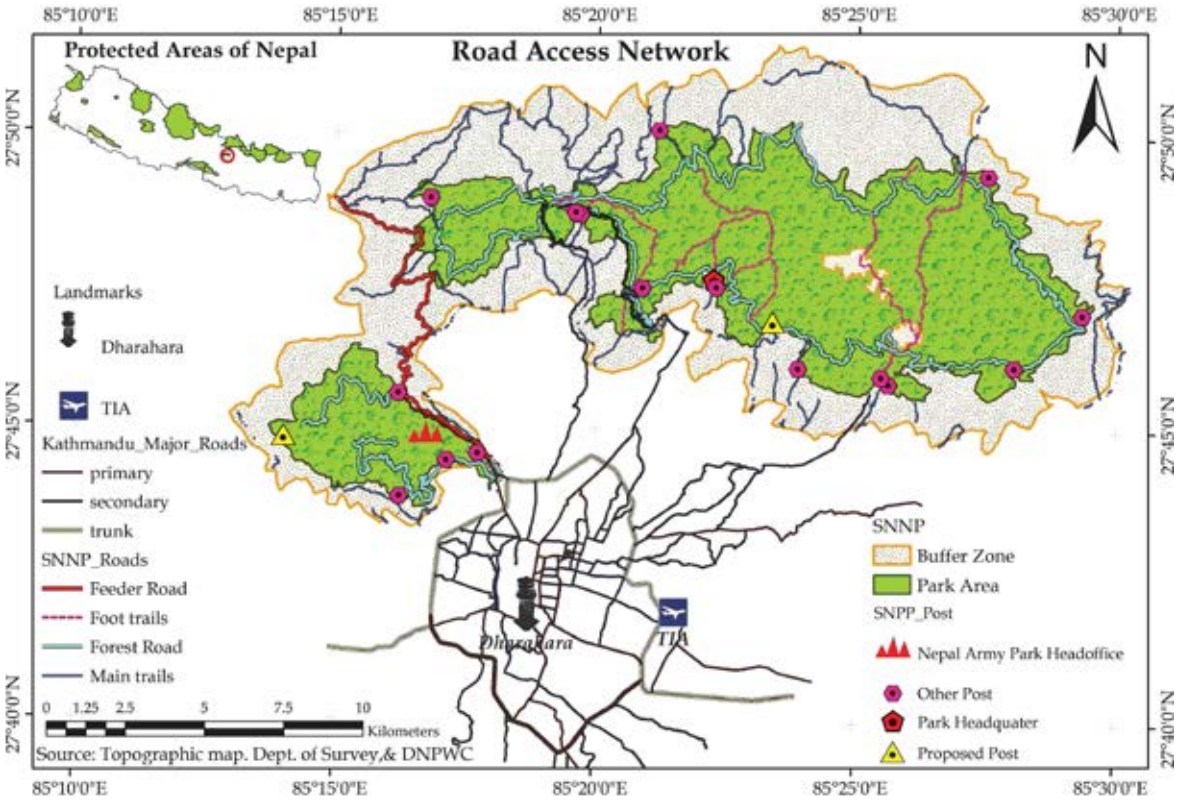


Figure 2: Map of Road Network and access to Shivapuri Nagarjun National Park and its Buffer Zone

Sundhara — Jamal—Maharajgunj (Narayan Gopal Chwok) — Budhanilkantha — Panimuhan — Bagdwar;

Sundhara — Chabahil — Sundarijal — Mulkharka — Dhap dam — Chisapani,

Sundhara — Chabahil — Sankhu — Manichur;

Sundhara — Samakhusi — Tokha -—Jhor —Gurje bhanjyang;

Sundhara — Balaju bypass — Fulbari gate - Jamacho; and

Sundhara — Balaju bypass — Kakani.

1.3 Statement of Significance

SNNP was established initially as a watershed conservation area for the conservation and management of the watersheds of the holy rivers Bagmati and Bishnumati. Since 1950 B.S. (1893 A.D.), the Rana regime collected water from the Shivapuri Mountain's foothills, which has been known as Muhaan Pokhari or Paanimuhan, the literal meaning is the 'source of water'. The park represents a high level of biological and cultural diversity. Some of the significant highlights of the park are:

1.3.1 Source of Fresh Water and Watershed of holy rivers Bagmati and Bishnumati

SNNP serves as a water tower for Kathmandu valley and SNNP buffer zone communities, meeting nearly half of the water demand for the population of Kathmandu valley. Kathmandu Upatyaka Khanepani Limited (KUKL) taps millions of liters of water daily from Bagmati, Syalmati, Bishnumati, Rudramati, Sangla, Tusal Khola, Salinadi, Mahadev Khola, and Nagmati for supplying drinking water to the Kathmandu valley. With an area of 32.7 km^2 the Sundarijal catchment is the largest among all which drains into the Bagmati River. Furthermore, SNNP contributes significantly to ground water recharge, hydro-electricity production, and irrigation facilities in downstream agricultural fields, particularly in Kathmandu valley. One of the major objectives of the park is to manage the watersheds and conserve the Holy rivers Bagmati, Bishnumati, Trisuli, and Indrawati. This also minimizes the chances of landslides and soil erosion in the watershed. As a result, it reduces the damage that flooding causes to property, human and livestock casualties while also protecting the downstream agricultural land.

1.3.2 Region of Rich Biodiversity Conservation

The park represents area of high biological diversity. There are 1273 different plant species in total found in the park. There are 65 mammalian species recorded in the park, six of them are assessed as nationally threatened. Chinese pangolin, Leopard cat, Clouded leopard, Assamese monkey found in the park are listed in protected animal list under the NPWC Act, 2029 (Paudyal et al, 2023). Other common mammals found in the park are Common leopard, , Himalayan black bear, Yellow throated marten, Barking deer and Sambar, etc. Similarly, the region is home to 320 species of birds (SNNP, 2017). Likewise, 11 amphibian species and 20 reptile species (Shah, 2016), 124 species of butterflies and 122 species of insects are found (Khanal, 2013) in SNNP (see Annex 1-9).

1.3.3. Cultural Heritage

The cultural sites located in SNNP exhibit excellent example of religious harmony. Both Hindus and Buddhists revere Shivapuri Peak and Jamacho. Similarly, Bagdwar and Bishnupaduka, sources of the holy rivers Bagmati and Bishnumati are also revered by both Hindus and Buddhists. Other well-known religious sites in the park are Buddha Gufa, White Gumba, Pachali Bhairab, Bishnudwar, Sundarimai, Kageshwori, Manichud, Tarakeshwor, and Nagigumba. These popular sites are visited by large number of visitors during cultural festivals and events.

CHAPTER 2

Background Information and Attributes

2.1 Boundaries (Legal and Ecological)

2.1.1 Legal

The park stretches for about 20–24 km east–west and for about 8–10 km north–south in Shivapuri, encompassing an area of 144 km^2 and a separate 15 km^2 patch of Nagarjun Forest. The park's boundary is defined by mud mortar stone wall. The boundary wall runs along the boundary of a number of Municipalities and Rural Municipalities of the Kathmandu, Sindhupalchowk, Nuwakot, and Dhading Districts.

2.1.1.1 Boundary of Shivapuri Nagarjun National Park (Core area)

Shivpuri block

East: From Manichur *lek,* through Haibung to Chisapani (the tri-district meeting point of the boundary of Kathmandu, Nuwakot, and Sindhupalchowk).

West: Along the side of the Neupane village of Nuwakot to the boundary of Kakani Agriculture Farm, to motor road toward Khanikhola, Trishuli to Panchmane.

North: From the top of Neupane gaun to Khari Bhanjyang, to the top of Gurung gaun village, to Gurje, to Arkhaule, to Siketar village to Bhorlang danda to Haibung.

South: Panchmane to Dhalkechhap, to Alle Devisthan, to boundary of Kateri village, to Lamichhane village, to the top of Sangla, to Jhor village, to Taulung village, to Tarebhir of Baluwa VDC (current Gokarneshwar Municipality-3), to Sundarijal and Mahankal, to Kafle danda of Gagalfedi to the trail from Manichud to Bajrayogini.

B) Nagarjun Block:

East: From Dumrini, Pani to Balaju bypass, to Balaju park, to the settlement of Goldhunga VDC (current Tarkeshwar Municipality -5).

West: From Thumki, to Damdame, to Kakare village to Gairigaun to the wall at Sanogaun to the settlement at Chhatre deurali (Dhunbeshi Municipality -1, and 2) of Dhading

North: From Tilkhoriya, to Dandagaun, to Thulogaun, to Chipalibot, to Mudku dhoka, to Baikhu, to the wall at Nakhandol, to the settlement at Jitpurfedi and Goldhunga VDC (current Tarkeshwar Municipality -5).

South: From Thaplegaun, to Bhirkot Nayagaun, to Badridanda, to Narayansthan, to Ichangu to Gangko, to Raniban to the wall at Tandol village.

2.1.1.2 Boundary of Buffer Zone

East: Pati Bhanjyang (X = 85.45627, Y = 27.84346) along the road to Sandantole, Haibung Mahadevasthan Secondary School, Gurung village and Soti River confluence upto main irrigation channel of Bhotechaur (X= 85.48860, Y=27.80983). Continue to Khawas tole (X=85.49506, Y= 27.79706), Bhumethan hill and Motor way to Chauki Bhanjyang, Chiring River towards Ghatte River confluence. Further Motor way from Jhule Khola to Dhara Bhanjyang, Lama Nachne hill, Saile River to Manilingeshwor Mahadev River confluence.

South: Manilingeshwor Mahadev River confluence towards Bhorletar village (X= 85.43625, Y=27.74962) along the

road, Bagmati River bridge, Nayapati Chandikashwori Secondary School towards Dhoka Bhanjyang and Suryamati River confluence. Further straight along ridges of Koudol (X=85.38248, Y= 27.76945) to Mailo Bhote rock and Badepakha to Rudreshwor Mahadev temple. Further along the River towards way to Taulung (X=85.36475, Y=27.78100) and Pancheshwor Mahadev temple, Chhoiling monastery, Bishnumati River towards Lude River confluence. Further straight to Tokha Ganesh temple and Sapan Tirtha River towards way to Sangla, Kavresthali and Jitpurphedi connecting road (X=85.32686, Y=27.78505) towards Tinpiple market and Thanagadhi to Krishna Pranami temple. Further Ghampe River (X=85.28383, Y= 27.76070) to Phuyalthok, Gholdhunga's Nagarjun Secondary School and Nagin River to Lolang bridge and way to old Guheshwori temple towards Lakha Paata Park boundary. Toudol Siddhi Ganesh temple motor way to Dalle junction, Nasidhoka junction, Tingharetallo junction, Gairi village, Halchowk to straight to the culvert of Bhadramati River (X=85.27119, Y= 27.72673), uphill to the confluence of the stream from dadagaun, to the road Seto gumba through the stream to Sakhahiti River. Further by motor way to Sidheshwor Mahadev temple up to Bhimdhunga, Bhimsensthan temple and Mahesh Narayan River (X=85.22883, Y= 27.74120).

West: Mahesh Narayan River to Bhimdhunga Lamidada road to Bhangyang Pokhari. Further Siranchaur River, Ghatte River, Dhadebesi (X=85.23950, Y=27.77430) to Kolpu and Naagdol River confluence. Further to Dandagaun and Mahalaxmi temple to Kolpu River Bridge. Further straight along the River to Kaule Bhanjyang (X=85.24664, Y=27.81562) Swara River, Thansing village (X=85.26108, Y= 27.82815) to old road up to Thulo Chhahare River.

North: Thulo Chhahare River to Thanapati temple, Moktan village, Kotthok village (X=85.31541, Y= 27.84698), Pandey tole, Gurje River confluence and Samundradevi temple. Further to Lapse River, Mohorthok Ghatta, Deureli Chiyandada top (X=85.37383, Y=27.84815) to Sikre River to Narsingh ghat of Likhu River upto Pati Bhanjyang.

2.1.2 Legislations

2.1.2.1 National Forest Policy, 2075

The National Forest Policy, 2075 states that National park, wildlife reserve, hunting reserve, conservation area, buffer zone, protected forest, wetland, zoological garden, botanical garden including all protected areas shall be promoted and developed as the foundation of eco-tourism.

2.1.2.2 Protected Area Management Strategy (2022-2030)

Formulated by the DNPWC, the Protected Area Management Strategy (2022-2030) provides the strategic road map for managing climate resilient and self-sustaining PA systems of Nepal by 2030. It consists of five key thematic areas and five cross-cutting themes.

2.1.2.3 National Parks and Wildlife Conservation Act 2029 (1973)

The Clause 3 (1Ka) (1) of the fifth amendment of the NPWC Act 2029 has provisioned it mandatory that the protection, conservation and management of each National Park, Reserve and Conservation Area regulated under this Act should be in accordance to the approved protected area management plan. Similarly, Clause 3 Kha (1) provisions that Buffer Zone should be managed and conserved in accordance to the management plan approved by DNPWC. The BZ management plan should be prepared in consultation with the concerned User Committees.

2.1.2.4 International Trade in Endangered Wildlife and Plant Control Act 2074 (2017)

Clause 23 of "The International Trade in Endangered Wildlife and plant control Act, 2074 (2017) " has authorized the concerned warden or an employee of officer rank designated by him/her to investigate the offences of illegal wildlife trade and to file the case in the District Court along with the opinion of the government attorney.

2.1.2.5 Forestry Sector Strategies 2016-2025

Formulated by the Ministry of Forests and Soil Conservation, Government of Nepal, the Forestry Section Strategy (2016-25) guides the future development of Nepal's forestry sector for ten years. It is based on the framework of the Forest Policy 2015. The Forestry Sector Strategy has envisioned eight strategic pillars and identified seven key thematic areas to achieve the vision of MoFSC. With the implementation of the strategy, five major outcomes will be achieved viz; sustainable production and supply of forest products, improvement of biodiversity conservation, watershed and ecosystem services, increased contribution to national economy, inclusive and accountable forestry sector institutions and organizations, and climate resilient society and ecosystem.

2.1.2.6 National Wetlands Policy 2069

The National Wetlands Policy 2069 is formulated by Ministry of Forests and Soil Conservation (now MoFE), GoN to conserve and manage wetlands of Nepal. The policy has identified wetlands within the protected areas of the country as a major wetland category and has emphasized on the conservation and wise use of those wetlands. The policy has also emphasized to conduct regular studies on the status of wetlands that lie within protected areas or buffer zones.

2.1.2.7 National Parks and Wildlife Conservation Regulation 2030 BS

Section 3 (Ka) of the National Parks and Wildlife Conservation Regulation 2030 BS (1980 AD) (NPWCR 2030) has provisioned it mandatory for Chief Conservation Officer (CCO)/Conservation Officer (CO) to prepare and submit a comprehensive PA Management Plan to the DNPWC for approval. The Chief Conservation Officer/Conservation Officer should manage the protected area in accordance to the approved management plan (3Ka (4)). The CCO/CO should prepare the management plan for next period one year prior to the end of the current management plan period.

2.1.2.8 Buffer Zone Management Regulation 2052 (1996)

The Buffer Zone Management Regulations 2052 (1996) stipulates that the Conservation Officer is required to prepare the Buffer Zone Management Plan and submit to the DNPWC (Rule 5). And it is also the responsibility of the Conservation Officer to implement the BZ Management Plan once approved by the Ministry.

2.1.2.9 Shivapuri Nagarjun National Park Regulation 2076 (2019)

Shivapuri Nagarjun National Park Regulation, 2076 R 7 (1) and 26 (1) has mandated the park to charge certain fee to the users or visitors for various activities mainly Park entry, cycling, vehicle entry, nature guide, collection of litters, jungle drive, ultra-running and rock climbing etc and use of water.

2.1.2.10 Shivapuri Nagarjun National Park Buffer Zone Management Guideline 2073

Shivapuri Nagarjun National Park Buffer Zone Management Guideline 2073 (2016) has described about the formation of buffer zone user groups and also the detail procedure on planning, program and budget of Buffer Zone User Groups (BZUGs).

2.1.3 Ecological

SNNP is the only protected area that lies entirely within the Middle mountain physiographic range of Nepal and represents its biodiversity. The park includes forested areas of Shivapuri and Nagarjun Mountains located in the north and north-western fringe of the Kathmandu valley separated by a narrow strip of urban space.

2.2 Geology and Soil

Physio-graphically, SNNP lies in a transition zone between subtropical and temperate region. The dominant rocks are gneiss and magnetite with mica schist and pegmatite granite. The soils of the area range from loamy sand on the northern side to sandy loam on the southern slope.

2.3 Topography and Drainage

2.3.1 Topography

The topography of the park is diverse and rugged with a variety of landforms characterized by small mountains, gentle to steep slopes, ridges, and valleys. Before the establishment of the protected area, soil erosion was considerably very high particularly in the northern part of the park (Samundradevi, Sikre and Talakhu villages) due to the topography, nature of soil, and heavy forest destruction – timber felling and firewood collection. Landslides, gullies, and sheet erosion in the sloping terraces, and stream bank erosion were quite common. The situation now has very much improved due to the protection, soil conservation and watershed management programs after the establishment of the Shivapuri Watershed Conservation Area in 1976.

The park's highest point is Shivapuri Peak, and lowest altitude of the park is Narshingghat, Nuwakot which offers panoramic view of the awe-inspiring high Himalaya mountains in the north - from Mt. Sagarmatha towards the north-east to Annapurna Mountain Range and Dhaulagiri in the north-west; and the picturesque view of Kathmandu valley in the south (Figure 3). The park is characterized by several rivers and streams, including the Bagmati River.

2.3.2 Drainage

The drainage of the Shivapuri Nagarjun National Park is an essential aspect of the park's ecology primarily controlled by the topography of the area. Shivapuri Mountain is the origin of some important river systems including Bagmati, Bishnumati, Nagmati, Syalmati, Rudramati, and Ikshumati. There are some sub-watersheds of small streams including Rudramati, Mahadev, Chahari, Yagyamati,

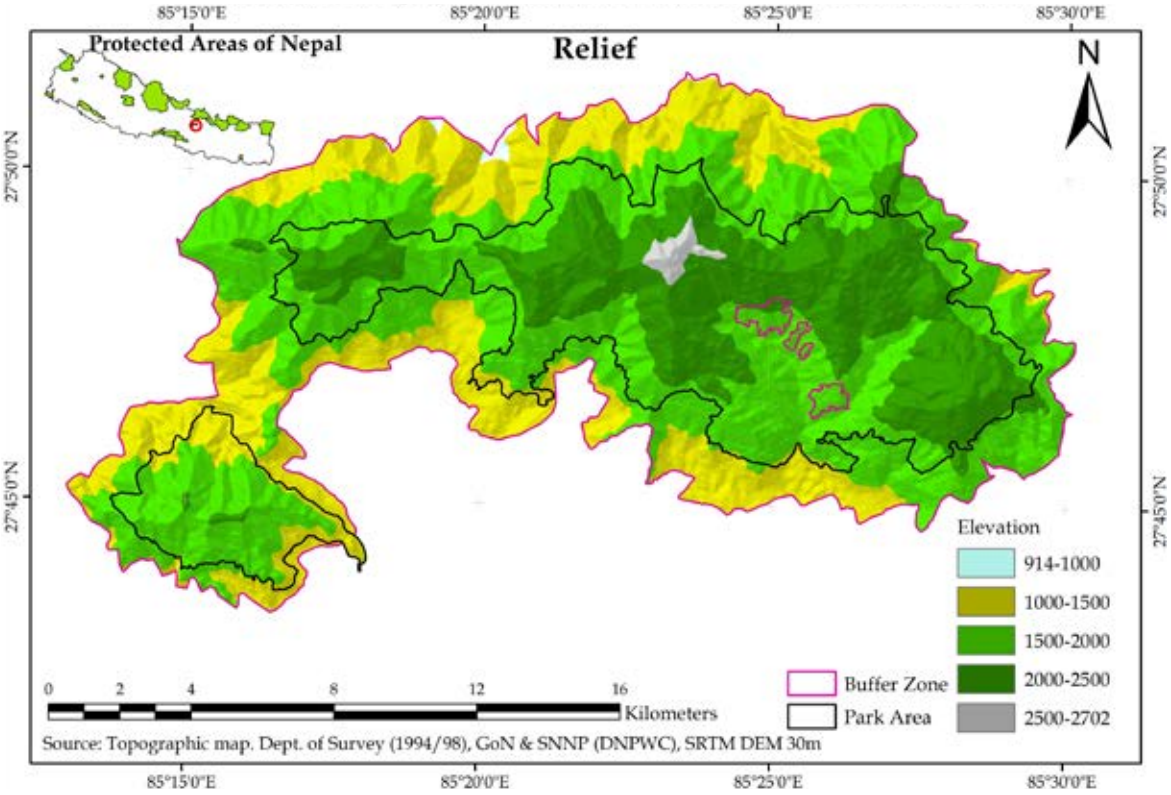


Figure 3: Relief Map of Shivapuri Nagarjun National Park and its Buffer Zone

Sani and Thuli Shyalmati and Dhobi Kholas. During the monsoon season several streams and rivers flow through the park which eventually flows into the Bagmati, Saptagandaki and Saptakoshi Rivers. Most of the streams and rivers drain into the Bagmati River while few drains into Trishuli through Likhu Khola towards the north and few drains into Indrawati through Sindhu Khola towards the east. Bagmati, Syalmati, Nagmati, Bishnumati, and Alle Khola drain into the Bagmati River whereas Chisapani Khola, Rolche Khola, Kakani Khola drains into the Trishuli R iver. Rivers like Nhyu Khola, Thado Khola and Haibung Khola joins the Indrawati River. In addition to the topography, the drainage of the Shivapuri Nagarjun National Park is also influenced by the vegetation cover of the area. The park has a variety of vegetation types - forests, grasslands, and shrub lands. Man-made and natural reservoirs and ponds (e.g. Sundarijal and Dhap dam) are for multiple purposes such as hydropower, drinking water, irrigation and ground water recharge (Figure 4).

2.4 Climate

Shivapuri Nagarjun National Park has subtropical to temperate climate. The climate of the park is influenced mainly by altitude, which ranges from 914 to 2731 meters above sea level. The park experiences a subtropical climate in the lower regions and a temperate climate in the higher regions. The 30 years (1992-2022 AD) climatic data of the weather station at Buddhanilakantha (altitude 1378 masl) shows the record of average annual maximum temperature of 23.15°C and that of average annual minimum temperature of 11.93 °C (Figure 5 and Figure 6).

The temperature in park increases after March, and July. The month of August has the highest temperature which starts decreasing after September. The monthly average minimum temperature during November, December, January and February lies below 10°C (Figure 7).

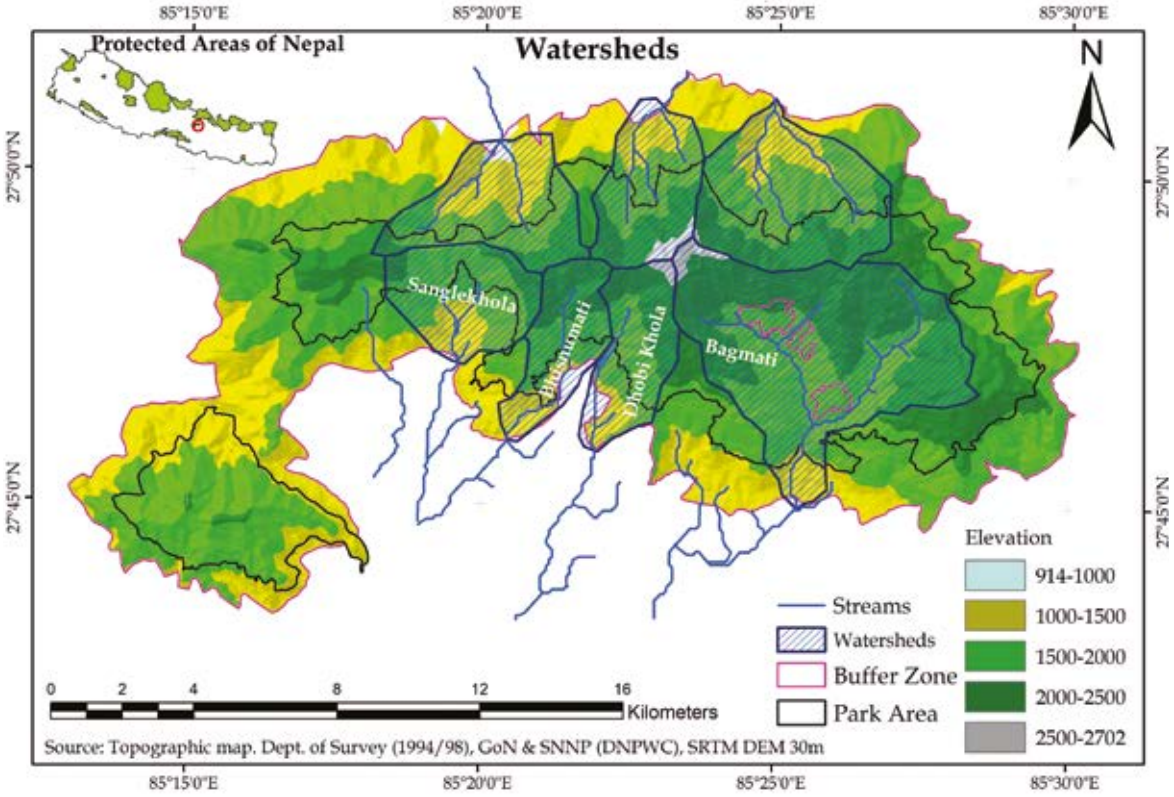


Figure 4: Major Watershed of Shivapuri Nagarjun National Park and its Buffer Zone

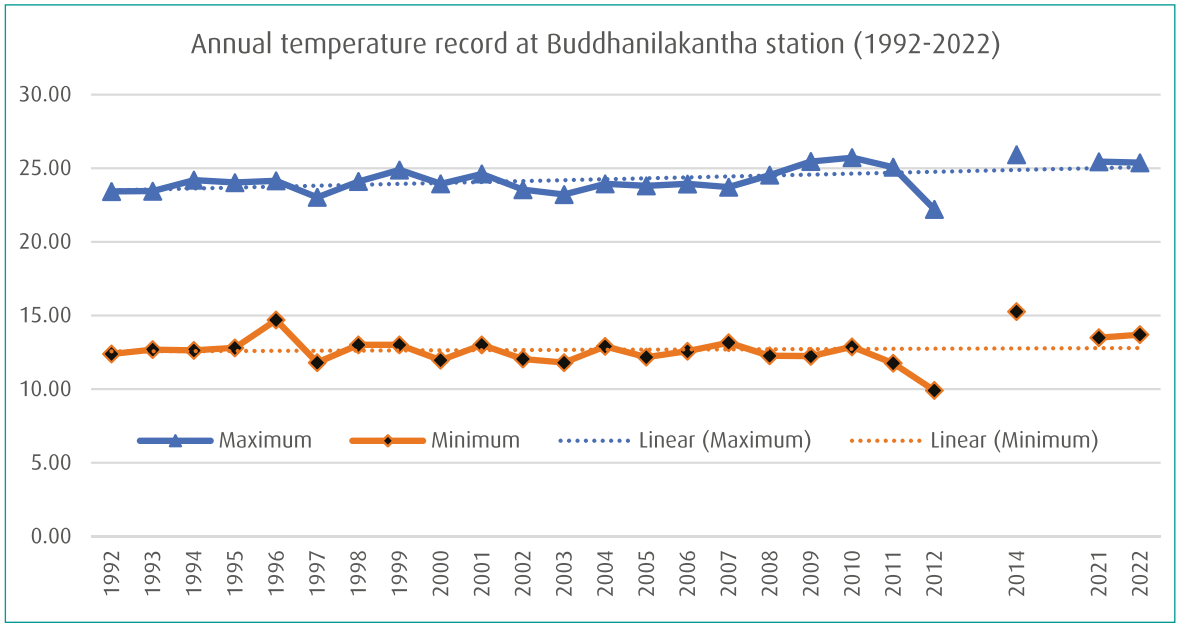


Figure 5: Annual Temperature Recorded at Budhanilakantha Weather Station

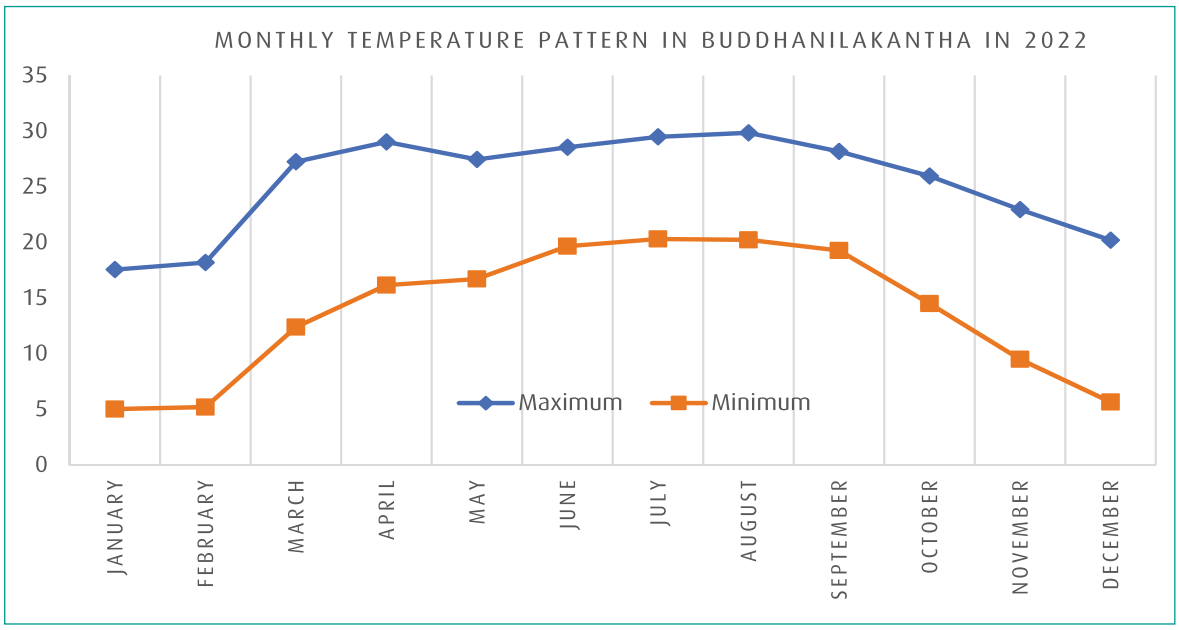


Figure 6: Monthly Mean Maximum and Minimum Temperature at Buddhanilkantha in 2022

The precipitation data from 1998 to 2022 (24 years) at Buddhanilkantha station (received from Department of Hydrology and Meteorology, DHM) shows mean annual precipitation of 145.17 mm. The annual rainfall pattern was recorded highest in 2005 AD (206.7mm) and least was recorded 110.41mm in 2001 AD. Even though rainfall pattern irregular there is no any significance change in annual rainfall pattern at Shivapuri Nagarjun National Park (Figure 7).

The rainfall data shows that July and August months received the maximum amount of rain (44.99%) of total year rainfall. About 95.6% of rainfall occurs within six months from June to November in 2022 (Figure 8).

In SNNP, there are four distinct seasons: spring, summer, autumn, and winter. The spring season (March to May) is characterized by warm days and cool nights with occasional rain showers. The

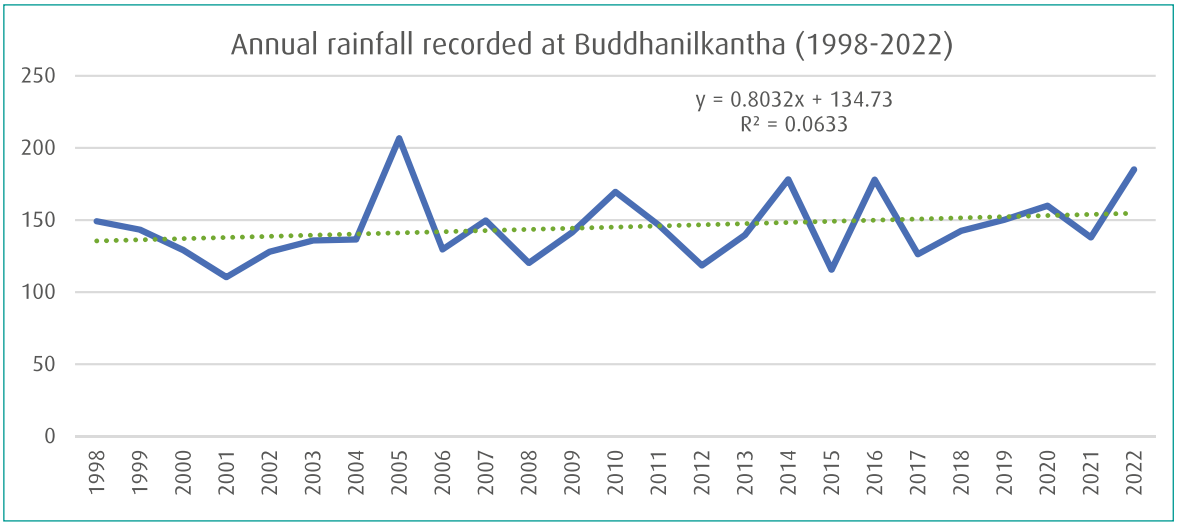


Figure 7: Annual Rainfall Recorded at Budhanilkantha (1998-2022)

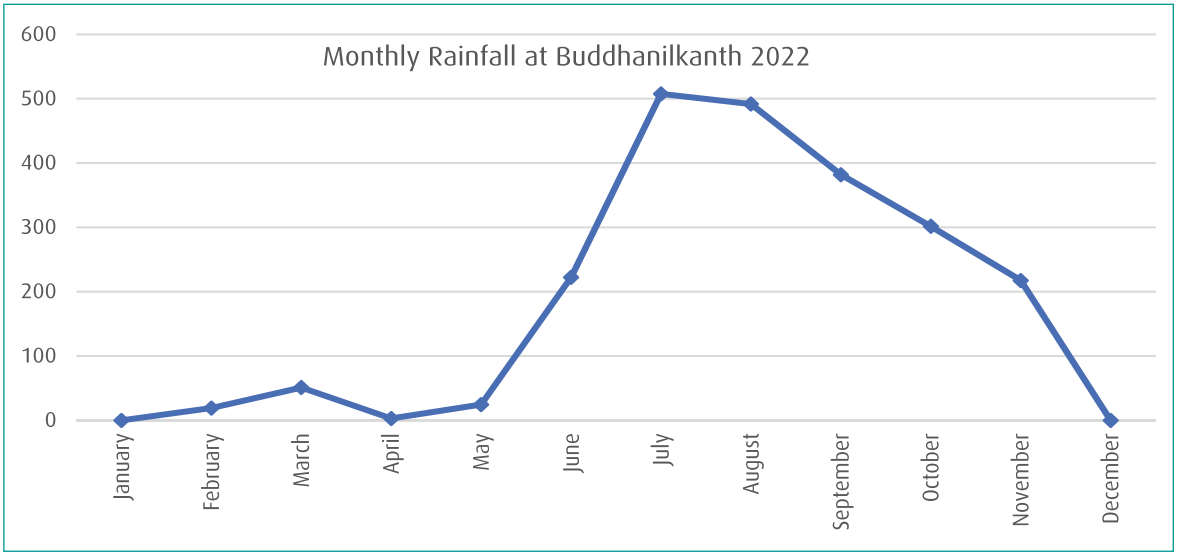


Figure 8: Monthly rainfall at Budhanilkantha 2022

summer season (June to August) is characterized by heavy rainfall and high humidity. The autumn season (September to November) is the most pleasant season, with clear skies and cool temperatures, while the winter season (December to February) is characterized by cold temperatures and occasional snowfall on the Shivapuri peak area (FRTC, 2021).

2.5 Land Cover

The land cover pattern in and around SNNP (159 km^2) is predominated by forest followed by crop land and build up area respectively. The cover of forest land is 151 km^2 (94.97%), followed by crop land 5.69 km^2 (3.58%), build up area 1.32 (0.83 km^2) other wood land 0.83 Km^2 (0.52 %) and grassland 0.16 km^2 (0.1%) (Figure 9, Table 1).

The park area has 94.84 % (150.79 km^2) forest, 3.63 % (5.77 km^2) cultivation land and 0.82% built up area (Table 1).

2.6 Biodiversity Status

2.6.1. Floral Diversity

Floral diversity is quite high in SNNP due to its geographic location, altitudinal and climatic variations. The park is situated in sub-tropical and lower temperate zone of Nepal

Despite SNNP's small size, the park harbors a total of 1273 plant species. About 22 species of macro

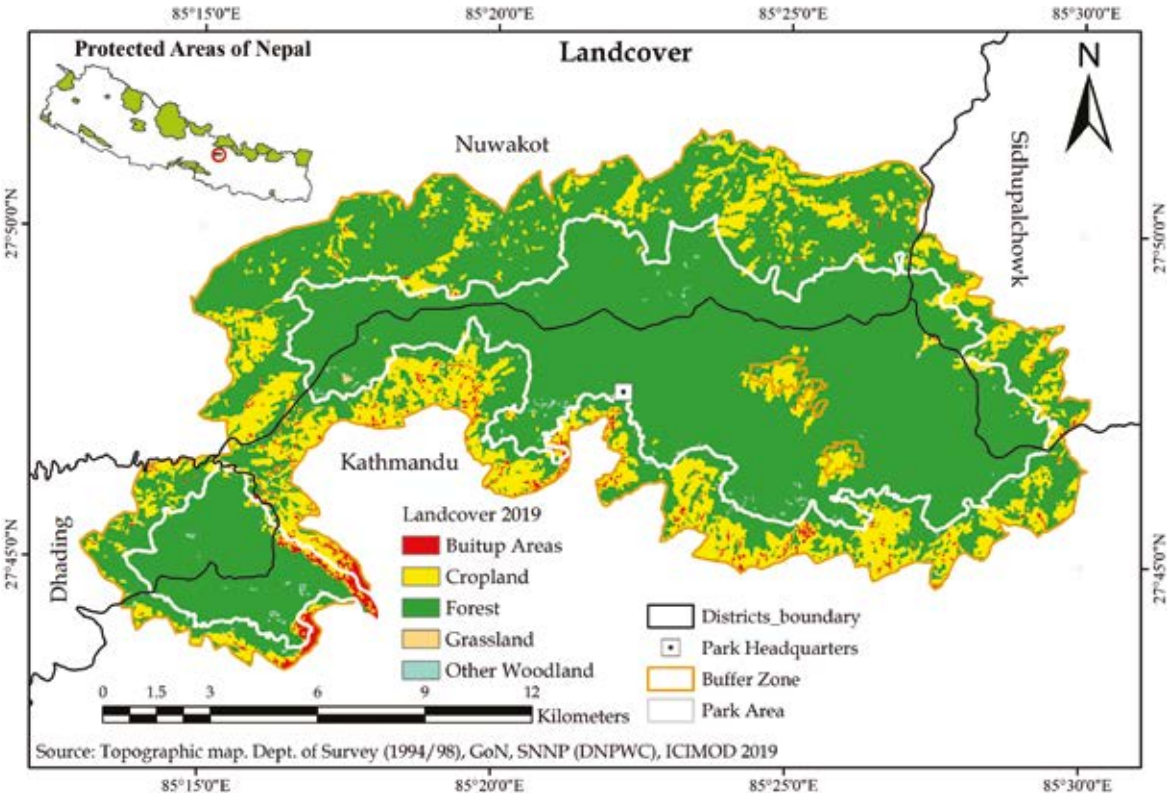


Figure 9: Land-use pattern in different sub watersheds in SNNP and its Buffer Zone

Table 1: The Land Use Land Cover Category in 2009 and 2019

LULC category	Core + BZ 2019		Core 20019		BZ 2019	
	Area km^2	Area %	Area km^2	Area %	Area km^2	Area %
Forest	221.73	79.871	150.79	94.84	70.94	59.77
Built up Area	4.78	1.72184	1.3	0.82	3.48	2.93
Cultivation	49.31	17.7623	5.77	3.63	43.54	36.69
Grassland	0.37	0.13328	0.15	0.1	0.22	0.18
Other Woodland	1.42	0.51151	0.93	0.59	0.49	0.41
Total	277.61	100	158.94	99.98	118.67	100

fungi have been reported. To date 1114 flowering plant species including 16 endemic species have been reported in the park. The park has four types of forests viz. (i) Lower mixed hardwood forests, (ii) Chirpine forests, (iii) Oak forests and (iv) Upper mixed hardwood forests, which support rich faunal and floral diversity with a number of threatened and endemic wildlife species. Chilaune *Schima wallichii,* Katus *Castanopsis indica,* Utis *Alnus nepalensis,* Salla *Pinus roxburghii,* Khasru *Quercus semicarpifolia,* Khasru *Quercus lanuginose,* Lali gurans *Rhododendron arboreum* are the dominant vegetation of the park. Furthermore, the park is home to several medicinal plant species, such as *Aconitum* spp., *Arnebia benthamii*, and Chiraito *Swertia chirayita*. These species are used by local communities for various medicinal uses

2.6.1.1 Ecosystems

With distinct and diverse physiographic conditions, 5 types of ecosystems and 4 types of forests are found in SNNP (Table 1). Out of the total 52 forest ecosystem types found in the mid-hill physiographic region of Nepal, SNNP represents 9.6% (n= 5) of them. This is about 0.4% of the

total area (20,970 km^2) within the country. Among the 5 ecosystem types found within the park, 3,769 ha (41.41%) area is occupied by Collinean Oak-mixed broadleaf forest followed by *Schima wallichii*, *Pinus roxburghii* mesohygrophytic (2,545 ha, 27.96%) and Mountain Oak (*Quercus semecarpifolia*) (2,192 ha, 24.08%) respectively (see Table 2 and 3).

*Assessment was based on the areas inside Shivapuri Watershed and Wildlife Reserve (Source: BPP, 1996)

The Park forests are distributed within the mosaics of middle hill physiographic region of two, subtropical and temperate, climatic zones. Lower mixed hardwood (*Schima-Castanopsis*) forest (1,000m - 1,500m), Chirpine forest (1,000m – 1600m), Upper mixed hardwood forest (1,500m -2,300m) and Oak forest (2,300m – 2,700m) are principal forest types of SNNP.

2.6.1.2 Species

SNNP occupies 0.19% area of Nepal (147,181 km^2) but it represents 8 % (n = 1,402) of the total floral species found in the country (n = 17,199). In terms of number, angiosperms are the dominating flora of the park (n = 1,114) followed by pteridophytes (n = 131), macrofungi (n=22) and gymnosperms (n = 6) respectively. Orchid species have the highest representation within the park (32.3%) (n=123) followed by monocot species (28.3%) and pteridophytes (24.5%) out of the total species in Nepal (Table 4, see Annex 6, 7, 8, 9 and 10).

Table 2: Ecosystem Diversity of Shivapuri Nagarjun National Park

SN	Categories	Number
1.	Forest types	4
2.	Ecosystem types	5
3.	Physiographic regions	1
4.	Climatic zones	2

Table 3: Area Representation of Mid-hills Ecosystems in Shivapuri Nagarjun National Park

SN	Ecosystem types	In SNNP	In Nepal	% in SNNP
1	Mountain Oak (*Quercus semecarpifolia*)	2192 (24.08%)	649000	0.3
2	Collinean Ooak-mixed broad leaf forest	3769 (41.41%)	542000	0.7
3	*Schima wallichii, Castanopsis indica*	243 (2.67%)	523000	0.05
4	*Schima wallichii, Pinus roxburghii*	2545 (27.96%)	223000	1.1
5	*Pinus roxburghii*	352 (3.86%)	160000	0.2
Representation of Midhills ecosystems (%)				0.4

Table 4: Plant Diversity of Shivapuri Nagarjun National Park

Types	Number			Comparative Data	
	Family	Genera	Species	Total in Nepal	% in SNNP
Angiosperm	141	632	1113	6,973	15.97
Monocot	18	154	325	1150	28.3
Dicot	124	478	789	5,823	13.5
Endemic	--	--	16	282	5.7
Orchid	1	45	123	381	32.3
Gymnosperm	3	6	6	31	19.4
Pteridophytes	20	49	131	534	24.5

(BPP, 1995), (SNNP, 2010)

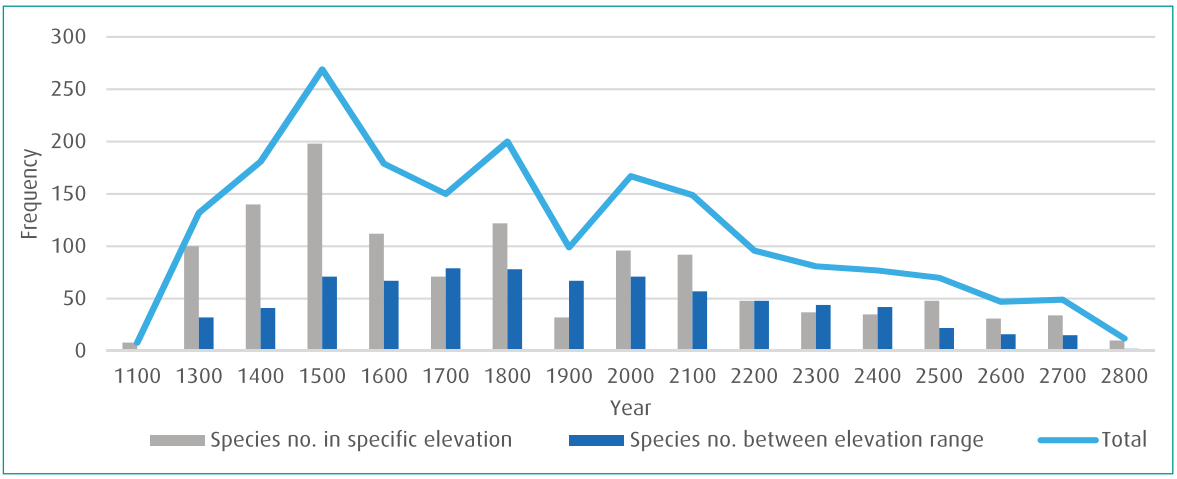


Figure 10: Altitudinal Distribution of Native Vascular Plant Species

The park harbors 16 endemic plant species representing 5.7% of the total endemic flowering plants (n= 282) found in Nepal.

Among the recorded flora of SNNP, one species is assessed as near threatened (*Juglans regia*) and one species as endangered (*Taxus wallichiana*) species. Based on the floral dispersal within the national park, 1400-1600m elevation range is floristically the richest zone (Figure.10). Total number of plant species recorded within this elevation range is 523 (BPP, 1995).

2.6.1.3 Conservation Significance

This national park includes several nationally and globally threatened floral species. There are two species which are nationally protected plant species Okhar or walnut *(Juglans regia*) and Sugandhawal or valerian (*Valeriana jatamansi*) found in SNNP. Similarly, one globally (IUCN Red Data book) endangered (*Taxus wallichiana*) and one near threatened (*Juglans regia)* plant species are found in the park. Out of the total plant species recorded in the park, 126 species are listed in CITES Appendix II and 2 species in Appendix III (Table 5).

The common plants and mammals found in different forest types within the park are presented in the table 6.

2.6.2. Faunal Diversity

2.6.2.1. Mammals

The area harbors fairly common to endangered species of mammals. Out of the 65 species of mammals recorded from the area (Paudyal et al, 2023;), three species: Clouded leopard, Assam macaque, Chinese pangolin (*Manis pentadactyla*) are listed in protected list in National Parks and Wildlife Conservation Act, 2029 BS. Some of the mammals found in the park are Barking deer,

Table 5: Conservation Significance

Status	No in Nepal*	No. in SNNP	% in SNNP
Endangered (IUCN Red list)	2	1	50.0
Vulnerable (IUCN Red list)	5	--	0.0
Near Threatened (IUCN Red list)	2	1	50.0
GoN (Protected) (IUCN Red list)	18	3	16.7
CITES I	2	--	0.0
CITES II	458	126	27.5
CITES III	4	2	25.0

**GoN/MoFSC, 2014*

Table 6: Forest Habitats and Altitudinal Distribution of Flora and Fauna

Forest type/ Habitat	Altitude (m)	Flora	Fauna
Lower mixed hardwood	1000-1500	*Schima wallichii, Castanopsis indica Alnus nepalensis, Anthocephalus cadamba, Prunus cerasoides*	Wild boar (*Sus scrofa*), Barking deer (*Muntiacus vaginalis*), Rhesus monkey (*Macaca mulatta*), Indian hare (*Lepus nigricollis*)
Chir pine forest	1000-1600	*Pinus roxburghii Castanopsis indica, Myrica esculenta, Pyrus pashia*	Same as above
Oak forest	2300-2700	*Quercus semecarpifolia, Eurya acuminate, Ilex dipyrena, Michelia champaca, Rhododendron arboretum, Symplocos* species.	Wild boar (*Sus scrofa*) Northern Red Muntjac *Muntiacus vaginalis,* Himalayan porcupine (*Hystrix brachyura*), Sambar (*Rusa unicolor*) (Not native but are in Nagarjun forest only)
Upper mixed hardwood forest	1500-2700	*Acer* species*, Aesculus indica, Alnus nepalensis, Betula alnoides, Celtis australis, Fraxinus floribunda, Juglans regia, Salix* species, *Quercus* species.	Himalayan goral (*Naemorhedus goral*), Himalayan black bear (*Ursus thibetanus*), Yellow-throated marten (*Martes flavigula*), Wild boar (*Sus scrofa*)

(Source: Amatya 1993; Kattel 1993 and Dhital et al 2020)

Himalayan serow, Common goral, Sambar, Wild boar, Jungle cat, Himalayan black bear, Asiatic golden jackal, Common leopard, Leopard cat, Small Indian mongoose, Yellow- throated marten, Masked palm civet, Large Indian civet, Burmese ferret- badger, Intermediate horseshoe bat, Java pipistrelle, Himalayan water shrew, Indian hare, Rhesus macaque and Red giant flying squirrel. The detail list of mammal species from SNNP is listed in Annex 1.

2.6.2.2. Bird Diversity

The park is home to 320 species of birds including 117 migratory birds. Among the total bird species recorded in the park, 120 are wetland dependent, 80 are winter migrants, 6 are summer migrants, 28 are residential and 6 are vagrant, and 22 species are globally threatened species. Other common bird species found are, Himalayan Griffon (Nepali & Suwal, 2007), Black Kite, Goshawk, Sparrow Hawk, Shikra, Himalayan Buzzard, Black Eagle, Steppe Eagle (BPP, 1995), Magpies, Kalij Pheasant, Leaf birds, Flycatcher, Bushchat, Babblers, Cuckoos, Bulbul, Swift, and Warblers. Importantly, the Spiny Babbler (*Turdoides nipalensis*), is the endemic birds found in the area. The detail list of birds is listed in Annex 2.

2.6.2.3 Herpetofauna

SNNP is home to a diverse variety of herpetofauna, from common, rare and endangered species. It represents highly diversified faunal elements characteristics of sub-tropical to temperate zones. The proximal vicinity of SNNP with the capital city Kathmandu nearby, the importance of its faunal value is remarkable. To date 11 species of amphibians have been recorded. However, the number can increase considering its vastness and high habitat diversity. One species of frog, Indian bull frog, *Hoplobatrachus tigerinus* recorded is a CITES Appendix II species (SNNP, 2017).

Six species of lizards (Pokharel et al., 2011; Shah and Tiwari, 2004), and 14 species of snakes have been recorded from the park. It includes six species of poisonous snakes (including King Cobra (*Ophiophagus hannah*). Among the recorded snake species, three species are listed in Appendix I; and four in Appendix II. One species is listed as vulnerable species in IUCN Red Data Book. Bengal monitor, *Varanus bengalensis* also found in the park is listed in Appendix I of the CITES species. The detail list of herpeto fauna is presented in Annex 3.

2.6.2.4 Fish Diversity

Only two species of fishes have been reported from Dhap and Nagmati dam sites of the park. The existence of low number of fish diversity (only two species) could possibly be due to the park's physiography, low connectivity and high elevations. The two fish species recorded are the Creek Loach (*Schistura beavani*) and the Snow Trout (*Schizothorax richardsonii*) (BRBIP, 2012).

2.6.2.5 Butterflies and Insects

SNNP is home to 124 species of butterflies out of the total 660 species found throughout the country which is 3.30% of the global species (Smith, 1989). They are distributed interestingly at different altitudinal pockets within the park. Out of 360 species of butterflies have been recorded from Kathmandu and its surrounding hills (Khanal and Smith 1997), *Papilio krishna* (Papilionidae), an Endangered species (IUCN Red Data) has been reported at an elevation of 2120 m from the Shivapuri Mountain forest.

Relict Himalayan Dragonfly *(Epiophlebia laidlawi),* a rare dragonfly belonging to the family Epiophlebiidae and order Odonata has been reported in Shivapuri forest of the park (Ashahina, 1983). The Epiophlebiidae is the only existing family in the suborder Anisozygoptera, which holds just two species. They are relict species of a once widespread group. Dyola et al (2022) listed 169 species of insects from 15 families and 82 genera of insects and that are responsible for pollination in Shivapura Nagarjun National Park. Insects from 5 sub-families, 16 genera and 23 morpho species have been recorded form the park (Neupane and Subedi, 2018; Subedi et al 2022). Among the recorded insects from SNNP Formicinae (57.67%) is the most abundant sub-family, followed by Myrmicinae (40.39%), Pseudomyrmicinae (0.8%), Ponerinae (0.73%) and Dolichoderinae (0.37%). The detail list of butterflies and inscects are listed in Annex (4).

2.7 Threats

2.7.1 Poaching

Poaching of wild animals and birds is of great concern especially within the BZ of the park. Barking deer, wild boar, porcupine, and Kalij pheasants are easily targeted when they visit the crop fields. Retaliatory killing of wild animals occurs in most of the places against crop damage or to control further loss of the agricultural crops. But primary reason for poaching seems to be for meat, skin and economic gain, whereas livestock and crop protection are secondary reason. Mostly indigenous traps are used to kill wild animals and birds.

2.7.2 Habitat Degradation

Habitat degradation is a serious problem in the park. Annual forest fires – both deliberate as well as accidental are also a very severe problem. Local villagers enter the core zone for illegal extraction of the natural resources and for other purposes. These activities not only disturb wildlife but, in some occasion, also drive them away to sub-optimal habitat areas.

Livestock grazing inside the park is another problem. It has tremendous negative impact on wildlife because livestock not only compete with herbivore wildlife for food, interfere in their normal biological activities but also sharing of common habitats may spread contagions livestock diseases to wildlife.

CHAPTER 3

Past and Present Management Practices

3.1 Conservation History

This park was initially established as Shivapuri Watershed Conservation Area in 1976 and was declared as Shivapuri National Park in 2002, and then Shivapuri Nagarjun National Park in 2009. SNNP is one of the Important Bird and Biodiversity Areas (IBA) listed in 2005 (Baral & Inskipp, 2005). Likewise, Government of Nepal declared the Buffer Zone of SNNP in 2016 (Table 7).

Table 7: Historical Summary of Shivapuri Nagarjun National Park

Year	Significant Events
1950 to 1976 AD	Heavy deforestation and encroachment in the Holy rivers Bagmati and Bishnumati's watershed areas.
1976 AD	Shivapuri Watershed Conservation Area Project established by the designation of Shivapuri Watershed Conservation Area and Shivapuri Watershed Development Board under the Development Board Act 1956. The Board was under the chairmanship of the then Secretary of the Ministry of Forests and Soil Conservation.
1978 AD	Declared Shivapuri Protected Watershed Area. The Board came under the chairmanship of a member of the Royal family.
1983 AD	Initially Shivapuri Area demarcated by Government Gazette notification under the Shivapuri Watershed Conservation Area, and later declared as Wildlife Reserve under the NPWC Act, 2029.
1984 AD	Shivapuri Watershed and Wildlife Reserve Development Board were established under the Development Board Act 1956 to replace the 1976 designation.
1985 AD	Shivapuri Watershed Management and Fuel wood Plantation Project (1985-1992) with the support of FAO (Phase1) was implemented.
1992 AD	Shivapuri Integrated Watershed Development Project initiated with support of FAO, Phase II (1992-1997).
1995 AD	Shivapuri Management Plan was prepared and technically approved by FAO and Project Steering Committee.
1997 AD	Completion of FAO Project Phase II (1997-1999 extension of the project).
1999 AD	By the decision of Council of Minister, the chairmanship of the existing board was brought under the Chief of Shivapuri Project.
2002 AD	Change of protected area status from Shivapuri Watershed and Wildlife Reserve to Shivapuri National Park.
2003 AD	GoN brought a policy to give some protected areas including Shivapuri National Park to non-governmental organizations for management.
2004 AD	Preparation of Shivapuri National Park Management Plan by the then KMTNC (but it was not approved by the government).
2005 AD	Important Bird and Biodiversity Area (IBA) identified by Birdlife International
2009 AD	Nagarjun forest patch included and named as Shivapuri Nagarjun National Park.
2012 AD	Preparation of Shivapuri Nagarjun National Park Management Plan (but it was not approved by the government).
2016 AD	Buffer Zone Declaration, 2072 BS.
2016 AD	Shivapuri Nagarjun National Park Buffer Zone Management Guideline 2016.
2017 AD	Buffer Zone Management Guidelines, 2073 BS.
2019 AD	Shivapuri Nagarjun National Park Regulation 2076.

3.2 Protection of the National Park

Two battalions of the Nepali Army are in charge of guarding the park. The headquarters of one battalion is located at Lipikot Barrack in Budhanilkantha, Kathmandu to oversee security in the Shivapuri area. Whereas the headquarters of another battalion is located at Nagarjun Barrack, Fulbari gate, Nagarjun. There are currently 13 and 9 army protection units (security posts), including the headquarters, in Shivapuri and Nagarjun, respectively.

Illegal activities like forest fires, grazing, collection of forest products, and trade in the body parts of endangered and other wildlife species are serious threats. The national park is divided into three sectors (Sundarijal, Dhakalchaur and Nagarjun), each with a specific area of responsibility, in order to effectively and efficiently stop these illegal activities. In addition to these, the Community-based Anti-Poaching Unit (CBAPU) are crucial in gathering information and raising public awareness on wildlife conservation. Three sectors, four range posts, and entry points of the national park have been assigned for better vigilance in the area of responsibility. At the moment, army mobilization is not limited to the park's core area only. Standard Operating Procedure (SOP) for Nepali Army to work in the protected area has provisioned to deploy army in the buffer zone also. Nine of these posts are with army units (security posts) only, three are with national park staff only (guard posts), and the remaining 11 are with both security posts and guard posts. Park staff/Army deployed in these guard/security posts carry out regular surveillance and routinely patrol their respective sites/areas to make sure that no illegal activities take place in the park's core zone as well as in the park's buffer zone. Depending on the situation, most patrollings are done on foot and on vehicle. Real-time patrolling, sweeping, and camping operations are also conducted in sensitive areas in addition to routine patrolling. Occasionally, night patrolling is also conducted as needed.

3.3 Habitat Management

Forest, grassland, and wetland management have been used as habitat management interventions in order to maintain the park's mosaic of suitable wildlife habitat. Regular grassland management has been carried out, nearly 5 Ha.by cutting, uprooting of weeds and control burning.

3.4 Anti-poaching and Intelligence Gathering

In order to gather intelligence, the park has established a network of informants. A separate Mudda Saakhaa and Anti-poaching Unit (Prosecution Section) has been established under the command of non-gazetted first class officer (Park Ranger). This unit conducts regular patrols, seizes illegal wildlife parts and develops an efficient intelligence network to track and stop illegal activities. Real Time Patrolling is especially active in keeping track of patrols and other operations carried out by security personnel. In addition to these, regular coordination meetings held each month has been a major help in the fight against poaching. In last five years SNNP filed a total of 19 crimes. Among them six were related to poaching, three to cutting trees, one - wildlife, and nine related to other crimes (Table 8).

District-level Wildlife Crime Control Bureau (WCCB) has been established in the three Districts of Kathmandu valley (Kathmandu, Bhaktapur and Lalitpur) in order to increase the effectiveness of anti-poaching operations. The Divisional Forest Officer of the Kathmandu Division Forest Office is responsible for properly coordinating the Kathmandu valley Bureau. WCCB conduct regular meetings, actively worked in coordination and cooperation and are effective in controlling wildlife crime. The Bureau is made up of official representatives from the District Administrative Office, the Metropolitan Police Office, the Armed Police Force, the National Investigation Department, the District Attorney General Office, Shivapuri Nagarjun National Park Office, Division Forest Offices in Lalitpur and Bhaktapur, the two SNNP battalions, as well as other relevant government offices.

Table 8: Record of Illegal Activities in National Park and Buffer Zone

Year	Poaching	Tree Cutting	Fire	Others	Total crime registered
2074/2075	5	1	1	4	11
2075/2076	none	None	none	none	0
2076/2077	none	1	none	none	1
2077/2078	none	None	none	3	3
2078/2079	1	1	none	2	4
2079/080	none	none	none	7	7
Total	6	3	1	16	26

Source: SNNP Annual reports (2018-2021) (SNNP, 2018, 2019, 2020, 2021, 2022)

3.5 Tourism and Interpretation

Due to its diverse biodiversity, scenic appeal, cultural and spiritual values, and closeness to the Kathmandu valley, SNNP has become a famous ecotourism destination for both international and domestic visitors. There is a long history of tourism development in Shivapuri area. The park's scenic views, biodiversity, wilderness, forest environment, avifauna, spiritual fitness, cultural and religious sites and opportunities for trekking, backpacking and hiking, and soft adventure are its main draws. The past five years record shows that more than 90% of visitors in this park were domestic.

Hiking and biking are the most popular activities in the park. The tour/trek companies/agencies with offices in Kathmandu offer standard tourist services like day hikes to Shivapuri Peak, where visitors can enjoy the snow-covered view of the neighboring Himalaya. This has been the most popular tourism activity at present followed by other nature-based tourism - bird watching, nature/jungle walks, and cycling through the area. Other popular visitor activities include butterfly and dragonfly watching, mushroom watching, visiting water-falls, rock climbing, canyoning, start point for long packaged treks to Helambu and Lamtang, and a short trek package to and from Nagarkot to Chisapani for recreational and cultural experience. The main activities by domestic visitors are educational excursions, meditation, and participating in religious and cultural festivals and ceremonies. Thus, SNNP with its outstanding wilderness setting, diverse wildlife and cultural heritage merits enormous tourism potential.

3.5.1 Tourism Infrastructure:

SNNP is linked by some major road-networks from the Kathamndu valley: Sundarijal, Budhanilkantha, Tokha, Kakani and Nagarjun. Moreover, park has several trekking trails, visitor center, wildlife watching and bird watching facilities inside the park and accommodation facilities in buffer zone.

Trekking trails: The Park has several well-marked trekking trails that are popular with visitors. The trails range from easy to a more demanding strenuous natural trails that offer visitors a chance to explore the park's natural beauty. Inside the Park, there is 95 km long forest road, 83 km long foot trails in Shivapuri and 33 km long forest road and 10 km foot trails in Nagarjun, constructed for hiking (Annex 17).

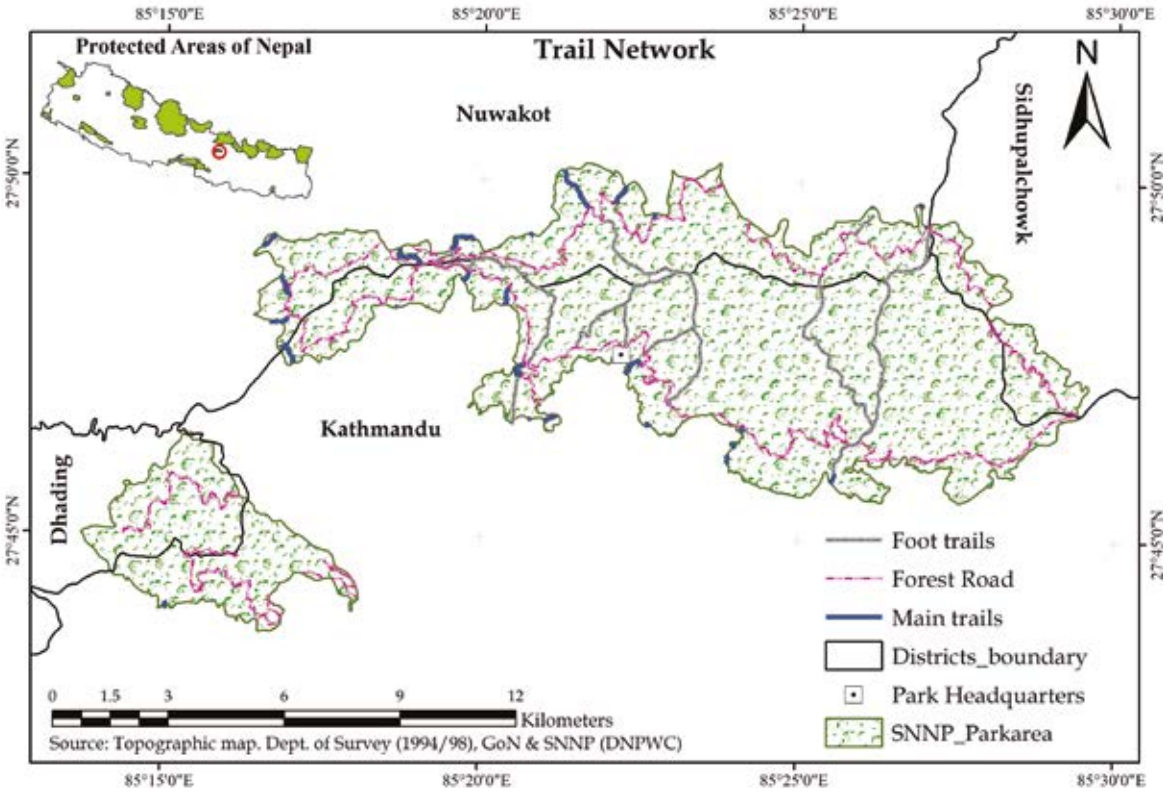


Figure 11: Road and Trails inside Shivapuri Nagarjun National Park and its Buffer Zone

The park has significantly improved road network and hiking/natural/Eco-trail (Helipad to Shivapuri Peak)/heritage trails (e.g. Tamage Heritage Trail – Sundarijal –Mulkharka-Deurali-Chisapani) making it easily accessible (Figure 11). It will take 5 days to cover total fire line and there are 19 major trails in SNNP (Table 9) In Shivapuri Nagarjun National Park there are major 19 trails are there. Among them the longest trail is the total fireline which may take five days walk. The average distance of trails is 4-6 hours in SNNP (Table 9).

The road from Fulbari gate-Raniban to Jamacho and Panimuhan to Naagi Gumba need to upgrade to all weather metalled road for effective mobilosation and security. Furthemore, trekker/Hikker friendly infrastructures need to construct at locations where moterable road and trekking route meet.

Accommodations: There are several guest houses and lodges located in the buffer zone of the park that offer accommodation to visitors. Some of these lodges are basic, while others offer more luxurious facilities recently, home-stays, agri-tourism, organic-farm tourism, ayurvedic tourism, and rural and village tourism are becoming more popular.

Park interpretation: The Park has a visitor center that provides information on the park's history, flora and fauna, and hiking trails.

Wildlife/Bird watching: Visitors can participate in guided wildlife/bird watching tours that are organized by the park authorities and/or trained nature guides. These short-guided walks/tours offer a chance to spot some of the park's rare wildlife species.

Religious destinations: Shivapuri Nagarjun National Park is a popular destination for both Buddist and Hindu pilgrims. Jamacho, Buddha Gufa, Pachali Bhairab, Bishnudwar, Sundarimai, Kageshowori, Manichud, Tarakeshowr, and Nagigumba are famous religious sites. Baishakh (April/May) is the month of festival (mela) in Bagdwar, Bishnudwar, Manichud, Kageshwori, Sundarimai, Pachali Bhairab and Jamacho. During these religious festivals, a significant number of local devotees/pilgrims visit these religious sites for worshiping (Figure 12).

Table 9: The Major Trails in Shivapuri Nagarjun National Park with Tentative Time

Name of trail	Time required
Total fireline	5 days
Kakani-Jagaat_Shivapuri peak-Chisapani	2 days
Paachmaane-Taarkeshwor-Dhauleshwor	4 hours
Jagaat—Gurje Bhanjyang-Lipikot- Bishnupaduka-Paanimuhaan	6 hours
Gurje Bhanjyang-Daandagaun-Bishnupaduka-Dhokaa bhanjyang-Shivapuri	5 hours
Lipikot-Bishnupaduka-Dhokaa bhanjyang-Shivapuri	4 hours
Lipikot-Bishnupaduka-Paanimuhan-Naagi Gumba-Sundarijal	6 hours
Lipikot-Bishnupaduka-Sikre	5 hours
Paanimuhan-Dhokaa Bhanjyang-Sikre	5 hours
Paanimuhan-Dhokaa Bhanjyang-Shivapuri peak	5 hours
Paanimuhan-Helipad-Deurali-Bagdwar-Shivapuri	4 hours
Paanimuhan-Helipad-Naagi Gumba-Mulabaari-Deurali-Bagdwar-Shivapuri Peak	4 hours
Sundarijal-Manichud-Dhap-Chisapani (AWGR)	6 hours
Sundarijal-Mulkharka-Dhap-Chisapani (AWGR)	5 hours
Sundarijal-Mulkharka-Dhap-Chisapani-Chagaun-Gurje Bhanjyang	3 days
Fulbari gate-Raniban-Jamacho (AWGR)	5 hours
Fulbari gate-Jamacho (AWGR)	3 hours
Mudku-Chhatra Deurali-Endanda-Jamacho	5 hours
Mudku-Swanagaun-Chhatra Deurali	3 hours

Note: AWGR= all weather graveled road, AWMR= all weather metalled road

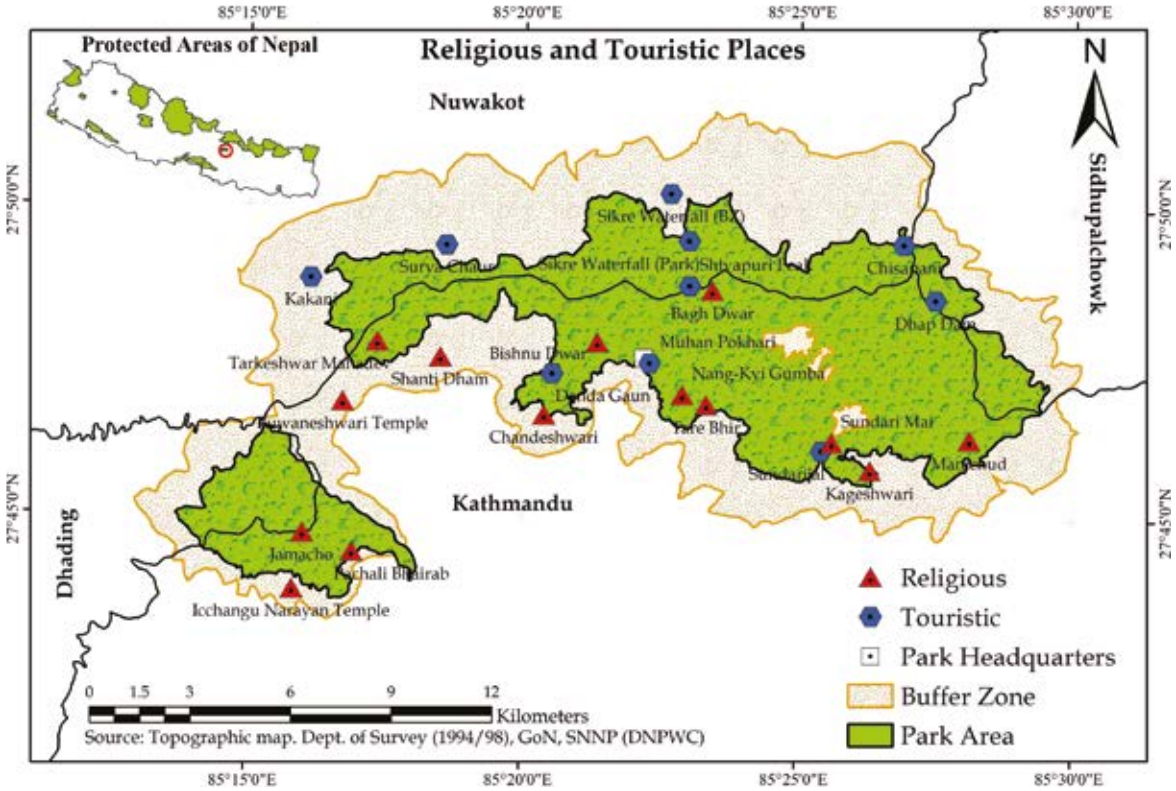
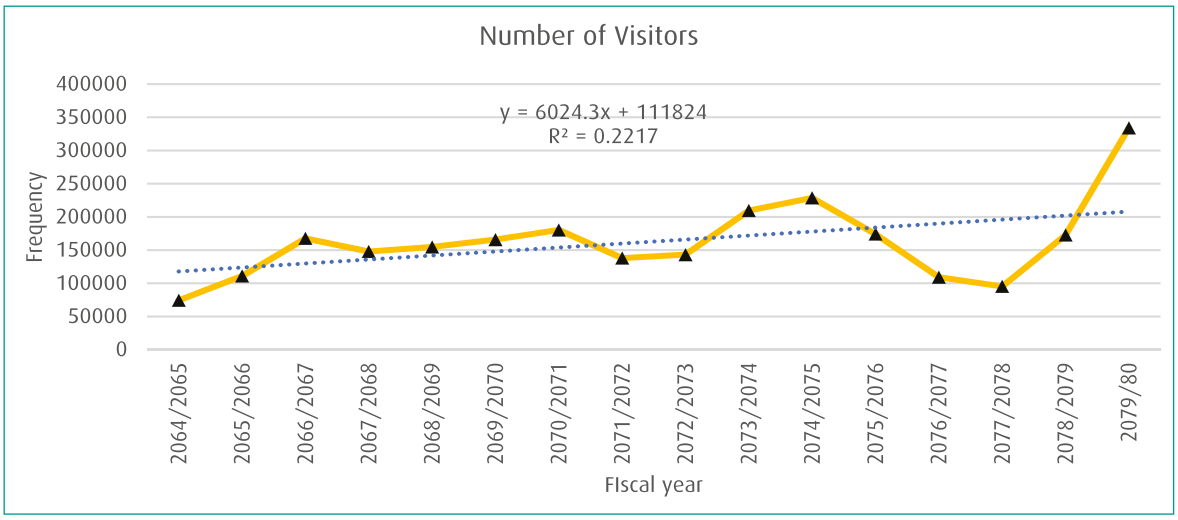


Figure 12: Religious and Other Important Tourist Places in Shivapuri Nagarjun National Park and its Buffer Zone



Source: SNNP Annual reports (2017-2021)

Figure 13: Number of Visitors in Shivapuri Nagarjun National Park from 2051/52 to 2079/80

3.5.2 Park Visitor

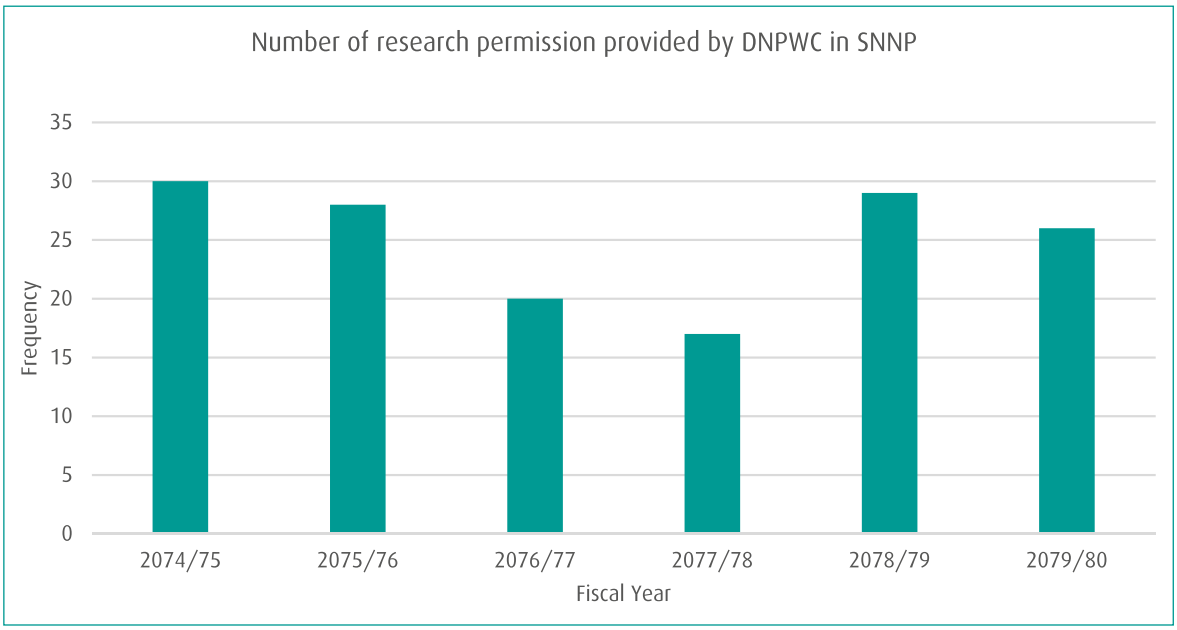
The visitor records of SNNP (2051/052-079/80) show that the park has been visited by an average of 96487 visitors annually during the last 29 years. The total number of tourists visited was highest in fiscal year 2079/80 (334,166). The number had sharply decreased after 2074/75 BS up to 2077/78 BS due to covid-19 pandemic. The number of tourist has started to swell up after 2077/78. The two main season for foreign tourist are September/ October and April/May, like the general pattern of tourist flow in Nepal. In FY 2079/080, a total number of 334,166 visitors visited SNNP (Figure 13). Among them 302,800 were domestic visitors (male – 159,373; female – 143,421), 1,328 visitors from SAARC countries (male – 802; female – 526) and 8,440 were international visitors from coutries outside the SAARC (male – 5,224; female – 3,216) (further information is in Chapter 8). Besides, a total number of 21,598 visitors (male – 16,218; female – 5,380), mostly students from different schools and colleges were free entry visitors.

3.6 Research and Monitoring

SNNP is a very well-studied protected area in the region. The Common Leopard's ecology has been studied by the research institute and, more recently, by the park office. Monkeys, Himalayan Black Bears, Gorals, Pangolin, Sambar and other mammals have also been studied. The avifauna is well documented, with research including survey of wetland species. The ants, butterflies and moths were studied by scientists from the Natural History Museum and Universities' scholars. Individual researchers as well as researchers from various universities are involved in these studies. A number of research activities have been carried out by national and international universities, institutions, organizations, and individuals, primarily on fauna such as Leopards, Assamese monkeys, insects, avifauna, etc. Other topics of research conducted to date include status, habitat, ecology of wildlife, and about human-wildlife conflict. DNPWC had provided total 124 research permission in SNNP for students and scholars for their academic and professional research in last five years (see figure 14). These researches have supported in updating diversity of mammal and insect species in park, information on water quality and on carbon sequestration and in mitigating human-wildllife conflict.

3.7 Human-Wildlife Conflict

Human-wildlife conflict has been increasing and has recently emerged as a major issue in maintaining harmonious relationships with local people and increasing people's participation in conservation. Several attempts have been made and implemented by the park to reduce the



Source: SNNP Annual reports (2017-2021)

Figure 14: Number of Research Permissions in Shivapuri Nagarjun National Park

conflict. Crop and livestock depredation by wildlife are the major causes of human-wildlife conflict.

Rather than conflict, SNNP is pursuing a strategy of human-wildlife co-existence. The relief scheme and buffer zone program are being implemented and systematized. A relief scheme has been developed to assist victims and provide prompt treatment, and assistance is being provided through the quick response mechanism. In last six years NRs 63,162,117has been distributed as relief for human wildlife conflict (Table 10). The volume of relief distribution is increasing and goes more than capacity beyond the National Park even though the provision in the SNNP-BZ Management Guideline, 2073 B.S. has mandated 25% of the total budget of BZ. Long term solution is needed to reduce and mitigate human wildlife conflict.

Crop raiding and livestock depredation by wildlife is a common issue in many national parks and wildlife reserve of Nepal, including Shivapuri Nagarjun National Park. The park is home to a variety of wildlife which sometimes enters nearby villages and farmlands in search of food.

Table 10: Amount of Relief Distribution in Respective Year

FY	Amount in NRs
2074/75	6834000
2075/76	7276421
2076/77	19153005
2077/78	1132811
2078/79	22904548
2079/80	5861332
Grand Total	63162117

Crop raiding by wildlife can cause significant crop damage, resulting in economic losses for local farmers. Similarly, livestock depredation can result in the loss of valuable livestock, which can have serious impact on local communities' livelihoods. Wildlife invasion in the surrounding area has greatly increased since the establishment of the park, resulting in crop damage and livestock depredation. The main reason for the invasion of wild animals is the increasing wildlife population, primarily of wild boar, monkeys, porcupine, and barking deer (Bajracharya, 2009). The major crop raiding animals are monkey, porcupine, rat, and birds, while livestock depredators include common leopard, jungle cat, and black kite (Purkait, 2008). Occasionally, local farmers complain about bears raiding bee-hives in their farms to slurp honey from bee-hives. Few cases of human injuries by black bear have been recorded in Kakani and Haibung. The most destructive wild animal in terms of crop damage appears to be wild boar, and rhesus monkey that preferably damage maize, millet and most of the tuber family plants such as yam and potato etc. Moreover, in the fiscal year 2077/078 there were record of 87 livestock killed by leopards only (SNNP, 2019). However, birds, and porcupines are also reported as serious crop raiders. The problem has become so severe that the farmers have to abandon many hectares of cultivable land. Aside from crop raiding, ither isolated cases of livestock depredation by wild animals have also been reported. According to office record, there has been 8783 number of HWC incidents in last three years (Table 11). Among 11 user committees Sindhu Shivapuri User Committee experienced the highest number (1377) of cases (22.63% of total). The least number of cases are reported in Ichangu Narayan User Committee 140 in three years with contribution of 2.3 % of total incidents (SNNP, 2017a;2019;2017b).

The total number of human injuries due to wildlife conflicts was recorded 14, Human injuries were recorded will seven user committee except Baudeshwar Mahadev User Committee, Manichud Kageswori User Committee, Sundarijal Shivapuri User Committee and Sindhu Shivapuri User Committee. The highest number of human injuries was recorded in Ramkot Bhimdhunga chatradauorali User Committee (n=6). The highest crop damage and livestock depredation was reported in Sindhu Shivapuri User Committee (1343) and Ichangunarayan User Committee (114). Ichangunarayan User Committee has more incidnts of livestock depredation than crop damage (Table 11)

Table 11: Record of Wildlife Damage Cases in User Committees (2017-2021)

SN	Name of User Committee	Types of damage			Total	%
		Human Injuries	Crop Damage	Livestock Depredation		
1	Baudeshwar Mahadev User Committee	0	399	19	418	6.87
2	Bishnuchapali User Community	2	162	12	176	2.89
3	Gurje Bhanjyang User Committee	1	887	25	913	15
4	Ichangunarayan User Committee	1	25	114	140	2.3
5	Jitpur Goldhunga User Committee	2	119	59	180	2.95
6	Kakani Okharpauwa User Committee	1	690	57	748	12.29
7	Manichud Kageswori User Committee	0	250	21	271	4.45
8	Ramkot Bhimdhunga chatradauorali User Committee	6	634	54	694	11.4
9	Shivapuri Chisapani User Committee	1	636	24	661	10.86
10	Sundarijal Shivapuri User Committee	0	406	100	506	8.31
11	Sindhu Shivapuri User Committee	0	1343	34	1377	22.63
	Total	14	5551	519	6084	100
	In percentage	0.23	91.24	8.53	100.00	

Source: SNNP Annual Reports (2017-2021)

Table 12: Damage by Wildlife in Shivapuri Nagarjun National Park (2017-2021)

SN	Responsible wildlife	Human Injuries	Crop Damage	Livestock Depredation	Total	%
1	Barking deer	0	54	0	54	0.88
2	Bear		1		1	0.01
3	Common leopard	1	0	374	375	6.16
4	Fox	0	0	9	9	0.14
5	Jungle cat	0	0	11	11	0.18
6	Mongoose	0	0	110	110	1.80
7	Monkey	1	660		661	10.86
8	Porcupine	0	89	0	89	1.46
9	Sambar	0	7	0	7	0.11
10	Snake	8	0	0	8	0.13
11	Wild boar	4	4740	0	4744	77.97
12	Yellow throated marten	0	0	15	15	0.24

There were twelve wildlife species which were responsible for HWC in SNNP. Among them eleven were mammal and one was a reptile. Wild boar shared the most volume of HWC (77.97%) of the total conflict incidents. It is followed by monkey 10.86%. Common leopard cases were reported 375 incidents in three years that includes 374 livestock depredation and one human injury. Snake was responsible for highest number of human injuries (8 out of 14) in SNNP (Table 12).

3.8 Administration and Organization

The approved park's organization structure has 116 park personnel under the Senior Conservation Officer. In addition, there are five sections, three sectors, four range posts, eight posts and 1 entry point. Senior Conservation Officer (Gazetted IInd Class) is the chief of the park administration, accompanied by five Conservation Officers (Gazetted IIIrd Class) and other staff. Two Nepali Army Battalions are deployed for the protection of the park. In the park there are ten rangers, 16 senior game scouts and 50 game scouts, and 10 admin and account staff engaged in the park (see Annex 11).

3.9 Achievement of Preceding Management Plan

The task proposed in preceding Management Plan was nearly 42.4% achieved (Table 13). The preceding Management Plan was the first approved management plan. Earlier Management Plans were formulated in 1994, 2004 and 2016 but they were not approved. In the preceding Management Plan, six objectives were proposed to achieve the Vision for National Park and several out puts and activities proposed for achieving each objective. The total budget estimated for the implementation of the plan for five years was NRS 58,66,50,000. But only NRs 34,79,33,000 was received (approved Government Budget) during the five years Management plan period. Hence there was a huge budgt deficit which made fund unavailable to finance in oder to efficiently achieve the plan.

The annual progress of the annual program for the last six years shows over 90% of the total budget was generated as national park revenue (see Table 14). A total of NRs 179,517,207.80) was collected as park revenue in six years plan (FY 2074/75-2079/080).and recent fiscal year 2079/080 the collected revenue was 53449592.24 (Detail in Annex 21 and 22).

Table 13: Comparison between Allocated and Used Budget of Preceding Management Plan

Activities	Target		Accomplished		
	Quantity	Allocated budget in Lakhs	Quantity	Total Amount used (lakh)	% base on used budget
Building Construction/ Maintenace and Fascilities Improvement	60	1977.5	48	411	20.78
Road/trails construction & improvement	260	190	169	155.97	82.08
Wetland Management	164	165.5	125	171.8	103.8
Species Conservation, Research and Monitoring Activities	29	73.5	5	7	9.52
Strengthening intelligence network and Anti-Poaching	29	52	35	17.65	33.94
Human Wildlife Conflict	6	205	22.7	247.56	120.76
Eco-Tourism	1043	355	25227	208.64	58.77
Conservation Awareness Programme	40	70	44	25.429	36.32
Capacity Building	23	40	16	17.43	43.57
Special Programmes	27	93	1	5	5.37
Watershed and Wetland management	10	3000	5	9.86	0.32
Office Management Cost		2165		2278.89	105.26
Total	1691	8386.5	25697.7	3556.229	42.4

Source: SNNP Annual reports (2017-2022)

Table 14: Park revenue: FY 2074/075 to 2079/080

S. N.	Fiscal Year (in B.S.)	Park revenue	Remarks
1	2074/075	24364425.00	
2	2075/076	33111419.00	
3	2076/077	24919181.00	
4	2077/078	14184202.00	
5	2078/079	29488388.59	
6	2079/080	53449592.24	
	Total	179517208	

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

3.10.1 Strengths

- Watershed conservation and management of Holy rivers Bagmati and Bishnumati
- Drinking water, irrigation, recharge of ground water sources to Kathmandu valley
- Carbon sequestration of Kathmandu valley, it is the lifeline of Kathmandu
- Biodiversity hotspot of mid-mountain
- Renowned nearby destination for nature hiking, bird watching, meditation and nature-based tourism from the capital city of Nepal
- Substantial revenue from tourism which is ploughed back for conservation and socioeconomic development through buffer zone
- Encouraging partnership with local communities and stakeholders including national and global conservation organizations in future
- Two Nepali Army battalions with numbers of security posts for park protection and adequate number of park staff for conservation and management
- Ethnic, cultural and relious diversity

3.10.2Weaknesses

- No maintenance of boundary wall
- Inadequate infrastructure
- Inadequate budget and resources
- Inadequate research on impact of climate change and problematic animals
- Ineffective communication and transportation system
- Unregulated management of water resources i.e. PES royalty
- Lack of fire management plan, firefighting equipment and trainings

3.10.3 Opportunities

- Improving vegetation cover in watershed area for better supply of drinking water in terms of quality and quantity
- Increasing participation of buffer zone communities in biodiversity conservation
- Diversifying eco-tourism services through involvement of local people
- Creating research opportunities through collaboration with academic and conservation partners
- Potential for self-sufficiency in financial resources required for conservation from ecotourism, water utilization and implementing Payment for Environment Services (PES)
- Potential to serve as role model in protected area management for similar type of habitats (Learning centre, centre of excellence, state-of-the-art, etc.)
- Possibility of developing hiking, mountain biking and jeep safari facilities in the park

3.10.4 Threats

- Illegal hunting as long as traditional use persists and market value for illegal wildlife parts exists
- Concentrated site-specific tourism
- Local people's substantial dependency on park for forest resources
- Increasing human-wildlife conflict
- Uncertain adverse impact of climate change on biodiversity
- Garbage pollution in wetland habitat including rivers
- Accidental and deliberate forest fire in pine forests particularly during dry season
- Exploitation of water resources
- Inadequate budget for the management and conservation of the park
- Delay in reconstruction of national park guard posts and security posts
- Encroachment in park and BZ
- Haphazard construction activities in BZ
- Rapidly changing land use pattern in BZ
- Excavation of stone, sand and soil in BZ

Part B

The Proposed Management

CHAPTER 4

Vision, Goal and Objectives

4.1 Vision Statement

Well conserved biodiversity, watersheds and water bodies in Shivapuri Nagarjun National Park and Buffer Zone for the human well-being of present and future generations and for the resilient ecosystem.

4.2 Management Goal

To conserve and manage biological diversity, improve watersheds, wetlands, and natural ecosystems, and enhance the socioeconomic and cultural values of Shivapuri Nagarjun National Park and Buffer Zone.

4.3 Management Objectives

To protect and conserve biodiversity, watersheds, wetlands and natural and cultural heritage through capacity building, research, community participation and community development to achieve sustainable management of Shivapuri Nagarjun National Park and Buffer Zone

Specific objectives are:

1. to protect, conserve and document biodiversity with special focus on nationally protected, globally threatened, endangered and endemic species, critical ecosystems, and diverse wildlife habitats;
2. to manage the representative terrestrial and aquatic wildlife habitats and assess habitat to maintain ecological functions and processes of mid-mountain ecosystem;
3. to manage watershed of holy rivers such as Bagmati and Bishnumati to improve water quality, hydrological functions and processes in perpetuity;
4. to regulate and promote sustainable eco-tourism retaining wilderness within the least acceptable change on natural environment and socio-cultural heritage of SNNP and Buffer Zone;
5. to enhance public participation in biodiversity conservation by raising awareness, improving livelihoods and minimizing human-wildlife conflicts by initiating effective measures in collaboration with local communities and local level government agencies; and
6. to strengthen institutional capacity of park, security and buffer zone through research, capacity building in collaboration with relevant agencies and organizations.

4.4 Major Challenges in Achieving Objectives

There are several challenges in achieving the management objectives of the park. The objective-wise major challenges are:

Objective 1

To protect, conserve and document biodiversity with special focus on nationally protected, globally threatened, endangered and endemic species, critical ecosystems, and diverse wildlife habitats:

- Illegal collection of forest products, especially firewood and leaflitter, fodder, poles, etc.
- Illegal hunting of wildlife
- Inadequate infrastructure and its limited maintenance
- Insufficient budget for park management
- Insufficient linkage between research and management need
- Limited mobility inside the park during monsoon

Objective 2

To manage the representative terrestrial and aquatic wildlife habitats and assess habitat to maintain ecological functions and processes of mid-mountain ecosystem:

- Encroachment
- Over pressure to use water resources
- Forest fire
- Illegal collection of forest products
- Increasing pollution in rivers and scattered garbage in the park and BZ
- Low level of awareness, poverty and ignorance of the people living in the watershed
- Over harvesting of water resources
- Inadequate research, monitoring and baseline data on hydrological functions; and watershed
- Habitat fragmentation due to road networks and other infrastructure development
- Haphazard, uncontrolled and unauthorized religious activities

Objective 3

To manage watershed of holy Rivers such as Bagmati and Bishnumati to improve water quality, hydrological functions and processes in perpetuity:

- Illegal collection of forest products
- Haphazard infrastructure construction in the watershed area
- Increasing pollution in rivers and streams especially in the buffer zone
- Over harvesting and unmanaged collection of water from the park

Objective 4

To regulate and promote sustainable eco-tourism retaining wilderness within the least acceptable change on natural environment and socio-cultural heritage of SNNP and buffer zone:

- Concentrated tourism activities in the park
- Poor tourism infrastructure (including facilities and services)
- Disturbance to wildlife and habitat from concentrated tourism
- Absence of separate unit for tourism promotion and management
- Inadequate number of trained staff
- Insufficient number of tourist information centres
- Inadequate coordination among relevant agencies and stakeholders

Objective 5

To enhance public participation in biodiversity conservation by raising awareness, improving livelihoods and minimizing human-wildlife conflicts by initiating effective measures in collaboration with local communities and local level government agencies:

- Inadequate conservation awareness programme in BZ
- Crop damage and livestock depredation by wild animals straying out from the park
- Inadequate income generation, least employment and livelihood opportunities for the local people
- Forest fire, grazing and illegal collection of forest products
- Issues of conservation vs development
- Lack of coordination mechanism with the local governments

Objective 6

To strengthen institutional capacity of park, security and buffer zone through research, capacity building in collaboration with relevant agencies and organizations:

- Inadequate research activities and research priorities not identified
- Limited budget for ecological monitoring and research
- Inadequate management-oriented research and adaptive management
- Inadequate plan and fund for training and exposure visit
- Inadequate budget and staff for community mobilization; and
- Insufficient incentives, rewards, amenities and welfare programs

CHAPTER 5

Management Strategies

5.1. Boundaries (Legal, Administrative, Ecological)

5.1.1. Legal

The Shivapuri Nagarjun National Park and Buffer Zone was established in accordance with the National Parks and Wildlife Conservation Act, 2029. The National Park's and Buffer Zone's boundaries are well defined and have been duly notified through publication in the Nepal Gazette. There is currently no ambiguity and dispute on park boundaries.

5.1.2. Administrative

The core and buffer zone of SNNP falls under four Districts of Bagmati Province, Nepal, viz. Kathmandu, Sindhupalchowk, Nuwakot and Dhading Districts. The boundary of the park is demarcated by mud mortar stone wall. Most of the outer boundary of the buffer zone is also the boundary of Municipalities and Rural Municipalities of aforementioned Districts.

5.1.3. Ecological

The park area is clearly defined on the ground by natural features such as rivers, ridges, forested areas and other landscapes. The buffer zone encompasses mainly private lands, and in most places the outer boundary of BZ follows roads, trails, and rivers. This has been dealt in 2.1.2. in Chapter 2.

5.1.4. Sectorial Division

The park is divided into three sectors for management. The sector offices are at Sundarijal, Dhakalchaur, and Nagarjun. Each sector has its own area of responsibility. The Park Headquarters is situated in Panimuhan, Budhanilkantha.

5.2 Zonation

The national park zoning system is an integrated approach by which different areas are classified according to ecosystem and cultural resource protection requirements, and their capability and suitability to provide opportunities for visitor experiences. SNNP was established to manage the watersheds of the Bagmati, Bishunumati, Trishuli, and Indrawati Rivers. It also improves the quality and quantity of water resources in the Kathmandu Valley. Furthermore, the main aim of this plan is watershed management and the preservation of the park's current wildlife population through stringent protection and appropriate management measures to ensure the viable populations of wildlife such as Common leopard, Clouded leopard, Himalayan black bear, Pangolin, Leopard cat, Barking deer, Sambar, Assamese monkey, Spiny babbler, King cobra, etc. In order to reduce human-wildlife conflict and maximize efforts to protect, maintain, and improve wildlife habitat, following management zones are proposed:

5.2.1 Management Facility Zone

This is the area within the park where infrastructure for office and quarters for park staff and army personnel has been built. It includes the area occupied by the security posts (Army and National Park) that have been established and are still operational in SNNP. The management facility zone approximately covers 0.42 square kilometers.

5.2.1.1 Zone uses by others

Other organizations that have occupied land inside the park are the Nepali Army Staff College, the Nepali Army Alle barrack, the Nepal Scout Training Center, the former King Palace in Nagarjun, water collection reservoirs, intake, and some religious sites like Nagi Monastery, Jamacho Monastery, Bagdwar. In this zone, a total land area of 14.36

Table 15: List of Management Zone with Respective Area

S.N.	Management Zone	Area (Km^2)	Remarks (Management Prescription)
1	Management	0.42	Area occupied by the limited infrastructure
	Facility Zone		development for the management of park.
2	Zone used by Others	0.32	Area occupied by other organizations.
3	Utility Zone	0.72	Sundarijal, Panimuhan to Bagdwar area and
			Fulbari to Jamacho for regulated fire line, tourism
			activities and public right-of-way.
4	Core Zone	157.54 [2]	Area of the national park except the area allocated for management facilities, tourism routes and public right-of-way.
5	Sacred Zone		Jamacho, Shivapuri peak and Bagdwar, Bishnupaduka, Kageshowri, Tarakeshwor, Pachali Bhairab, Sundarimai, Nagi Gumba and their premises – pilgrimage area. Only local religious activities allowed.
6	Special Protection Zone		Area between Raniban and near helipad (pangolin habitat) Shivapuri peak to Jhanda danda (Biodiversity) West of Dham dam (*Prunus carmesina*) – Endemic and Rare Plant Protection Zone) Dhap dam for migratory bird
7	Buffer Zone	118.61	Duly notified with the publication in Nepal Gazette in 2016 B.S. Area of human settlements. Human activities allowed.

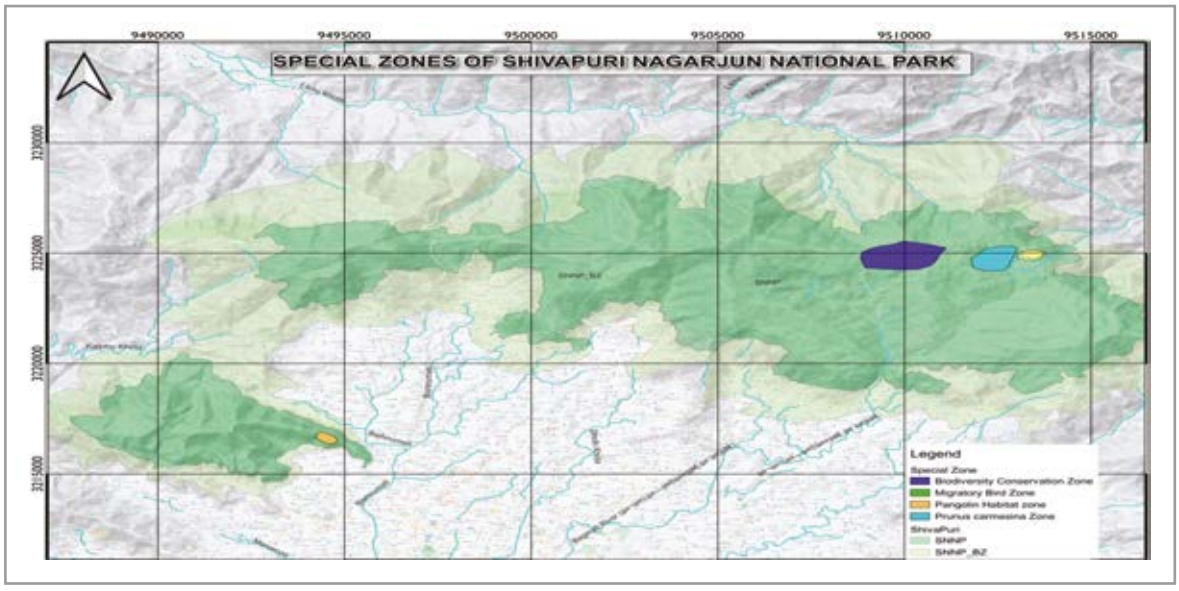


Figure 15: Special Zones of Shivapuri Nagarjun National Park

Ha is used by Nepali Army - Alle Barrack (7.28 Ha), Nepali Army Staff College, Budhanilkantha (5.06 Ha) and former King Palace, Nagarjun (1.34 Ha) (see table 15, Figure 15).

5.2.1.2 Utility Zone

This zone of the park is designated for limited recreational activities for visitors, as well as nature interpretation services to raise conservation awareness. Visitors can enter the park from 12 different entry points. There are three types of rights of way. Within the (Balaju to Mudkhu, Tokha to Chhahare via Gurje Bhanjyang and Bangesalla to Dandaganu). This park has 95 km long forest road, 83 km long natural trails in Shivapuri and 33 km long forest road and 10 km foot trails in Nagarjun. There are a few view towers and a

few tourism infrastructures developed within the park. The primary goal of managing this zone is to regulate tourism in the park with minimum disturbance to wildlife and their habitat, minimize impact on water resources, and increase visitor satisfaction (birding, cycling, recreational, cultural, etc) through providing wilderness experience. The utility zone covers an area of 0.725 square kilometers (assuming the width of road as 6.5m, including road track, side drainage and narrow buffer strip).

5.2.2 Core Zone

This zone encompasses the entire national park (except the buffer zone), with the exception of the areas designated for management facilities, tourism routes/trails, and public right-of-ways. The primary goal of this zone is to manage water resources, watersheds, and wildlife habitat, as well as to encourage research and science-based management interventions. The SNNP has 157.54 km^2 core zone and 0.72 km^2 utility zone (Table 15).

A total land of 14.36 hactare (4.21 km^2) is used by others other than NP and Army (Table 16). Among them Nepali Army Alle Barrek used 7.28 ha, Nepali Army Staff College, Budhanilkantha 5.06 ha and Ex-King Residence, Nagarjun is of 1.34 ha.

5.2.3 Sacred zone

These are religious sites including their premises within the park core area with temples/gumbas where local people visited and perform religious activities during the festivals or visit for prayers. Sites such as Bagdwar, Bishnupaduka, Sundarimai and their premises are designated as the sacred zone.

5.2.4 Special protection zone

The area dedicated for conservation for endangered species, endemic and rare species and migratory birds.

5.2.5 Buffer Zone

It is the area designated as buffer zone of the park by Government of Nepal by duly notifying in the government Gazette. The area of the buffer zone is 118.61 km^2. There is some confusion about the boundary and the area of the park. An accurate measurement should be conducted using advanced technology to determine the boundary of the park.

5.3 Theme Plans

5.3.1 Park Protection

Context

SNNP has adopted a variety of management approaches. The concept of protection began with Watershed Conservation Areas in the 1970s, and the Nepali Army was deployed in 1983. Currently, there are 22 security posts of Nepali Army located in key areas. The Army is currently not only mobilized in the park but also in the BZ according to the current Standard Operating Procedures (SOP). (Figure 16). There is a positive relationship between the number of park security posts and the protection of parks, water sources, and watersheds. On the other hand, there is a contrary relationship between the number of security posts and the frequency and quantity of illegal forest product collections. During the insurgency, security posts were reduced and limited to eight. Due to the removal of security posts from vantage points,

Table 16: Land Used by Others

SN	Institute	Perimeter Covered (Km)	Area Covered (Ha)
1	Nepali Army Staff College, Budhanilkantha	1.98	5.06
2	Nepali Army Alle Barrek	1.17	7.28
3	Nepal Scout Sundarijal	0.25	0.21
4	Ex-King Residence, Nagarjun	0.54	1.34
5	Helipad by Staff College	0.27	0.47
	Total	4.21	14.36

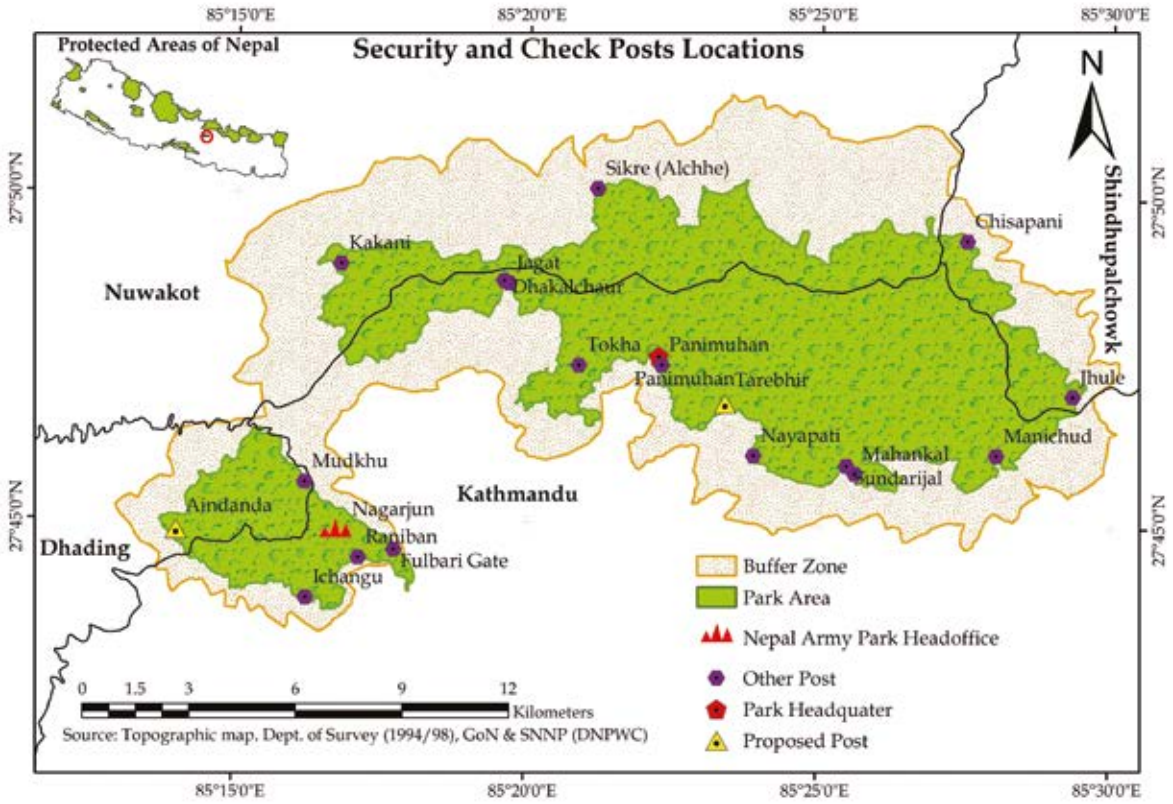


Figure 16: Location of Posts and Entry Points

there was little patrolling and surveillance during the insurgency period, which meant that these challenges were at an all-time high. During COVID pandemic too, when all people were in lockdown SNNP had challenged huge pressure of human trespass in park (Koju et al, 2021). The main duties for park protection include enforcing laws and regulations, routine patrols and surveillance of the park's resources and boundaries, provision of services, and distribution of aid.

The park security is the major pre-requisite for the successful management of SNNP. Thus, the park is divided into three sectors to carry out the aforementioned tasks, and 116 national park staffs are stationed for better and more effectively stop illegal activities. Currently, three sector level offices are operational in Nagarjun, Dhakalchaur, and Sundarijal, each led by a Conservation Officer (CO). In addition, there are 4 range posts, and eight posts to support the sectors. The COs, rangers, senior game scouts, game scouts and other park support staff are stationed at posts with necessary field gear, food, and equipment for park protection.

In these regards, the main objective of management plan is to strengthen the park protection system through a well-connected network of strategically located park security posts, improved basic facilities at security posts, effective and dependable communication and transportation facilities, and highly dedicated army personnel and park staff for regular patrolling of the park. This addresses general wildlife and habitat protection, including the control of illegal activities such as poaching, encroachment, grazing, and the collection of forest products, as well as the protection of watersheds, water resources, and biodiversity.

Issues:

The main issues facing the Park authority are:

- Illegal hunting, encroachment,
- Illegal timber harvesting, and the collection of fodder and fuel wood.
- Trespass inside the park
- Grazing
- watersheds, water resources, and biodiversity
- Vehicle movement pressure

Strategy

- Improve infrastructure for mobility and accommodation in the park during all seasons
- Identify illegal hunting prone areas
- Strengthen law enforcement
- Strengthen the capacity of security personnel and park staff
- Strengthen the informants' network in and around the NP
- Strengthen community based anti-poaching and information gathering mechanisms - BZ institutions mainly BZUC, BZCF and CBAPU
- Review the policy related to vehicle movement in highway, inner settlement and new development projects

Merge some of those and state Strategy in boarder terms. Some of those strategies look more like activities.

Activities

- Establish new security posts at following locations for security and effective conservation:
  - Joint post at Bagdwar area
  - Joint post at Rolche area
- Establish multipurpose new operational post (OP) / listening post (LP) at following locations for security and conservation
  - Nange Danda, Nagarjun
  - Jamacho, Nagarjun
  - Love danda
  - Shivapuri peak
- Conduct trainings and exposure visits to the front-line army and park staff and CBAPU
- Establish and support CBAPU to carryout anti-poaching operations
- Conduct joint anti-poaching operations by Anti-Poaching Units (APUs) of Park authority and Nepali Army
- Strengthen investigating process of all legal cases
- Installation of CCTV and spy cameras at strategic locations (Especially at Dhap dam, Bagdwar, Bishnudwar, Kakani, Aindanda, Manichud, Gurje bhanjyang, Panimuhan Swanagaun) and promote technology
- Improve the roads to operate vehicles for improving the patrol. Arrange necessary vehicles and fire fighter equipment
- Prepare a patrolling plan, route and map
- Use modern and integrated technology for park patrolling
- Relocate Sundarijal Sector office to Sundarimai temple area (picnic spot) and continue currect sector office at Sundarijal to security post.
- Relocate Fulbari sector office to Raniban area
- Establish joint post at Swanagaun upgrading currect security post.

5.3.2 Habitat Management

5.3.2.1 Grassland Management

Context

Grassland is important for wildlife conservation because it provides a good foraging ground for prey animals. Natural succession, floods, fire, and overgrazing all have an impact on grasslands, which are highly dynamic and sensitive ecosystems.

In recent years, grasslands have been converted into woodland, resulting in a decrease in grassland area. There has been a limited study on grassland ecology. The park's pure grassland patches have been difficult to maintain due to limited management intervention. Grassland requires proper care all year (by cutting or clearing or burning grasses, weeds, shrubs, bushes or invasive species). The conservation of keystone species and site characteristics are essential for grassland management. Some of the issues associated with SNNP grasslands include maintaining the structural and functional attributes of the grassland in order to provide optimal foraging opportunities for prey, invasion of grassland by weeds and unpalatable species, and the impact of uncontrolled burning. The major issues in grassland management are a lack of record of grasslands and their characteristics, as well as invasion of grasslands by trees and weeds.

Food, cover, and nesting sites are provided by a variety of native plants, shrubs, and trees. In areas where ungulates are present, openings are required for their grazing and free movement. Grassland birds require open areas as well. Such an opening must be near a permanent waterhole. Grassland supports several insect species by providing shelter, food, and to complete their life cycle. Most of the species of small blue butterflies

(Lycaenids) and some Skippers feed on various grasses and herbaceous plants. These are good indicators of different grass species because their larval food grasses differ between species. Any impact on grassland may result in the local extinction of these butterflies and many other insect species. Grassland dependent butterfly species has also been discovered in SNNP (Khanal, 2013; Khanal et al, 2013).

Issues

- Grasslands have been converted into woodland.
- Decreasing grassland
- Emerging invasive species

Strategies

It is evident that many types of grasslands in SNNP is either converted into woodlands or invaded by non-palatable weeds. The first priority for management intervention is required in a patch of grassland that has been completely converted into woodland or has been completely invaded by weeds and unpalatable grasses such as *Lantana*, *Eupatorium*, and others.

- Survey, classify and map grasslands based on the use and potential for herbivores, birds and butterflies
- Map encroachment zone from invasive and woody perennial species
- Prevent the regeneration of *Lantana* and other invasive species
- Maintain existing grasslands and gradually restablish the previous grasslands

Activities

- Revise and update the ecosystem types in the park and BZ
- Conduct assessment of alien and invasive species in the park
- Control alien and invasive species
- Management of hazardous/risk bearing/ problematic trees
- Uproot or clear the invasive species

5.3.2.2 Wetland Management

Context

Water is a fundamental component and a limiting factor in many wildlife habitats during the dry season. Dhap dam, Bagmati River, Bishnumati River, and their tributaries are among the wetlands of SNNP and BZ. The Bagmati River Basin Integrated Programme has completed building Dhap dam in 2023 to harvest water during the summer season, and Syalmati dam is under construction. This will increase water flow in the Holy river Bagmati during the autumn, winter, and spring seasons. Furthermore, these rivers are polluted by agricultural waste, pesticides, and chemical fertilizers. Wetland management is equally important for aquatic life, water bird, and butterfly habitat. Many species of butterflies rely on wetlands for sodium. The fertility of butterfly species is affected by a lack of sodium (Molleman et al, 2004). Many butterfly species have been observed sipping liquid at moist trail for sodium intake.

Issues

- Water scarcity to wildlife in dry season
- Pollution in water sources
- Landslide in and periphery of the park.

Strategies

- Prepare inventory of wetlands and conduct assessment for water quality and quantity
- Strengthen awareness programmes
- Maintain healthy wetland ecosystem in and around Bagmati and Bishnumati Rivers
- Promote sustainable wetland based eco-tourism
- Raise community awareness on wetland conservation
- Ensure sustainable and perpetual water source

Activities

- Construct large sized multipurpose ponds/ reservoirs
- Clean and remove garbage from wetlands (?)
- Assess water quality in regular intervals
- Conduct wetland conservation education, interaction, stakeholders meeting etc. regularly.
- Implement the activities prescribed in the site management plan of Dhap dam, Bagmati and Bishnumati Rivers.
- Carry out landslide treatment
- Facilitate scientific research and monitoring
- Take actions to control pollution of Bagmati and Bishnumati Rivers

- Discourage forest products harvest, encroachment, civil infrastructure and stop poaching
- Control introduction of exotic aquatic species
- Conduct research and monitor regularly aquatic fauna/migratory birds in Dhap dam

5.3.3 Fire Management

Context

Fire has been used in grassland management as a management tool for slowing succession (Shrestha, 2004). However, unintentional and untimely fire has many negative effects in PAs because it harms micro fauna and changes habitat. Meanwhile, fire is a regular and annual threat in SNNP. Nine incidents of accidental forest fires were recorded in last fiscal years 078/79 (Figure 16) and all of them were controlled jointly by NP personnel, Nepali Army, Nepal Police and local residents. A regular Fire Monitoring Unit should be formed which should be active during fire season. Fire prone areas has been mapped (Figure 17), and based on the area shown in this map vigilance should be increased during the fire season. Buffer zone communities should be informed well ahead of fire season to take necessary measures to prevent fire and school programs must be effective in this regard. Local tourism entrepreneurs and nature guides should be made aware of the dangers of fire and the consequences for tourism and biodiversity.

Many insect groups suffer significant losses immediately following a fire, with the magnitude of the loss proportional to the insects' degree of exposure to the flames and mobility (New, 2004). Recently burned habitat has lower niche diversity, and the rate of insect increase after fire is also related to the species' ability to gain access to the re-growing vegetation. Forest fire destroys the life stages of butterfly species especially of those species that depend on forest flora as their egg, larva, pupa, and adults are destroyed by fire. Larger butterflies that fly higher up to escape a forest fire may also be affected. Fire destroys their eggs, which are laid on shrubs or ground flora including their larval and pupal stages. Ground insects like beetles (Coleoptera), bugs (Hemiptera) and flies (Diptera) etc, are also equally impacted by forest fire. (Thompson, et al 2022). Forest fires and burnt leaf litter will increase surface runoff and reduce water holding capacity. Because of increased floods in the downstream, there is less water discharge in rivers during the winter and spring seasons.

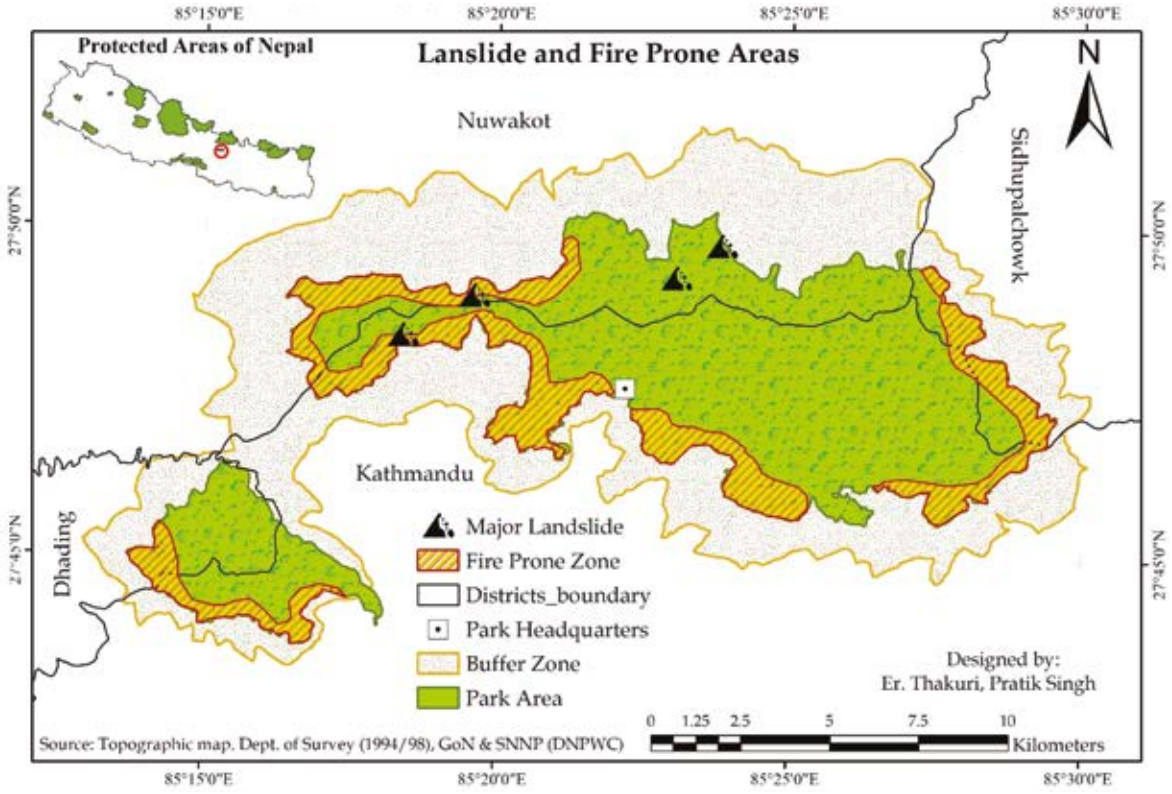


Figure 17: Landslide and Fire Prone Areas in Shivapuri Nagarjun National Park and its Buffer Zone

Issue

- Incidents of forest fire increasing
- Inadequate human recousres
- Inadequate equipments

Strategy

- Develop updated fire management plan
- Develop a fireline network
- Maintain fireline and forest roads well before the forest fire season
- Develop capacity of park staff, security personnel, BZCF members and BZ communities in forest fire management
- Update fire prone areas by using mapping based on satellite imagery analysis or using the web-based fire mapper and manage accordingly for prevention
- Maintain and increase fire control equipment

Activities

- Purchase equipment and fire-proof field gears for staff
- Burn material collection and cleaning in fire prone areas during fire line maintenance work
- Create awareness and conduct media campaign
- Construct waterhole in the fire prone areas
- Actively involve local communities in fire control
- Strengthen co-ordination with UG, UC, local stakeholders and security official
- Prepare fire occurrence reporting and statistical databases
- Form Rapid/Quick Response Team (RRT/QRT) with support and adequate equipment at BZUC level
- Conduct fire control training to park, army personnel, and QRT/RRT team members
- Construct fire lines in forest fire prone areas

5.3.4 Wildlife Health Management

Context

As there are villages around the park there is the likelihood of interactions between wildlife and domestic animals (livestock, pet dogs, cats and poultry) sharing the same forestlands or drinking water sites. Since there is the risk of disease transmission from livestock to wildlife and vice versa, regular health monitoring and surveillance for important wild animal diseases should be carried out. Furthermore, to prevent disease outbreaks, domestic pets, poultry, and livestock in villages around the park must be immunized and vaccinated on a regular and timely basis against major diseases such as anthrax, rabies, render pest, and foot and mouth disease.

Issues

- Increasing poultry, pet and domesticated animals in and around park
- Increasing cases of injuried wildlife and rescue
- Insufficient veterinary human resources

Strategies

- Formulate a protocol for wildlife health monitoring and surveillance
- Develop skill to handle sick and injured wildlife
- Surveil zoonotic diseases in and around the park
- Strengthen orphanage care and wildlife rescue centre
- Coordinate with relevant veterinary institutions and expedite the veterinary hospital
- Build the capacity of existing staff to handle the upcoming situation

Activities

- Develop wildlife health management plan or guidelines for SNNP
- Reconstruct wildlife health centre and establish a veterinary facility with Veterinary expert, dart technicians and wildlife tracking team;
- Renovate wildlife rescue center
- Conduct rescue operations and first aid for injured or orphaned wild animals
- Establish wildlife rescue and research center (develop Godavari Deer Research Center to wildlife rescue and research center)
- Support to immunize livestock every year against endemic diseases within the radius of 2 km in buffer zone in coordination with local level government
- Coordinate with Veterinary Offices, Central Zoo, and other stakeholders to seek their support whenever required

- Training to frontline staff to recognize, record and report disease or poor health condition of animals or plants
- Report and document the mortality of wild animals immediately after it comes to notice of any staff as part of disease surveillance strategy

5.3.5 Encroachment Management

Context

Encroachment has occurred particularly in park boundary and religious sites inside the BZ by local people and several other organizations. Many people enter and try to bult hut and religious landmark under cover of religion is increasing.

Issues

- Land encroachment
- Lack of proper management in encroachment activitties

Strategies

- Develop an inventory of encroached land
- Coordinate with other Government institutions including local bodies
- Strengthen awareness programs
- Develop an encroachment evacuation plan

Activities

- Assess and monitor encroached area at regular intervals
- Demarcate and protect the encroached land immediately after removing the encroachers
- Conduct interaction, stakeholders meeting, etc. regularly with law enforcement agencies, local level government and BZUC
- Prepare and implement evacuation plan
- Delineate the boundary of the park core zone and buffer zone forests on map and physically on the ground

5.3.6 Anti-poaching and Intelligence Gathering

Context

The park has an informant network to gather intelligence. In addition to establishing an effective intelligence network to monitor and prevent illegal activities, the park protection authority arrests individuals, conducts raids, and seizes illegal forest and wildlife products. In last five years 19 cases crimes against national park rules were filed (Table 9). So, SNNP needs to strengthen anti-poaching and intelligence gathering.

Issues

- Increasing illegal activities like poaching and trespass
- Absence of real time monitoring
- Lack of database related to wildlifecrime

Strategies

- Co-ordinate with Nepali Army stationed at the park and, other relevant law enforcement agencies, WCCB, and APO network in controlling illegal activities
- Institutionalize the CBAPUs and mobilize conservation-clubs

Activities

- Strengthen Kathmandu valley Wildlife Crime Control Bureau (WCCB) and extend coordination with adjoining four district forest offices, viz. Kathmandu, Sindhupalchowk, Nuwakot, and Dhading
- Mobility (Sweep operation, long range patrolling, day/night patrolling)
- Real time smart patrolling
- Initiate APU and strengthen intelligence network
- Establish Joint Operation Cell (JOC) and develop its operational mechanism.
- Equipment purchases for anti-poaching operation (Night vision binocular, tent, sleeping bags, etc.)
- Information collection, purchasing through informant mobilization
- Establish and maintain database of crimes
- Form and institutionalize Community based Anti-Poaching Unit/Operation (CBAPO) under Buffer Zone User Committee
- Strengthen crime investigation and establish wider collaboration on crime investigation and control and Manage seized materials, forest products and animal parts

CHAPTER 6

Research, Monitoring and Capacity Building

6.1 Research Priorities

Research provides the scientific basis for managing protected areas. Information on the protected area's biophysical, hydrological, ecological, ecotourism and socio-cultural aspects are necessary for effective management of the protected area. Research and monitoring are essential for every protected area because they help to develop database and aid in decision making. Furthermore, it enables scientific management of PA and serves as a problem-solving tool. Thus, research and monitoring should be geared towards meeting management requirements. SNNP is one of the most well-studied PAs in this region serving as a great learning ground for watershed management, payment for ecosystem services, human wildlife conflict, wetlands and water resources, religious sites, wildlife species, and habitat management.

However, because nature is dynamic, ongoing research and monitoring are required to address new challenges in park management. Each year, numerous national and international universities, institutions, and individuals conduct various research projects in this park and Buffer Zone.

There is no separate research unit at SNNP, the planning unit headed by the CO is currently coordinating all the research activities of the park. The unit is responsible for coordinating the ongoing research activities, planning, coordinating, prioritizing and carrying out research activities. The unit should be equipped with necessary field gears and equipment, financial resources and trained staff. Scientists and research institutions conducting research or studies for academic purposes also have some implications to management.

The research priorities of SNNP management at present are as follows:

- Watershed conservation and management
- Hydrological functions, wetlands and water sources management and conservation
- Status on river ecosystem and over harvesting of water
- Pollution in water sources and rivers
- Impact of forest fire on watershed, water holding capacity and biodiversity
- Status on forest fire, and landslides
- Vegetation dynamics and its impact on wildlife habitat
- Impact of habitat fragmentation and habitat degradation on wildlife populations
- Status and behaviour of Himalayan black bear
- Status and Ecological behaviour of Spiny Babbler
- Status and distribution of mammals, birds, and fishes
- Status and distribution of Herpetofauna
- Status and distribution of pangolin, common leopard, clouded leopard, and Sambar
- Status and distribution of insects and butterflies
- Status and diversity of migratory birds
- Climate change vulnerability on biodiversity.
- Human wildlife conflict
- Eco-tourism development in Park and BZ
- Study of endemic flora and fauna
- Population dynamics, habitat use and resource partitioning of sympatric wildlife species
- Indicator species to assess habitat condition
- Impact of alien and invasive species on wildlife and its habitat
- Impacts and mitigation measures of climate change
- Least studied species and its habitat

- Pattern and trend of bird migration
- Status of small carnivores; including jungle cat, leopard cat and civets.
- Effectiveness of buffer zone program
- Payment for ecosystem services
- Socio economic impact on livelihood of buffer zone communities

Research Projects

The SNNP management can collaborate with scientific, academic and research institutions like NTNC, Institute of Forestry, Institute of Agriculture and Animal (Veterinary) Sciences, Forest Research and Training Center (FRTC), Department of Plant Resources, Nepal Academy of Science and Technology, Natural History Museum, and national and international universities for research projects based on its priority areas, conduct research projects based on its priority areas of research monitoring and research activities. Organizations and individuals with an interest may conduct research in the SNNP and BZ with the approval of the designated authority. Nepalese citizens must obtain permission from DNPWC in order to conduct research in SNNP and BZ. But for foreigners, the permission is provided by MoFE. In order to strengthen research programme, the following actions are recommended:

- Establish research plots inside park; and
- Institutionalize Research Unit in SNNP to coordinate research activities and develop research and management linkages

6.2 Monitoring

Periodic monitoring of wildlife and its habitat is crucial for the management of any PA. The findings from regular monitoring provide information on the trend of wildlife populations and changes in habitat condition over time. Park managers benefit from monitoring as it provides information on ecological changes based on vital signs/indicators, particularly in early warning and early control. Thus, monitoring is a tool for rationalization of management decisions for protected area as it helps to;

- Assess the effectiveness of PA management;
- Enhance the understanding on ecological processes and functions;
- Monitor the evolution of the habitat over time and, using ecological baselines, to compare the state of similar habitats;
- Identify and prioritize the areas that require further research and to evaluate those areas;
- Assess the watershed condition; and
- Assess the water quality and quantity.

In light of these facts, the following key areas and framework for wildlife and habitat monitoring are suggested:

Population Monitoring

Common leopard and clouded leopard monitoring (Follow carnivores monitoring protocol developed by the DNPWC)

- Monitor both leopard species on a regular basis - scat-based
- Count leopard population every five years
- Conduct block monitoring every alternate year in high density areas
- Conduct camera trapping in selected block periodically
- Conduct sign-based monitoring from respective posts- pugmark tracing and documentation

Prey base monitoring

- Conduct periodic monitoring using line transect and camera trap method
- Conduct regular monitoring in selected areas

Himalayan black bear monitoring

- Conduct Himalayan Black Bear monitoring periodically

Assamese monkey (Pahare Bandar) monitoring

- Conduct monkey count periodically

Pangolin monitoring

- Monitor pangolin population periodically

Spiny Babbler and other Bird monitoring

- Monitor migratory and other water birds annually
- Monitor endangered, including threatened and endemic bird species

6.2.1 Habitat Monitoring

Ecological monitoring grids should be established in SNNP to regularly monitor habitat status, availability of the basic requirements of wildlife food, water, cover and space – their quality and quantity. The long-term water ecosystem monitoring should be continued in collaboration with research organizations. Permanent monitoring plots should be established for vegetation monitoring.

6.2.2 Wildlife Health Monitoring

A wildlife orphanage and rescue center has been established at the park headquarters in Panimuhan for emergency care. The recused and injured animals are treated and taken care of upon arrival at rescue centre. The mortality of wild animals is immediately reported and documented after it comes to notice of any staff. Necessary medical treatment and postmortem are carried out in coordination with Central Zoo, Jawalakhel and local veterinarian. In last six years, a total 53 animals were rescued in injured conditions and of which 43 were death cases. These animals were from 23 different species including protected species Chinese pangolin, Assamese monkey and Leopard cat. Most of the rescued animals were released in natural habitat after recovery and some of the injured were transferred to Central Zoo (Table 17).

Table 17: List of Wildlife Rescued and Mortality (2017-2022)

SN	Species	Death	Injury and rescued
1	Assamese Monkey	1	-
2	Eagle (Baj)	1	-
3	Barking Deer	20	6
4	Black Kite	2	3
5	Chinese Pangolin	1	2
6	Common Leopard	1	2
7	Copper-headed Trinket	-	1
8	Ghoral	-	1
9	Golden Pheasant (captive bird)	3	-
10	Jungle Cat	-	1
11	King cobra	-	17
12	Kite	1	-
13	Large Indian Civet	1	-
14	Leopard cat	1	-
15	Masked palm civet	4	5
16	Mountain frog (paha)	-	4
17	Mountain pit viper	-	1
18	Owl	1	
19	Red Giant Flying Squirrel	-	1
20	Sambar	1	-
21	Tokay gecko (other parts of the country)	-	8
22	Vulture	1	-
23	Wild Boar	4	1
Total		**43**	**53**

Source: SNNP Annual Reports 2017-2022

6.2.3 Weather Monitoring

There is a newly established meteorological station in Dhap dam area of SNNP. The data will be collected, documented, and analyzed from the meteorological stations to monitor changes in weather patterns.

6.2.4 Water Quality Monitoring

Water monitoring should be conducted in major river systems of the park to get the trend of the anthropogenic impact on the aquatic environment. Water quality of Bagmati, Bishnumati, Dhap dam and other rivers should be monitored annually with special focus on aquatic life forms and drinking water quality.

6.2.5 Fire Monitoring

Spatial and temporal pattern of fire incidences, fire and fuel dynamics will be monitored and mapped by using field-based techniques such as GPS and web-based fire mapping software programmes as required.

6.2.6 Tourism Impact Monitoring

The impact of tourism on the natural environment of SNNP should be monitored as the number of visitors is rapidly growing after the pandemic. Since there isn't a comprehensive framework in place to monitor such impacts, a site-specific framework will be developed, and changes should be monitored accordingly. A format and a monitoring plan will be developed to monitor the socioeconomic impact of tourism that considers all aspects of how it affects the livelihoods of local communities, and periodic survey should be conducted to monitor tourism activities in SNNP and BZ.

6.2.7 Review of the Management Plan

The Management Plan will be regularly reviewed at mid of the management plan period. A final evaluation of the Plan should be carried out at the end of the plan period by measuring a series of high-level targets that relate to the six objectives of the management plan in coordination with Planning Section of the DNPWC and report to the Department.

6.3 Capacity Building

Park management requires knowledge and skill in various disciplines including wildlife science and wildlife management techniques etc. Park staff, security personnel, buffer zone institutions, etc. need education and trainings to deal with the new park management challenges. Different types of trainings are required depending on each staff's roles and responsibilities. A Staff training need assessment should be carried out to develop training plan. Both horizontal and vertical participant trainings are necessary. The horizontal type of training involves the participants of equal rank, whereas the vertical type of training involves participants of different ranks from the Senior Conservation Officer to the Game Scouts and from the Battalion Commander to the 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 identified are as follows:

Vertical Participant

- Annual sharing and team building workshop
- Training for community based anti-poaching operation
- Orientation training on legal issues

6.3.1 For Frontline Staff

- Orientation training to security units
- Orientation training to game scouts on legal issues
- Basic training on field equipment like GPS, Range Finder, Compass, etc.
- Training on collection of blood, feces, and urine samples including preservation of vital organs and wildlife specimens.
- Field observation techniques, including signs and indirect evidences of wildlife
- Wildlife and plant identification training.
- Orientation training on social mobilization and participatory planning
- Basic training on vegetation quantification for recording data in monitoring plots
- Training on real-time patrolling crime scene investigation.

- Forest fire management training
- Wildlife health condition monitoring training
- Immobilization and animal handling training
- Training on wildlife rescue and monitoring
- Mass holding training
- Forest inventory training

6.3.2 For Rangers

- Social mobilization and effective communication
- Resource mapping
- Training on anti-poaching operation
- Training on wildlife handling, rescue and monitoring
- Training on animal capture, rescue and release
- Software applicable for wildlife management, including GIS, Vortex, Distance, Statistical package, etc.
- Training of Trainers (general and specialized)
- Wildlife forensic
- Forest fire management training
- Judicial training including crime case investigation (crime scene investigation and interrogation)
- Training on wildlife health condition assessment
- Training in wildlife habitat monitoring
- Tourism, wetland and watershed management training
- Training on park interpretation
- Training on conflict management
- Training on human rights
- Community mobilization, buffer zone management, community forests
- Wildlife and plant identification training.
- Mass holding training
- Refreshment training
- Database management.

6.3.3 For Senior Conservation Officer and Conservation Officer

- Training on Appreciative Inquiry
- GIS application for natural resource management with focus on wildlife
- Training on park interpretation and conflict management
- Specialized wildlife management training
- Public administration and management training
- Organization development and management
- Human rights and judicial training
- Planning, monitoring and evaluation training
- CITES implementation training
- Tourism, wetland and watershed management
- Community mobilization, buffer zone management and community forests
- Refreshment training

6.3.4 For Security Army Personnel

- Orientation and reorientation training on protection of park and forest resources
- Training on crime scene security, human rights, anti-poaching operation, real time patrolling, GPS, forest fire management etc.
- Wildlife identification and monitoring training

6.3.5 For Buffer Zone Staff

- Forest fire management training
- Training for CBAPUs
- Nature guide training (Basic, advanced, refresher - wildlife, birds, plants, language, etc.)
- Training on nature interpretation and display management
- Build capacity of poor and disadvantaged local people in the areas of hospitality, housekeeping, cooking and hygiene to initiate tourism enterprises

6.3.6 Training on Leadership Development for BZUC members

- Training on office and account handling
- Cooperative establishment and strengthening
- Tourism development, home stay, skill development and income generation activities
- Forest fire management training
- Conflict mitigation and conservation awareness
- Community mobilization and forests management

6.3.7 Digital Content Management

- All data from research should be well documented, stored and retrievable
- Sharing the information as per need (for public and within organization) - maintaining the secrecy of information as needed with due acknowledgement.
- Official website of SNNP should be utilized extensively to share information timely

6.3.8 Virtual Library Management

- Publish documents related to SNNP and Buffer Zone
- SNNP website and public interaction via internet should be manage and updated regularly
- Unpublished reports and update which are sharable
- Manage researcher and students' reports, theses and dissertations
- Use of software
- Update and share each and every sharable information as soon as possible

The knowledge, skills and trainings of the staff are not sufficient to meet the growing management challenges of the park and BZ. The frontline park staff and BZ office assistants mostly need trainings on the emerging techniques on wildlife management, personnel management, legal procedures, anti-poaching operation, community development, conservation awareness, human rights, wildlife handling techniques, conservation education, monitoring and evaluation, firefighting, basic computer skills, GIS and GPS, PRA, eco-tourism management, community forests, office administration and management, etc. In addition, basic conservation training is needed for Nepali Army protection unit and special training on conservation and buffer zone management for buffer zone committees. Limited field gears are provided to the park staff. The provision of suitable infrastructures equipment and additional services like availability of vehicles, rain coat, boots, camera, telescope, night vision scope, etc., are very important to motivate and enhance staff capacity to achieve the management objectives

CHAPTER 7

Species Conservation Special Program

7.1 Clouded Leopard Conservation

Conservation efforts, significance and status

The IUCN Red List has classified the Clouded leopard (*Neofelis nebulosa*) as vulnerable since 2008, and it is included in the list of protected mammals in NPWC Act, 2029. This magnificent wild cat is distributed in the dense forests from the Himalayan foothills through mainland South East Asia into Southern China. There is very little information on its status and distribution in the country except for crude estimates (Ghimirey and Yadav, 2018). One one clouded leopard was recorded in camera trap at Kakani in 2012 during camera trap study on wildlife in the park. Since then, there have been no records of the species.

Issues

Major issues of concern are:

Inadequate information on population, habitat and distribution in SNNP

Strategies

- Manage habitat
- Maintain viable population
- Monitoring of Clouded leopard populaion

Activities

- Sign and camera trap-based survey
- Explore the prospects of long-term collaboration for Clouded leopard conservation
- Improve habitat for accommodating the Clouded leopard and their prey population
- Establish efficient local level conservation and awareness programs
- Coordinate to develop Clouded leopard Conservation Action Plan

7.2 Spiny Babbler Conservation

Conservation efforts, significance and status

A rare species of bird found only in Nepal the spiny babbler (*Turdoides nipalensis*) is known as Kande Bhyakur in Nepali. Although it has a small geographic range, researchers believe the species is not vulnerable because the range size criterion sums up the thresholds for vulnerability (Jha, 2020). It can be easily sighted in Kathmandu Valley, particularly in the Tokha, Godavari, and Phulchoki region, in Central Nepal (Jha, 2020; Sapkota, 2020) Jha 2019). Their population size is unknown. They are primarily found in moist tropical and subtropical scrublands as well as in areas with a few scattered trees at elevations between 900 and 2100 m asl.

Issues

- Inadequate information on habitat and distribution in SNNP
- Forest fire
- Shrub lands degradation

Strategies

- Regular monitoring of habitat, distribution and abundance of Spiny Babbler

Activities

- Develop distribution map in SNNP (the species usually lives in very limited area and live closely together in groups)
- Cooperate with relevant organizations to protect Spiny Babblers
- Form "Spiny Babbler Watch Group"
- Allocate area and develop demonstration plot for Spiny Babbler protection
- Conduct awareness campaign

7.3 Pangolin Conservation

Conservation efforts, significance and status

The pangolin, also known as the Scaly Ant eater, is a nocturnal, elusive, peaceful, and burrowing mammal. In Nepali, it is known as "Salak." Two species of pangolin are found in Nepal: the Chinese Pangolin (*Manis pentadactyla*) and the Indian Pangolin (*Manis crassicaudata*). The pangolins are listed in the protected mammals list in the National Parks and Wildlife Conservation Act, 2029. They are also called the 'friends of farmers' animal (Tseng et al, 2021). Chinese and Indian pangolins are listed in IUCN Red Data Book as the Critically Endangered and Endangered species, respectively in the most recent global assessment of pangolins conducted by IUCN Pangolin Specialist Group.

Pangolins inhabit a variety of habitats in Nepal, including grasslands, reforested areas, bamboo and coniferous forests, and agricultural lands. They can be found from the Tarai to the mid-hills. However, it appears that pangolin habitats are more prevalent in regions with red and brown soils where ants and termites are common. Pangolin habitats are mostly found close to human habitations. They are hunted for their scales and meat. The scales of pangolin and even live pangolins are traded extensively across its range. Due to unsustainable logging practices and excessive grazing, their habitats outside the Protected Areas (PAs) are severely degraded. In addition, pangolins are also impacted by disasters brought on by the climate induced disasters, such as landslides, fires, and prolonged droughts.

In SNNP, its occurrence is more concentrated in the Nagarjun region of the park, where numerous new and old burrows can be observed (Dhital et. al., 2020). A few pangolins rescued from illegal traders were released in SNNP. This species is in danger of extinction due to poaching (Khatiwada et. al., 2020).

Issues

Major issues of concern are:

- Decreasing burrow density
- Inadequate information on population and distribution in SNNP
- Poaching and illegal wildlife trade

Strategies

- Regular monitoring of habitat, distribution and abundance

Activities

- Conduct regular patrolling and monitoring of the species
- Conduct wildlife crime control training
- Explore the prospects of long- term partnership for pangolin conservation
- Launch effective conservation and awareness programmes at the local level

7.4 Sambar Conservation

7.5.1 Conservation efforts, significance and status

The Sambar (*Rusa unicolor*), a large deer that is native to South China, Southeast Asia, and the Indian subcontinent, has been listed on the IUCN Red List as a vulnerable species since 2008. Their populations have significantly decreased as a result of intense hunting, local insurgency, and industrial habitat exploitation (Klein, 1992). Sambars are found in grasslands, dense cover of deciduous shrubs and forests ranging from 75m elevation to 3000m. Sambars are nocturnal as well as crepuscular animals. Males spend the most of the time solitarily (Comte et. al., 2022), while females live in small herds. They are the largest deer in Nepal with upto 150 cm shoulder-height and weight around 225 – 320 kg (Jnawali et. al., 2011). Basically, Sambars are low-land dwellers in Nepal but it is reported from Nagarjun Forest

of Shivapuri Nagarjun National Park (Koju et. al., 2022; Dhital et. al., 2020, Poudyal, et al, 2023). They are assumed to be brought by former elite families from lowlands of Nepal and later released in Nagarjun forest and now they are surviving successfully since many years.

Issues

Major issues of concern are:

- Inadequate information on population and distribution in SNNP
- Habitat encroachment

Strategies

Regular monitoring of habitat, distribution and abundance

Activities

- Regular area monitoring
- Explore the prospects of long- term partnership for Sambar conservation
- Conduct genetic study to explore population and origin of Sambar
- Launch efficient conservation and awareness program at the local level
- Conduct study on their status, feeding habits, and habitat utilization


GENTS

CHAPTER 8

Tourism and Interpretation

8.1 Background

Natural attractions (such as, topography - mountains, hills, beaches, protected natural areas climate – favorable pleasant climate; forests – vegetation, different species of flora; wildlife; lakes – water, rivers, waterfalls, springs, lakes, etc.) including cultural and social attractions of the destination area are the main attractions which draw tourists to the area. Protected areas such as national parks are the major tourist attractions in many countries of the world. National Parks provide facilities for resource-based recreation for various outdoor recreation activities which the tourist wishes to experience personally. Tourism today is a global phenomenon and is one of the largest and fastest growing industries. However, unplanned tourism will destroy itself. Tourism must preserve and protect the environment and natural attractions. Environment concern now has been priority in all enterprises and environmental planning is taking center stage in tourism development. Usually, environmental impacts of tourism are of long-term nature.

Tourism planning means making tourism sustainable - development of more environmentally sensitive and responsible forms of tourism and visitor activities – support tourism growth that seeks to complement not compete with the destination's environmental setting. The major concern is to maintain the proper balance between nature conservation and recreation uses where the objectives of the protected area are both nature conservation and tourism management. Tourism that enhances visitors' satisfaction/experience promotes and supports nature conservation while economically contributing to local buffer zone communities and uplifting their livelihood should be the objective of tourism planning and development in SNNP.

Ecotourism is responsible travel to relatively undisturbed natural areas that conserves the natural environment and improves well-being of local people. It is perceived as a form of alternative tourism as against mass tourism. It is sustainable nature-based tourism that involves education and interpretation of the natural environment and is managed to be ecologically sustainable:

Park interpretation is a management tool which helps in protecting natural and cultural resources; increases visitors' understanding of the area and its resources; and enhances the experience and safety of the visitors. The interpretation facilities and services are bridges that connect park visitors, protected area and the park management. It improves the understanding of the visitors about the park's wildlife, other natural resources and local cultural heritage, etc. which helps to improve their behavior and attitude and to elicit their support for nature conservation. Park interpretation service such as a Visitor Center is usually the first stop where park visitors get information and orientation of the park.

8.2 Tourism Scenario

Although the SNNP was initially designated to protect the watershed of the famous Bagmati River, the exotic places, local people, local food and authentic culture have made the National Park an important tourist destination. The amazing natural attractions (very favourable climate, high quality air, land, water – rivers, streams, reservoirs, waterfalls, the scenic beauty, unique flora and fauna), cultural and social attractions offer exciting nature-based outdoor recreation opportunities.

Numerous Saints and Hindu pilgrims travelled to the area even before the designation of the Watershed

Conservation Area in 1976 for meditation and for spiritual enlightenment because of the religious and spiritual values of the area. Shivapuri in Hindu religion means residence of Hindu God 'Lord Shiva'.

The first botanist to survey Shivapuri Mountain was Dr. Francis Hamilton, and later on Dr. Hudson, the British ambassador, collected and studied the birds of the area. Local Buffer Zone residents practice both Buddhism and Hinduism. Hindus revere Shivapuri Peak and the Holy rivers Bagmati, Bishnumati, and Salinadi which originate from the Shivapuri Mountain as sacred. Important pilgrimage sites in the SNNP include Bagdwar, Bishnudwar, Shivapuri Peak, Jamacho, Buddha Gupha, Manichur Mahadev, Kageshwori, Sundarimai, Baudeshwor, Tarkeshwor, Pachali Bhairav, and Nagigumba. These places provide excellent opportunities for recreation, hiking, spiritual fitness, and wilderness experience.

The Kathmandu based tour/trek operators conduct regular tourism activities like a day-hike to Shivapuri Peak, viewing snow peak panorama of Annapurna to Sagarmatha Range and back through visiting Nagigumba. This has become the most popular activity among most of the international visitors, followed by bird watching, jungle walk and cycling; endemic tours like watching butterfly, dragonflies, as well as transition to the long trek packaged to Helambu and Lamtang National Park.

The park record shows an increasing trend in the number of visitors to the park (see Figure 12 in Chapter 3). The park collected revenue of NRs 228.91 million in the last fifteen years (see Figure 27, Chapter 11). In the last five years, an average annual income was NRs126.06 million that was mainly from the entrance fee from park visitors.

A total of 10, 89,542 visitors visited the park over the last six years (FY 2074/75-2079/80). Last fiscal year (2079/80) the annual tourist influx was 308968, with 302800 (91.60%) Nepalese, 1328 foreigners from SAARC countries (0.40%) and 4840 (1.47%) foreigners other than from SAARC countries (see Figure 18).

The park has 12 different entry points from which visitors can enter the park. Overall, tourism development in the park's southern section has been more pronounced in recent years. Aside from Sundarijal area, Panimuhan, Kakani, Chisapani, Tare Bhir, Manichud, Surya Chaur and Nagarjun, other areas are also rapidly developing important tourist places. The newly constructed Dhap dam is anticipated to be one of the most popular tourist attractions for both domestic and international visitors. On the Nepali New Year Day 2080 Baishak 1, a record-breaking number of over 12000 domestic visitors visited and enjoyed Dhap dam in a single day (record for SNNP).

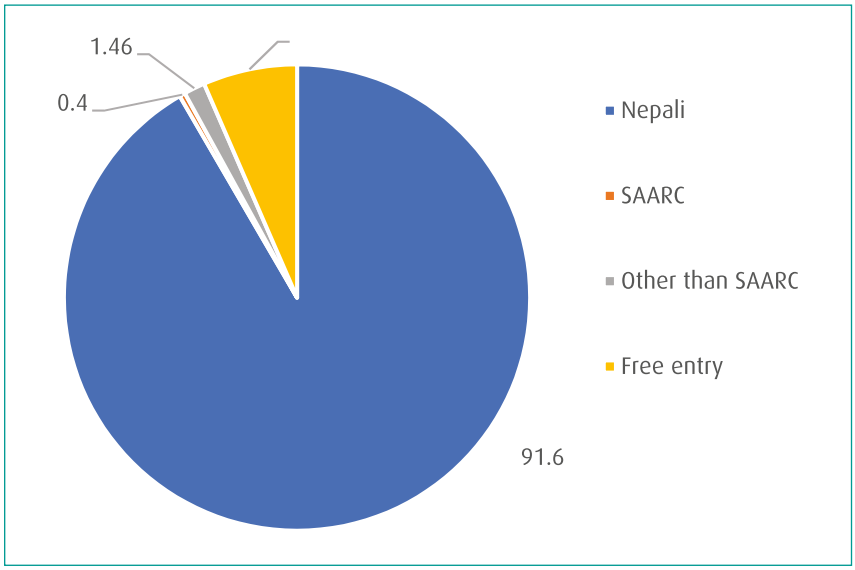
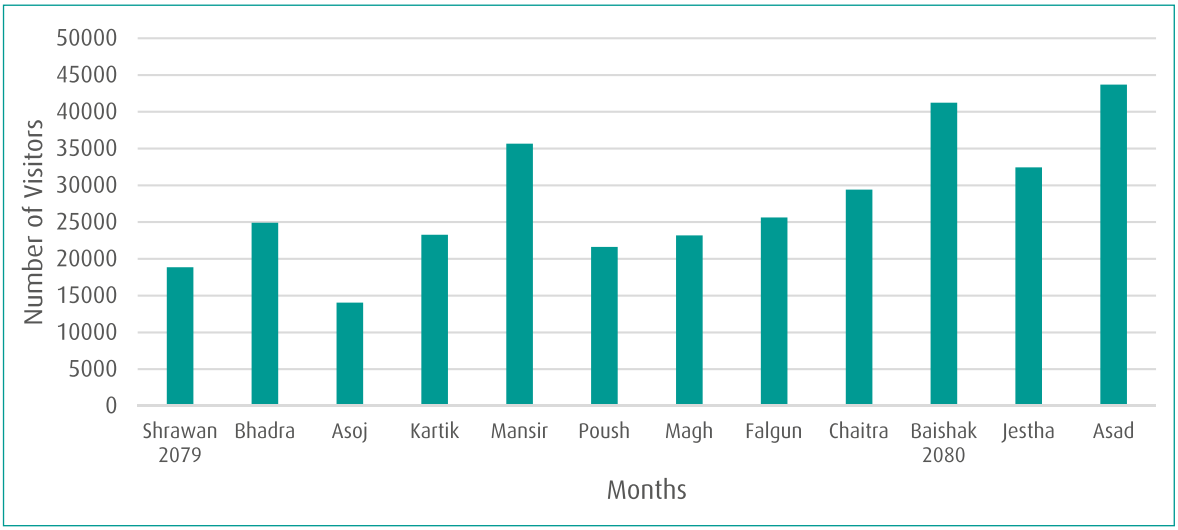


Figure 18: Visitor Composition Percentage in Shivapuri Nagarjun National Park (2079/80)



Source: SNNP Annual Reports 2079/80

Figure 19: Number of Visitors by Month (Fiscal Year 2079/080)

The annual visitors flow in SNNP during the fiscal year 079/80 show that Chaitra, Baishak, Asad, and Mansir months are the peak seasons. These four months received 44 .90 % of the annual visitors, while the month of Ashwin received the least number of visitors (4.21%). The data shows that the number of international visitors is small even though the park is the nearest PA from Kathmandu and has easy access for international visitors. Moreover, the visitors' frequency is less in major tourist season (September - November) too (see Figure 18 and Figure19). SNNP needs to plan effective activities to increase the number of international visitors. There are fewer facilities for visitors in the core zone of the park. However, visitors can enjoy nature walks, cycling, and hiking. There are hotels and lodges, as well as several restaurants and souvenir shops in the buffer zone of the park

8.3 Approach

SNNP is connected with a good network of roads and trekking routes. Public bus and microbus services are easily available at major bus stations in Kathmandu City. Common routes are Sundhara-Jamal-Maharajgunj-Budhanilkantha-Panimuhan, Sundhara Jamal-Maharajgunj-Budhanilkantha-Tokha/Lipikot, Sundhara-Chabahil-Sundarijal-Dhap dam-Chisapani, Sundhara Chabahil-Sankhu-Madichuda, Sundhara/Jamal-Samakhusi-Tokha-Jhor, Sundhara/Jamal-Balaju Nagarjun, and Sundhara-Jamal-Balaju-Kakani. Visitors can enter the park through Chisapani, Jhule, Sundarijal, Panimuhan, Jagaat/Gurje Bhanjyang, Tokha (Lipikot), Kakani, and Nagarjun Fulbari entrance gates. The park entrance fee is payable at the park entrance.

8.4 Visitors Facilities

A 130 km long wall encircles the core zone of the park, there are 128 km of forest roads, and 90 km of natural trails in the park which provide excellent opportunities for trekking lovers who prefer trekking in a natural setting and enjoy wilderness. The park's road system and trail system have been well maintained and are less strenuous than mountaineering and adventure tourism (see Annex... for list of trails). Since the park provides drinking water to the surrounding areas and the Kathmandu valley, concessionaires have been avoided inside the core zone. There are several lodges at major tourist places along the trails in the buffer zone. Professional, qualified, and experienced local nature guides can be hired at various entrance gates.

8.5 Tourism Management

8.5.1 Interpretation Facilities

A National Park Visitor Center (Visitor Information Center, Education Center, and Park Museum) is under construction at Park Headquarters, Panimuhan. Upon completion, it will provide information on the spectacular landscapes, pristine areas, rivers and waterfalls, wildlife and cultural heritage and about the history of SNNP to the park visitors. About 85 registered local nature guides (trained by the park) offer the visitors attended interpretation services (e.g., guided walks/tours, talks to a group – on-site and off-site) in addition to other unattended interpretation services. The majority of trained nature guides are from Panimuhan, Fulbari, Kakani, Sundarijal, Chisapani, Gurje Bhanjyang, and Manichur.

Issues

- Outer periphery of the park or buffer zone has been intensively used that creates tremendous pressure in wetlands, watershed, wildlife and its habitat
- Tourism in SNNP is hiking-centric either on foot or by cycling and vehicles
- Tourism infrastructure isn't planned well
- Very little benefit from tourism to the local community
- The park's interpretation facilities are inadequate
- Limited information and conservation awareness programme for visitors

Objectives

- To provide visitors with a wilderness experience through regulated and diversified tourism activities in the park while causing the least possible amount of disruption to water sources, the watershed, wildlife, and its habitat
- To enhance the socio-economic status of the BZ residents by promoting community-based eco-tourism
- To provide visitors with interpretation facilities and services on ecological characteristics, biological values, and cultural heritage and their significance for eliciting their support in nature conservation
- To enhance conservation awareness among residents and students

Strategies

- Use IT in information and marketing.
- Coordinate with the Nepal Tourism Board (NTB), Nagmati Dam Project and Bagmati River Basin Improvement Project (BRBIP) for the construction and management of Multipurpose Pond
- Coordinate with the Nepal Tourism Board (NTB), Nagmati Dam Project and Bagmati River Basin Improvement Project (BRBIP) for the prospect of promoting, marketing and supporting tourism in SNNP
- Enhance the cultural tourism activities focused in Gumba, Park and Temple
- Enhance tourism management capacity of park and BZ (including hospitality management training).
- Rationalize tourism zones in terms of area and use pattern, i.e. tourism zones could be delineated in terms of route used rather than area of use, and critical habitat conditions and water sources could be closed seasonally or permanently.

Activities

- Define the routes for jungle drive, nature walk in the national park, and the buffer zone.

Park crossing road:

Road 1: Balaju-Mudku-Kakani (in Buffer Zone)

Raod 2: Tokha-Gurje bhanjyang-Chhahare

Road 3: Sundarijal-Mulkharka-Dham dam-Chisapani

Road 4: Panimuhan - Nagigumba (Proposed)

All park crossing roads will be developed as an all-weather road.

Jungle Drive:

Route 1: Fulbari-Jamacho-Fulbari Gate

Route 2: Fulbari-Jamcho-Sonagaun-Fulbari

Route 3: Panimuhan-Bishnudhwar-Dandagaun-Gurje bhanjyang-Panimuhan

Route 4: Panimuhan-Nagigumba-Sundarijal-Panimuhan

Route 5: Sundarijal Mahankal- Mulkharka -Manichud-Dhap-Chisapani

Route 6: Shivapuri Fireline Ring Road

- Maintain drainage in all jungle drive roads

Nature walk:

Sundarijal area, Manichud area, Panimuhan area, Gurje Bhanjyang area, Tarakeshwar area, Fulbari area, Jamacho area, Kakani area, Chisapani area, Bishnudhwar area, Baghdhwar area, and Shivapuri Peak area.

- Develop a code of conduct (Golden Rules). to regulate tourism activities in the park (Appendix 16)
- Initiate an electronic ticketing system at all the park entry points
- Maintain, renovate and standarize entry points with uniformity in colour code, and basic facilities
- Provide safe drinking water facilities in all entry points.
- Establish interpretation centers at Sundarijal, Fulbari, and Panimuhan.
- Establish new ticket counter at Dandagaun (shifted from Tokha), Tarebhir, Sikre, Gagalphedi, Haibung, Aaindanda, and Pachalibhairab and Phedi.
- Develop a mobile application for biodiversity, trail, map, and location identification for visitors inside the park
- Initiate monitoring the impact of tourism on ecological aspects to determine the "Limit of Acceptable Change", which will aid in the development of site-specific methods for regulating tourism.
- Devise a plan to reduce the negative impacts, such as reducing crowds, noise and dust pollution, and investigate the possibility of developing permanent tracks using local natural materials to maintain harmony with the setting/local environment.
- Develop a separate unit for tourism planning and development.
- Develop the forest road along the park boundary wall as a cycling ring road (cycle lane)
- Provide nature guide training (basic and advanced) to local enthusiasts on regular basis
- Promote religious/pilgrimage tourism through a system of awarding marks/points for visiting each religious site
- Publish and disseminate park brochure, information leaflets and other information materials on different aspects (e.g., fauna and flora, recreation opportunities, cultural heritage, tourism attractions, etc.) of the park.
- Standardize signs and symbols (access, entrance gate/ticketing office, directional signs, informative signs, interpretative signs and displays including on-site maps, and other (instructions, regulations, etc.)) and display them at strategic location/sites (not in trees).
- Review the local and scientific name tags of tree species.
- Established tourism basic facilities (tea shop, rest place and toilet in different places) with coordination of buffer zone user group

8.5.2 Institutional Setup

- Provide tourism management, tourism planning and development responsibility to the Planning Unit of SNNP.
- Form SNNP Tourism Management Coordination Committee to provide leadership and coordination in planning and development of SNNP as a successful and sustainable tourist destination. The Committee should consist of nine to twelve members including SCO as the Chairman of the Committee. The committee should be formed involving all sectors, drawing representation from local resident groups, tourism interest groups, business groups, commercial groups, external consultants/ advisors (as necessary), etc. Members should be selected or invited to the committee on the basis of their knowledge and experience of the area, commitment to encourage

tourism opportunities, ability to work constructively with other people and to give enough time and energy to achieve the target.

- Devise and implement regulatory framework for tourism service providers to ensure eco-friendly practices, including standards for construction of structures, extent and capacity of the facilities to be created, employment to local people, social and environmental responsibility, etc.

8.5.3 Impact minimization

- Study the impact of existing tourism practices in water sources, watershed, wildlife and its habitat, religious sites (both positive and negative), such as enhanced protection through increased vigilance or disturbance from noise, garbage and determine the tourism zone accordingly.
- Promote low volume with high value tourism designating the 'Limited Tourism Zone' as a sub- zonation of tourism zone.
- Devise the plan to minimize negative impact such as minimizing crowd, noise and garbage.
- Establish park/sector community base pollution control committees
- Conduct studies to enhance visitor carrying capacity and visitor satisfaction

8.5.4 Tourism development, and diversification

- Promote the park's tourism facilities by marketing them as a package, such as a jungle drive, nature trail, bird watching, and so on, and examine the possibility of developing some other eco-friendly tourism attractions.
- Develop selected indigenous villages as tourist destinations (such as Tamang Village), and develop a package for homestay tourism in such villages.
- Establish a museum cum cultural center in these selected villages and form a team of artists to perform cultural show regularly.
- Build and enhance people's capacity to initiate tourism enterprises through training for nature guide, hospitality, hygiene, housekeeping, cooking, first aid, cultural show, etc.
- Feasibility study on recreational/sport fishing and boating in Dhap dam
- Conserve migratory birds in and around Dhap dam; and organize migratory bird sighting / counting program during the season
- Coordinate to update and establish communication network facility in Nagighumba, Aindanda, Kakani, Manichud, Dhapdam and Panimuhan area.
- Maintain and renovate culture friendly and natural friendly tourist attraction centers.
- Renovate traditional trail from Raniban to Helipad to Jamacho without negative impact to special conservation zone.

8.5.5 Park Interpretation

- Develop interpretation/information center (Visitor Center) at Panimuhan as a model Educational Center after the completion of the construction of the Visitor Center building
- Develop interpretation/information center at Nagarjun and Sundarijal.
- Enhance the capacity of nature guides in nature interpretation specifically on plants, insect, fishes, herpetofauna, bird and mammal identification through refresher trainings and some experience sharing activities and develop a system for upgrading their title as well as increasing incentives based on their performance (Junior/Trainee Guide, Senior Nature Guide and Naturalist, etc).
- Strengthen 'Conservation Club' (Samrakshan Bal Sanjal) programme in schools of buffer zone designing specific nature conservation course for informal education and also involve them in conservation awareness activities like conservation quiz, speech competition, essay competition, conservation drawing, newsletter, poster, wall newspaper publication, conservation documentary, etc.

- Develop a package for school students of buffer zone for a tour in park area and conduct theme-based nature day camp and also organize interaction meeting with eminent personalities in the field of wildlife conservation.
- Celebrate various special days like the Earth Day, World Environmental Day, International Biodiversity Day, Wildlife Week, etc, by organizing conservation awareness programs involving all stakeholders at the local level
- Conduct excursion for local people to the park, take them to visitor centre and arrange documentary show.
- Conduct conservation awareness campaign at school and villages of buffer zone with conservation focused cultural show, street dramas, concerts, documentary shows, etc.
- Develop 'Spiny Babbler' birding site.
- Create migratory bird's observation site around Dhap dam.
- Develop 'Sister Park' concept for sharing experiences, knowledge and ideas with national and international park and conduct exposure visit inside and the outside the country.
- Establish a Visitor Information Center/ museum/'Conservation Service Center' (with audio-visual facilities, tea, coffee, snacks, drinking water and washrooms/toilet) combined with a Guard Post building at newly constructed Dhap dam. (The structure should be constructed by the National Park Office).

8.6 Activities and Other Setups

- Do not promote the development of infrastructures like cable car, which has a long-term impact on drinking water source, biodiversity, and the watershed of the holy Rivers Bagmati and Bishnumati
- Manage visitor overcrowding
- Conduct awareness campaigning and activities for plastic free protected area
- Manage haphazard and unauthorized religious activities in the Bagdwar area
- Dedicated transportation line from Bhudhanilkantha (Narayanthan) to Park Headquarters
- Parking area development and management
- Facilitiate to run plastic free canteens manage by respective Buffer Zone User Committies at Panimuhan and Dhap dam site.
- Coordination with Bagmati River Basin Improvement Project (BRBIP) and Nepal Tourism Board (NTB) for supporting tourism activity

CHAPTER 9

Special Programme

9.1 Payment for Environmental Services (PES)

Context

Ecosystems provide human society with various services that include provisioning of environmental goods (e.g., food, fiber and fuel), regulating (e.g., climate, flood, erosion), supporting (e.g., nutrient cycling), and cultural with aesthetic and recreational values. Potential of these services in PAs are enhanced because of their protection and management status. Generally, regulation of climate, purification of air and water, protection from soil erosion and nutrient cycling are among the services that are available in PAs (Defra, 2007).

Being a mid-mountain representing protected areas, SNNP has secured high value of rich biodiversity and potential of ecosystem services. Drinking water potential is the key issue to assess and build mechanism for the payment of its values to the conservation entities. Roughly SNNP contributes water to over 4000 ha of agricultural land and fulfills more than 60 percent water demand of the Kathmandu valley. The southern aspect of SNNP discharges 226.7 million liters of water per day, which is higher than the water demand per day for the valley (Kunwar, 2008). However, unsustainable marketing of water resources by external business companies without the involvement of local people is a major concern of local communities in SNNP (DNPWC, Report 2013: Task 3.3).

There's a need of well interactive regulatory mechanism to pay a value of watershed conservation and pricing of natural water treatment. Firewood supply to BZ communities is another important factor that has been raised as severe issues among PA authority and surrounding people. When hundreds of families inside the core area have been collecting firewood for making liquor, it is providing key sources of livelihood to the people of Sundarijal, Manichud, Kakani, Gagalfedi and others. Being an urban-centered PA, it is providing regulation of air pollution services, recreational services and aesthetic values and research opportunities. Valuation of watersheds and forested areas and carbon sequestration by SNNP forests are the areas of further research.

Issues

- Over harvesting of water for drinking, and irrigation;
- Industrial and vehicle pollution in Kathmandu valley;
- Aesthetic and recreational value for ecotourism;
- Valuable religious sites;
- Seasonal forest fire, encroachment and soil erosion;

Strategy

- Identification and documentation of PES;
- Preparation of procedure of PES;
- Strengthen awareness programme;

Activities

- Conduct dialogue /negotiate for implementation of PES with concerned stakeholders and review PES mechanism as per necessary.
- Fund mobilization in BZ management to create conservation awareness;
- Regulate water harvesting;
- Control forest fire and soil erosion;
- Reduce human wildlife conflict and provide relief fund;

- Promote ecotourism to generate revenue in the park, income and employment; opportunities to the local communities;

9.2 Management of Okhreni, Mulkharka, Kunegaun and Chilaune settlement of Sundarijal

Context

There are settlements inside the Shivapuri namely Mulkharka, Okhreni, Chilaune and Kunegaun villages. These four villages have some hotels, and 33 homestays. They are providing lodge and restaurant facilities to tourists but human wildlife conflict and park people conflict is increasing in these inner settlements. A special task force was formed by the Ministry of Forests and Environment, where Chief (Senior) Conservation Officer of the park is the coordinator and the Assistant Conservation Officer is the member to examine in detail the feasibility of relocation of these villages but multiple studies are still unanswered about fate of relocation of these villages.

Issues

- Impact on Bagamati watershed, and water quality and quantity of drinking water due to settlement in the watershed area.
- Dependency upon forest resources for livelihoods and adverse impact on forest and wildlife resources
- Increasing human wildlife conflict
- Inadequate infrastructure development in comparison to lower settlements
- Insufficient livelihoods opportunities
- Encroachment of park area
- Illegal felling of trees and collection of firewood
- Illegal hunting and illegal trade of wildlife parts and medicinal plants
- Rising pollution in the Bagmati river
- Increasing solid waste
- Increasing internal visitors
- Change in land use and land cover
- Increasing large infrastructures including residential buildings, hotels and others

Strategy

- Reduce Park people and human wildlife conflict
- Enhance capacity development of inner settlements
- Control encroachment and pollution

Activities

- Internal demarcation of inner settlements
- Documentation of private land and HHs
- Develop rural tourism and eco-village tourism
- Involve local people in conservation, to deal against pollution and strengthen awareness
- Promote horticulture
- Promote organic farming of medicinal and aromatic plants
- Promote apiculture
- Raise awareness in reducing pollution and taking mitigation measures
- Conduct survey on impact of inner settlements on biodiversity and watershed

9.3 Moderating the Climate Change Impacts

Context

Nepal is one of the most vulnerable countries to the effects of climate change due to frequent climatic hazards and poor socio-economic capacity (Mainali & Pricope, 2017). A global survey has identified Nepal as the fourth most vulnerable country to climate change in the world (Mapplecroft, 2011).

In Nepal, the annual mean temperature generally drops as elevation increases from south to north. The northern high mountainous region has the lowest mean annual temperature of less than 4 °C and the Tarai region has the highest maximum mean annual temperature of more than 24 °C. Compared to middle hills and lowland, High Mountain has the fastest rate of temperature

rise among the three ecological zones. Annual warming trends of 0.04°C to 0.06°C (Shrestha et. al. 1999) have been reported for Nepal Himalaya. Climate change has adverse impact in mid-hills of Nepal especially in forest and watershed (Lamsal et al, 2017) and as SNNP is located in the mid-hill region of Nepal, the park falls in high exposure to climate risk zone in Nepal.

The most commonly observed climate led events in SNNP include: change in soil organic matter, rising temperatures, unpredictability in rainfall patterns, reduced water availability, alien plant species invasion (including *Ageratina adenophora*, *Lantana camara*, and *Parthenium hysterophorus*), increased incidence of diseases and weeds on crops, early flowering, ripening, and budding of some plant species (Ghimire 2013). A 109-year tree ring chronology of *Pinus roxburghii* dating back to 1902 showed significant correlation between tree rings and rainfall during winter, particularly in the month of February. The traditional agro-based economy of the Bagmati River basin is also affected by the recent trend of global warming (Shrestha, 2007). For example, there will be a greater reduction in maize yield (31% - 45%) by 2060 A.D if the Bagmati river basin followed all Nepal trend by then (Shrestha, 2007).

In the Central Himalaya, Mid-hill forests are said to sequestrate more atmospheric carbon than other forest types. The luxuriant growth of temperate forest in SNNP is the sign of good amount of carbon storage. Although few attempts have been carried out to assess the carbon stock pattern in soil and vegetation, the immediate focus is needed to introduce carbon credit mechanism in the park.

Issues

The major issues of concern in the face of likely impact of climate change in SNNP and BZ are;

- Negatively impact the habitat of endangered wildlife species such as Spiny babbler, Pangolin etc.
- Disastrous effects of flooding resulting from watershed degradation; resulting human settlements downstream
- Dry up water sources due to increasing temperature
- Loss of biodiversity in the park and BZ
- Increase in forest fire

Strategy

- Strengthen awareness among stakeholders
- Identification and documentation of climate change impact on biodiversity, livelihood and watershed
- Community-based disaster management for facilitating climate adaptation
- Empowering vulnerable communities through sustainable management of water resource and clean energy support and promoting climate smart rural settlement
- Promoting community-based adaptation through integrated management of agriculture, water, forest and biodiversity sector
- Support to enhance adaptive capacity of vulnerable communities through improved system and access to services related to agriculture development

Activities

- Conduct research on impact of climate change on biodiversity and water resources
- Create awareness among the communities
- Promote to reduce the amount of greenhouse gases in and around park and BZ
- Conservation of water sources
- Support in climate change adaptation
- Documentation of water resources in buffer zone
- Promote adequate alternative livelihood opportunities to targeted communities
- Promote afforestation in degraded land in buffer zone
- Prevent and control forest fire

9.4 Watershed Management

9.4.1 Watershed

SNNP has six important river systems and hence made six important watersheds, viz., Bagmati, Nagmati, Syalmati, Rudramati, Bishnumati and Yasomati watersheds (SHRESTHA, 2019). SNNP also contributes some drainage into the watersheds of other big rivers, such as Trishuli and Indrawati, but these rivers have relatively small

drainage areas inside SNNP and drain to its northern and eastern side, (RASAILY, 2018). This management plan does not consider the watersheds that drain to the northern and eastern side of SNNP as these watersheds are free from outside intervention in comparision to southern watersheds. This Management plan only considers the Bagmati, Nagmati, Syalmati, and Rudramati (Dhobi *Khola*) watersheds that lie within SNNP. The following are the main rivers and watersheds that originate in and are located within SNNP (Figure 20 and Table 18):

Bagmati River Watershed:

The Bagmati River has its origin in the Bagdwar of Shivapuri hills, which is located to the north of the Kathmandu valley. The Bagmati River watershed has a total area of approximately 15.87 sq. km. It extends for 44 km from its source at an elevation of 2650 m at Shivapuri to Katuwaldaha at an elevation of 1140 m. The Bagmati River meets Syalmati at Shyalmati waterfall and Nagmati River near Sundari Mai temple. A portion of Mulkharka, Kune Gaon, Chilaune, and some parts of Mulkharka lies in the upstream of the Bagmati River. The Kathmandu Upatyaka Khanepani Limited (KUKL) diverts a substantial amount of water for the city's water supply at Sundarijal. Furthermore, water is also diverted into different locations for irrigation and household use.

Bishnumati River Watershed:

The total watershed area of Bishnumati River is 109.3 km^2 with the total length of 17.3 km. It originates from 2300 m altitude from Shivapuri (Bishnudwar). Bishnumati River is a major tributary of the Bagmati River that flows southward.

Dhobi Khola Watershed

The total watershed area of Dhobi Khola (Rudramati) is 31.2 km^2 and its total length of flow is 18.2 km. It originates from 2600 m altitude from Shivapuri Danda and flows south to the heart of the city joining the Bagmati River at Buddhanagar.

Nagmati River Watershed

The total watershed area of Nagmati river watershed is 14.45 km^2 with its total length of 7.9 km. This river originates from an altitude of 2443m at Dhap. This river merges with the Bagmati River at Sundarijal. Dhap dam lies within the watershed of the Nagmati River and the Proposed Nagmati Dam near Mulkharka also lies within the watershed of the Nagmati River.

Syalmati River Watershed

Syalmati watershed has an area of 5.40 sq. km with the total length of 4.8 km. This river originates from 2200 m altitude from middle part of Shivapuri Danda. This river merges with Bagmati River at Sundarijal.

Salinadi Watershed:

The Salinadi watershed in the national park and buffer zone is approximately 15 km^2 with a total length of 6.5 km. This river originates from Manichud (2450 m) at southeas part of Shivapuri hill. This river first merges with Manahara and later to Bagmati River at Chyasal.

Table 18: Land Use Pattern in Different Sub Watersheds

Watersheds	Cultivated land	Forest	Grassland	Shrub/bush land	Water bodies	Sandy area	Total
Bagmati	1.98	13.47	0.48	0	0.01	0	**15.94**
Nagmati	0.45	13.95	0.22	0.01	0	0	**14.63**
Syalmati	0	3.94	0.14	0	0	0	**4.08**
Dhobikhola	0	5.7	2.2	0.03	0	0.98	**8.91**
Bisnumati	0	1.88	2.26	4.54	0	0.38	**9.06**
Sanglekhola	0	0.85	5.35	4.17	0.08	0	**10.45**

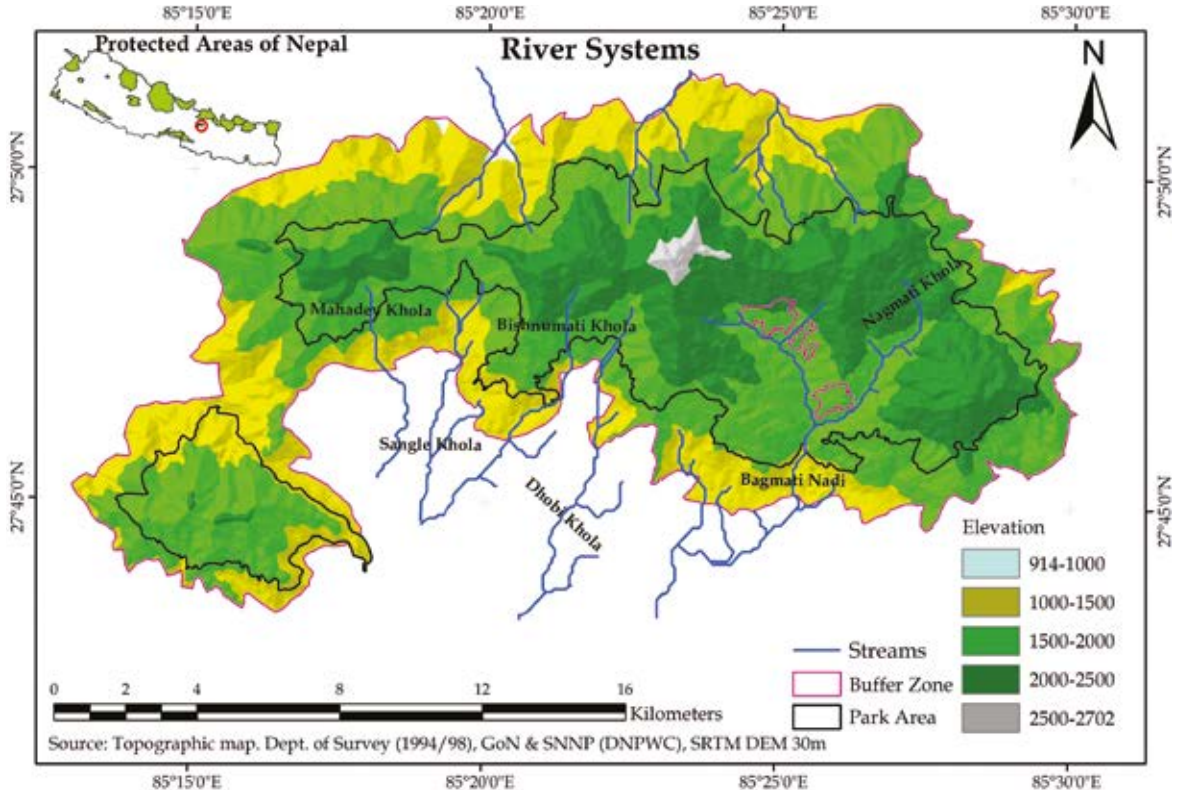


Figure 20: River System of Shivapuri Nagarjun National Park and its Buffer Zone

9.4.2 Land-use pattern of SNNP and Buffer Zone (2009 – 2019)

The land use pattern of SNNP is predominated by forest followed by shrub land, cultivated land and grassland respectively. Land use land cover is rapidly changing in the buffer zone. In last 10 years (2009-2019) in SNNP and Buffer Zone, the total forest has been increased by 5.13 km^2 (1.51 %) area. The built-up area has increased by 4.45 km^2 (1.31%). The crop land, grassland and other wooded area has decreased by 8.94 km^2 (2.63%), 0.27 km^2 (0.08%) and 0.37 km^2 (0.11%) respectively. The comparison between the two figures clearly suggest that human settlement was significantly increased in the southern belt of SNNP and the northeastern side of the Nagarjun forest (Table 19 and Figure 21).

Table 19: Land Use Land Cover of Shivapuri Nagarjun National Park

S.N.	LULC category	2009		2019		Change	
		Area km^2	Area %	Area km^2	Area %	Area km^2	Area %
1.	Forest	266.11	78.27	271.25	79.78	5.13	1.51
2.	Builtup Area	1.32	0.39	5.78	1.7	4.45	1.31
3.	Cultivation	70.10	20.62	61.16	17.99	-8.94	-2.63
4.	Grassland	0.64	0.19	0.37	0.11	-0.27	-0.08
5.	Other Woodland	1.80	0.53	1.42	0.42	-0.37	-0.11
	Total	339.98	100	339.97	100		

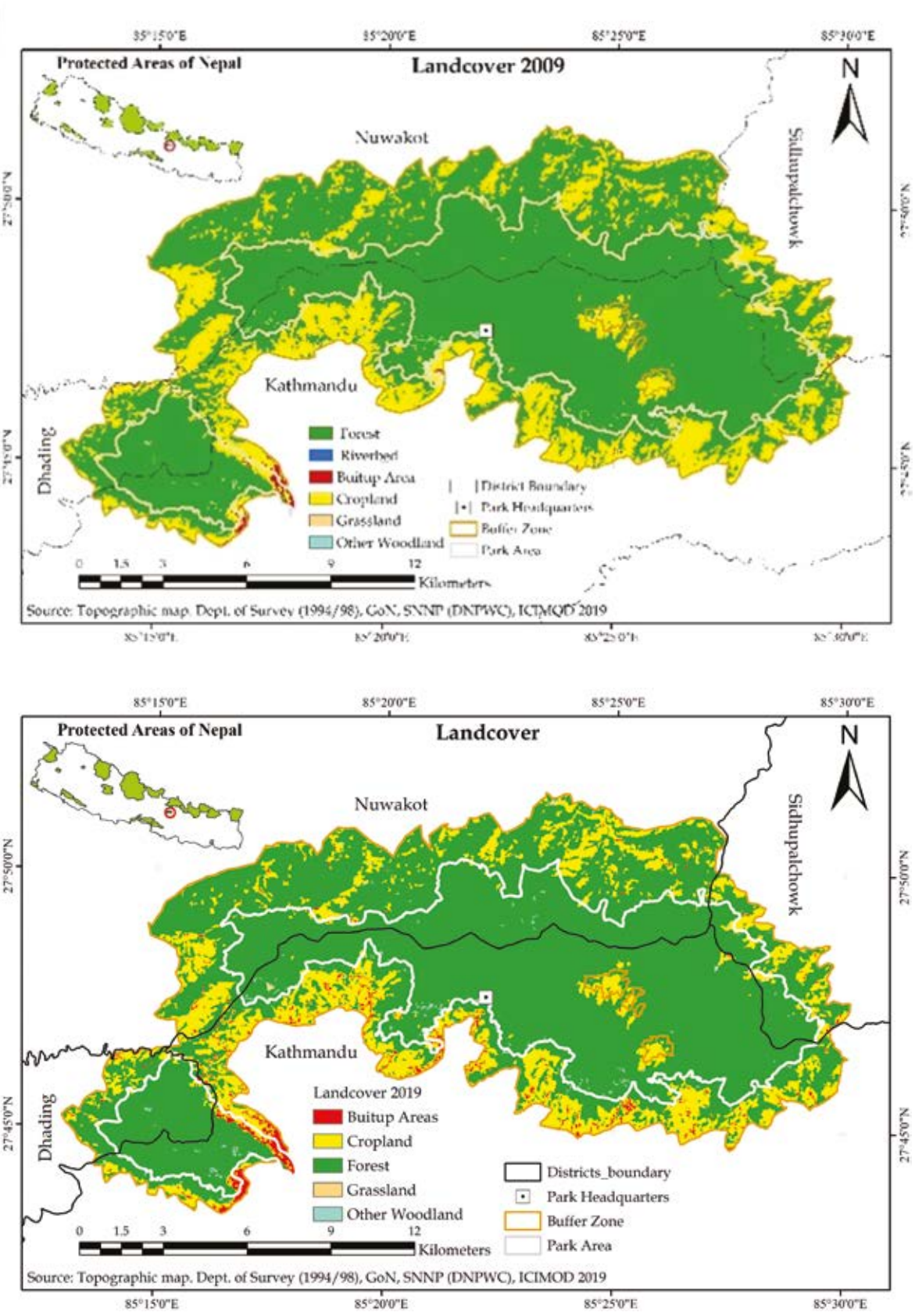


Figure 21: Land Use Land Cover Map of 2009 and 2019

9.4.3 Major Land Capability Class of Land-Use in SNNP

In Shivapuri Nagarjun National Park, 5.7 % of the total land area of watersheds is of Class I Land category where the land is Terraces Bari and Khet, abandoned land, grasses and shrubs, settlements, landslides, coniferous, hardwoods, mixed woods and shrubs (see Table 20 and Fig. 22), 9.5 % Class II, 62 % Class III and 22.6 % as Class IV category Land.

Table 20: Distribution of Major Land Capability Class of Land-use

Class I Land: Terraces Bari and Khet, abandoned land, grasses and shrubs, settlements, landslides, coniferous, hardwoods, mixed woods and shrubs	Slope < 1^0	5.7 % of total land area of watersheds	Mostly used under land capability, over used and under used, soil conservation work not necessary.
Class II land: Terraces Bari and Khet, abandoned land, grasses and shrubs, settlements, landslides, coniferous, hardwoods, mixed woods and shrubs	Slope 1 – 5^0	9.5 % of total land area of watersheds	Mostly used under land capability, some are over used and some under used, soil conservation works necessary.
Class III Land : Terraces Bari and Khet, abandoned land, grasses and shrubs, settlements, landslides, coniferous, hardwoods, mixed woods and shrubs	Slope 5 – 30^0	62.7 % of total land area of watersheds	Mostly used under land capability soil conservation work necessary.
Class IV Land: Terraces Bari and Khet, abandoned land, grasses and shrubs, settlements, landslides, coniferous, hardwoods, mixed woods and shrubs	Slope > 30^0	22.6 % of total land area of watersheds	Seriously over used, soil conservation work extremely necessary.

**Interpretation was done from the Report on Application of GIS for Shivapuri Watershed Project. ICIMOD and ISS, Kathmandu, Nepal 1982*

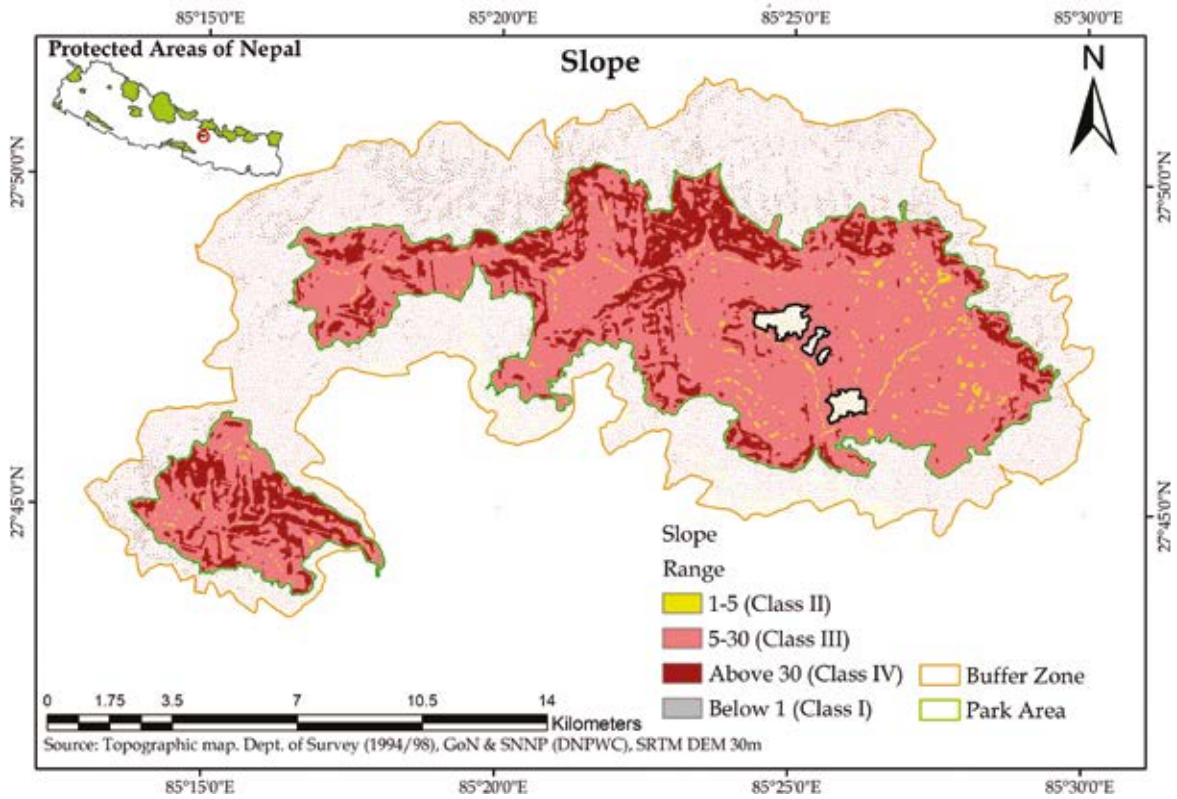


Figure 22: Distribution of Major Land Capability Class of Land-use in Shivapuri Nagarjun National Park and its Buffer Zone

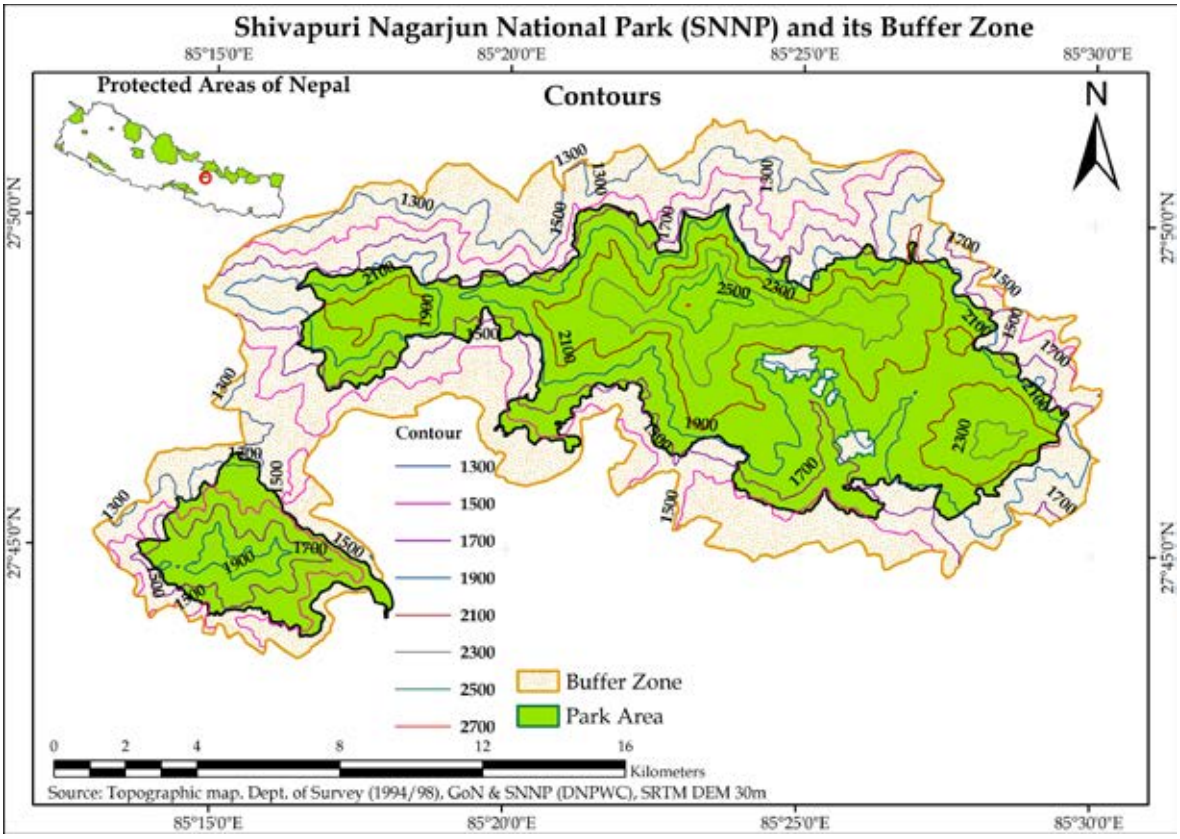


Figure 23: Contour map of Shivapuri Nagarjun National Park and its Buffer Zone

Table 21: Area Under Different Land Use Conditions

Use Conditions	Percent of total area of watersheds
Use with land capability, soil conservation treatment necessary	52.7 %
Use with land capability, soil conservation treatment not necessary	29.4 %
Seriously over used, soil conservation treatment extremely necessary	1.7 %
Over used, soil conservation treatment necessary in limited areas	6.8 %
Under used, soil conservation treatment not necessary	9.4 %

**Interpretation was done from the Report on Application of GIS for Shivapuri Watershed Project. ICIMOD and ISS, Kathmandu, Nepal, 1982*

9.5.4 Key Issues of SNNP Watershed Management

Some of the key issues and challenges of watershed management in SNNP are as follows:

- Growing pressure on forests of SNNP watershed due to increasing demand of firewood for local consumptions, brewing local alcohol and fodder for local livestock
- Forest fire common during dry season in SNNP watersheds
- Conversion of small grasslands and shrub land of SNNP into agriculture land for enhancing livelihoods of the local communities
- Increasing trends of soil erosion and landslides within the Bagmati watersheds due to poorly designed foot trails, absence of adequate drainages, improper management of rainfall runoff, and bad farming practices in the outward sloping agricultural lands.
- Excessive free grazing in the open forest, shrub lands and grasslands
- Occurrence of invasive species in the grassland, agriculture land and wetland due to overgrazing and pollution of water
- Disappearance of water sources in the upstream of the watersheds due to abuse of water sources and destruction of vegetation near the water sources

- Inadequate training and awareness to the communities on consequences of watershed degradation and importance of sustainable management.
- Pollution of rivers and streams due to free disposal of domestic wastes and increasing use of chemical fertilizers and insecticides in the crop land of Bagmati watersheds.
- Subsistence farming practice and high food deficiency in and around the settlements inside the SNNP watersheds particularly in Okhreni, Mulkharka, Kunegaon and Chilaune
- Increasing use of food grains and fire wood for the preparation of local liquor particularly in Okhreni, Mulkharka, Kunegaon and Chilaune
- Inadequate promotion of alternative energy technologies and potential use of existing energy sources to reduce forest dependency
- Poor public health and sanitation in immediate surrounding settlements of the park
- Inadequate drinking water facility and sanitation, and lack of awareness on safe drinking water
- Inadequate income generating programmes focusing on women, youth and small farmers
- Vulnerability of plant species due to climate change induced disasters such as drought, cloud bursts, declining sources of water and soil moisture

Strategies

- Identification and documentation of watershed of Holy rivers
- Strengthen awareness among the stakeholders
- Strengthen Park patrolling to control illegal felling of forests
- Control forest fire

Activities

- Watershed/sub-watersheds planning
  - Prioritize watersheds/sub-watersheds
  - Prepare sub-watershed management plan
- Forest fire control
  - Improve existing fireline
  - Clean fireline regularly
  - Prepare fire control plan
- Infrastructure protection and development
  - Improve walking trails
  - Construct and maintain drainage
  - Maintenance of Shivapuri ringroad
  - Protect and rehabilitate road slope
- Land productivity conservation
- Initiate on farm conservation
- Initiate organic farming
- Rehabilitate degraded land
- Distribute and plant fruit tree seedling
- Conserve outward sloping erosion-prone agricultural land
- Improve soil fertility management
- Community soil conservation and extension
  - Disseminate and promote alternate income generation programme- IGA center, including ecotourism
  - Promote eco-friendly household sanitation and waste management
  - Promote clean and efficient energy
- Group mobilization and Empowerment
  - Conduct school education/trainings
  - Conduct women awareness trainings
  - Provide conservation trainings
  - Initiate climate change hazards trainings
- Prepare watershed management plan of Bagmati and Bishnumati
- Study on integrated impact of Sundarijal dam, Dhap dam and upcoming Nagmati dam.
- Conduct regular study on water quality of all watersheds
- Conduct detail feasibility study on the construction of water storage /recharge ponds (multi-purpose water storage reservoirs) in Nagarjun, Jhor, Buddanilkantha area, Sankhu (Gagalphedi), Lapsiphedi area with the collaboration of local governments that can be used to control fire in park and urban area too
- Collaboration and coordination with High Powered Committee for Integrated Development of the Bagmati Civilization for the construction and management of multipurpose water storage reservoirs in all possible sites of the park.

CHAPTER 10

Buffer Zone Management

10.1 Introduction

The fourth amendment to the National Parks and Wildlife Conservation Act 1973 introduced the concept of buffer zone management in order to ensure the active participation of the people in biodiversity conservation. A buffer zone is impact area surrounding a park or a reserve encompassing forests, agricultural lands, villages, settlements, farms, open spaces, and any other land use. The ultimate goal of buffer zone is to achieve the active people participation in biodiversity conservation of national park and buffer zone. The buffer zone has two objectives: (i) conservation and development of biodiversity in BZ; and (ii) management of buffer zone forests to meet basic needs of forest products of the buffer zone communities and to plough back 30–50% of revenue generated by the park for the upliftment of socio-economic condition and institutional development of BZ communities. The National Parks and Wildlife Conservation Act, 2029 (Fourth amendment in 1993), Buffer Zone Management Regulations, 2052, Shivapuri Nagarjun National Park Buffer Zone Guidelines, 2073 and Shivapuri Nagarjun National Park Regulations, 2076 provide policy and legal framework for buffer zone management programme.

In 2016, an area of 118.61 km^2 around the national park was declared as the buffer zone of SNNP. The buffer zone is spread over two Rural Municipalities (Gaunpalika) and nine Municipalities of four Districts, viz., Kathmandu, Sindhupalchowk, Nuwakot, and Dhading, and has a population of 60000 The park has institutionalized mechanisms in the buffer zone to mobilize funds, minimize human wildlife conflict, minimize biotic pressures in the park resources and to motivate local communities in the participatory management of BZ forest resources. The Buffer Zone Management Committee (BZMC) is the apex body under which 11 Buffer Zone User Committees (BZUCs) and 307 User Groups (UGs) are formed and institutionalized.

Similarly, buffer zone comprises 29.95 km^2 (25.25 %) of forests, 88.32 km^2 (74.47 %) of agriculture land and 2.616 km^2 (2.24 %) of other land use. There are 76 registered CFUGs, totaling 1220 ha of forested land, 5124 HHs with population 26749 individuals, three leasehold forest (LHFs) totaling 100.7 ha, and one Religious Forest totaling 37 ropani (SNNP, 2017).

Tamang, Brahmin, Chhetri, and other ethnic groups make up the majority of the population in the BZ (Singh and Siwakoti, 2009). The main occupations of the local people are agriculture, animal husbandry, government services, and labor, among others. Most of these agriculture and animal husbandry are for subsistence living of the local community. The BZ programmes are aimed at institutional development (social capital), reduction of human-wildlife conflict, alternative natural resource development (natural capital), capacity/skill building (human capital), financial management (financial capital), conservation education and awareness, and gender and special target group mainstreaming. The BZ programme is a benefit-sharing mechanism which involves sustainable development, landscape-level conservation, tourism promotion, and reconciliation of park-people conflict. The BZ management programme also provides relief to wildlife victims.

In the last six years, SNNP generated a total of NRs. 179.52 million revenue. The revenue volume is significantly increasing since FY 2064/65 (Figure 24). The buffer zone received 50% of the total revenue generated by park for conservation and socio-economic development in the BZ. In the last five fiscal years, a total of NRs 63.03 million was received by BZ and in the last fiscal year 2079/2080 B.S, NRs. 26724796,

50% of the total revenue generated by park for conservation and socio-economic development for implementing various programmes. According to the Shivapuri Nagarjun National Park Buffer Zone Management Guidelines 2073, the BZMC, the Users Committees and User Groups have to allocate 15% of their budget for conservation, 15% for community development, 25% for minimizing human-wildlife conflict, 20% for tourism development, income generation and skill development, 10% for conservation education and 15% for administration. The proposed activity and budget plan for the buffer zone management is in Annex 13.

Buffer zone programme emphasizes sustainable management and development of the BZ forests through involving local communities as forest user groups. Till now, Division Forest Office (Kathmandu, Nuwakot, Sindhupalchowk and Dhadhing) has handed over a total of 1220 ha. of forest to 76 Community Forest User Groups (CFUGs) with 5124 households and 26749 users (population) for development, conservation, management and sustainable use of forest. Now, after the declaration of BZ all CFs mentioned above came under the jurisdiction of the park office. In addition, one religious forest and three leasehold forests in buffer zone have been registered. The BZ forests not only gives the locals access to forest resources, but they also protect more habitats for wild animals, provide alternate tourist destinations, and generate income for local development.

10.1.1 Formation of Buffer Zone Institutions

With the division of buffer zone into 11 Units, park authority in coordination with local communities-initiated formation of buffer zone institutions at different levels as per the Buffer Zone Management Regulations 2052 B.S. and the Shivapuri Nagarjun National Park Buffer Zone Management Guidelines 2073 B.S. to manage the area effectively and efficiently. The terms of the members of all the buffer zone institutions are for five years. Currently, there are 307 User Groups at the settlement level and 11 User Committees at the unit level (see Figure 25). Depending on the population and location, each User Committee has a several number of User Groups. Each UG have seven executive members – one chairperson, one vice-chairperson, one secretary, one joint secretary, one treasurer, one-woman member and one youth member elected from UG members. Similarly, the BZ User Committee consists of 13 members - one chairperson, one vice-chairperson, one secretary, one joint-secretary, one treasurer, six members, one-woman member, and one youth member, all of whom are elected from ex-officio members

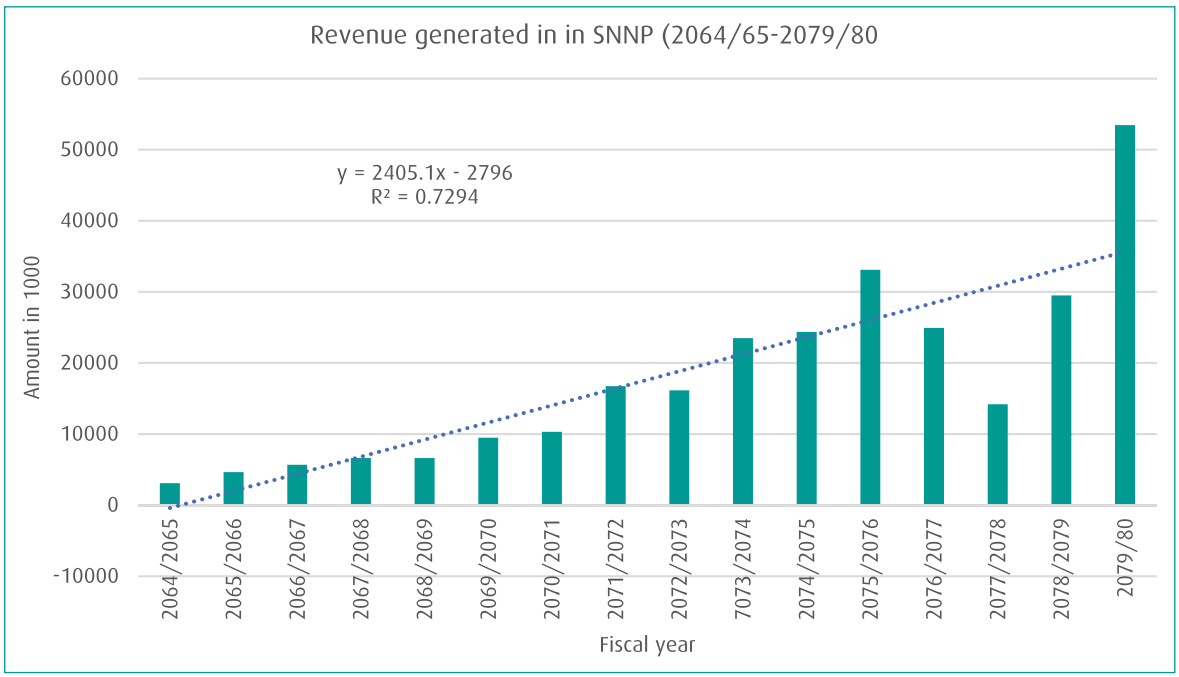


Figure 24: National Park Revenue(FY 2064/065 – 2079/080)

of the User Committee from the User Groups under it as per the Guideline. The Committee has the authority to invite and call members one each from the BZ Community Forest User Groups (CFUGs), tourism professionals, drinking water user committee, environmental teachers' forum, marginalized and deprived group, and representative from respective Rural Municipality or Municipality.

All chairpersons of 11 User Committees shall be the ex-officio member of the Shivapuri Nagarjun Buffer Zone Management Committee which is the apex body to manage the buffer zone. In addition, one representative from each District Coordination Committee of the Districts lying in the buffer zone shall be the ex-officio member to the Management Committee. The chairperson, vice-chairperson (2), secretary general, secretary will be elected from the User Committee chairpersons. The Conservation Officer of the SNNP office designated by the Senior Conservation Officer shall serve as the member-secretary to the BZ Management Committee (Table 22).

Table 22: Structure of Buffer Zone Management Committee

S.N.	Designation	Institution	Number	Remarks
1	Chairperson	BZMC	1	One among all the BZUC Chairperson
2	Vice Chairperson	BZUC Chairperson	2	
3	General Secretary	BZUC Chairperson	1	
4	Secretary	BZUC Chairperson	1	
5	Members	BZUC Chairperson	6	
6	Representative	Representative of Municipalities and Rural Municipalities	4	
7	Member Secretary	Assistant Conservation Officer of SNNP	1	
	Total		16	

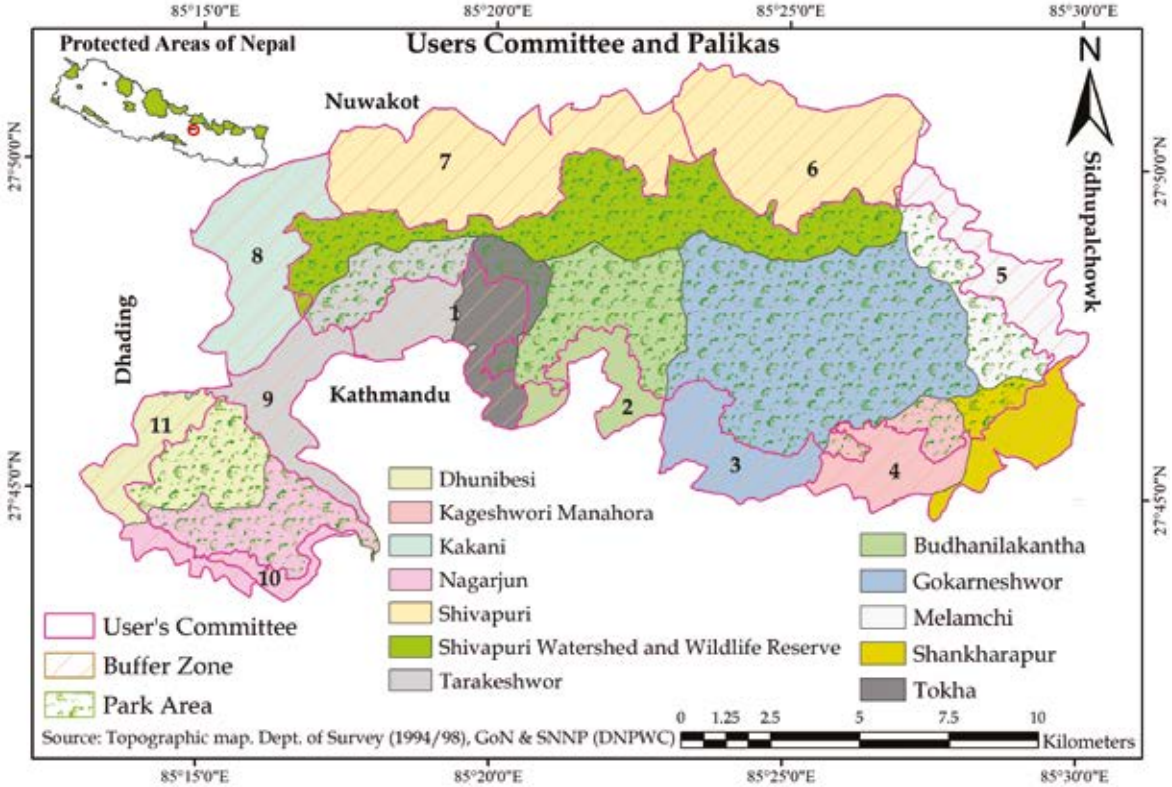


Figure 25: User committees Location Map

10.1.2 Management and Operation Plans

As per the Buffer Zone Management Regulation, 2052 and Shivapuri Nagarjun National Park Buffer Zone Management Guideline 2073, Buffer Zone Management Committee requires to have a 5-year BZ Management Plan. Similarly, each User Committee and User Group also needs to have 5 years Operation Plan for implementing various conservation programs in their respective area. All User Groups and User Committees draft their Operation Plans through a bottom-up planning process by compiling User Groups' Operation Plans which are under them. The Senior Conservation Officer of SNNP approves the User Committees' Operational Plans. The complete Buffer Zone Management Plan is developed by compiling all the User Committees' Operation Plans.

10.1.3 Buffer Zone Fund Payout Arrangement

A five-year Buffer Zone Management Plan has to be approved by the DNPWC on the recommendation of the Technical Committee for releasing up to 50% of the park income to implement the Management Plan. According to the Rule 15 of the Buffer Zone Management Regulation, 2052, the user committees are entitled to generate their own fund through various sources.

10.2 Past and Present Management Practices

Buffer Zone management started very lately in SNNP. It has been six years since the initiation of buffer zone programme. Most of the time was spent on conducting conservation awareness among BZ communities, explaining the benefits of buffer zone program and people participation. Although a little apprehensive earlier, local communities are more positive towards BZ program, most of the local people believe that the biodiversity conservation will help enhance their livelihoods by income generation through ecotourism in the area.

According to the Shivapuri Nagarjun National Park Buffer Zone Management Guideline, 2073; each BZ User Committee should prepare their five-year Operation Plan allocating the total budget for the following programs:

α)	Conservation program (watershed area, water source, forest management)	15 %
β)	Human-wildlife conflict minimization and relief	25 %
χ)	Community development program	15 %
δ)	Ecotourism, income generation and skill development program	20 %
ε)	Conservation education program	10 %
ϕ)	Administrative, service, facility and reward expenses	15 %

A total budget of NRs. 275,000,000.00 was proposed for implementing the Buffer Zone Management objective for the five-year Management Plan period (2017 -2022). Since there was a big gap between proposed and allocated budget, much of the proposed activities were not implemented or implemented reducing the target. Very little fund was collected/received from other funding sources (e.g., UC own source, local government, or other bilateral /multilateral donors) than expected.

10.2.1 Forest management

About 70.94 km^2 (59.77 %) of the total area of the Buffer zone is covered by forest, 0.22 km^2 (0.18 %) by grassland and 0.49 km^2 (0.41 %) by other wooded land (see Table 1). Most of the forests of the BZ were already handed over to the Community Forest User Groups by the District Forest Offices before the declaration of the buffer zone. These are now under the national park jurisdiction. So far, 1217 Ha. has been handed over to 76 Buffer Zone Community Forest User Groups (BZCFUG). A total of 5248 households with a population of 22234 have benefitted from these BZCFUGs. The major programs that were conducted during the last five year were basic forest management trainings, observation tour, fire management training, and support for forest watchmen, awareness and interaction meetings.

10.2.2 Other Landuse

Other main land use in buffer zone is built-up area that is settlements (houses, buildings, etc.) and cultivation areas (agricultural lands). The built-up area has been increasing (1.2 km^2 in 2009 to 5.78 km^2 in 2019) as the agricultural lands are gradually converted to built-up areas. Local people are selling their agricultural land to the people from outside, which are developing tourist homestays, tourist villages, lodges, restaurants and hotels.

10.3 Conservation-Management Issues

10.3.1 Socio-Economy of Villages

The buffer zone contains an extensive number of villages. The surrounding villages exert significant biotic pressure on the park. The buffer zone is divided into four districts and nine Municipalities across two Rural Municipalities. The occupation of most people is agriculture, and they are highly dependent on forest resources. Other people are engaged in tourism, few are in civil service, business, etc. Major castes of the people of buffer zone are Tamang, Brahmin, Chhetri, Gurungs, Damai, Kami, etc.

10.3.2 Resource Dependency of Local People

The people of buffer zone are dependent on the forest resources of the park for their livelihood. Most of their daily needs for fuel wood, small timber for use in agriculture, house construction or repair, and cattle grazing are met from BZ forests. Local people dependency on direct use of the forest resources has gradually decreasing as more and more people are now engaged in ecotourism, employment, and other income-generating activities and moving towards more eco-friendly life style. However, local people use sand, stone, and gravel from barren land, rivers, and streams of SNNP border and buffer zone for different developmental activities (roads, buildings, culverts/bridges, etc.).

10.3.3 Assessments of Inputs from Line Agencies

The District Coordination Committee (DCC), Gaunpalika, Nagarpalika, and Education, Agriculture, and Veterinary Offices are the other major line agencies working in the area. Although these agencies are providing facilities and services as per their plans, coordination with the line agencies is still poor. A better coordination is needed to ensure that the BZ community gets maximum benefit. On the other hand, several GO and I/NGOs also are working in BZ villages.

10.3.4 Human Wildlife Conflict

Human and wildlife are most important and interrelated components of the natural environment. They have co- existed with least competition since time immemorial. In recent years, there is competition for living spaces and resources between wildlife and humans as humans have modified their habits and habitats. As such, the human-wildlife conflict has threatened to destroy the natural balance and right of wildlife to co-exist in many areas of Nepal (Bajimaya, 2009; Giri and Shah, 1992). Crop depredation and livestock damage is emerging as a major source of conflict between local communities, protected areas and park manager thoughout India and the Himalayan regions (Kharel, 1997 and Mishra, 1997). This conflict has negatively impacted almost every species of wildlife, ultimately making biodiversity conservation a huge challenge. Wildlife related problems are specific to different areas, for example in Ichangu and Ramkot (Nagarjun Sector of SNNP) it is barking deer, Sambar, wild boar, and porcupine which are serious crop pests, while in Jitpur it is monkeys. Leopard attacks to domestic animals are one of the major causes of human-wildlife conflict. Sundarijal Shivapuri User Committee recorded 100 incidents of human leopard conflicts (25.38%) during 2017 to 2021. It was followed by Jitpur Goldhunga UC with 60 (15.22%) incidents (Table 23). Recently, there are complains that Himalayan black bear has been damaging honey farms, particularly in Sundarijal Shivapuri UC areas (Details in Table11 and 12).

Table 23: Record of Human Leopard Conflict in Respective User Committees

User Committees	Incidents	Percentage	Remark
Jitpur Goldhunga	60	16.04	
Baudeshwar Mahadev	19	5.08	
Bishnuchapali	12	3.21	
Gurje Bhanjyang	23	6.15	
Ichangunarayan	4	1.07	
Kakani Okharpauwa	52	13.90	
Manichud Kageswori	37	9.89	
Ramkot Bhimdhunga Chatradauorali	52	13.90	
Shivapuri chisapani	5	1.34	
Sindhu Shivapuri	30	8.02	
Sundarijal Shivapuri	80	21.39	
Total	374	100	

Source: Annual Reports of SNNP (2017-2021)

According to local people, the major causes of human-wildlife conflict are:

- Crop raiding and trampling agricultural lands by wild animals
- Livestock depredation by wildlife
- Attacks by wildlife to humans and terrorizing through their presence

The main conflicts instigated by humans against the wildlife in the area are:

- Burning of forests to stop crop raiding by the wildlife.
- Killing and poaching wildlife for economic gain, to obtain meat, medicine and fur.
- Encroachment of wildlife habitats by extending agricultural land, habitat degradation by felling trees and removing vegetation from the forests
- Livestock grazing in the wildlife habitats.
- Disturbances simply due to their own presence.
- Solid waste pollution: dumping trash in natural habitat
- Noise and air pollution

10.3.5 Crop Damage

Local people grow several crops in their fields: rice, wheat, finger millet, peas, potato, several seasonal vegetables and fruits. BZ residents complain about crop damage by wildlife; the amount of the damage and the responsible wildlife species greatly vary from village to village. Wild boar, monkey (mainly rhesus monkey), barking deer, porcupine, Himalayan black bear and some bird species are said to be major crop raiding animals.

The crop damage by wildlife in SNNP is summarized as following:

- Monkeys, wild boar and porcupine are serious pest on maize and wheat crops
- Wild boar is serious pest on the crops everywhere.
- Himalayan black bear is mainly pest on maize and porcupine is serious pest on maize, yam, potato, cardamom, radish and alocasia
- Barking deer raids on soyabean and maize.
- Masked palm civet is pest on maize and fruit trees.

The following factors are mainly responsible for the crop depredation by wildlife in the area.

- Forest fire and dry season leads to insufficient food in the natural habitats.
- In dry seasons, greenery is only seen in the agricultural fields, and with this abundance of food attracts the herbivore to crop land.
- In some areas, agricultural fields are not well protected through physical infrastructures, and

Table 24: Record of Relief Distribution on Human-Wildlife Confict

Year	Leopard	wild boar	Parrot	Barking deer	Monkey	Total relief distributed
074/75	3	5			3	62300
075/76	1	3	1	2	2	93400
076/77	3	49			5	390242
Total	**7**	**57**	**1**	**2**	**10**	**542882**

- Crop season coincide with the time when wild animals have significantly greater energy demands in preparation for winter and nursing the young ones.

Crop fields are guarded especially during the peak time of the wildlife raids. Temporary guard houses are built within the agricultural lands and people spent day and night guarding the crops. Several methods such as beating of metallic utensils, tins, bells and making noises are applied while guarding the crop fields. Scare crows are also installed at the vantage points of the farmland.

10.3.6 Livestock Depredation

As compared to crop depredation the area has fewer livestock depredation by the wild predators but it is in the rise. The leopard is the main wild animal that preys on cattle, sheep, goat and dog while jackal and yellow throated marten are reported to steal local poultry (Table 24).

As stated by local inhabitants the primary causes of livestock predation by wildlife are:

- Poor guarding during day and night time. The livestock are freely released in the pasture as well as around the villages.
- Weak and unhealthy livestock as they can be easily killed.

10.4 Major Issues

10.4.1 Human-Wildlife Conflict (HWC)

HWC is one of the most serious issues in the park. It is widespread but with different magnitude of damage, particularly of major crops like maize, millet, wheat and potato. The crop depredation by wild animals is identified as one of the major problems of SNNP (Kattel, 1993). Maize is the major crop preferred by wild animals followed by millet, wheat, and paddy (Suwal, 2009). It has been reported that 50% of Gagalfedi and 87% of Sunkhani HHs have reported damage to maize The farmers have abandoned more than 50% of agricultural land because of heavy crop depredation by monkey, porcupine, wild boar and barking deer. Himalayan black bears are also considered as problem animals to crops and fruit in some areas.

Often, it has been reported that goats are killed by leopard in the surrounding villages such as Ghairi Gau and Sundermai. Similarly, bear attack has been recorded from Okhreni. In rare cases, traps were used as a part of preventing pea crop damage from porcupine.

10.4.2 Poaching

Poaching has tremendously reduced after the handover of 57/58 muzzle guns during insurgency period. Poaching of kalij pheasant by trapping and selling in the local market occurs occasionally. But it is necessary to provide constant surveillance to the park to stop prohibited activities in the park and buffer zone.

10.4.3 NTFP collection mushroom, fern, Daphne

People collect fern, mushroom and Daphne (Lokta) seasonally from forest for their daily use and commercial purpose. People of Tokha harvest wild mushroom in rainy season. (BRANDT, 2014) recorded people in Shivapuri Nagajun National Park using 36 food species; 27 medicinal species; 12 food/medicinal species; 4 food/craft species; 3 cultural species, 3 food/fodder and 3 veterinary

species; 2 craft species, 2 fodder, 2 medicinal/ craft species; 1 craft/fodder species, 1 food/ firewood species, 1 medicinal/cultural species and 1 medicinal/veterinary species Similarly, (Koju et al, 2021) reported on increasing unauthorized collection of non-timber forest products (NTFP), fishing, and collection of fuelwood inside the park during Covid lockdown.

10.4.4 Increasing Conflict on Resource Use

Communities living in the buffer zone of the park are still dependent on park resources. There are no sufficient community forests in most of the units of buffer zone to meet the basic needs of firewood, fodder and grazing areas. No private forest exists in the area presently. Goat farming is a common practice as a source of income. The practice of home-made liquor distillation for local consumption and selling is exerting more pressure on park resources. Haphazard road construction across the park has not only deforested but also has fragmented wildlife habitat and increased the risk of trafficking of forest products and poaching in the area.

10.4.5 Rising Demands of Water for Drinking and Irrigation

SNNP is known for fresh water and it is one of the main sources of water supply to Kathmandu. The local demands of water for drinking and irrigation purpose are increasing. Often, local people complain about not being able to get water adequately. Dhap dam has already been constructed for improving Bagmati river basin and retaining at optimal level of water flow in Bagmati in dry period. It has the possibility to attract migratory birds which may change the aquatic fauna and the surrounding wildlife diversity.

10.4.6 Poor maintenance of boundary wall and fence

The erection of 111 km long and 1.2 to 1.8 m high stone wall in Shivapuri sector and 29 km brick wall in Nagarjun sector around the national park began in Fiscal Year 2038/039 B.S. The main objective of this wall was to prevent wild animals going out of the forest and also to control illegal collection of forest resources from the park. The wall has been collapsed and broken by intruders at several places. It has almost become ineffective to stop wild animals moving out and people going in to collect forest resources. Negligible maintenance work of the wall has been done so far. The wall needs regular maintenance in collaboration with local government and tourism related organizations. Along the wall and trail by wall outside the park area will be helpful for patrolling, and recreational activities like hiking, bird watching, nature walk and cycling can be promoted.

10.4.7 Forest Fire

Forest fire is a common problem in some User Committee like Baudeshwor, Bishnu-chapali, Sundarijal- Shivapuri, Manichud-Kageshwori, Goldhunga-Jitpur, Kakani-Okharpauwa but is less in Sindhu-Shivapuri User Committee. Similar situation may exist in other committees too. The fire prone areas along with major landslide prone areas in SNNP are shown in Figure 26.

10.4.8 Low level of Conservation Awareness

Awareness among the wider communities within the buffer zone about the importance of biodiversity conservation and the buffer zone program; natural values and ecotourism potential of the park is still very low. Few locals still seem to be worried that the buffer zone will be managed as a national park with more restrictions on resource use.

10.4.9 Imbalanced Distribution of CFUGs Under User Committees

It is found that there is imbalanced distribution of community forests among User Committee which ultimately put more pressure on park resources unless some correction measures are not taken in time (Table 15). Also, there is only one LHF and one Religious Forest (23 ropani) in Goldhunga-Jitpurphedi UC in the entire buffer zone.

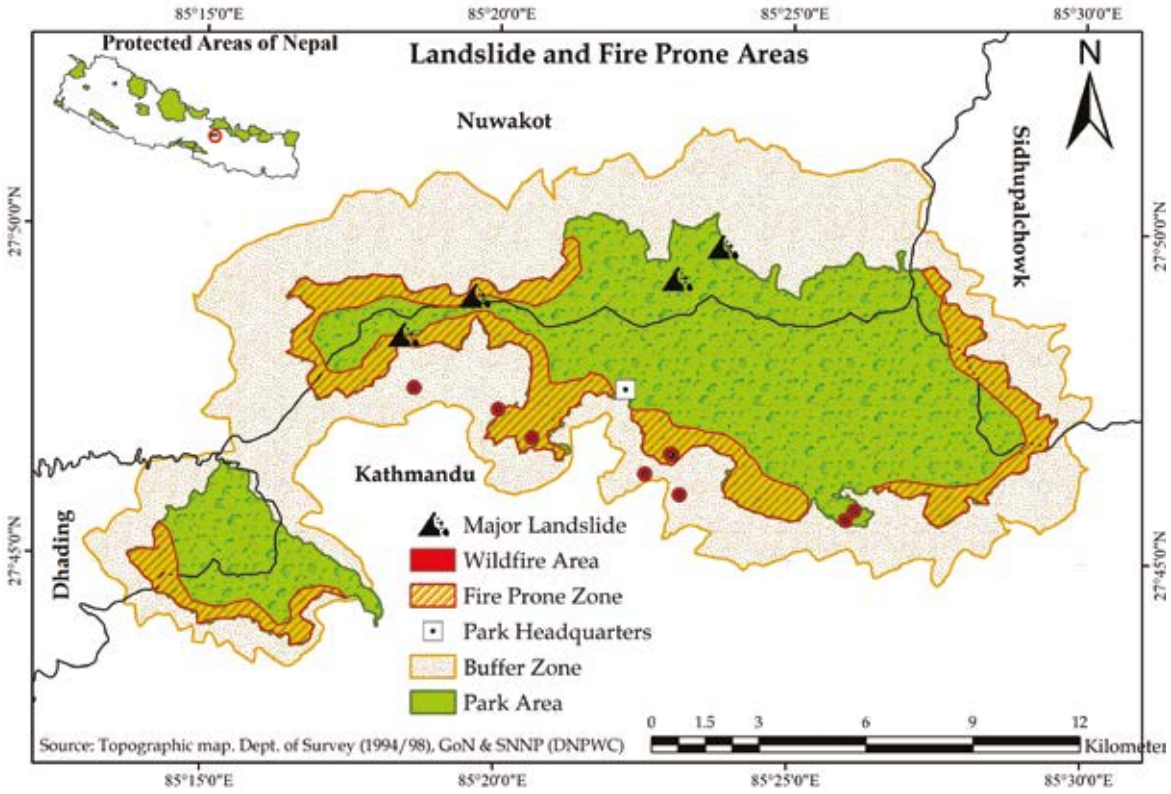


Figure 26: Map showing forest fire and landslide prone areas in Shivapuri Nagarjun National Park and its Buffer Zone

10.4.10 Limited Funding

At present, SNNP has limited fund available for implementing buffer zone programme. The income of the park during the last fiscal year 2078/079 BS was NRs. 2,94,88,388.59 and the last five years was NRs 12,60,67,590. The fifty percent of this amount is not sufficient to implement buffer zone programme as required. The income may increase but still it won't be adequate to support the programme as prescribed in the management plan.

10.4.11 Haphazard Development of Road Network

Haphazard development of road network crossing SNNP and BZ has not only damaged natural environment, but also fragmented wildlife habitat, raised pollution in drinking water resources, lost chunk of forests, increased vehicular movement and increased risk of poaching and illegal activities in the protected area.

10.4.12 Other Issues

There are a number of issues to be addressed in order to mainstream biodiversity conservation in buffer zone management. These are:

- Inadequate functional coordination between key actors of the buffer zone, including local level DCC, Gaunpalika, Nagarpalika, line agencies and NGOs active in buffer zone
- The forest in buffer zone has patchy distribution, which is not able to meet the basic requirements of the people living around it
- Dependency of people on forest resources owing to poverty and lack of alternative livelihood options in the area
- Low level of conservation awareness among general public
- Ineffective policy for regulating the land use of the area
- Contradictory policy related to relief distribution budget with central policy since SNNP provides relief to loss from all animals.

- High pressure on forest resources (timber, grass, firewood, medicinal plants, water, sand, stone, gravel, etc)
- Demand to build sports ground (football and volley ball play ground) and recreational center in bufferzones.
- Uneven opportunities of tourism benefits in buffer zone

10.5 Management Strategies

10.5.1 Zonation

The area of the buffer zone is duly notified and clearly delineated. For management purpose, buffer zone will be further divided into conservation zone, sustainable use zone and intensive use zone. It is important to develop sensitive zone mapping and priorities area of SNNP.

10.5.2 Conservation Zone

The large forest patches in buffer zone are equally good as core area for wildlife and watershed management which also serve as a biological corridor. Thus, these areas will be basically managed as extended wildlife habitat where extraction of forest products will be regulated but the area will be allowed for regulated tourism activities. The river segments of Bagmati and Bishnumati will also be managed as conservation zone.

10.5.3 Sustainable Use Zone

The forested area in buffer zone which is managed by community for dual purpose of meeting the need of forest products for the households and providing refuge for dispersing population of wildlife falls under this category of zonation. In addition, the area will be managed for regulated tourism activities.

10.5.4 Intensive Use Zone

This is the area in the buffer zone that includes all the settlements and private lands, where environment-friendly development activities will be carried out to enhance the livelihood of the people living in the area through various developmental inputs. The basic objective of this zone is to reduce the dependency of these people on forest resources and garner their support in conservation through conservation awareness. The area under this zone will be again prioritized based on severity of the interface problem, dependency of people on forest resources and wellbeing status of people. Based on this priority, the developmental inputs will be provided.

10.5.5 Regulation of Forest Products

The management and conservation of buffer zone forest resources is a matter of great concern. Increased demand of the forest resources right from the grass to timber is realized to be the major challenge in managing forest resources. As per the provision made in Buffer Zone Management Regulation, 2052, forests of buffer zone could be managed as buffer zone forest, buffer zone community forest, private forest or religious forest. Altogether, 76 community forests are already handed over to the respective user groups for management. The highest number of community forest is in Kakani-Okharpauwa, Nuwakot User Committee which has 1365 households and 27 User Group (Table 25).

The community forests are managed as per the approved operational plan. There is one religious' forest (OshoTapo Ban, Kathmandu) and three leasehold forests in buffer zone that were handed over before the declaration of the buffer zone (Table 26).

The regulation of river materials (sand, stone and gravel) excavation from the rivers and streams of park border and buffer zone for the following purpose:

i. Conserve habitat of wetland dependent birds and other wildlife;
ii. Transport river materials deposited unexpectedly in river bed and banks
iii. Provide raw materials for buffer zone community development;
iv. Increase the government revenue by charging royalty on river materials;

Table 25: Number of Community Forests User Groups

S.N.	Name of User Committee/District	No of User Groups	No of HHs	Population	No of CF
1	Sundarijal-Shivapuri, Kathmandu	46	1542	1040	8
2	Ramkot, Bhimdhunga, Chhatra Deurali, Kathmandu/ Dhading	17	726	1449	5
3	Boudeshwar Mahadev, Kathmandu	35	1400	1050	1
4	Manichud-Kageshwari, Kathmandu	36	1109	3923	8
5	Sindhu-Shivapuri, Sindhupalchok	18	944	4270	12
6	Bishnu-Chapali, Kathmanadu	17	1142	1997	4
7	Shivapuri-Chisapani, Nuwakot	20	573	2448	10
8	Ichangu Narayan, Kathmandu	23	825	719	2
9	Kakani-Okharpauwa, Nuwakot	27	1365	4762	8
10	Goldhunga-Jeetpur, Kathmandu	43	1311	2494	9
11	Gurje Bhanjang, Nuwakot	25	1061	2597	9
	Grand Total	**307**	**11998**	**26749**	**76**

Table 26: List of Leasehold and Religious Forests

Leasehold Forest					
1	Bajrayogini Tea Es- tate/ Manichud Tea Garden Private Limited	1	100 hac	-Shankharapur Municipality-4, Jhule	30 Years lease for tea and medicinal plants production on commercial scale
2	Dharmasringa dhyan Kendra	1	0.7	Buddhanilkantha Muncipality-1	30 Years lease
3	Everest Tea Garden			Melamchi 3, Haibung	
Religious Forest					
1	OshoTapo Ban, Kathmandu	1	273.0	-	Of which, 37 ropani is Government Forest

The excavation and use of sand, stone and gravel in buffer zone is limited to buffer zone users in regulated way for the purpose other than commercial. Regulated excavation of such products from rivers is allowed to the buffer zone communities only after charging royalty. These excavation activities are prohibited in areas where it could in watershed and wetland. Besides this, the excavation is limited to certain months In any case, transportation and use of sand, stone and gravel should not be extended outside the buffer zone. The use of mechanized equipment is not allowed.

10.6 Implementation and Mainstreaming Strategy

For the effective implementation of the plan, all the programmes will be implemented through user committees. The basic implementation strategy will be

- Ensure participation of all stakeholders;
- Follow the good governance practices- maintain transparency and well-informed decisions;

- Promote green development in buffer zone through organic farming, use of biogas, roadside plantation, watershed management, clean-up water sources and settlements and other green technology that reduces carbon footprint;
- Capacity building for institutional sustainability;
- Revision of relief distribution policy.

The mainstreaming strategies in buffer zone will include protection of wildlife, maintenance of wildlife habitats, regular monitoring of wildlife species, regulation of forest product collection and cattle grazing, human wildlife conflict minimization and paying compensation for any damage by wildlife. Tourism sector would include facilitating eco-tourism activities with active participation of the buffer zone residents.

CHAPTER 11

Activity, Budget and logical Framework

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 detail in Annex XII. The activities and budget of the management plan for Shivapuri Nagarjun National Park and Buffer Zone for the period of five years F.Y. 080/81 to 084/85 BS (2024 -2029) is summarized as follows (Table 27):

Table 27: Activity and Budget for Five Years Period

SN	Activities	Total Budget (NPR)	Amount (Budget in thousands, '000)				
			Year 1	Year 2	Year 3	Year 4	Year 5
A	**Park Management**						
1	Infrastructure Construction /Maintenance and Facilities Improvement						
	a. Building Construction/Maintenance and Facilities Improvement	186582	78800	37330	34113	17759	18580
	b. Road/trails construction & improvement	31815	6000	6300	6130	6493	6892
2	Habitat Management	24935	4680	5288	5032	5769	4166
3	Species conservation, research and monitoring activities Research and monitoring	6529	1000	1650	1815	1332	732
4	Strengthening intelligence network and Anti-Poaching	13175	3830	2013	2215	2437	2680
5	Human Wildlife Conflict	101773	20400	20110	20484	20633	20146
6	Eco-Tourism	23744	5200	4355	4328	4395	5466
7	Conservation Awareness	10003	1580	1738	1913	2104	2668
8	Capacity Building	3053	560	606	536	579	772
9	Special Programs	63793	10400	11440	12584	13842	15527
10	Watershed and Wetland management	2542	1150	0	1392	0	0
11	Office Management Cost	388726	63461	73107	76368	83806	91984
	Total (A)	**856670**	**197061**	**163937**	**166910**	**159149**	**169613**
B	**Buffer Zone Management**						
	Conservation Programme (15%)	46300	9590	9090	9490	8890	9240
	Human Wildlife conflict and Relief (25%)	70870	14130	14400	14220	14720	13400
	Community Development (15%)	48480	22720	6340	7340	6390	5690
	Eco-Tourism and Income generation and Skill development 20%	71650	20120	11320	16820	10920	12470
	Conservation Education (10%)	32765	7280	6390	6365	6365	6365
	Administrative cost (15%)	39036	7505	7487	7515	7477	7427
	Total (B)	309101	81345	55027	61750	54762	54592
	Grand total (A+B)	**1165771**	**278406**	**218964**	**228660**	**213911**	**224205**

11.1.1 Budget for Park Management

Total budget for park management cost is NRs. **85,66,70,000**out of which NRs. 38,87,26,000is for office management. The budget for five consecutive fiscal years is NRS **197.061** million, NRs **163.937**million, NRs **166.910**million, NRs **159.149**million and NRs **169.613**million which is 23%, 19.13%, 19.48%, 18.58% and 19.80% respectively. (Table 28).

Data shows that total allocated budget in last fiscal year 078/79 were NRs 96.2 million. Out of that budget, office management cost was NRs 48.7 million (50.62%) and NRS 47.5 million (49.37%) for park management

Table 28: Budget for Park Management

NRs in '000

S.N.	Source of Budget	Allocated budget	Office management cost	percent	Park management cost	percent	Fiscal Year
1	Government	96200	48700	50.62	47500	49.37	078/79
Proposed Budget per year							
1	Government	**197061**	63461	32.2	133600	67.79	080/81
2	Government	**163937**	73107	44.59	90830	55.4	081/82
3	Government	**166910**	76368	45.75	90542	54.24	082/83
4	Government	**159149**	83806	52.65	75343	47.34	083/84
5	Government	**169613**	91984	54.23	77629	45.76	084/85
	Total	856670	388726	45.37	467944	54.62	

11.1.2 Budget for Buffer Zone Management

Table 29: Budget for Buffer Zone Management

S.N.	Sources of budget	Expected amount per year	Percent	Remarks
1	Government	7000	12.17	
2	Revenue from tourist	16000	27.82	
3	Revenue from other sources	15000	26.08	
4	Local level government	11000	19.13	
5	Internal sources of UC	5500	9.56	
6	Conservation supporting agencies	10000	17.39	
	Total	57500	100%	

11.2 Logical Framework Analysis

The logical framework of output for Shivapuri Nagarjun National Park and Buffer Zone for five years period F.Y. 2080/081-2084/085 (2023/024-2027/028) is as follows:

Table 30: Logical Framework Analysis

Logframe Matrix	Shivapuri Nagarjun National Park and Buffer Zone Management Plan Bagmati Pradesh, Nepal	F.Y. 2080/081 – 2084/085 (2023/024 – 2027/028)	
Narrative summary	**Objectively verifiable indicators**	**Sources of verification**	**Assumptions**
Vision: ■ Well conserved biodiversity, watersheds and water bodies in Shivapuri Nagarjun National Park and Buffer Zone for the well-being of present and future generations	■ The watersheds are well managed ■ The supply of drinking water is increased ■ The diversity richness and status of endangered species is enhanced		
Goal: ■ To conserve and manage biological diversity, improve watersheds, wetlands, and natural ecosystems, and to enhance the socio-economic and cultural values of Shivapuri Nagarjun National Park and Buffer Zone	■ Watersheds and water sources are conserved for people's prosperity what about biodiversity and socioecomic?	■ SNNP and DNPWC annual reports ■ Management effectiveness evaluation report	Government policy and priority remains favourable
Objectives: 1. To protect, conserve and document biodiversity with special focus on nationally protected, globally threatened and locally valuable, endangered and endemic species, critical ecosystems, and diverse wildlife habitats	■ Leopard and pangolin populations are increased ■ Illegal felling of forest is significantly controlled by the end of 5 years ■ Sightings of endangered species are increased Quatify atleast in % otherwise it is very subjective	■ SNNP annual reports ■ Official and academic wildlife monitoring reports ■ Census reports ■ Media reports	SNNP will have full strength of competent staff
1. To manage the representative terrestrial and aquatic wildlife habitats and assess periodically habitat to maintain ecological functions and processes of mid-mountain ecosystem	■ More than two third of existing wetlands are well maintained (>66%) ■ Alien and invasive species are significantly removed (%) ■ At least two research reports on invasive ecology and	■ Observation records ■ Habitat diversity reports ■ Status survey reports	River water pollution remains controlled

Logframe Matrix	Shivapuri Nagarjun National Park and Buffer Zone Management Plan Bagmati Pradesh, Nepal	F.Y. 2080/081 – 2084/085 (2023/024 – 2027/028)	
Narrative summary	**Objectively verifiable indicators**	**Sources of verification**	**Assumptions**
	management methods have been prepared by the end of the five-year period ■ Invasive, fire mapping and wetland assessment maps are produced ■ Hazardous fire in park is significantly controlled ■ Number of wetland species is increased by 50%	Quantify change in terms of % where possible	
2. To manage watersheds of holy rivers such as Bagmati and Bishnumati to improve water quality, hydrological functions and processes in perpetuity	■ Water quality and quantity are increased ■ River excavation and pollution is regulated ■ Degraded river habitats of Bagmati and Bishnumati is improved	■ Annual reports ■ Monitoring reports	Local communities and tourism entrepreneurs provide continuous support
3. To regulate and promote sustainable eco-tourism retaining wilderness within the least acceptable change on natural environment and socio-cultural heritage of SNNP and buffer zone	■ Tourist number is increased by 30% by the end of five years ■ More than 100 local youths are engaged in different services by the end of 5 years ■ Share of local products in tourist market is increased by 50 percent ■ Five more new tourist sites are developed	■ Tourist flow records and reports ■ Local production reports ■ Consumption survey reports ■ SNNP reports	Nepal Tourism Board and other tourism institutions continue to promote conservation-friendly tourism
4. To enhance public participation in biodiversity conservation by raising awareness, and improving livelihoods and minimizing human-wildlife conflicts by initiating effective measures in collaboration with local communities and local level government agencies	■ Wildlife losses is reduced by 80% by the end of 5 years ■ Conservation awareness among 75 percent community households is increased ■ 5 home stay sites are established and operational by the end of five years ■ Wildlife damage relief fund are provided to more than 95% victims	■ No. of incident and legal cases ■ No. of cases of relief/ compensation requests ■ BZ and SNNP reports	BZ guidelines and relief guidelines remain unchanged Community remains unified and positive to cooperate Partner organizations provide continuous support

Logframe Matrix	Shivapuri Nagarjun National Park and Buffer Zone Management Plan Bagmati Pradesh, Nepal	F.Y. 2080/081 – 2084/085 (2023/024 – 2027/028)	
Narrative summary	**Objectively verifiable indicators**	**Sources of verification**	**Assumptions**
5. To strengthen institutional capacity of park, security and buffer zone through research and capacity building in collaboration with relevant agencies and organizations	■ Database is updated 18 months after the management plan has implemented ■ Joint venture in activities, projects and programmes is increased	■ Research reports ■ HRD reports ■ Media reports ■ DNPWC reports, official records of correspondence ■ Stakeholders (DCC, Rural municipalities, Municipalities) reports ■ SNNP report	Effective coordination, collaboration and networking with stakeholders continues
Outcomes: 1.1. Increased population of clouded leopard, common leopard, pangolin, spiny babbler and other fauna	■ Clouded leopard, pangolin, common leopard, spiny babbler population is increased four years after the implementation of the plan	■ Census reports ■ Periodic research reports	
1.2. Controlled poaching of wildlife species	■ Leopard and pangolin poaching is significantly reduced three years after the plan implementation	■ SNNP monthly, quarterly and annual reports ■ FM and newspaper media reports	Wildlife Crime Control Bureaus remain effective
1.3. Updated status of globally threatened avifauna, herpeto-fauna, fishes and mammals	■ Status of clouded leopard, pangolin, common leopard and spiny babbler is updated by 2025 B.S.?? or AD	■ Database report ■ Survey reports	Trained human resources are available
2.1. Maintained grassland area with desired quality	■ Unpalatable tree species are uprooted from major grassland areas (what %)	■ Observation records ■ SNNP and DNPWC annual reports ■ Vegetation survey and habitat management reports	
2.2. Enhanced and maintained quality of key wetland sites	■ Quality and area of 30 wetland sites are enhanced ■ 4 water holes are constructed and renovated	■ Observation records ■ SNNP Annual reports	KUKL, Water User Groups and other related agencies collaborate
2.3. Improved water quality by reduced pollution and exploitation	■ Water quality is assessed and maintained before and after use	■ Water quality assessment reports ■ Annual and periodic water quantity measurement reports	Better inter-ministerial coordination continues for river related programmes

Logframe Matrix	Shivapuri Nagarjun National Park and Buffer Zone Management Plan Bagmati Pradesh, Nepal	F.Y. 2080/081 – 2084/085 (2023/024 – 2027/028)	
Narrative summary	**Objectively verifiable indicators**	**Sources of verification**	**Assumptions**
3.1. Reduced negative impacts of tourism on park	■ Non-recyclable garbage and noise inside the park is reduced ■ Visitor entry and number is regulated	■ Observation records ■ Survey report ■ SNNP Annual reports	Companies and markets support in reducing plastic wastes
3.2. Maintained wilderness areas (wild places) protecting their natural processes and values	■ Wildlife sightings is remarkably increased ■ Human disturbances in sensitive park areas are reduced	■ Observation report ■ Habitat survey report ■ SNNP Annual report	
3.3. Conserved indigenous cultural heritage of the area	■ 10 cultural sites are maintained	■ BZUC reports ■ Local media reports	Local volunteer and provide support
3.4. Shared benefit to locals by increasing income and employment opportunities	■ Income and living standard of local people is increased by 50% after five years of plan implementation	■ Household survey and BZ reports ■ BZ socio-economic survey report	Benefit sharing mechanism with BZ continues
3.5. Increased number of foreign visitors	■ The number of foreign visitors to park is increased by 50% after five years of the plan implementation	■ Nepal Tourism Board reports ■ HAN, TAAN reports ■ DNPWC, SNNP Annual reports	NTB, HAN, TAAN provide support in tourism marketing and promotion
4.1. Increased awareness level and concerns of local communities and institutions	■ 25 Green Day celebrations are organized and celebrated by local communities and institutions ■ More than 100 conservation awareness-based programmes are conducted in BZ schools	■ Local community and institution reports ■ BZUC reports ■ SNNP report	
4.2. Developed physical infrastructure in BZ	■ Roads, drinking water, school, bridges, biogas plants, irrigation canals and community halls are constructed in BZ Is it school too? (km, #)	■ Annual reports ■ Buffer zone and Rural Municipalities and Municipalities reports	Local Municipalities and Rural Municipalities continue providing active support in BZ infrastructure development
4.3. Reduced number of human-wildlife conflict cases	■ Human wildlife conflict cases are reduced by 80% 5 years after the plan has been implemented ■ 50% of the boundary wall is renovated 2 years after the MP is implemented	■ HWC case report ■ SNNP and BZMC reports	Relief guidelines for crop and property losses remain favourable and Government increases human casualty relief amount

Logframe Matrix	Shivapuri Nagarjun National Park and Buffer Zone Management Plan Bagmati Pradesh, Nepal	F.Y. 2080/081 – 2084/085 (2023/024 – 2027/028)	
Narrative summary	**Objectively verifiable indicators**	**Sources of verification**	**Assumptions**
4.4. Increased income and park-friendly livelihood options to the BZ communities	■ Income and livelihood opportunities communities is increased by 50 % 5 years after the plan implementation	■ Socio-economic survey report	BZ communities adopt livelihood options
5.1. Research activities prioritized, coordinated and the findings incorporated in park management	■ Research priority is in place 2 years after the plan implementation	■ Research and annual reports	
5.2. Enhanced the technical and managerial skills of staff and stakeholders	■ 50 capacity building trainings are conducted during the management plan period	■ HRD, training reports ■ Periodic performance evaluation ■ SNNP Annual reports	
5.3. Strengthened biological corridor cooperation with Divisional Forest Offices and other PA offices	■ Regular communication and (formal) interaction meetings are held twice a year with local DFO and PA Offices	■ Correspondence record ■ Personal communication record ■ Meeting minutes	
5.4. Developed networks, partnership and strengthened collaboration and coordination with stakeholders	■ Number of partners and collaborators have increased by 75% five years after the plan implementation	■ Newsletter and brochure publications ■ Media reports and newspapers	
5.5. Developed information management system using recent technology	■ Real time patrolling system is fully operational in all 32 posts five years after the plan has implemented	■ Real time maps and reports	

Activities:	Specification of inputs	Specification of costs
1. *To protect, conserve and document biodiversity with special focus on nationally protected and globally threatened and locally valuable rare and endemic species, communities, ecosystems, and diverse habitats of wildlife species*		
1.1 Construct or upgrade guard posts, view towers (Machan), all weather roads and fireline/ seasonal roads		
1.2 Strengthen intelligence network and information system to control poaching and other wildlife crime		
1.3 Surveil regularly through improved mobility and real time patrolling		
1.4 Assess regularly status of key protected species (clouded leopard, pangolin, leopard cat, and assamese monkey)		
1.5 Prepare checklist of mammals, herpeto-fauna, avi-fauna, fishes and insects		

Activities:	Specification of inputs	Specification of costs
2.	*To regulate and promote sustainable eco-tourism maintaining wilderness and cultural heritage*	
4.1	Access and improve facilities (fire lines, roads/trails, view towers)	
4.2	Develop walk trails	
4.3	Develop eco-tourism guidelines: define the design, color, structures of infrastructures and review and update entry fee and validity of entry ticket	
4.4	Manage solid wastes and improve sanitation	
4.5	Categorize hotel and standardize their services	
4.6	Promote home-stays and agro-tourism: link local organic vegetables, fruits, mushroom, honey, spices, dairy products	
4.7	Develop and empower nature guides	
4.8	Develop park information and interpretation centers: Sundarijal Centre, Panimuhan, Fulbari	
4.9	Initiate provision of e-ticketing and publicity of the park: (update leaflet and brochures regularly and produce tourist information maps)	
4.10	Conserve and promote local cultural heritage: Tamang culture by enhancing their crafts and arts (promote effective home stay)	
5.	*To enhance public stewardship on biodiversity conservation by increasing awareness, minimizing human-wildlife conflicts and improving livelihood of people (buffer zone management)*	
5.1	Maintain boundary wall fencing and live fencing	
5.2	Provide prompt relief and compensation of wildlife damage: quick and easy	
5.3	Strengthen local institutions	
5.4	Conduct conservation education programmes in schools	
5.5	Conduct awareness raising activities: workshops, interactions, discussion, documentary, exposure visit, radio, audio-visuals, special day celebration, wildlife week, pamphlets and leaflets distribution, activity reports	
5.6	Provide income generation trainings: vegetables, fruits, poultry, piggery, milk cattle and buffalo	
5.7	Improve livelihood through skill development programmes: handicraft, computer, electric wiring, beauty parlour, mobile and motor bike repair maintenance	
5.8	Provide infrastructure support: roads and infrastructures: road gravelling, maintenance and construction of school and community organization multi-purpose (BZCF, DCC, Gaupalika, Nagarpalika, BZUC) buildings, bridges	
5.9	Improve irrigation facilities: irrigation canals, bridge and culvert construction and maintenance	
5.10	Coordinate and collaborate: DLSO, DCC, BZMC, to establish and support Livestock Service Centres Promote BZ CFs: BZ forest registration, handover and management, BZCF habitat management and eco-tourism operation (in collaboration with different stakeholders and conservation support organizations, BZMC and Gaupalika/Municipalities)	
5.11	Regulate and monitor construction materials excavation and clarify the tax: SNNP, BZUCs and BZCFs previously as of DCCs	
6.	*To strengthen institutional capacity through research, capacity building, coordination and collaboration*	
6.1	Monitor key wildlife species: leopard monitoring by camera trapping, spiny babbler monitoring using GPS and use of satellite telemetry in wildlife monitoring	
6.2	Conduct census of threatened wildlife species: clouded leopard, common leopard	
6.3	Conduct status survey of protected birds and wildlife: spiny babbler, leopard cat, assamese monkey	

Activities:	Specification of inputs	Specification of costs
6.4	Conduct research on wildlife, habitat and human dimensions of management: DNA/genetic test of leopard, pangolin, Himalayan black bear, climate change	
6.5	Investigate and do follow up of catastrophic deaths and disease surveillance Provide capacity enhancement trainings: Real time, GPS, GIS, computer operation, APPA/ZOPP, wildlife handling techniques library management biodiversity documentation trainings and academic courses in different international institutions	
6.6	Coordinate and collaborate with other conservation institutions and organizations (local/district level meetings on monthly/tri-monthly/annual basis) Conduct landscape level meetings and workshops with Divisional Forest Offices and protected area offices for maintaining, monitoring and improving biological corridors	

Preconditions:
Foreseen budget for implementation of the management plan preparation is available in time

11.3 Gender Equity and Social Inclusion

In the history of biodiversity conservation and resource management in Nepal, women and indigenous communities have been crucial players. However, because their way of life is so dependent on natural resources, they encounter many difficulties, such as the negative effects of, human wildlife conflict, disasters and climate change. Despite their substantial contributions, they frequently do not fully benefit from efforts to conserve biodiversity. The fact that these groups are not only the primary users of resources but also the contributors to and victims of resource degradation emphasises the significance of addressing gender and social inclusion (GESI) as central issues in biodiversity conservation and the development of green enterprises.

One of the interdisciplinary issues when creating a management strategy for PAs is GESI. Major findings are presented in the appropriate sections of the plan after updating and analysing data on park management, reviewing appropriate policies and laws, assessing capacity, and examining current management practices. A GESI perspective has been incorporated in result framework, and component plans, including issues, strategies, activities, and budget, based on the information and findings.

According to the proposed plan, specific roles would be assigned, practical and strategic needs of indigenous communities, women, and other Disadvantage Group (DAG) would be addressed, their rights would be respected, and their capacities for conservation and subsistence would be strengthened. Strategies for fair and equitable benefits would also be developed for these groups. Additionally, it has put an emphasis on women and DAG when hiring staff for the park and BZ institutions, providing conservation education, trainings, orientations, other alternative livelihood options, research activities, and database management, as well as making sure that they are engaged in BZ and other local institutions by holding significant portfolios and participating in decisions that affect them in order to respond to GESI perspective.

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Annexes

ANNEX 1

Mammals of Shivapuri Nagarjun National Park

SN	Scientific Name	Common Name	Order	Family	Method of confirmation	IUCN Red list		CITES
						National	Global	
1	*Muntiacus vaginalis*	Barking Deer	Artiodactyla	Cervidae	*, #, Ω, ψ	VU	LC	
2	*Capricornis thar*	Himalayan Serow	Artiodactyla	Bovidae	*, #, Ω, ψ	DD	VU	I
3	*Naemorhedus goral*	Common Goral	Artiodactyla	Bovidae	#, Ω, ψ	NT	NT	
4	*Rusa unicolor*	Sambar	Artiodactyla	Cervidae	*, #, Ω, ψ	VU	VU	
5	*Sus scrofa*	Wild Boar	Artiodactyla	Suidae	*, #, Ω, ψ	LC	LC	
6	*Felis chaus*	Jungle Cat	Carnivora	Felidae	#, Ω, ψ	LC	LC	
7	*Ursus thibetanus*	Himalayan Black Bear	Carnivora	Ursidae	#, Ω, ψ	EN	VU	
8	*Canis aureus*	Asiatic Golden Jackal	Carnivora	Canidae	Ω, ψ	LC	LC	III
9	*Neofelis nebulosa*	Clouded Leopard	Carnivora	Felidae	#, Ω, ψ	EN	VU	I
10	*Panthera pardus*	Common Leopard	Carnivora	Felidae	*, #, Ω, ψ	VU	VU	
11	*Prionailurus bengalensis*	Leopard Cat	Carnivora	Felidae	*, #, Ω, ψ	VU	LC	
12	*Herpestes auropunctatus*	Small Indian Mongoose	Carnivora	Herpestidae	*, #, Ω, ψ	LC	LC	
13	*Herpestes urva*	Crab-eating Mongoose	Carnivora	Herpestidae	*, Ω	VU	LC	
14	*Martes flavigula*	Yellow-throated Marten	Carnivora	Mustelidae	*, #, Ω, ψ	LC	LC	
15	*Melogale personata*	Burmese Ferret-Badger	Carnivora	Mustelidae	#, Ω,	DD	LC	
16	*Paguma larvata*	Masked Palm Civet	Carnivora	Viverridae	*, #, Ω, ψ	LC	LC	
17	*Viverra zibetha*	Large Indian Civet	Carnivora	Viverridae	*, #, Ω, ψ	NT	LC	
18	*Rhinolophus affinis*	Intermediate Horseshoe Bat	Chiroptera	Rhinolophidae	*, Ω	LC	LC	
19	*Rhinolophus ferrumequinum*	Greater Horseshoe Bat	Chiroptera	Rhinolophidae	*, Ω	LC	LC	
20	*Rhinolophus lepidus*	Blyth's Horseshoe Bat	Chiroptera	Rhinolophidae	*, Ω	NT	LC	
21	*Rhinolophus luctus*	Great Woolly Horseshoe Bat	Chiroptera	Rhinolophidae	*, Ω	LC	LC	
22	*Rhinolophus macrotis*	Big-eared Horseshoe Bat	Chiroptera	Rhinolophidae	*, Ω	LC	LC	
23	*Rhinolophus pearsonii*	Pearson's Horseshoe Bat	Chiroptera	Rhinolophidae	*, Ω	LC	LC	
24	*Rhinolophus pusillus*	Least Horseshoe Bat	Chiroptera	Rhinolophidae	*, Ω	LC	LC	
25	*Rhinolophus sinicus*	Chinese Rufous Horseshoe Bat	Chiroptera	Rhinolophidae	*, Ω	LC	LC	
26	*Rhinolophus rouxii*	Rufous Horseshoe Bat	Chiroptera	Rhinolophidae	*, Ω	LC	LC	
27	*Hipposideros armiger*	Great Roundleaf Bat	Chiroptera	Hipposideridae	*, Ω	LC	LC	
28	*Hipposideros cineraceus*	Ashy Roundleaf Bat	Chiroptera	Hipposideridae	*, Ω	DD	LC	
29	*Hipposideros gentilis*	Andersen's Leaf-nosed Bat	Chiroptera	Hipposideridae	*, Ω	NT	LC	

SN	Scientific Name	Common Name	Order	Family	Method of confirmation	IUCN Red list		CITES
						National	Global	
30	*Miniopterus fuliginosus*	Eastern Bent-wing Bat	Chiroptera	Miniopteridae	*, Ω	LC	VU	
31	*Murina aurata*	Little Tube-nosed Bat	Chiroptera	Vespertilionidae	*, Ω	NT	DD	
32	*Myotis csorbai*	Csorba's Mouse-eared Bat	Chiroptera	Vespertilionidae	*, Ω	CR	DD	
33	*Pipistrellus javanicus*	Java Pipistrelle	Chiroptera	Vespertilionidae	*, Ω	LC	LC	
34	*Lyroderma lyra*	Greater False Vampire Bat	Chiroptera	Megadermatidae	*, Ω	LC	LC	
35	*Soriculus nigrescens*	Himalayan Shrew	Eulipotyphla	Soricidae	*, Ω	LC	LC	
36	*Suncus murinus*	Asian House Shrew	Eulipotyphla	Soricidae	*, Ω	LC	LC	
37	*Episoriculus caudatus*	Hodgson's Brown-toothed Shrew	Eulipotyphla	Soricidae	Ω	LC	LC	
38	*Chimarrogale himalayica*	Himalayan Water Shrew	Eulipotyphla	Soricidae	Ω	EN	LC	
39	*Crocidura attenuata*	Grey Shrew	Eulipotyphla	Soricidae	Ω	LC	LC	
40	*Suncus etruscus*	Savi's Pygmy Shrew	Eulipotyphla	Soricidae	Ω	LC	LC	
41	*Lepus nigricollis*	Indian Hare	Lagomorpha	Leporidae	#, Ω	LC	LC	
42	*Manis pentadactyla*	Chinese Pangolin	Pholidota	Manidae	*, #, Ω, ψ	EN	CR	I
43	*Macaca assamensis*	Assamese Monkey	Primates	Cercopithecidae	*, #, Ω, ψ	VU	NT	
44	*Macaca mulatta*	Rhesus Macaque	Primates	Cercopithecidae	*, #, Ω, ψ	LC	LC	
45	*Dremomys lokriah*	Orange-bellied Himalayan Squirrel	Rodentia	Sciuridae	*, #, Ω	LC	LC	
46	*Petaurista petaurista*	Red Giant Flying Squirrel	Rodentia	Sciuridae	*, #, Ω	LC	LC	
47	*Petaurista magnificus*	Hodgson's Giant Flying Squirrel	Rodentia	Sciuridae	*, #, Ω	DD	LC	
48	*Petaurista nobilis*	Bhutan Giant Flying Squirrel	Rodentia	Sciuridae	*, Ω	DD	NT	
49	*Hylopetes alboniger*	Particolored Flying Squirrel	Rodentia	Sciuridae	*, Ω	LC	LC	
50	*Callosciurus pygerythrus*	Hoary-bellied Squirrel	Rodentia	Sciuridae	*, Ω	LC	LC	
51	*Hystrix brachyura*	Himalayan Po-rcupine	Rodentia	Hystricidae	*, #, Ω, ψ			
52	*Mus cervicolor*	Fawn-colored Mouse	Rodentia	Muridae	*, Ω, ψ	LC	LC	
53	*Mus musculus*	House Mouse	Rodentia	Muridae	*, Ω, ψ	LC	LC	
54	*Mus booduga*	Common Indian Field Mouse	Rodentia	Muridae	Ω,	LC	LC	
55	*Niviventer eha*	Smoke-bellied Rat	Rodentia	Muridae	*, Ω	LC	LC	
56	*Niviventer fulvescens*	Chestnut White-bellied Rat	Rodentia	Muridae	*, Ω	DD	LC	
57	*Niviventer niviventer*	White-bellied Rat	Rodentia	Muridae	*, Ω	LC	LC	
58	*Rattus nitidus*	Himalayan Field Rat	Rodentia	Muridae	*, Ω	LC	LC	
59	*Rattus pyctoris*	Turkestan Rat	Rodentia	Muridae	*, Ω	LC	LC	
60	*Rattus rattus*	Black Rat	Rodentia	Muridae	*, Ω	LC	LC	
61	*Vandeleuria oleracea*	Asiatic Long-tailed Climbing Mouse	Rodentia	Muridae	*	LC	LC	
62	*Bandicota indica*	Greater Bandicoot Rat	Rodentia	Muridae	Ω	LC	LC	
63	*Mus terricolor*	Earth-coloured Mouse	Rodentia	Muridae	Ω	LC	LC	
64	*Rattus tanezumi*	Oriental House Rat	Rodentia	Muridae	Ω	LC	LC	
65	*Golunda ellioti*	Indian Bush Rat	Rodentia	Muridae	Ω	LC	LC	

ANNEX 2

Birds of Shivapuri Nagarjun National Park

SN	ENGLISH NAME	SCIENTIFIC NAME	STATUS
GALLIFORMES			
Phasianidae			
1	Chukar	*Alectoris chukar*	r5
2	Black Francolin	*Francolinus francolinus*	r4
3	Hill Partridge	*Arborophila torqueola*	r1
4	Kalij Pheasant	*Lophura leucomelanos*	r1
TURNIPCIFORMES			
Turnicidae			
5	Barred Buttonquail	*Turnix suscitator*	r3
Picidae			
6	Eurasian Wryneck	*Jynx torquilla*	w3
7	Speckled Piculet	*Picumnus innominatus*	r3
8	Rufous Woodpecker	*Celeus brachyurus*	r3
9	Bay Woodpecker	*Blythipicus pyrrhotis*	r3
10	Brown-fronted Woodpecker	*Dendrocopos auriceps*	r3
11	Fulvous-breasted Woodpecker	*Dendrocopos macei*	r2
12	Rufous-bellied Woodpecker	*Dendrocopos hyperythrus*	r2
13	Crimson-breasted Woodpecker	*Dendrocopos cathpharius*	r3
14	Darjeeling Woodpecker	*Dendrocopos darjellensis*	r3
15	Lesser Yellownape	*Picus chlorolophus*	r2
16	Greater Yellownape	*Picus flavinucha*	r3
Megalaimidae			
17	Great Barbet	*Megalaima virens*	r2
18	Golden-throated Barbet	*Megalaima franklinii*	r3
19	Blue-throated Barbet	*Megalaima asiatica*	r2
UPUIFORMES			
	Upupdae		
20	Common Hoopoe	*Upupa epops*	m3
CORACIIFORMES			
Alcedinidae			
21	Common Kingfisher	*Alcedo atthis*	r2
Dacelonidae			
22	White-throated Kingfisher	*Halcyon smyrnensis*	r2

SN	ENGLISH NAME	SCIENTIFIC NAME	STATUS
Meropidae			
23	Blue-bearded Bee-eater	*Nyctyornis athertoni*	r5
24	Chestnut-headed Bee-eater	*Merops leschenaulti*	s3
CUCULIFORMES			
Cuculidae			
25	Pied Cuckoo	*Clamator jacobinus*	s5
26	Chestnut-winged Cuckoo	*Clamator coromandus*	s5
27	Large Hawk Cuckoo	*Hierococcyx sparverioides*	s3
28	Common Hawk Cuckoo	*Hierococcyx varius*	s4
29	Indian Cuckoo	*Cuculus micropterus*	s4
30	Eurasian Cuckoo	*Cuculus canorus*	s2
31	Himalayan Cuckoo	*Cuculus saturatus*	s3
32	Lesser Cuckoo	*Cuculus poliocephalus*	s2
33	Banded Bay Cuckoo	*Cacomantis sonneratii*	s4
34	Grey-bellied Cuckoo	*Cacomantis passerinus*	s4
35	Plaintive Cuckoo	*Cacomantis merulinus*	s4
36	Drongo Cuckoo	*Surniculus lugubris*	s4
37	Asian Koel	*Eudynamys scolopacea*	r3
38	Green-billed Malkoha	*Phaenicophaeus tristis*	r3
PSITTACIFORMES			
Psittacidae			
39	Rose-ringed Parakeet	*Psittacula krameri*	r4
40	Slaty-headed Parakeet	*Psittacula himalayana*	r5
APODIFORMES			
Apodidae			
41	Himalayan Swiftlet	*Collocalia brevirostris*	w3
42	White-throated Needletail	*Hirundapus caudacutus*	w4
43	Alpine Swift	*Tachymarptis melba*	w3
44	Fork-tailed Swift	*Apus pacificus*	w3
45	House Swift	*Apus affinis*	r1
STRIGIFORMES			
Strigidae			
46	Mountain Scops Owl	*Otus sunia*	r3
47	Eurasian Eagle Owl	*Bubo bubo*	r3
48	Spot-bellied Eagle Owl	*Bubo nepalensis*	E N r5
49	Brown Wood Owl	*Strix leptogrammica*	r3
50	Collared Owlet	*Glaucidium brodiei*	r2
51	Asian Barred Owlet	*Glaucidium cuculoides*	r3
52	Spotted Owlet	*Athene brama*	r2
Caprimulgidea			
53	Grey Nightjar	*Caprimulgus indicus*	r4
54	Large-tailed Nightjar	*Caprimulgus macrurus*	w4

SN	ENGLISH NAME	SCIENTIFIC NAME	STATUS
COLUMBIFORMES			
Columbidae			
55	Rock Pigeon	*Columba livia*	r2
56	Speckled Wood Pigeon	*Columba hodgsonii*	r3
57	Ashy Wood Pigeon	*Columba pulchricollis*	r3
58	Oriental Turtle Dove	*Streptopelia orientalis*	r3
59	Spotted Dove	*Streptopelia chinensis*	r2
60	Eurasian Collared Dove	*Streptopelia decaocto*	r3
61	Barred Cockoo Dove	*Macropygia unchall*	VU r4
62	Wedge-tailed Green Pigeon	*Treron sphenura*	r3
GRUIFORMES			
Scolopacidae			
63	Eurasian Woodcock	*Scolopax rusticola*	s3
64	Solitary Snipe	*Gallinago solitaria*	r4
65	Common Snipe	*Gallinago gallinago*	r2
66	Green Sandpiper	*Tringa ochropus*	w3
Accipitridae			
67	Black Kite	*Milvus migrans*	r2
68	Lammergeier	*Gypaetus barbatus*	w5
69	Egyptian Vulture	*Neophron percnopterus*	r4
70	White-rumped Vulture	*Gyps bengalensis*	CR m4
71	Himalayan Griffon	*Gyps himalayensis*	w3
72	Eurasian Griffon	Gyps fulvus	w3
73	Cinereous Vulture	*Aegypius monachus*	w4
74	Crested Serpent Eagle	*Spilornis cheela*	r2
75	Black Eagle	*Ictinaetus malayensis*	r3
76	Hen Harrier	*Circus cyaneus*	w4
77	Montagu's Harrier	*Circus pygargus*	?
78	Shikra	*Accipiter badius*	r3
79	Besra	*Accipiter virgatus*	r4
80	Eurasian Sparrowhawk	*Accipiter nisus*	w3
81	Northern Goshawk	*Accipiter gentilis*	w4
82	Common Buzzard	*Buteo buteo*	w3
83	Long-legged Buzzard	*Buteo rufinus*	w4
84	Upland Buzzard	*Buteo hemilasius*	w4
85	Greater Spotted Eagle	*Aquila clanga*	ENw4
86	Golden Eagle	*Aquila chrysaetos*	v
87	Steppe Eagle	*Aquila nipalensis*	w2
88	Bonelli's Eagle	*Hieraaetus fasciatus*	m5
89	Booted Eagle	*Hieraaetus pennatus*	w3
90	Mountain Hawk Eagle	*Spizaetus nipalensis*	r3

SN	ENGLISH NAME	SCIENTIFIC NAME	STATUS
Falconidae			
91	Lesser Kestrel	*Falco naumanni*	w5
92	Common Kestrel	*Falco tinnunculus*	r3
93	Amur Falcon	*Falco amurensis*	w4
94	Eurasian Hobby	*Falco subbuteo*	r4
95	Oriental Hobby	*Falco severus*	CR r5
96	Saker Falcon	*Falco cherrug*	w5
97	Peregrine Falcon	*Falco peregrinus*	r4
Ardeidae			
98	Cattle Egret	*Bubulcus ibis*	r1
99	Indian Pond Heron	*Ardeola grayii*	r1
PASSERIFORMES			
Eurylaimidae			
100	Long-tailed Broadbill	Psarisomus dalhousiae	VU r5
Irenidae			
101	Orange-bellied Leafbird	*Chloropsis hardwickii*	r2
Laniidae			
102	Brown Shrike	*Lanius cristatus*	w2
103	Long-tailed Shrike	*Lanius schach*	r2
104	Grey-backed Shrike	*Lanius tephronotus*	r3
Corvidae			
105	Eurasian Jay	*Garrulus glandarius*	r3
106	Black-headed Jay	*Garrulus lanceolatus*	r4
107	Yellow-billed Blue Magpie	*Urocissa flavirostris*	r5
108	Red-billed Blue Magpie	*Urocissa erythrorhyncha*	r1
109	Common Green Magpie	Cissa chinensis	?
110	Rufous Treepie	*Dendrocitta vagabunda*	r3
111	Grey Treepie	*Dendrocitta formosae*	r1
112	Spotted Nutcracker	*Nucifraga caryocatactes*	r4
113	House Crow	*Corvus splendens*	r1
114	Large-billed Crow	*Corvus macrorhynchos*	r1
115	Indian Golden Oriole	Oriolus Kundoo	s3
116	Maroon Oriole	*Oriolus traillii*	r2
117	Large Cuckooshrike	*Coracina macei*	r2
118	Black-winged Cuckooshrike	*Coracina melaschistos*	r3
119	Grey-chinned Minivet	*Pericrocotus solaris*	r4
120	Long-tailed Minivet	*Pericrocotus ethologus*	r2
121	Short-billed Minivet	*Pericrocotus brevirostris*	r4
122	Scarlet Minivet	*Pericrocotus flammeus*	r1
123	Bar-winged Flycatcher-shrike	*Hemipus picatus*	r3

SN	ENGLISH NAME	SCIENTIFIC NAME	STATUS
124	Yellow-bellied Fantail	*Rhipidura hypoxantha*	r2
125	White-throated Fantail	*Rhipidura albicollis*	r3
126	Black Drongo	*Dicrurus macrocercus*	r1
127	Ashy Drongo	*Dicrurus leucophaeus*	r3
128	Bronzed Drongo	*Dicrurus aeneus*	r3
129	Lesser Racket-tailed Drongo	*Dicrurus remifer*	r3
130	Spangled Drongo	*Dicrurus hottentottus*	r4
131	Asian Paradise Flycatcher	*Terpsiphone paradisi*	s4
Cinclidae			
132	Brown Dipper	*Cinclus pallasii*	r4
Turdidae			
133	Isabelline Wheatear	*Oenanthe isabellina*	
Muscicapidae			
134	Blue-capped Rock Thrush	*Monticola cinclorhynchus*	s3
135	Chestnut-bellied Rock Thrush	*Monticola rufiventris*	r3
136	Blue Rock Thrush	*Monticola solitarius*	s3
137	Blue Whistling Thrush	*Myophonus caeruleus*	r1
138	Pied Thrush	*Zoothera wardii*	w4
139	Orange-headed Thrush	*Zoothera citrina*	s4
140	Plain-backed Thrush	*Zoothera mollissima*	w4
141	Long-tailed Thrush	*Zoothera dixoni*	w4
142	Scaly Thrush	*Zoothera dauma*	w3
143	Long-billed Thrush	*Zoothera monticola*	VU w4
144	Tickell's Thrush	*Turdus unicolor*	s3
145	White-collared Blackbird	*Turdus albocinctus*	w2
146	Grey-winged Blackbird	*Turdus boulboul*	r2
147	Chestnut Thrush	*Turdus rubrocanus*	w5
148	Dark-throated Thrush	*Turdus ruficollis*	w2
149	Dark-sided Flycatcher	*Muscicapa sibirica*	s1
150	Rusty-tailed Flycatcher	*Muscicapa ruficauda*	s3
151	Ferruginous Flycatcher	*Muscicapa ferruginea*	s4
152	Slaty-backed Flycatcher	*Ficedula hodgsonii*	r2
153	Rufous-gorgeted Flycatcher	*Ficedula strophiata*	r2
154	Taiga Flycatcher	*Ficedula albiculla*	r3
155	Kashmir Flycatcher	*Ficedula subrubra*	?
156	White-gorgeted Flycatcher	*Ficedula monileger*	VU ?
157	Snowy-browed Flycatcher	*Ficedula hyperythra*	s3
158	Little Pied Flycatcher	*Ficedula westermanni*	s3
159	Ultramarine Flycatcher	*Ficedula superciliaris*	r2
160	Slaty-blue Flycatcher	*Ficedula tricolor*	r3

SN	ENGLISH NAME	SCIENTIFIC NAME	STATUS
161	Verditer Flycatcher	*Eumyias thalassina*	r2
162	Grey-headed Canary Flycatcher	*Culicicapa ceylonensis*	r1
163	Large Niltava	*Niltava grandis*	r5
164	Small Niltava	*Niltava macgrigoriae*	r2
165	Rufous-bellied Niltava	*Niltava sundara*	r2
166	Blue-throated Flycatcher	*Cyornis rubeculoides*	r2
167	Hill Blue Flycatcher	*Cyornis banyumas*	VUr4
168	Pygmy Blue Flycatcher	*Muscicapella hodgsoni*	VU ?
169	White-browed Shortwing	*Brachypteryx montana*	w5
170	Indian Blue Robin	*Luscinia brunnea*	s2
171	Himalayan Bluetail	*Tarsiger cyanurus*	w2
172	Golden Bush Robin	*Tarsiger chrysaeus*	w3
173	White-browed Bush Robin	*Tarsiger indicus*	w3
174	Oriental Magpie Robin	*Copsychus saularis*	r1
175	Blue-capped Redstart	*Phoenicurus coeruleocephalus*	w4
176	Black Redstart	*Phoenicurus ochruros*	w3
177	Hodgson's Redstart	*Phoenicurus hodgsoni*	w3
178	Blue-fronted Redstart	*Phoenicurus frontalis*	w2
179	White-capped Water Redstart	*Chaimarrornis leucocephalus*	r2
180	Plumbeous Water Redstart	*Rhyacornis fuliginosus*	r2
181	White-bellied Redstart	*Hodgsonius phaenicuroides*	w4
182	White-tailed Robin	*Myiomela leucura*	r3
183	Little Forktail	*Enicurus scouleri*	r3
184	Black-backed Forktail	*Enicurus immaculatus*	?
185	Slaty-backed Forktail	*Enicurus schistaceus*	r3
186	Spotted Forktail	*Enicurus maculatus*	r3
187	Purple Cochoa	*Cochoa purpurea*	VU r5
188	Hodgson's Bushchat	*Saxicola insignis*	EN m5
189	Common Stonechat	*Saxicola torquata*	r1
190	Pied Bushchat	*Saxicola caprata*	r2
191	Grey Bushchat	*Saxicola ferrea*	r3
Stuenidae			
192	Common Myna	*Acridotheres tristis*	r1
193	Jungle Myna	*Acridotheres fuscus*	r2
Sittidae			
194	Chestnut-bellied Nuthatch	*Sitta castanea*	r2
195	White-tailed Nuthatch	*Sitta himalayensis*	r1
196	Velvet-fronted Nuthatch	*Sitta frontalis*	r2
197	Wallcreeper	*Tichodroma muraria*	w4

SN	ENGLISH NAME	SCIENTIFIC NAME	STATUS
Certhiidae			
198	Rusty-flanked Tree-creeper	*Certhia nipalensis*	r4
199	Brown-throated Tree-creeper	*Certhia discolor*	r3
200	Winter Wren	*Troglodytes troglodytes*	w2
Paridae			
201	Fire-capped Tit	*Cephalopyrus flammiceps*	r5
202	Coal Tit	*Parus ater*	r4
203	Great Tit	*Parus major*	r1
204	Green-backed Tit	*Parus monticolus*	r1
205	Black-lored Tit	*Parus xanthogenys*	r1
206	Yellow-browed Tit	*Sylviparus modestus*	r3
Aegithalidae			
207	Black-throated Tit	*Aegithalos concinnus*	r1
Hirundinidae			
208	Plain Martin	*Riparia paludicola*	r2
209	Eurasian Crag Martin	*Hirundo rupestris*	w4
210	Barn Swallow	*Hirundo rustica*	r3
211	Red-rumped Swallow	*Hirundo daurica*	r3
212	Northern House Martin	*Delichon urbica*	w3
213	Nepal House Martin	*Delichon nipalensis*	w4
Regulidae			
214	Goldcrest	*Regulus regulus*	w3
Pycnonotidae			
215	Striated Bulbul	*Pycnonotus striatus*	r4
216	Black-crested Bulbul	*Pycnonotus melanicterus*	r4
217	Himalayan Bulbul	*Pycnonotus leucogenys*	r2
218	Red-vented Bulbul	*Pycnonotus cafer*	r1
219	Mountain Bulbul	*Hypsipetes mcclellandii*	r2
220	Black Bulbul	*Hypsipetes leucocephalus*	r1
Cicticolidae			
221	Striated Prinia	*Prinia criniger*	r2
Zosteropidae			
222	Oriental White-eye	*Zosterops palpebrosus*	r2
Sylviidae			
223	Chestnut-headed Tesia	*Tesia castaneocoronata*	r3
224	Grey-bellied Tesia	*Tesia cyaniventer*	r3
225	Common Tailorbird	*Orthotomus sutorius*	r2
226	Aberrant Bush Warbler	*Cettia flavolivacea*	w3
227	Hume's Bush Warbler	*Cettia acanthizoides*	w4
228	Grey-sided Bush Warbler	*Cettia brunnifrons*	w3
229	Blyth's Reed Warbler	*Acrocephalus dumetorum*	w3

SN	ENGLISH NAME	SCIENTIFIC NAME	STATUS
230	Dusky Warbler	*Phylloscopus fuscatus*	w4
231	Tickell's Leaf Warbler	*Phylloscopus affinis*	w3
232	Western Crowned Warbler	*Phylloscopus occipitalis*	w5
233	Blyth's Leaf Warbler	*Phylloscopus reguloides*	w2
234	Buff-barred Warbler	*Phylloscopus pulcher*	w1
235	Ashy-throated Warbler	*Phylloscopus maculipennis*	r3
236	Lemon-rumped Warbler	*Phylloscopus chloronotus*	w2
237	Yellow-browed Warbler	*Phylloscopus inornatus*	w3
238	Hume's Warbler	*Phylloscopus humei*	w2
239	Greenish Warbler	*Phylloscopus trochiloides*	w2
240	Large-billed Leaf Warbler	*Phylloscopus magnirostris*	w4
241	Green-crowned Warbler	*Seicercus burkii*	r2
242	Whistler's Warbler	*Seicercus whistlari*	w3
243	Grey-hooded Warbler	*Seicercus xanthoschistos*	r1
244	Chestnut-crowned Warbler	*Seicercus castaniceps*	r2
245	Black-faced Warbler	*Abroscopus schisticeps*	r2
246	White-throated Laughingthrush	*Garrulax albogularis*	r1
247	White-crested Laughingthrush	*Garrulax leucolophus*	r1
248	Striated Laughingthrush	*Garrulax striatus*	r1
249	Rufous-chinned Laughingthrush	*Garrulax rufogularis*	V r2
250	Grey-sided Laughingthrush	*Garrulax caerulatus*	VU r4
251	Streaked Laughingthrush	*Garrulax lineatus*	r2
252	Blue-winged Laughingthrush	*Garrulax squamatus*	VU r5
253	Chestnut-crowned Laughingthrush	*Garrulax erythrocephalus*	r1
254	Puff-throated Babbler	*Pellorneum ruficeps*	s3
255	Rusty-cheeked Scimitar Babbler	*Pomatorhinus erythrogenys*	r1
256	White-browed Scimitar Babbler	*Pomatorhinus schisticeps*	r4
257	Streak-breasted Scimitar Babbler	*Pomatorhinus ruficollis*	r2
258	Slender-billed Scimitar Babbler	*Xiphirhynchus superciliaris*	VU r5
259	Scaly-breasted Wren Babbler	*Pnoepyga albiventer*	r2
260	Nepal Wren Babbler	*Pnoepyga immaculata*	w5
261	Pygmy Wren Babbler	*Pnoepyga pusilla*	r3
262	Black-chinned Babbler	*Stachyris pyrrhops*	r2
263	Grey-throated Babbler	*Stachyris nigriceps*	r2
264	Spiny Babbler	*Turdoides nipalensis*	r3
265	Red-billed Leiothrix	*Leiothrix lutea*	r2
266	Himalayan Cutia	*Cutia nipalensis*	VU r4
267	Black-headed Shrike Babbler	*Pteruthius rufiventer*	VU r4

SN	ENGLISH NAME	SCIENTIFIC NAME	STATUS
268	White-browed Shrike Babbler	*Pteruthius flaviscapis*	r3
269	Green Shrike Babbler	*Pteruthius xanthochlorus*	r3
270	Black-eared Shrike Babbler	*Pteruthius melanotis*	r3
271	Hoary-throated Barwing	*Actinodura nipalensis*	r3
272	Blue-winged Siva	*Minla cyanouroptera*	r3
273	Bar-throated Siva	*Minla strigula*	r2
274	Red-tailed Minla	*Minla ignotincta*	r4
275	Rufous-winged Fulvetta	*Alcippe castaneceps*	r2
276	White-browed Fulvetta	*Alcippe vinipectus*	r2
277	Nepal Fulvetta	*Alcippe nipalensis*	r2
278	Whiskered Yuhina	*Yuhina flavicollis*	r2
279	Stripe-throated Yuhina	*Yuhina gularis*	r2
280	Rufous-vented Yuhina	*Yuhina occipitalis*	r3
281	White-bellied Yuhina	*Yuhina zantholeuca*	r3
282	Rufous Sibia	*Heterophasia capistrata*	r1
283	Black-throated Parrotbill	*Paradoxornis nipalensis*	r4
Nectariniidae			
284	Thick-billed Flowerpecker	*Dicaeum agile*	s4
285	Yellow-bellied Flowerpecker	*Dicaeum melanoxanthum*	r4
286	Fire-breasted Flowerpecker	*Dicaeum ignipectus*	r1
287	Purple Sunbird	*Nectarinia asiatica*	r2
288	Mrs Gould's Sunbird	*Aethopyga gouldiae*	r4
289	Green-tailed Sunbird	*Aethopyga nipalensis*	r1
290	Black-throated Sunbird	*Aethopyga saturata*	r2
291	Crimson Sunbird	*Aethopyga siparaja*	r3
292	Fire-tailed Sunbird	*Aethopyga ignicauda*	r3
Passeridae			
293	House Sparrow	*Passer domesticus*	r1
294	Russet Sparrow	*Passer rutilans*	r4
295	Eurasian Tree Sparrow	*Passer montanus*	r1
296	White Wagtail	*Motacilla alba*	w2
297	Grey Wagtail	*Motacilla cinerea*	w2
298	Upland Pipit	*Anthus sylvanus*	r5
299	Olive-backed Pipit	*Anthus hodgsoni*	r1
300	Rosy Pipit	*Anthus roseatus*	w3
301	Rufous-breasted Accentor	*Prunella strophiata*	w3
302	Maroon-backed Accentor	*Prunella immaculata*	w4
303	White-rumped Munia	*Lonchura striata*	r3
304	Scaly-breasted Munia	*Lonchura punctulata*	r2

SN	ENGLISH NAME	SCIENTIFIC NAME	STATUS
Fringillidae			
305	Plain Mountain Finch	*Leucosticte nemoricola*	w4
306	Yellow-breasted Greenfinch	*Carduelis spinoides*	r2
307	Tibetan Siskin	*Carduelis thibetana*	w5
308	Dark-breasted Rosefinch	*Carpodacus nipalensis*	w3
309	Common Rosefinch	*Carpodacus erythrinus*	w3
310	Pink-browed Rosefinch	*Carpodacus rodochrous*	w4
311	White-browed Rosefinch	*Carpodacus thura*	w4
312	Crimson-browed Finch	*Pinicola subhimachalus*	w4
313	Scarlet Finch	*Haematospiza sipahi*	w5
314	Brown Bullfinch	*Pyrrhula nipalensis*	r3
315	Red-headed Bullfinch	*Pyrrhula erythrocephala*	r4
316	Spot-winged Grosbeak	*Mycerobas melanozanthos*	r3
317	White-winged Grosbeak	*Mycerobas carnipes*	r4
318	Gold-naped Finch	*Pyrrhoplectes epauletta*	w4
319	Crested Bunting	*Melophus lathami*	r3
320	Little Bunting	*Emberiza pusilla*	r4

ANNEX 3

Herpetofauna of Shivapuri Nagarjun National Park

SN	Scientific Names	Common Names	Means of Verification
Amphibians			
1.	*Bufo melanosticus*	Black-spined Toad	Observation
2.	*Bufo stomaticus*	Marbled Toad	Observation
3.	*Megophrys parva*	Myanmar Pelobatid Toad	Observation
4.	*Microhyla ornata*	Ornate Narrow-mouthed Frog	Observation
5.	*Chaparana sikimmensis*	Sikkimese Frog	Observation
6.	*Euphlyctis cyanophlyctis*	Skittering Frog	Observation
7.	*Hoplobatrachus tigerinus*	Indian Bull Frog, Tiger Frog	Observation
8.	*Limnonectes syhadrensis*	Syhadra Frog	Observation
9.	*Nanorana liebigii*	Liebig's Frog	Observation
Reptiles			
1.	*Calotes versicolor versocolor*	Common Garden Lizard	Observation
2.	*Japalura variegata*	Variegated Japalura	Literature
3.	*Oriotiaris tricarinata*	Three-keeled Mountain Lizard	Observation
4.	*Asymblepharus sikimmensis*	Sikkim Skink	Observation
5.	*Mabuya carinata*	Brahminy Skink	Observation
6.	*Varanus bengalensis*	Bengal Monitor	Lit. & Inter.
7.	*Amphiesma platyceps*	Mountain Keelback	Observation
8.	*Amphiesma stolatum*	Buff-striped Keelback	Observation
9.	*Elaphe hodgsoni*	Himalayan Trinket Snake	Observation
10.	*Lycodon aulicus*	Common Wolf Snake	Observation
11.	*Pseudoxenodon macrops*	Indian False Cobra	Photo Observation
12.	*Ptyas mucosa mucosa*	Asiatic Rat Snake	Lit. & Inter.
13.	*Trachischium leave*	Olive Oriental Slender Snake	Literature
14.	*Trachischium tenuiceps*	Orange-bellied Worm Snake	Literature
15.	*Xenochrophis piscator*	Chequered Keelback Snake Snake	Observation
16.	*Naja kaouthia*	Monocled Cobra	Lit. & Inter.
17.	*Naja naja*	Spectacled Cobra	Lit. & Inter.
18.	*Ophiophagus hannah*	King Cobra	Observation/
19.	*Ovophis monticola*	Mountain Pit Viper	Observation
20.	*Trimeresurus albolabris*	White-liped Pit Viper	Literature

ANNEX 4

Butterflies of Shivapuri Nagarjun National Park

SN	Scientific Name	Authority	Sites	Remarks
Family: Lycaenidae				
1	*Arophala pseudocentaurus*	Doubleday	Shivapuri, Nagarjun, Sundarijal	Common
2	*Arophala rama*	Kollar	Shivapuri	Common
3	*Arophala paramuta*	DeNiceville	Nagarjun, Sundarijal	Rare
4	*Amblopala avidiena*	Hewitson	Nagarjun	
5	*Everes argiades*	Pallas	Shivapuri, Sundarijal	
6	*Chliaria kina*	Hewitson Common	Shivapuri	Uncommon
7	*Jamides celeno*	Cramer	Shivapuri, Sundarijal, Nagarjun, Kakani	Common
8	*Zizeeria maha*	Kollar	Shivapuri, Sundarijal, Nagarjun, Kakani	Common
9	*Panchala birmana*	Moore	Nagarjun	Rare
10	*Deudoryx epijarbus*	Moore	Shivapuri	Uncommon
11	*Chaetoprocta odata*	Hewitson	Shivapuri, Sundarijal	Uncommon
12	*Everes lacturnus*	Godart	Nagarjun	Rare
13	*Syntarucus plinius*	Fabricius	Shivapuri, Nagarjun	Rare
14	*Tajuria luculentus*		Shivapuri, Nagarjun	Rare
15	*Flos areste*	Hewitson	Shivapuri	Rare
16	*Euaspa miliona*	Hewitson	Shivapuri, Sundarijal	Uncommon
17	*Everes huegelii*	Gistel	Shivapuri, Nagarjun	Unommon
18	*Udara dilecta*	Moore	Shivapuri, Nagarjun, Sundarijal, Kakani	Common
19	*Udara albocerulea*	Moore	Shivapuri, Nagarjun	Common
20	*Celatoxia marginata*	DeNiceville	Shivapuri, nagarjun	Uncommon
21	*Actyolepsis puspa*	Horsfieldii	Shivapuri, Sundarijal, Nagarjun	
22	*Celastrina hersilia*		Shivapuri, Nagarjun	Rare
23	*Freyeria trochilus*	Freyer	Shivapuri, Sundarijal	
Family: Papilionidae				
24	*Teinopalpu imperialis*	Hope	Nagarjun	Rare
25	*Troides aeacus*	Felder	Shivapuri, Nagarjun, Sundarijal	Uncommon
26	*Papilio helenus*	Linnaeus	Shivapuri, Sundarijal	Uncommon

SN	Scientific Name	Authority	Sites	Remarks
27	*Graphum agamemnon*	Linnaeus	Sundarjal, Shivapuri and	Common
28	*Papilio protenor*	Cramer	Nagarjun	Common
29	*Achillides paris*	Linnaeus	Sunarijal, Shivapuri and	Uncommon
30	*Achillides polyctor*	Boisduval	Nagarjun	Common
31	*Achillides krishna*		Shivapuri	Endangered and rare
32	*Graphium sarpedon*	Linnaeus	Sundarijal, Shivapuri and	Common
33	*Papilio rhetenor*	Westwood	Nagarjun	Uncommon
34	*Papilio machaon*	Linnaeus	Shivapuri	Uncommon
35	*Pathysa glycerion*	Gray	Sundarijal, Shivapuri and	Rare
36	*Cadugoides epycides*	Hewitson	Nagarjun	Rare
37	*Achillides arcturus*	Westwood	Shivapuri, Nagarjun	Rare
38	*Papilio polytes*	Linnaeus	Shivapuri, Sundarijal and	Common
39	*Papilio memnon*	Linnaeus	Nagarjun	Common
Family: Nymphalidae			Nagarjun	
40	*Neptis radha*	Moore	Shivapuri	Uncommon
41	*Neptis ananta*	Moore	Shivapuri, Shivapuri, Nagarjun	Common
42	*Sephisa chandra*	Moore	Shivapuri, Sundarijal, Kakani	Common
43	*Euthalia patala*	Kollar	Shivapuri, Nagarjun	Common
44	*Euthalia sahadeva*	Moore	Shivapuri, Nagarjun	Rare
45	Euthalia franciae	*Gray*	*Nagarjun*	*Rare*
46	*Sumalia danava*	Moore	Shivapuri, Nagarjun	Rare
47	*Sumalia dudu*	Westw& Doubley	Shivapuri, Sundarijal	Rare
48	*Abrota ganga*	Moore	Shivapuri, Nagarjun, Sundarijal, Kakani	Common
49	*Polyura dolon*	Westwood	Shivapuri, Nagarjun, Sundarijal, kakani	Uncommon
50	*Neptis clinia*	Moore	Shivapuri, Nagarjun	Rare
51	*Athyma jina*	Moore	Shivapuri, Nagarjun, Sundarijal, Kakani	Common
52	*Athyma opalina*	Kollar	Shivapuri, Nagarjun, Sundarijal, Kakani	Common
53	*Athyma cama*	Moore	Nagarjun.Sundarijal	Uncommon
54	*Cethosia biblis*	Drury	Shivapuri, Nagarjun, Sundarijal, Kakani	Common
55	*Hypolymnas missipus*	*Linnaeus*	Shivapuri, Nagarjun, Sundarijal	Common
56	*Neptis sankara*	Kollar	Nagarjun	Rare
57	*Symbrenthia niphanda*	Moore	Shivapuri, Nagarjun, Sundarijal	Common

SN	Scientific Name	Authority	Sites	Remarks
58	*Argyreus hyperbius*	Linnaeus	Shivapuri, Nagarjun, Sundarijal, Kakani	Common
59	*Cyrestis thyodamus*	Boisduval	Shivapuri, Nagarjun, Shivapuri	Common
60	*Neptis hylas*	Linnaeus	Shivapuri, Nagarjun, Sundarijal, Kakani	Common
61	*Neptis armandia*	Oberthur	Shivapuri, Nagarjun	Uncommon
62	*Precis almana*	Linnaeus	Shivapuri, Nagarjun, Sundarijal, Kakani	Common
63	*Precis hierta*	Fabricius	Shivapuri, Nagarjun, Sundarijal, Kakani	Common
64	*Précis iphita*		Shivapuri, Nagarjun. Sundarijal, Kakani	*Common*
65	*Kaniska canace*	Linnaeus	Shivapuri, Sundarijal	Uncommon
66	*Issoria issaea*	Doubleday	Shivapuri, Nagarjun, Sundarijal, Kakani	Uncommon
67	*Nymphalis xanthomelas*	Denise & Schieff	Nagarjun, Sundarijal	Rare
68	*Vanessa cardui*	Linnaeus	Shivapuri, Nagarjun, Sundarijal, Kakani	Common
69	*Vanessa indica*	Herbst	Shivapuri, Nagarjun, Sundarijal, Kakani	Common
70	*Aglais cashmirensis*	Kollar	Shivapuri, Nagarjun, Sundarijal, Kakani	Common
71	*Kalima inachus*		Shivapuri, Sundarijal	Uncommon
72	*Stibochioena nicea*		Shivapuri, Sundarijal	Uncommon
73	*Polyura athamus*		Shivapuri, Nagarjun	Rare
74	*Pseudergolis wedah*		Shivapuri, Sundarijal, Nagarjun	Uncommon
Family: Pieridae				
75	*Catopsilia pomana*	Fabricius	Shivapuri, Nagarjun, Sundarijal, Kakani	Common
76	*Appias lalage*	Doubleday	Shivapuri, Nagarjun	Rare
77	*Appias lyncida*	Cramer	Shivapuri, Sundarijal	Rare
78	*Colias erate*	Esper	Shivapuri, Sundarijal, Nagarjun	Common
79	*Belenois aurota*	Fabricius	Nagarjun	Uncommon
80	*Delias sanaca*	Moore	Shivapuri, Nagarjun	Uncommon
81	*Delias belladonna*	Fabricius	Shivapuri, Nagarjun, Sundarijal, Kakani	Common
82	*Pieris canidia*	Sparman	Shivapuri, Nagarjun, Sundarijal, Kakani	Common
83	*Pieris brassicae*	Linnaeus	Shivapuri, Nagarjun, Sundarijal, Kakani	Common

SN	Scientific Name	Authority	Sites	Remarks
84	*Eurema hecabe*	Linnaeus	Shivapuri, Nagarjun, Sundarijal, Kakani	Common
85	*Gonepteryx rhamni*	Linnaeus	Shivapuri, Nagarjun, Sundarijal, Kakani	Common
Family: Nemeobiidae				
86	*Abisara neophron*	Hewitson	Shivapuri, Nagarjun	Uncommon
87	Abisara fylla		Shivapuri, Nagarjun, Sundarijal, Kakani	Common
88	*Dodona egeon*	Westwood	Shivapuri., Nagarjun	Common
89	*Dodona adinora*		Shivapuri, Nagarjun, Sundarijal	Common
90	*Dodona dipoea*		Nagarjun, Shivapuri, Sundarijal	Common
91	*Dodona eugenes*		Shivapuri, Nagarjun, Sundarijal	Common
92	*Zemeros fleygas*		Shivapuri, Nagarjun, Sundarijal, Kakai	Common
Family: Satyridae				
93	*Patala yama*	Moore	Shivapuri, Nagarjun	Rare
94	*Elymnias malelas*	Hewitson	Nagarjun	Rare
95	*Melanitis leda*	Linnaeus	Shivapuri, Nagarjun	Common
96	*Orinoma damaris*	Gray	Shivapuri, Nagarjun	Uncommon
97	*Callerebia annada*	Moore	Shivapuri, Nagarjun	Common
98	*Callerebia hybrida*	Butler	Shivapuri, Nagarjun, Kakani	Uncommon
99	*Callerebia scanda*	Kollar	Shivapuri, Nagarjun	Uncommon
100	*Mycalesis francisca*	Stoll	Shivapuri	Uncommon
101	*Ypthima sakra*	Moore	Shivapuri, Nagarjun, Sundarijal, Kakani	Common
102	*Aulocera loha*	Doherty	Nagarjun, Kakani	Rare
103	*Lethe baladeva*	Moore	Shivapuri	Uncommon
104	*Orsotrioena medus*	Fabricius	Shivapuri, Sundarijal, Nagarjun	Common
105	*Nemetis chandica*		Shivapuri, Nagarjun	Rare
Family: Danaidae				
106	*Danaus limniace*	Cramer	Shivapuri, Nagarjun, Sundarijal, Kakani	Common
107	*Danaus tytia*	Gray	Shivapuri, Nagarjun, Sundarijal	Rare
108	*Danaus aglea*	Stoll	Shivapuri, Nagarjun, Sundarijal, Kakani	Common
109	*Danaus chryssipus*	Linnaeus	Shivapuri, Nagarjun, Sundarijal, Kakani	Common

SN	Scientific Name	Authority	Sites	Remarks
110	*Danaus genutia*		Shivapuri, Nagarjun, Sundarijal, Kakani	Common
111	*Euploea core*	Cramer	Shivapuri, Nagarjun, Sundarijal, Kakani	Common
112	*Euploea mulciber*	Cramer	Shivapuri, Nagarjun, Sundarijal, Kakani	Common
Family: Libytheidae				
113	*Libythea lepita*	Moore	Shivapuri, Sunadijal	Uncommon
Family: Acreidae				
114	*Acrea issaea*		Shivapuri, Nagarjun, Sundarijal, Kakani	Common
Family: Hesperiidae				
115	*Choaspes heximanthes*	Rothschild and Jordan	Shivapuri, Nagarjun	Rare
116	*Hasora chromus*	Cramer	Sundarijal	Rare
117	*Seseeria dohertyi*	Watson	Shivapuri, Nagarjun	Uncommon
118	*Thoressa aina*	DeNiceville	Shivapuri, Nagarjun	Rare
119	*Lobocla liliana*	Atkinson	Shivapuri, Sundarijal	Rare
120	*Parnara naso bada*	Fabricius	Shivapuri, Nagarjun, Sundarijal, Kakani	Common
121	*Parnara guttata*	Bremer & Grey	Shivapuri, Sundarijal, Kakani	Uncommon
122	*Celaenorrhinus ratna*	Fruhstorfer	Nagarjun	Rare
123	*Caltoris tulsi*	DeNiceville	Shivapuri, Sundarijal	Uncommon
124	*Ochlodes brahma*	Moore	Nagarjun	Rare

ANNEX 5

Insects of Shivapuri Nagarjun National Park

S.N.	Scientific Name	Authority	Sites	Remarks
Order: Hemiptera (Bugs)				
1	*Durgades nigropictus*	*Distant, 1912*		
2	*Nehela sp*		Sundarijal	
3	*Exitianus sp*		Shivapuri	
4	*Chiasmus uzeii*		Sundarijal and Shivapuri base	
5	*Haranga orientalis*	*Walker, 1851*	Sundarijal, Buddhanilkantha	
6	*Namasangia garialis*	*Distant, 1908*		
7	*Farynala silacea*	*Thapa, 1989*	Nagarjun	
8	*Limassollakumatai*	*Thapa*	Nagarjun forest	
9	*Beesonia napiformis*		Nagarjun (1,500m) and	
10	*Sundarijal*	*Takagi, 1985*	Nepal: Kathmandu – Shivapuri	
11	*Neoquernaspis howelli*	*Liuet Tippins,1988*	Sundarijal (1,560m)	
12	*Megacoelum pervalidum*	*Distant, 1909*	Sundarijal (Soondarijal)	
13	*Gerris nepalensis*	*Distant, 1910*	Sundarijal	
14	*Metrocoris nepalensis*	*Distant, 1910*	Nepal Sundarijal	
15	*Mollitrichosiphum alni*	*Ghosh et al.,1982 1970*	Nagarjun, Narayansthan	
16	*Abidama producta*	Walker, 1851	Sundarijal	
17	*Haranga orientalis*	Walker, 1851	Sundarijal	
18	*Farynala extremita*	Dworakowska, 1982	Nagarjun forest	
19	*Takagioma unita*	Thapa, 1989	Nagarjun forest	
20	*T. manica*	Thapa, 1989	Nagarjun on Grewia sp.	
21	*Megacoelum pervalidum*		Sundarijal	
22	*Cameronaspis adinandrae*	Takagi et al.,1988	Nagarjung (1,470m)	
23	*C. cornigera*	Takagi, 1985	Shivapuri (Siwapuri)	
24	*Anthocoris sp.*		Shivapuri	
25	*Dalpada melania*	Distant, 1908	Nagarjun	
26	*Cicada imperatoria*	Westwood	Nagarjun	
27	*Chionapsis cornigera*	Takagi, 1985	Shivapuri	

S.N.	Scientific Name	Authority	Sites	Remarks
Order: Hymenoptera (Wasps, Bees and Ants)				
28	*Coccygomimus cameronii*	Dalla Torre, 1901	Kakani	
29	*Amblyjoppa annulitarsis annulitarsis*		Kakani	
30	*Isandria spiniventris*	Heinrich	Kakani	
31	*Eccoptosage miniata*	Uchida	Kakani	
32	*Scolia sp*		Sundarijal	
33	*Polistes olivaceus*	de Geer, 1973	Sundarijal	
34	*Polistes tenebricosus sulcatus*	Yamane et Yaman	Nagarjun	
35	*Stenaoplus ornatitarsis*	Cameron, 1931	Sundarijal	
Oredr: Coleoptera (Beetles)				
36	*Pristonychus pseudodolens*	Morvan, 1978	Nepal: Chisapani	
37	*Cicindela decempunctata*	Mandl, 1970	Nagarjun (1,400-1,600m)	
38	*C. dromicoides*	Chaudoir, 1852	Nagarjun (1,400-1,600m)	
39	*Metagyrinus arrowi*	Régimbart, 1907	Sundarijal	
40	*Spinosus nepalensis*	Ochs, 1929	Sundarijal, Sanku	
41	*Ipelates sikkimensis*	Portevin, 1905	Nagarjun Pass	
42	*Agathidium brahmano*	Angelini et al, 1981 Marzo, 1986	Nagarjun (1,400-2,100m)	Rare
43	*Agathidium kathmanduense*	Angelini et al, 1986 Marzo, 1981	Nagarjun (1,400-2,100m)	Rare
44	*Prostomis beatae*	Schawaller,	Nagarjun (1,400-2,100m)	Rare
45	*1991*	Shivapuri (1,800-2,500m).		
46	*Epipedocera undulata*	Hope, 1837	Nagarjun (1,500-1,700m)	
47	*Macrotoma crenata*	Fabricius, 1801	Nagarjung (1,500-1,700m)	Rare (1 e.g.). June
48	*Chlamys indicus*	Jacoby, 1908	Kakani Danda (2,286m).	Rare (1 e.g.). June
49	*Merista quadrifasciata*	Hope, 1831	Sundarijal	Uncommon
50	*Hoplocerambyx spinicornis*	Newman, 1842	Nagarjun (1,500-1,700m).	
51	*M. phalerata*	Pallas, 1781	Shivapuri, Nagarjun, Sundarijal, Kakani	Uncommon
52	*Atheta suspiciosa kathmanduorum*	Pace, 1987	Nagarjun (1,900-2,100m)	
53	*Schistoglossa biapicalis*	Pace, 1987	Nagarjun (1,900 -2,100m).	
54	*Edaphus lineatus*	Puthz, 1979	Nepal: Kathmandu Nagarjun (1,400-1,600m)	
55	*E. lineatus*	Puthz, 1979	Nepal: Kathmandu - Nagarjun (1,400-1,600m).	

S.N.	Scientific Name	Authority	Sites	Remarks
56	*Stenaesthetus canaliculatus taurulus*	Puthz, 1987	Nagarjun (1,900 -2,000m)	Subspecies described from Nepal
57	*Colasposoma semicostatum*	Jacoby, 1908	Sundarijal (1450 m)	Rare
58	*Hespera krishna*	Maulik, 1926	Sundarijal (1450 m)	Rare
59	*Oxytelopsis franzi*	Coiffait, 1982	Holotype Mulkharka (Mulkarka)	
60	*Lobochilus fortepunctatus*	Cameron	Budhanilkantha (1,150m)	
61	*Quedius decipiens*	Cameron, 1944	Mulkharka	
62	*Amara (B.) sikkimensis*	Andrews, 1930	Mulkharka	Less common
63	*Cicindela decempunctata subtile signata*	Mandl, 1970	Nagarjun (1,400 -1,600m)	Rare
64	*C. dromicoides*	Chaudoir, 1852	Nagarjun (1,400 -1,600m)	Less common
65	*Metagyrinus arrowi*	Régimbart, 1907	Sundarijal	Uncommon
66	*Dineutus (Spinosodineutes)*	Ochs, 1929	Sundarijal, Sanku	Common.
67	*spinosus nepalensis*	Portevin, 1905	Nagarjun	Uncommon
68	*Ipelates sikkimensis*	Angelini et al, 1986 Marzo, 1986	Nagarjun (1,400 -2,100m)	
69	*Agathidium brahmano*	Angelini et al, 1986 Marzo, 1981	Nagarjun (1,400 -2,100m)	Holotype from Nepal Rare
70	*A. kathmanduense*		Junkiri, Common	
71	*Luciola cruciata*	Newman, 1842	Nagarjun (1,500-1,700m).	Uncommon
72	*Hoplocerambyx spinicornis*	Fabricius, 1801	Nagarjung (1,500-1,700m).	Rare
73	*Macrotoma crenata*	Jacoby, 1901	Kakani Danda (2,286m).	Rare
74	*Chlamys indicus*	Hope, 1831	Kakani	Uncommon
75	*Merista quadrifasciata*	Oliver, 1808		Common / Common Name:
76	*Dicladispa armigera*	Kaszab, 1952	Mulkharka and Chisapani (2,000m)	Rice Hispa (Kande Khabate)
77	*Gonocephalum civicum*	Allard, 1896	Mulkharka, Chisapani (2,000m)	
78	*Hexahopalus entomogo-noides*	Kaszab, 1973	Sundarijal near Mulkharka (2,000-2,200m)	Uncommon
79	*Laena franziana*	Kaszab, 1973	Mulkharka	Uncommon
80	*L. luprops*	Ohira et Becker, 1974	Sundarijal	Uncommon

S.N.	Scientific Name	Authority	Sites	Remarks
81	*Melanotus nepalensis*	Ohira et Becker, 1974	Sundarijal	Uncommon
79	*Prostomis beatae*	Schawaller, 1991	Shivapuri (Sheopuri: 1,800-2,500m)	Uncommon
80	*Gonocephalum bilineatum*	Walker, 1858	Sundarijal near Mulkharka	Common.
81	*Prostomis beatae*	Schawaller,1991 1991	Shivapuri (Sheopuri: 1,800-2,500m)	Uncommon
82	*Gonocephalum bilineatum*	Walker, 1858	Sundarijal near Mulkharka	Common
83	*G. civicum*	Kaszab, 1952	Mulkharka and Chisapani (2,000m)	Uncommon
84	*G. nepalicum*	Kaszab, 1973	Holotype from Nepal: Mulkharka and Chisapani	Uncommon
85	*Eupatorus hardwicki*	Hope, 1831	Nagarjun (1,500m)	Uncommon
86	*Xylotrupes gideon*	Linn., 1767	Nagarjun; Makawanpur	Less common
87	Gonocephalum bilineatum	Walker, 1858	Sundarijal near Mulkharka	Common
88	G. nepalicum	Kaszab, 1973	Mulkharka and Chisapani	Common
Order : Diptera (Flies)				
89	Helophilus aeneus	Brunetti, 1907	Sundarijal	
90	*Milesia balteata*	Kertesz, 1901	Sundarijal	
91	*Betasyrphus albipilus*	Coe, 1965	Sundarijal	Less common
92	*Drosophila immiigrans*	Sturtevant, 1921	Kakani	
93	*Calliphora vicina*	Robineau- Desvoidy, 1830	Nagarjun (2,096m)	Less common.
94	*Hemipyrellia ligurriens*	Wiedemann, 1830	Shivapuri (1,500-2,000m)	Uncommon
95	*Lucilia cupria*	Wiedemann, 1830	Nagarjun (1,460-2,150m)	Uncommon
96	*L. shenyangensis*	Fan, 1965	Nagarjun	Common
97	*Chrysomya megacephala*	Fabricius, 1794	Shivapuri (1,800-2,300m)	Common
98	*Chrysomya pinguis*	Walker, 1858	Shivapuri (1,600-1,700m)	More common
99	*C. thanomthini*	Kurahashi, 1977	Shivapuri (1,800 -2,300m)	Uncommon
100	Stomoxys calcitrans	Linnaeus, 1758	Shivapuri (1,900m)	Less common
101	Sarcophaga albiceps	Meigen, 1826	Sundarijal, Shivapuri	Common
102	S. cruentata	Meigen, 1826	Sundarijal, Nagarjun, Shivapuri	Common
103	S. doleschalii	Johnston et Tiges, 1921	Sundarijal, Nagarjun, Shivapuri	Common

S.N.	Scientific Name	Authority	Sites	Remarks
Order: Thysanoptera (Thrips)				
104	*Dendrothrips shimae*	Kudo, 1989	Shivapuri 1700 m	
Order : Odonata (Dragonflies)				
105	*Anax guttatus*	Burmeister, 839	Nagarjun (1500- 1700 m)	
106	*Gynacantha incisura*	1935	Nagarjun 1500-1700 m	Uncommon
107	*Anotogaster nipalensis*	Selys, 1850	Nagarjun-1500-1700 m	Uncommon
108	*Anisogomphus bivittatus*	Selys, 1854	Sundarijal, Nagarjun (1500-1700 m)	
109	*Lamelligomphus biforceps*	Selys, 1878	Nagarjun1500-1700 m	Uncommon
110	*Ictinus rapax*	Rambur, 1842	Nagarjun 1500-1700 m	
Family: Libellulidae				
111	*Brachydiplax sobina*	Rambur, 1842	Nagarjun 1500 m	Less common
112	*Palpopleura sexmaculata*	Fabricus, 1857	Nagarjun	Uncommon
113	*Orthretum glaucum*		Nagarjun	Uncommon
114	*Orthretum japonicum*	MacLachlan 1894	Nagarjun	Less common
115	*Orthretum luzonicum*	Brauer, 1868	Kakani	
116	*O. pruinosum*	Rambur, 1848	Nagarjun	Less common
117	*O. sabina*	Drury, 1770	Nagarjun	Less common
118	*Potamarcha obscura*	Rambur, 1848	Nagarjun 1350 m	Less common
119	*Pantala flavascens*	Fabricius, 1798	Nagarjun	Uncommon
120	*Tramea basilaris*	Kirby, 1889	Nagarjun (1500-1700 m)	Uncommon
Sub Order: Anisozygoptera				
121	*Epiophlebia laidlawii*	Tillvard, 1921	Shivapuri	
Sub Order: Zygoptera				
122	*Caliphaea confuse*	Selys, 1859	Shivapuri	Less Common
123	*Rhinocypha trifasciata*	Selys, 1853	Nagarjun	Less common
Family : Coenogridae				
124	*Ceriagrion azureum*	Selys, 1891	Nagarjun 1500-1700 m	Less common

ANNEX 6

Dicot flora of Shivapuri Nagarjun National Park

SN	Scientific name	Nepali name	Habit	Elevation (m)	IUCN	CITES	GoN	Endemism
Acanthaceae								
1	*Adhatoda vasica* Nees	Asuro, Kalo bhasak	Shrub	1300-1500				
2	*Asystasia macrocarpa* Nees		Shrub	2300				
3	*Barleria cristata* L.	Bhende kuro	Shrub	1300				
4	*Dicliptera bupleuroides* Nees		Herb	1700				
5	*Eranthemum pulchellum* Andrews.	Nil gathe	Straggling shrub	1700				
6	*Hypoestes triflora* (Forsk.) Roemer & Schultes	Sim kuro	Herb	1300				
7	*Justicia procumbens* L. *var. simplex* (D. Don) Yamazaki		Herb	1300-1800				
8	*Lepidagathis incurva* D. Don		Herb	1400				
9	*Peristrophe speciosa* Nees		Straggling herb	1700				
10	*Rungia parviflora* Nees		Herb	1500				
11	*Strobilanthes atropurpureus* Nees		Straggling herb	1500-2400				
12	*Thunbergia coccinea* Wall.	Singarne lahara	Climber	1800-2000				
13	*Thunbergia fragrans* Roxb.		Climber	1300				
Aceraceae								
14	*Acer oblongum* Wall. ex DC.	Firfire	Tree	1300-1500				
Aizoaceae								
15	*Mollugo pentaphylla L.*		Herb	1400				
Alangiaceae								
16	*Alangium chinense* (Lour.) Harms		Tree	1500				
Amaranthaceae								
17	*Achyranthes bidentata* Blume		Herb	1300				
18	*Alternanthera sessilis* (L.) DC.	Bhiringi jhar	Herb	1300				

SN	Scientific name	Nepali name	Habit	Elevation (m)	IUCN	CITES	GoN	Endemism
19	*Amaranthus spinosus* L.	Ban lude	Herb	1300				
20	*Amaranthus viridis* L.		Herb	1300				
21	*Cyathula tomentosa* (Roth.) Moquin		Straggling herb or shurb	1300				
Anacardiaceae								
22	*Choerospondias axillaris* (Roxb.) B. L. Burtt & A. W. Hill	Lapsi	Tree	1400-1800				
23	*Dobinea vulgaris* Buch.-Ham. ex D. Don		Shrub	1700				
24	*Rhus javanica* L.	Dudhe bhalayo, Bhaki amilo	Shrub or tree	1800				
25	*Rhus parviflora* Roxb.	Sati bayar	Shrub	1500				
26	*Rhus succedanea* L.	Rani bhalayo	Tree	2400				
27	*Rhus wallichii* Hook. f.	Thulo bhalayo	Tree	1500				
Apocynaceae								
28	*Nerium oleander* L.	Barhamase	Shrub	1400				
29	*Thevetia peruviana* (Pers.) K. Schum.		Tree	1400				
30	*Trachelospermum lucidum* (D. Don) K. Shum		Climbing shrub	1800				
31	*Vallaris solanacea* (Roth.) O. Kuntze		Twinning shrub	1300				
Aquifoliaceae								
32	*Ilex dipyrena* Wall.	Seto khasru	Tree	2300				
33	*Ilex doniana* DC.	Punwale	Tree	1300				
34	*Ilex umbellulata* (Wall.) Loesener		Tree	1500				
Araliaceae								
35	*Acanthopanax cissifolium* (Griff.) Harm.		Climber	2500				
36	*Brassaiopsis hainla* (Ham.) Seems		Tree	2000				
37	*Hedera nepalensis* K. Koch.		Climber	1400-2400				
38	*Macropanax dispermus* (Bl.) O. Kuntze		Tree	2000				
39	*Panax pseudo-ginseng* Wall.		Herb	2700				
40	*Schefflera impressa* (C.B. Clarke) Harms		Tree	2000				

SN	Scientific name	Nepali name	Habit	Elevation (m)	IUCN	CITES	GoN	Endemism
Aristolochiaceae								
41	*Aristolochia griffithii* Hook. f.& Thoms. ex Ducharten	Hans phul	Climber	2600				
Asclepiadaceae								
42	*Asclepias curassavica* L.		Herb	1300				
43	*Ceropegia longifolia* Wall.		Climber	1600				
44	*Ceropegia pubescens* Wall.	Mirke laharo	Climber	2000				
45	*Cryptolepis buchannani* Roem. ex Sch.		Climbing shrub	1300				
46	*Cynanchum glaucum* Wall.		Herb	1300				
47	*Cynanchum vincetoxicum* Pers.		Herb	1900				
48	*Hoya lanceolata* Wall. ex D. Don		Epiphytic herb	1500				
49	*Hoya longifolia* Wall. ex Wight		Epiphytic shrub	1500				
50	*Tylophora hirsuta* (Wall.) Wight		Climber	1300-1500				
51	*Tylophora tenerrima* Wight		Climber	2350				
Begoniaceae								
52	*Begonia dioica* Buch.-Ham. D. Don		Herb	2200				
53	*Begonia hatacoa* Buch.-Ham. ex. D. Don		Herb	2000				
54	*Begonia picta* Sm.	Magar kanche	Herb	1400				
55	*Begonia rubella* Buch.-Ham. ex. D. Don	Magar kanche	Herb	2000				
56	*Begonia scutata* Wall. ex. DC.		Herb	1600				
57	*Begonia sikkimensis* A. DC.		Herb	2000				
Berberiaceae								
58	*Mahonia napaulensis* DC.	Jamane mandro	Shrub or small tree	1600				
59	*Berberis aristata* DC.	Chutro	Shrub	2400				
60	*Berberis asiatica* Roxb. ex DC.	Chutro	Shrub	1800				
61	*Berberis chitria* Buch.-Ham. ex Lindl.	Chutro	Shrub	2500				
62	*Berberis wallichiana* DC.	Chutro	Shrub	2500				Endemic to Nepal
63	*Mahonia acanthifolia* G. Don	Jamane mandro	Shrub or small tree	1600				

SN	Scientific name	Nepali name	Habit	Elevation (m)	IUCN	CITES	GoN	Endemism
Betulaceae								
64	*Alnus nepalensis* D. Don	Utis	Tree	1500				
65	*Betula alnoides* Buch.-Ham. Ex D. Don	Saur	Tree	1800				
Boraginaceae								
66	*Bothriospermum tenellum* Fish. & May.		Herb	1400				
67	*Cynoglossum lanceolatum* Forsk.	Kuro	Herb	1500				
68	*Cynoglossum zeylanicum* Thunb. ex Lehm.		Herb	1500				
69	*Ehretia acuminata* R. Br.	Seto lodho	Tree	1400				
70	*Ehretia macrophyla* Wall. ex Roxb.	Thulo lodho	Tree	1600				
71	*Trigonotis macrocarpa* (Wall.) Benth. ex C. B. Clarke		Herb	1600				
Buxaceae								
72	*Sarcococca coriacea* (Hook.) Sweet	Fitti fiya	Shrub	1300-2500				
73	*Sarcococca hookeriana* Baillon	Khursani pat	Shrub	2100				
Callitrichaceae								
74	*Callitriche stagnalis* Scop.		Aquatic herb	2500				
Campanulaceae								
75	*Campanula argyrotricha* Wall. ex DC.		Herb	1400				
76	*Campanula colorata* Wall.	Nepali bikh	Herb	1500-2100				
77	*Campanula sylvatica* Wall.		Herb	1700				
78	*Codonopsis inflata* Hook. f. & Thoms.		Herb	2200				
79	*Codonopsis purpurea* Wall.		Herb	2200				
80	*Lobelia chinensis* Lour.		Herb	1800				
81	*Lobelia heyneana* Roem. & Schultes		Herb	1400				
82	*Lobelia pyramidalis* Wall.	Eklebir	Herb	1800-2700				
83	*Peracarpa carnosa* (Wall.) Hook. f. & Thoms.		Herb	2200				
84	*Pratia nummuraria* (Lam.) A. Br. & Aschersen	Nilo ghodtapre	Herb	1500-2300				
85	*Wahlenbergia gracilis* DC.		Herb	1400				

SN	Scientific name	Nepali name	Habit	Elevation (m)	IUCN	CITES	GoN	Endemism
Cannabiaceae								
86	*Cannabis sativa* L.	Bhang, Ganja	Herb	1400				
Capparaceae								
87	*Crataeva narvala* Buch.-Ham.	Siplikan	Tree	1500				
Capparidaceae								
88	*Gynodropsis pentaphylla* DC.		Herb	1500				
Caprifoliaceae								
89	*Leycesteria formosa* Wall.	Patpate	Shrub	2300				
90	*Lonicera angustifolia* Wall. Ex DC.		Shrub	2700				
91	*Lonicera ligustrina* Wall.	Masinu kanike	Shrub	1600				
92	*Lonicera macrantha* (D. Don) Spreng.	Ban juhi	Shrub	2700				
93	*Sambucus adnata* Wall. ex DC.		Shrub	1400				
94	*Sambucus hookeri* Rehder	Kanike ful	Shrub or tree	1400				
95	*Viburnum cylindricum* Buch.- Ham. ex D. Don	Ghode khari	Shrub or tree	1500-2100				
96	*Viburnum erubescens* Wall. Ex DC.	Ganamane	Shrub or tree	1500-2300				
97	*Viburnum mullaha* Buch.-Ham. ex D. Don	Maulo, Kapase	Shrub	1800				
98	*Viburnum punctatum* Buch.- Ham. ex D. Don		Treee	1500				
Caryophyllaceae								
99	*Cerastium grandiflorum* (Buch.-Ham. ex D. Don) Edgew. & Hook.		Herb	1500				
100	*Cerastium holosteoides* Fries		Herb	1700				
101	*Drymaria cordata* (L.) Willd. ex Schult.		Herb	1700				
102	*Lepyrodiclis glandulosa* (Benth. ex G. Don) H.Ohba		Herb	1400				
103	*Sagina saginoides* (L.) Karsten		Herb	2000				
104	*Stellaria himalayensis* Majumdar		Herb	1400				
105	*Stellaria monosperma* Buch.- Ham. ex D. Don		Herb	2400				
106	*Stellaria patens* D. Don		Herb	1450-2450				
107	*Stellaria uliginosa* Murray		Herb	1400				
108	*Stellaria vestita* Kurtz		Herb	1500				

SN	Scientific name	Nepali name	Habit	Elevation (m)	IUCN	CITES	GoN	Endemism
Casuarinaceae								
109	*Casuarina stricta* (Dryand) Ait.		Tree	1500				
Celastraceae								
110	*Euonymus echinatus Wall.*		Climbing epiphyte	1900-2600				
111	*Euonymus grandiflorus Wall.*	Sano jure mayal	Shrub or tree	1600				
112	*Euonymus hamiltonianus* Wall.	Ban chitu	Tree	1500				
113	*Euonymus pendulus* Wall.		Shrub or tree	1600				
114	*Euonymus tingens* Wall.	Sim mayu	Shrub or tree	1800				
115	*Euonymus vagans* Wall.		Epiphytic shrub	1600				
116	*Maytenus rufa* (Wall.) Hara		Shrub or tree	1600				
Chenopodiaceae								
117	*Chenopodium ambrosioides* L.	Rato latte	Herb	1300				
Combretaceae								
118	*Combretum chinense* Roxb.		Shrub	1500				
Compositae								
119	*Adenocaulon himalaicum* Edgew.		Herb	2500				
120	*Adenostemma lavenia* (L.) O. Kuntze	Rato danthe ghans	Herb	1300-1500				
121	*Ageratina adenophora* (Spreng.) R.M. King & H. Rob.		Herb	1600-2000				
122	*Ageratum conyzoides* L.	Ganamane ghans	Herb	1500				
123	*Ainsliaea latifolia* (D. Don) Schultes	Shahadeva shahadevi	Herb	1700-2100				
124	*Anaphalis adnata* DC.		Herb	1800				
125	*Anaphalis busua* (Ham.) Hand.-Mazz.		Herb	1800				
126	*Anaphalis contorta* (D. Don) Hook. f.		Herb	1500				
127	*Anaphalis margaritacea* (L.) Benth. & Hook. f.		Herb	2100				
128	*Anaphalis triplinervis* (Sims.) C. B. Clarke		Herb	1800-2700				
129	*Artemisia dubia* Wall. ex DC.	Tite pati	Herb	1500				
130	*Artemisia japonica* Thunb.	Tite pati	Herb	1800				
131	*Aster tricephalus* C. B. Clarke		Herb	1700				

SN	Scientific name	Nepali name	Habit	Elevation (m)	IUCN	CITES	GoN	Endemism
132	*Bidens bipinnata* L.		Herb	1500				
133	*Bidens biternata* (Lour.) Merr.& Sheriff		Herb	1800				
134	*Blumea aromatica* DC.		Herb	1500				
135	*Blumea balsamifera* DC.		Herb	1400				
136	*Blumea hieracifolia* (D. Don) DC.		Herb	1600				
137	*Blumea lacera* (Burm. f.) DC.		Herb	1700				
138	*Blumea mollis* Merrill		Herb	1500				
139	*Blumea riparia* (Bl.) DC.		Herb	1500				
140	*Caesalia axillaris* Roxb.		Herb	1400				
141	*Carpesium arbotanoides* L.		Herb	1500				
142	*Carpesium nepalense* Less.		Herb	2100				
143	*Centipeda minima* (L.) A. Br.& Asch.		Herb	1500				
144	*Cirsium verutum* (D. Don) Spreng.		Thistle	1300-1500				
145	*Cirsium wallichii* DC.	Thakal	Thistle	1500				
146	*Conyza japonica* (Thunb.) Less.		Herb	1300				
147	*Conyza stricta* Willd.		Herb	1300-1500				
148	*Cotula anthemoides* L.		Herb	1600				
149	*Crassocephalum crepidiodes* (Benth.) S. Moore		Herb	2200				
150	*Dichrocephala integrifolia* (L. f.) O. Kuntze		Herb	1600				
151	*Eclipta prostrata* L.		Herb	1600				
152	*Elephanthopus scaber* L.		Herb	1500				
153	*Emilia sonchifolia* (L.) DC.		Herb	1500				
154	*Erechtites valerianaefolia* DC.		Herb	1400				
155	*Erigeron alpines* L.		Herb	2000				
156	*Erigeron bellidiodes* (D. Don) Benth.		Herb	1700				
157	*Erigeron floribundus* (Kunth) Sch.Bip.		Herb	1300				
158	*Galinsoga ciliata* (Raf.) Blake		Herb	1800				
159	*Galinsoga parviflora* Cav.	Chitlange ghans	Herb	2700				
160	*Gerbera maxima* (D. Don) Beauv.		Herb	2100				
161	*Gnaphalium hypoleucum* DC.		Herb	1400				

SN	Scientific name	Nepali name	Habit	Elevation (m)	IUCN	CITES	GoN	Endemism
162	*Gnaphalium luteo-album L.*	Kairo jhar	Herb	1400				
163	*Grangea maderspatana* (L.) Poir.		Herb	1500				
164	*Guizotia abyssinica* Cass.		Herb	1500				
165	*Gynura cusimbua* (D. Don) S. Moore		Herb	2000				
166	*Inula cappa* DC.		Shrub	1500-1800				
167	*Inula rubricaulis* Benth. ex C. B. Clarke		Shrub	1800				
168	*Ixeris gracilis* (DC.) Stebbins		Herb	1400				
169	*Ixeris polycephala* Cass.		Herb	1450				
170	*Ixeris sagittarioides* (C. B. Clarke) Stebbins		Herb	2800				
171	*Lactuca macrorhiza* Hook. f.		Herb	2700				
172	*Laggera alata* (D. Don) Schulz.- Bip. ex Oliver		Herb	1400				
173	*Leucomeris spectabilis* D. Don		Herb	1700				
174	*Myriactis nepanesis* Less.		Herb	1500-2400				
175	*Picris hieracioides* L.		Herb	2100				
176	*Rhynchospermum verticillatum* Reinw. ex Blume		Herb	1600				
177	*Saussurea deltoids* (DC.) C. B. Clarke		Herb	2700				
178	*Senecio chrysanthemoides* DC.		Herb	2300				
179	*Senecio densiflorus* Wall. ex DC.		Herb	2000				
180	*Senecio nudicaulis* Buch.-Ham. ex D. Don		Herb	1700				
181	*Senecio triligulatus* Buch.- Ham. ex D. Don		Herb	1700				
182	*Senecio wallichii* DC.		Herb	1700				
183	*Siegesbeckia orientalis* L.		Herb	1400				
184	*Sonchus arvensis* L.		Herb	1500				
185	*Sonchus olearaceus* L.		Herb	1500				
186	*Spillanthus acmella* (L.) Murr.		Herb	1300-2100				
187	*Spillanthus pseudo-acmella* (L.) Murr.		Herb	1500				

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188	*Taraxacum officinale* Weber	Tuki phul	Herb	2000				
189	*Tragopogon gracile* D. Don		Herb	16000				
190	*Tridax procumbens* L.		Herb	1300				
191	*Vernonica cinerea* (L.) Less		Herb	1600				
192	*Vernonica extensa* (Wall.) DC.		Tree	1800				
193	*Vernonica volkmeriaefolia* DC.		Tree	2000				
194	*Vicoa indica* (L.) DC.		Herb	1500				
195	*Wedelia bifora* (L.) DC.		Herb	1800				
196	*Wedelia calendulacea* Less		Herb	1600				
197	*Xanthium strumarium* L.		Herb	1600				
198	*Youngia japonica* (L.) DC.		Herb	1400				
Convolvulaceae								
199	*Ipomea purpurea* (L.) Roth.		Climber	1300				
200	*Ipomea quamoclit* L.		Climber	1300				
201	*Porana grandiflora* Wall.		Climber	2400				
202	*Porana racemosa* Roxb.		Creeping herb	1400				
Coriariaceae								
203	*Coriaria nepalensis* Wall.	Machhino	Shrub	1500				
Cornaceae								
204	*Cornus oblonga* Wall.		Tree	1500				
205	*Toricellia tiliaefolia* DC.		Tree	1500				
Corylaceae								
206	*Carinus viminea* Wall.	Khari	Tree	2000				
207	*Corylus ferox* Wall.		Tree	1700				
Crassualaceae								
208	*Kalanchoe integra* (Medik.) Kuntze		Succulent herb	1300				
Cruciferae								
209	*Capsella bursa-pastoris* (L.) Medikus		Herb	2150				
210	*Cardamine scutata* Thunb.		Herb	1600				
211	*Nasturtium officinale* R. Br. Ex Aiton		Herb	2000				
212	*Rorippa dubia* (Persoon) Hara	Tori ghans	Herb	2000				
Cucurbitaceae								
213	*Bryonopsis laciniosa* (L.) Naud.	Shivalingi	Herb	1500				

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214	*Herpetospermum pedunculosum* (Ser.) C. B. Clarke		Herb	2200				
215	*Melothria heterophylla* (Lour.) Cogn.	Bankakri	Climbing herb	2100				
216	*Trichosanthes wallichiana* (Ser.) Wight	Banpharsi, Indraini ko lahara	Climbing herb	2200				
Cuscutaceae								
217	*Cuscuta reflexa* Pl.		Parasitic twinning herb	2300				
Daphniphyllaceae								
218	*Daphniphyllum himalayense* Muell.-Arg.	Rakchan	Tree	1900				
Dipsacaceae								
219	*Dipsacus mitis* D. Don	Mula pat	Herb	2700				
Droseraceae								
220	*Drosera peltata* Sm.	Pamga	Herb	1500				
Elaeagnaceae								
221	*Elaeagnus conferta* Roxb.	Madilo	Shrub	1900				
Elaeocarpaceae								
222	*Elaeocarpus serratus* L.	Rudrakshya	Tree	1500				
223	*Sloanea tomentosa* (Benth.) Rehd. & Wils.		Tree	1700				
Ericaceae								
224	*Gaultheria fragrantissima* Wall.	Dhasingare, Padkine	Shrub	1500-2100				
225	*Lyonia ovalifolia* (Wall.) Drude	Angeri	Tree	1400-2000				
226	*Pieris formosa* (Wall.) D. Don	Gineri	Tree	1700				
227	*Rhododendron arboreum* Sm.	Lali gurans	Tree	1700-2800				
Euphorbiaceae								
228	*Arachne cordifolia* (Decne.) Hurusawa		Shrub	1600				
229	*Chamaesyce hirta* (L.) Mill.	Rato lahare ghans	Prostrate herb	1600				
230	*Chamaesyce prostrata* (Aiton.) Small.	Kanike ghans	Prostrate herb	1700				
231	*Euphorbia heterophylla* L.		Herb	1600				
232	*Euphorbia royleana* Boiss.		Shrub	1600				
233	*Glochidion velutinum* Wight.		Tree	1300				

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234	*Jatropha curcas* L.	Sajiwan	Shrub	1400				
235	*Mallotus nepalensis* Muell. Arg.		Tree	1600				
236	*Mallotus philippinensis* (Lam.) Muelll.-Arg.	Sindure	Shrub or tree	1400				
237	*Mercurialis leiocarpa* Sieb. & Zucc.		Herb	1600				
238	*Phyllanthus clarkei* Hook. f.		Shrub	2100				
239	*Phyllanthus emblica* L.	Amala	Tree	1500				
240	*Phyllanthus niuri* L.	Amala	Herb or shrub	1600				
241	*Phyllanthus parviflorus* Buch.- Ham. ex D. Don	Khareto	Shrub	1900				
242	*Ricinus communis* L.	Ander	Shrub or tree	1600				
243	*Sapium insigne* (Royle) Benth. ex Hook. f.	Khirro	Tree	1400				
244	*Securinega virosa* (Roxb. ex Willd.) Baill.	Sano nundhiki	Shrub or tree	1800				
Fagaceae								
245	*Castanopsis indica* (Roxb.) A. DC.	Dhale katus	Tree	1700				
246	*Castanopsis tribuloides* (Sm.) A. DC.	Musure katus	Tree	1300				
247	*Lithocarpus spicata* (Sm.) Rehd.	Arkhaule	Tree	2000				
248	*Quercus glauca* Thunb.	Phalat	Tree	1900				
249	*Quercus incana* Roxb.	Tikhe banjh	Tree	1900				
250	*Quercus lamellosa* Sm.	Banjh	Tree	2100				
251	*Quercus lanuginosa* D. Don	Banjh	Tree	2000				
252	*Quercus lineata* Bl.		Tree	1800				
253	*Quercus semecarpifolia* Sm.	Khasru	Tree	2500				
Flacourtiaceae								
254	*Xylosma controversum* Clos	Dhade kanda	Tree	1300-1800				
Fumariaceae								
255	*Corydalis chaerophlla* DC.	Okhre ghans	Herb	2400				
256	*Corydalis longipes* DC.		Herb	2300				
257	*Dicentra scandens* (D. Don) Walp.	Bichkane	Trailing herb	2400				
258	*Fumaria vaillantii* Loisel.	Dhukure	Herb	2150				

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Gentianaceae								
259	*Cotylanthera paucisquama* C.B. Clarke		Herb	1800				
260	*Gentiana capitata* Buch.-Ham. ex D. Don	Hans phul	Herb	2100-2700				
261	*Gentiana pedicellata* (D. Don) Wall. ex Griseb		Herb	1700				
262	*Swertia angustifolia* Buch.- Ham. ex D. Don	Chiraito	Herb	1700				
263	*Swertia chirayita* (Roxb.) Karsten	Chiraito	Herb	1700				
264	*Swertia dilatata* C. B. Clarke	Chiraito	Herb	2000				
265	*Swertia nervosa* (D. Don) C. B. Clarke	Chiraito	Herb	2600				
266	*Tripterospermum volubile* (D. Don) Hara		Climbing herb	2100				
Geraniaceae								
267	*Geranium nepalense* Sweet		Herb	1500-2300				
Gesneriaceae								
268	*Aeschynanthus parviflorus* (D. Don) Spreng.		Epiphytic sub-shrub	1600				
269	*Chirita urticaefolia* Buch.- Ham. ex D. Don	Ankhle ghans	Herb	1500-2000				
270	*Coralloidiscus lanuginosus* (DC.) Burt.		Herb	1600				
271	*Didymocarpus cinereus* D. Don		Herb	1500				
272	*Didymocarpus oblongus* Wall. ex D. Don		Herb	2300				
273	*Didymocarpus pedicellatus* R. Br.		Herb	1900				
274	*Didymocarpus villosus* D. Don		Herb	2200				
275	*Lysionotus serrata* D. Don		Epiphytic herb	1300				
276	*Platystemma violoides* Wall.		Herb	2200				
277	*Rhynchoglossum obliquum* Blume		Herb	1400-1700				
Grossulariaceae								
278	*Ribes acuminatum* Wall. ex G. Don	Tanfu	Shrub	2600				
Hippocastanaceae								
279	*Aesculus indica* Colebr. ex Cambess.) Hook.	Naru, Lekh pangro, Bankhor	Tree	1300				

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Hydrangeaceae								
280	*Deutzia staminea* R. Br. ex Wall.		Shrub	1500				
281	*Dichroa febrituga* Lour.	Ganaune pat	Shrub	1500-1900				
282	*Hydrangea anomala* D. Don	Bauni kath	Climber	1800				
283	*Hydrangea heteromalla* D. Don	Phusre kath	Shrub or tree	2700				
284	*Hydrangia aspera* D. Don	Hansaraj, Firfire ghans	Shrub	1700				
Hypericaceae								
285	*Hypericum elodeoides* Choisy		Herb	1600				
286	*Hypericum japonicum* Thunb.		Shrub	1500 -2100				
287	*Norysca cordifolia* (Choisy) Blume		Shrub	1600				
288	*Norysca hookeriana* (Wight & Arnott) Wight		Shrub	2700				
289	*Norysca urale* (Buch-Ham. Ex D. Don) K. Koch		Shrub	2000				
Juglandaceae								
290	*Englehardtia spicata* Blume	Mauwa	Tree	1400				
291	*Juglans regia* L.	Okhar	Tree	1500	NT		P	
Labiatae								
292	*Ajuga lobata* D. Don		Creeping herb	2100				
293	*Ajuga macrosperma* Wall. Ex Benth.	Ghole ghans	Prostrate herb	1500				
294	*Anisomeles indica* O. Kuntze	Rato charpate	Herb	1500				
295	*Clinopodium longicaule* Benth.	Pipermint	Slender herb	1400-2300				
296	*Clinopodium umbrosum* (M. B.) C. Koch		Prostrate herb	1300-2000				
297	*Colebrookea oppositifolia* Sm.	Dhusure	Shrub	1300-1400				
298	*Coleus forskholii* (Willd.) Briq.		Herb	1500				
299	*Colquhounia coccinea* Willd.	Sano tushare	Shrub	1700-2200				
300	*Craniotome versicolor* Reichb.	Batuli silam	Herb	1400-2400				
301	*Dysophylla auricularia* (L.) Blume		Slender herb	1400				

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302	*Elsholtzia blanda* (Benth.) Benth.	Ban silam	Herb	1500-2100				
303	*Elsholtzia flava* Benth.	Ban silam	Shrub	2400				
304	*Elsholtzia pilosa* (Benth.) Benth.		Herb	2300				
305	*Elsholtzia stachyodes* (Link) Raizada & H.O. Saxena	Ban silam	Herb	1500				
306	*Elsholtzia strobilifera* (Benth.) Benth.		Herb	2000				
307	*Geniosporum coloratum* (D. Don) O. Kuntze		Herb	1600				
308	*Lamium amplexicaule* L.		Herb	2200				
309	*Leucas cephalotes* (Roth.) Spreng.		Herb	1400				
310	*Leucas ciliata* Benth.	Drona puspa	Herb	2200				
311	*Leucas mollissima* Wall. ex Benth.		Straggling herb	1600				
312	*Leucosceptrum canum* Sm.	Bhusure	Tree	1800-2300				
313	*Melissa flava* Benth.		Herb	1500				
314	*Micromeria biflora* Benth.		Herb	1500-1800				
315	*Mosla dianthera* (Buch.-Ham.) Maxim.		Herb	1300-2100				
316	*Notochaete hamosa* Benth.		Herb	2200				
317	*Ocimum basilicum* L.	Babari phul	Herb	1500				
318	*Orthosiphon incurvus* Benth.		Herb	1400				
319	*Perilla frutescens* (L.) Brit.	Silam	Herb	1300				
320	*Plectranthus mollis* (Ait.) Spreng.		Herb	1400				
321	*Pogostemon amaranthoides* Benth.		Herb	2200				
322	*Pogostemon glaber* Benth.	Rudilo	Herb or shrub	1500-2100				
323	*Prunella vulgaris* L.		Herb	2400				
324	*Rabdosia coesta* (Buch.-Ham.) Kudo		Herb	1500				
325	*Rabdosia lophanthoides* (Buch.-Ham. ex D. Don) Hara	Masinu charpate	Herb	1500				
326	*Rabdosia lophanthoides* (Buch.-Ham. ex D. Don) Hara var. *gerardiana* (Benth.) Hara	Seto silam	Herb	1600				

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327	*Rabdosia scrophularioides* Wall.		Herb	2400				
328	*Rabdosia ternifolia* (D. Don) Hara		Shrub	1800				
329	*Salvia coccinea* L.		Herb	1300				
330	*Scutellaria barbata* D. Don		Herb	1400				
331	*Scutellaria discolor* Colebr.	Nilo butte ghans	Herb	1500-2000				
332	*Scutellaria quadrifarium* Buch.-Ham. ex D. Don	Kalo rudilo	Herb	1500				
333	*Scutellaria repens* Buch.-Ham. ex D. Don		Herb	1500				
334	*Scutellaria scandens* D. Don		Under shurb	1800				
Lardizabalaceae								
335	*Holboellia latifolia* Wall.	Guphala	Climber	1400				
Lauraceae								
336	*Actinodaphne reticulata* Meisn.		Tree	2500				
337	*Cinnamomum camphora* (L.) Sieb.	Kapur	Cultivated but naturalised Tree	2100				
338	*Cinnamomum caudatum* Nees		Tree	1600				
339	*Cinnamomum glanduliferum* (Wall.) Meisn		Tree	1400				
340	*Cinnamomum tamala* (Buch.- Ham.) Nees & Eberm.		Tree	1500				
341	*Dodecadenia grandiflora* Nees		Tree	2600				
342	*Lindera nacusua* (D. Don) Merrill		Tree	1500-2100				
343	*Lindera neesiana* (Nees) Kurtz	Siltimur	Tree	1800				
344	*Lindera pulcherrima* (Nees) Benth. ex Hook.f.	Phusre	Tree	2600				
345	*Litsea cubeba* (Lour.) Pers.		Tree	1500				
346	*Litsea doshia* (Buch.-Ham. ex D. Don) Kosterm.	Paheli	Tree	1500				
347	*Litsea lancifolia (*Roxb. ex Nees) Hook.f.		Tree	1300-2500				
348	*Litsea sericea* (Wall. Ex Nees) Hook. f.	Paheli	Tree	2200				
349	*Machilus duthiei* King		Tree	2100				

SN	Scientific name	Nepali name	Habit	Elevation (m)	IUCN	CITES	GoN	Endemism
350	*Machilus gamblei* King ex Hook. f.	Kathe kaulo	Tree	1300-1800				
351	*Machilus gammieana* King		Tree	2100				
352	*Neolitsea cuipala* (D. Don) Kosterm.		Tree	1300				
353	*Neolitsea umbrosa* (Nees) Gamble		Tree	1400				
354	*Persea odoratissima* (Nees) Kosterm.	Gobre kaulo, Kaulo	Tree	1500				
355	*Persea pallida* (Nees) Oliv.		Tree	1600				
356	*Phoebe lanceolata* (Nees) Nees		Tree	1600				
357	*Phoebe paniculata* (Nees) Nees		Tree	1300				
Leguminosae								
358	*Albizia mollis* Boiv.	Siris	Tree	1500				
359	*Amphicarpaea bracteata* (L.) Fernald	Tanki	Twinning herb	2000				
360	*Apios carnea* (Wall.) Benth. Ex Baker		Climber	2000				
361	*Astragalus khasianus* Benth. Ex Bunge		Shrub	2200				
362	*Astragalus stipulatus* Don ex Sims.		Herb	2400				
363	*Atylosis mollis* Benth.		Twinning herb	1600				
364	*Atylosis volubilis* (Blanco) Gamble		Twinning herb	1600				
365	*Bauhinia retusa* Roxb.		Tree	1500				
366	*Bauhinia variegata* L.	Koiralo	Tree	1500				
367	*Butea monosperma* (Lamark.) Taub.	Palans	Tree	1300				
368	*Caesalpinia decapetala* (Roth.) Alston	Arilo kanda	Shrub or climber	2000				
369	*Cassia fistula* L.	Rajbriksha, Amaltas	Tree	1400				
370	*Cassia floribunda* Cav.		Shrub	1700				
371	*Cassia mimosoides* L.	Amala jhar	Shrub	1800				
372	*Cassia occidentalis* L.	Powar	Shrub	1400				
373	*Cassia tora* L.	Chakra mandi, Tapre	Shrub	1400				
374	*Cochlianthus gracilis* Benth.	Khosre laharo	Twinning herb	2300				

SN	Scientific name	Nepali name	Habit	Elevation (m)	IUCN	CITES	GoN	Endemism
375	*Codariocalyx motorium* (Houtt.) Ohashi		Shrub	1700				
376	*Crotalaria albida* Heyne ex Roth.	Bhendi phul	Shrub	1800				
377	*Crotalaria bialata* Schrank		Shrub	1800				
378	*Crotalaria cystisoides* Roxb. ex DC.	Silsile	Shrub	2000				
379	*Crotalaria nana* Burm.f.		Herb	1500				
380	*Crotalaria sessiliflora L.*		Herb	1400				
381	*Crotalaria spectabilis Roth.*	Chin chine	Shrub	2000				
382	*Desmodium concinnum* DC.		Shrub	1900				
383	*Desmodium confertum* DC.		Shrub	1600				
384	*Desmodium elegans* DC.		Shrub	2000				
385	*Desmodium floribumdum* G. Don	Bhatmase	Shrub	2100				
386	*Desmodium gangeticum* (L.) DC.		Shrub	1600				
387	*Desmodium heterocarpon* (L.) DC.		Shrub	1300-1800				
388	*Desmodium laxiflorum* DC.		Shrub	1600				
389	*Desmodium microphyllum* DC.	Bute kanike	Shrub	1350				
390	*Desmodium oxyphyllum* DC.	Gahare ghans	Herb	1500				
391	*Desmodium sequax* Wall.		Shrub	2000				
392	*Desmodium triflorum* (L.) DC.		Herb or shrub	1350				
393	*Eriosema himalaicum* Ohashi		Herb or shrub	1800				
394	*Erythrina arborescens* Roxb.	Kimsuka phul	Shrub or tree	1600				
395	*Flemingia macrophylla* (Willd.) Merr.		Shrub	1500				
396	*Flemingia strobilifera* (L.) W.T. Ait.		Herb	2000				
397	*Indigofera bracteata* Grah. Ex Baker		Herb or shrub	2400				
398	*Indigofera cylindracea* Wall. ex Baker	Rato mirmire, Phusro ghans	Shrub	1800				
399	*Indigofera dosua* Buch. Ham. ex D. Don		Shrub	1500				
400	*Indigofera hebepetala* Benth. ex Baker		Shrub	2100				

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401	*Lathyrus aphaca* L.	Bahabulba	Herb	1500				
402	*Lathyrus sativus* L.	Khesari	Herb	1500				
403	*Lespedeza eriocarpa* DC.		Shrub	1700				
404	*Lotus corniculatus* L.	Khesari	Herb	1500				
405	*Meliotus albus* Medikus ex Desr.		Herb	1700				
406	*Mimosa rubicaulis* Lamarck.	Boksi ghans	Shrub	1500				
407	*Parochetus communis* Buch.- Ham. ex D. Don	Jangali badame jhar, Chungi phul	Herb	2100-2600				
408	*Piptanthus nepalensis* (Hook.) D. Don		Shrub	2500				
409	*Pueraria peduncularis* (Benth.) Grah. ex Benth.		Twinning herb	2300				
410	*Shuteria involucrata* (Wall.) Wight & Arn.		Climber	1900				
411	*Smithia sensitiva* Ait.		Herb or under shrub	1300				
412	*Trifolium pratens* L.		Herb	1800				
413	*Trifolium repens* L.		Herb	2400				
414	*Uraria lagopus* DC.		Shrub	1800				
415	*Vicia hirsuta* (L.) S. F. Gray	Munmun, Akata	Herb	1500				
416	*Vigna vexillata* (L.) A. Rich.		Herb	2000				
Lentibulariaceae								
417	*Utricularia aurea* Lour.		Aquatic herb	1500				
418	*Utricularia bifida* L.		Herb	2100				
419	*Utricularia caerulea* L.		Herb	1300				
420	*Utricularia scandens* Benj.		Herb	1300				
421	*Utricularia striatula Sm.*		Herb	1600				
Linaceae								
422	*Anisadenia saxitilis* Wall.		Herb	1800				
423	*Reinwardtia indica* Dumortier	Pyauli, Bakhre ghans	Herb to shrub	1600				
Loganiaceae								
424	*Buddleja asiatica* Lour.	Bhimsen pati	Shrub or tree	1800				
425	*Buddleja paniculata* Wall.	Narayan pati	Shrub or tree	1800				

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Loranthaceae								
426	*Helixanthera ligustrina* (Wall.) Danser	Ainjeru	Semiparasitic shrub	1400				
427	*Loranthus odoratus* Wall.	Ainjeru	Parasitic shrub	1500				
428	*Loranthus pentapetalus* Roxb.	Ainjeru	Semiparasitic shrub	1600				
429	*Scurrula elata* (Edgew.) Danser	Ainjeru	Parasitic shrub	2400				
430	*Scurrula parasitica* L.		Parasitic shrub	2100				
431	*Scurrula pulverulenta* (Wall.) G. Don	Ainjeru	Parasitic shrub	1400				
432	*Taxillus umbellifer* (Schult.f.) Danser		Parasitic shrub	1800				
433	*Viscum album* L.	Hadchur	Parasitic shrub	2100				
434	*Viscum articulatum* Burm. f.	Hadchur	Parasitic shrub	2100				
Lythraceae								
435	*Ammania auriculata* Willd.		Herb	1400				
436	*Cuphea procumbens* Cav.		Herb	1500				
437	*Rotala indica* (Willd.) Koehne		Herb	1400				
438	*Rotala rotundifolia* (Roxb.) Koehne		Herb	1800				
439	*Woodfordia fructicosa* (L.) Kurtz	Amar phul, Dhayaro	Shrub	1600				
Magnoliaceae								
440	*Magnolia grandiflora L.*	Rukh kamal	Tree	1400				
441	*Michelia champaca L.*	Sun Champ	Tree	1300				
442	*Michelia doltsopa* Buch.-Ham. ex DC.	Champ	Tree	2400				
443	*Michelia kisopa* Buch.-Ham. ex DC.	Seto Champ	Tree	1300				
444	*Michelia velutina* DC.		Tree	1300				
445	*Talauma hodgsonii* Hook. f. & Thoms.		Tree	1800		III		
Malvaceae								
446	*Gossypium herbaceum* L.	Kapas	Shrub	1500				
447	*Hibiscus manihot* L.	Ban lasun	Herb	2000				
448	*Malva sylvestris* L.		Shrub	1500				
449	*Sida rhombifolia* L.	Sano hillya	Herb	1500				
450	*Urena lobata* L.	Nalu kuro	Shrub	1500				

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Melastomataceae								
451	*Melastoma malabathricum L.*		Herb	1500-1800				
452	*Melastoma normale* D. Don		Shrub	1500				
453	*Osbeckia chinensis L.*	Chulsi	Herb	1900				
454	*Osbeckia nepalensis* Hook.	Seto chulsi	Shrub	1500				
455	*Osbeckia rostrata* D. Don	Rato chulsi	Herb	2500				
456	*Osbeckia stellata* D. Don	Rato chulsi	Shrub	1500				
457	*Oxyspora paniculata* (D. Don) DC.		Shrub	1500				
Meliaceae								
458	*Amoora decandra* Hiern	Lahare lalgedi	Tree	2000				
459	*Cedrela toona* Roxb. & Rottl.	Tooni	Tree	1400				
460	*Chikrassia tabularis* A. Juss.		Tree	1500				
461	*Melia axederach* L.	Bakaino	Tree	1400				
462	*Walsura trijuga* (Roxb.) Kurz	Aankh taruwa	Tree	1500				
Menispermaceae								
463	*Cissampelos pareira* L.	Batule pat	Climber	1800				
464	*Cocculus laurifolia* DC.		Shrub or Tree	1500				
465	*Stephania elegans* Hook. f. & Thoms.	Batule pat	Climber	1500				
466	*Stephania glandulifera* Miers.	Gurjo	Climber	2100				
467	*Stephania japonica* (Thunb.) Miers		Shrub or climbing shrub	1500				
468	*Tiliacora acuminata* (Lamk.) Miers.	Rukh kane	Climbing shrub	1500				
Monotropaceae								
469	*Monotropa uniflora* L.		Herb	1700				
Moraceae								
470	*Ficus benghalensis* L.	Bar	Tree	1500				
471	*Ficus elastica* L.	Rabar	Tree	1400				
472	*Ficus hederacea* Roxb.		Scandent shrub	1400				
473	*Ficus neriifolia* J.E. Sm.	Dudhilo	Tree	1400				
474	*Ficus religiosa* L.	Pipal	Tree	1400				
475	*Ficus sarmentosa* Buch.-Ham. ex J. E. Sm.	Ban timila	Climber	1300				

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476	*Maclura cochinchinensis* (Lour.) Corner	Damaru, Dewar	Tree	1800				
477	*Morus alba L.*	Kimbu	Tree	1800				
Myricaceae								
478	*Myrica esculenta* Ham. ex D. Don	Kaphal	Tree	1500				
Myrsinaceae								
479	*Ardisia macrocarpa* Wall.		Shrub	1500-2100				
480	*Embelia nagushia* D. Don	Amilo ghans	Climber or small tree	1800				
481	*Maesa chisia* Buch.-Ham. Ex D. Don	Bilauni	Shrub or tree	1800				
482	*Maesa macrophylla* (Wall.) A. DC.	Paha phal	Shrub	1500-2400				
483	*Myrsine africana* L.		Shrub	1500				
484	*Myrsine capitellata* Wall.	Seti kath	Tree	1500				
485	*Myrsine semiserrata* Wall.	Kali kath	Tree	1500-2700				
Myrtaceae								
486	*Syzygium cumini* (L.) Skeel		Tree	1500				
Nyctaginaceae								
487	*Mirabilis jalapa* L.		Herb	1300				
Oleaceae								
488	*Fraxinus floribunda* Wall.	Lankuri	Tree	1500-2000				
489	*Jasminum dispermum* Wall.	Lahare jai	Climbing shrub	1800				
490	*Jasminum heterophyllum* Roxb.	Ban jai	Shrub	1500				
491	*Jasminum humile* L.	Jai	Shrub	1500				
492	*Jasminum officinale* L.		Climbing shrub	2700				
493	*Ligustrum confusum* Decaisne	Kanike phul	Shrub	2100				
494	*Ligustrum indicum* (Lour.) Merril	Kanike phul	Shrub	1300				
495	*Nyctanthes arbor-tristis L.*	Parijat	Shrub or tree	1600				
496	*Osmanthus fragrans* Lour.	Siringe	Tree	1300-2100				

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Onagraceae								
497	*Circaea alpina* L. *subsp. imaicola* (Asch. & Magnus) Kitam.		Herb	2200				
498	*Epilobium cylindricum* (D. Don) C. B. Clarke		Herb	1600				
499	*Oenothera rosea* Ait.		Herb	1600				
Orobranchaceae								
500	*Aeginetia indica* L.		Parasitic herb	1400				
501	*Orobanche caerulescens* Stapf. ex Willd.		Parasitic herb	1700				
Oxalidaceae								
502	*Oxalis corniculata* L.	Chari amilo	Creeping herb	2000				
503	*Oxalis latifolia* Humb.	Thulo chari amilo	Herb	1400				
Papavaraceae								
504	*Argemone mexicana* L.	Thakal	Herb	1400				
Pedaliaceae								
505	*Sesamum indicum* L.		Herb	1300				
Phrymaceae								
506	*Phryma leptostachya L.*		Herb	1600				
Phytolaccaceae								
507	*Phytolacca acinosa* Roxb.	Jaringo	Herb	2400				
Piperaceae								
508	*Peperomia tetraphylla* (Forst. f) Hook. & Arn.		Epiphytic herb	2300				
509	*Piper peepuloides* Roxb.	Pipla	Climber	2000				
Pittosporaceae								
510	*Pittosporum napaulense* (DC.) Rehder & Wilson		Medium sized tree	1400				
Plantaginaceae								
511	*Plantago major* L.	Isabgol	Herb	1500-2100				
Plumbaginaceae								
512	*Plumbago zeylanica* L.	Chitu	Herb or shrub	1600				
Polygalaceae								
513	*Polygala arillata* Buch-Ham. ex D. Don	Luiche phool	Shrub	2700				

SN	Scientific name	Nepali name	Habit	Elevation (m)	IUCN	CITES	GoN	Endemism
514	*Polygala crotalarioides* Buch- Ham. ex D. Don		Herb	1500				
515	*Polygala persicariaefolia* DC.		Herb	1800				
516	*Polygala triphylla* Buch-Ham. ex D. Don	Phapare ghans	Herb	1500				
517	*Salomonia cantoniensis* Lour.	Methi ghans	Herb	1700				
Polygonaceae								
518	*Fagopyrum dibotrys* (D. Don) Hara		Herb	1300				
519	*Fagopyrum esculentum* Moench	Phapar	Herb	1300				
520	*Persicaria hydropiper* (L.) Spach	Pire jhar	Herb	1300				
521	*Persicaria microcephala* (D. Don) H. Gross	Thulo ratnaule	Shrub	1500				
522	*Persicaria nepalensis* (Meisn.) H. Gross	Thulo ratnaulo	Herb	1500				
523	*Persicaria perfoliata* (L.) H. Gross		Climber	1300				
524	*Persicaria posumbu* (Buch.- Ham. ex D. Don) H. Gross	Seto pire ghans	Herb	1500				
525	*Persicaria pubescens* (Blume) Hara		Herb	1800-2100				
526	*Persicaria runcinata* (Buch.- Ham. ex D. Don) H. Gross		Herb	2000				
527	*Persicaria viscosa* (Buch.- Ham. ex D. Don) Nakai		Herb	1500				
528	*Polygonum amplexicaule* D. Don	Ratnaule jhar	Herb	1800				
529	*Polygonum campanulatum* Hook. f.	Rapate ghans	Herb	2800				
530	*Polygonum capitatum* Buch.- Ham.ex D. Don	Ratnaulo	Herb	2500				
531	*Polygonum chinense* L.	Kukur thotne	Shrub	2100				
532	*Polygonum molle* D. Don	Thotne	Shrub	2000				
533	*Polygonum plebeium* R. Br.		Shrub	1800				
534	*Polygonum sphaerocephalum* Wall. ex Meisn.		Trailing herb	1500				
535	*Rumex nepalensis* Spreng.	Halhale	Herb	2000				

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Portulaceae								
536	*Portulaca olearacea* L.		Herb	1400				
Primulaceae								
537	*Anagalis arvensis* L.		Herb	1400				
538	*Androsace saxifragaefolia* Bunge		Herb	1500				
539	*Lysimachia alternifolia* Wall.	Butte ghans	Herb	1500-2100				
540	*Lysimachia debilis* Wall.		Herb	1500				
541	*Lysimachia evalvis* Wall.		Herb	1700				
542	*Lysimachia pyramidalis* Wall.		Herb	1300-1500				
543	*Primula denticulata* Sm.		Herb	2100				
544	*Primula filipes* Watt		Herb	2300				
545	*Primula petiolaris* Wall.		Herb	2100				
Proteaceae								
546	*Grevillea robusta* A. Cunn. Ex R. Br.	Kainyo phul	Tree	1300				
Ranunculaceae								
547	*Aconitum ferox* Wall. ex. Seringe	Bikh	Herb	2100				
548	*Anemone elongata* D. Don		Herb	2300				
549	*Anemone rivularis* Ham. ex DC.	Seto bikh	Herb	2100				
550	*Anemone vitifolia* Ham. ex DC.		Herb	2200				
551	*Clematis acuminata* DC.		Climber	2000				
552	*Clematis buchananiana* DC.	Junge lahara	Climber	1800				
553	*Clematis connata* DC.		Climber	2400				
554	*Clematis gouriana* Roxb.	Junge lahara	Climber	1800				
555	*Clematis grewiaeflora* DC.		Climber	1500 to 1800				
556	*Clematis montana* Buch.-Ham. ex DC.	Junge lahara	Climber	1800				
557	*Clematis smilacifolia* Wall.		Climber	1500				
558	*Clematis tortuosa* Wall. ex Fischer		Climber	1800				
559	*Delphinium altissimum* Wall.	Bishadi ghans	Herb	1400				

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560	*Delphinium denudatum* Wall. ex Hook. f.		Herb	1400				
561	*Delphinium stapeliosum* Bruhl.		Herb	2700				
562	*Rannunculus diffusus* DC.	Sano saro	Herb	1600				
563	*Rannunculus muricatus* L.		Herb	1400				
564	*Rannunculus scleratus* L.		Herb	1400				
565	*Thalictrum chelidonii* DC.		Herb	2200				
566	*Thalictrum folliolosum* DC.	Dampate	Herb	1900 to 2200				
567	*Thalictrum javanicum* Blume		Herb	2500				
568	*Thalictrum minus* (L.) DC.		Herb	2200 to 2700				
569	*Thalictrum virginatum* Hook. f. & Thoms.		Herb	2400				
Rhamnaceae								
570	*Berchemia floribunda* (Wall.) Brongniart		Shrub	2200				
571	*Gouania nepalensis* Wall.		Climber	1800				
572	*Rhamnus nepalensis* Wall. Ex Lawson	Chile kath	Shrub	1500				
573	*Rhamnus persicus* Boiss.		Shrub	2600				
574	*Rhamnus virgatus* Roxb.	Kande paiyu	Shrub or tree	2000				
575	*Sageretia oppositifolia* (Wall.) Brongn.		Shrub or tree	1900				
576	*Ziziphus incurva* Roxb.	Hade bayar	Tree	1300-1500				
577	*Ziziphus mauritiana* Lam.	Bayar	Tree	1500				
Rosaceae								
578	*Agrimonia pilosa* Ledeb. var. *nepalensis* Ledeb.		Herb	1600-2300				
579	*Cotoneaster acuminatus* Wall. ex Lindl.	Dhalke phul	Shrub	2700				
580	*Cotoneaster affinis* Lindl.	Kause phul	Shrub	2800				Endemic to Nepal
581	*Cotoneaster microphyllus* Wall. ex Lindl.		Shrub	2000				
582	*Duchesnea indica* (Andr.) Focke	Sarpa ko kaphal	Herb	1400				
583	*Eriobotrya dubia* Decne.	Jure kaphal	Tree	1700				
584	*Eriobotrya elliptica* Lindl.	Maya	Tree	2000				

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585	*Eriobotrya japonica* Lindl.		Tree	1400				
586	*Niellia thyrsiflora* D. Don		Shrub	2300				
587	*Photinia integrifolia* Lindl.	Gaja phul	Tree	1700-2800				
588	*Potentillia fulgens* Wall.	Bajradanti	Herb	2400				
589	*Potentillia kleiniana* Wight.	Bajradanti	Herb	2200				
590	*Prinsepia utilis* Royle	Dhatelo	Shrub	2000				
591	*Prunus carmesina* Hara	Jangali paiyun	Tree	2400				
592	*Prunus cerasoides* D. Don	Ban paiyun	Tree	1700-2600				
593	*Prunus nepalensis* (Ser.) Steudel		Tree	1800-2400				
594	*Prunus wallichii* Steudel	Khosini	Tree	2700				
595	*Pyracantha crenulata* (D. Don) Roemer	Ghangaru	Shrub	1400				
596	*Pyrus pashia* Buch.- Ham. Ex D. Don	Mayal	Tree	1600				
597	*Rosa brunonii* Lindl.	Mayal	Shrub	1600				
598	*Rubus acuminatus* Sm.		Shrub	2200				
599	*Rubus biflorus* Buch.- Ham. Ex Sm.	Sano gulaf	Shrub	2200				
600	*Rubus calicynus* Wall. ex D. Don	Bhuin ainselu	Herb	2000				
601	*Rubus ellipticus* Sm.	Ainselu	Shrub	1600				
602	*Rubus foliolosus* D. Don	Kalo ainselu	Shrub	1600				
603	*Rubus paniculatus* Sm.	Kalo ainselu, Rukh ainselu	Climber	1800-2300				
604	*Rubus pentagonus* Wall. ex Focke		Shrub	2000				
605	*Rubus rugosus* Sm.	Goru ainselu	Shrub	2000				
606	*Sorbus cuspidata* (Spach) Hedlund		Tree	2600				
607	*Spiraea bella* Sims	Seto khareto	Shrub	1600				
608	*Spiraea micrantha* Hook. f.		Shrub	1600				
609	*Spiraea vaccinifolia* D. Don		Shrub	2600				
610	*Stranvaesia nussia* (D. Don.) Decne.	Jure mayal	Tree	1600				

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Rubiaceae								
611	*Anthocephalus cadamba* Miq.	Kadam	Tree	1400				
612	*Argostemma sarmentosum* Wall.	Satuwa ghans	Herb	1800				
613	*Galium acutum* Edgew.		Prostrate herb	2000				
614	*Galium aparine L.*		Climbing herb	2000				
615	*Galium asperifolium* Wall. Ex Roxb.		Herb	1600				
616	*Galium elegans* Wall. ex Roxb.		Herb	1700				
617	*Galium hirtifolium* Req. ex DC.		Herb	1800				
618	*Hedyotis corymbosa* (L.) Lamark		Herb	1400				
619	*Hedyotis diffusa* Willd.		Herb	1400				
620	*Hedyotis gracilis* Wall.		Herb	2000				
621	*Hedyotis lineata* Roxb.		Herb	1400				
622	*Hedyotis paniculata* (L.) Dence. ex Kurtze		Herb	1600				
623	*Hedyotis scandens* Roxb. ex D. Don	Dudhe laharo	Climber	1500-1900				
624	*Hymenopogon parasiticus* Wall.	Gabre kath	Epiphytic shrub	2200				
625	*Leptodermis lanceolata* Wall.		Shrub	1800				
626	*Luculia gratissima* (Wall.) Sweet		Shrub	1300-2100				
627	*Mussaenda macrophylla* Wall.	Dhobini	Shrub	1300				
628	*Mussaenda roxburghii* Hook. f.		Shrub	1300				
629	*Mussaenda treutleri* Stapf.	Dhobini	Shrub	1500				
630	*Neanotis gracilis* (Hook. f.) W. H. Lewis		Herb	2300				
631	*Neanotis ingrata* (Wall. ex Hook. f.) W. H. Lewis	Pani ghans	Herb	1500				
632	*Ophiorrhiza fasciculata* D. Don		Herb	1400				
633	*Ophiorrhiza prostrata* D. Don		Herb	1800				
634	*Ophiorrhiza thomsonii* Hook. f.		Herb	1600				
635	*Paederia scandens* (Lour.) Merril.		Twinning shrub	1600				
636	*Randia tetrasperma* (Roxb.) Brandis		Shrub	2100				
637	*Rubia manjith* Roxb. ex Fleming	Majitho	Climbing herb	1500-2300				

SN	Scientific name	Nepali name	Habit	Elevation (m)	IUCN	CITES	GoN	Endemism
638	*Spermadicton suaveolens* Roxb.		Shrub	1600				
639	*Wendlandia coriacea* DC.		Small tree	1500				
640	*Wendlandia puberula* DC.		Small tree	1600				
Rutaceae								
641	*Aegle marmelos* (L.) Correa	Bel	Tree	1400				
642	*Boenninghausenia albiflora* (Hook.) Meisner		Herb	2700				
643	*Murrya exotica* L.	Kamini	Shrub to tree	1400				
644	*Skimmia arborescens* T. and ex. Gamble		Shrub to tree	1800				
645	*Skimmia melanocarpa* Rehd. & E.H. Wilson		Tree	2500				
646	*Toddalia asiatica* (L.) Lam		Shrub	1400				
647	*Zanthoxylum armatum* DC.	Timur	Shrub	1400-1600				
648	*Zanthoxylum oxyphyllum* Edgew.	Ban timur	Shrub	2300				
Sabiaceae								
649	*Meliosma dilleniifolia* (Wall.) Walp.		Shrub or tree	2000				
650	*Meliosma pungens* (Wall.) Walp.		Tree	2000				
651	*Meliosma simplicifolia* (Roxb.) Walp.		Tree	1500				
652	*Sabia campanulata* Wall. ex Roxb.		Climbing shrub	2000				
653	*Sabia purpurea* Hook. f. & Thoms.		Climbing shrub	2100				
Salicaceae								
654	*Salix babylonica* L.	Bains	Tree	1600				
655	*Salix elegans* Wall. ex Anders.		Shrub or tree	2300				
656	*Salix tetrasperma* Roxb.	Bains	Tree	1700				
657	*Salix wallichiana* Anderson		Shrub or tree	1700				
Santalaceae								
658	*Osyris wightiana* Wall. ex Wight	Nun dhiki	Shrub or tree	1600				
659	*Pyrularia edulis* (Wall.) DC		Tree	1300				

SN	Scientific name	Nepali name	Habit	Elevation (m)	IUCN	CITES	GoN	Endemism
Sapindaceae								
660	*Sapindus mukorossi* Geartn.	Rittha	Tree	1400				
Sapotaceae								
661	*Bassia butyracea* Roxb.	Chiuri	Tree	1400				
Saurauiaceae								
662	*Saurauia napaulensis* DC.	Gogan	Tree	1800				
Saururaceae								
663	*Houttuynia cordata* Thunb.	Gane	Herb	1900				
Saxifragaceae								
664	*Astilbe rivularis* Buch.-Ham. ex D. Don	Budho okhati	Herb	2600				
665	*Bergenia ciliata* (Haw.) Sternb.	Pakhan ved	Herb	2400				
666	*Chrysoplenium nepalense* D. Don		Herb	2500				
667	*Saxifraga diversifolia* Wall. Ex Seringe		Herb	2700				
668	*Tiarella polyphylla* D. Don	Sisne jhar	Herb	2600				
Schisandraceae								
669	*Schisandra grandiflora* (Wall.) Hook. f. & Thoms.	Theki phal	Climber	2500				
670	*Schisandra propinqua* (Wall.) Baill.	Paheno singalto	Climber	2000				
Scrophulariaceae								
671	*Centranthera nepalensis* D. Don		Herb	1700				
672	*Hemiphragma heterophyllum* Wall.		Prostrate herb	2300				
673	*Lindenbergia grandiflora* (Buch.-Ham. Ex D. Don) Benth.	Bhendi phul	Rambling herb	1500-1800				
674	*Lindenbergia indica* (L.) O. Kuntze		Herb	1500				
675	*Majus dentatus* Wall. ex Benth.		Herb	1300				
676	*Majus japonicus* (Thunb.) O. Kuntze		Herb	1300				
677	*Majus surculosus* D. Don		Creeping herb	1600-2000				
678	*Mimulus nepalensis* Benth.		Herb	2100				
679	*Pedicularis gracilis* Wall. ex Benth.		Herb	2100				

SN	Scientific name	Nepali name	Habit	Elevation (m)	IUCN	CITES	GoN	Endemism
680	*Scrophularia urticaefolia* Wall. ex Benth.	Mokhi ghans	Herb	2300				
681	*Torenia cordifolia* Roxb.		Herb	1500				
682	*Torenia diffusa* D. Don		Herb	1500-2300				
683	*Veronica cana* Wall. ex D. Don		Herb	2000				
684	*Veronica javinca* Bl.		Herb	1300				
685	*Wightia speciosissima* (D. Don) Merril		Epiphytic climbing herb	1300				
Simaroubaceae								
686	*Picrasma quassioides* (Don) Benn.	Nim kath	Shrub or tree	2100				
Solanaceae								
687	*Cestrum elegans* Schlecht		Shrub	1600				
688	*Cestrum nocturnum* L.	Hasina	Shrub	1600				
689	*Cestrum parqui* L'Herit		Shrub	1400				
690	*Datura metel* L.	Kalo dhaturo	Herb or shrub	1500				
691	*Datura stramonium* L.	Dhaturo	Herb or shrub	1300				
692	*Datura suaveolens* Humb. & Bonpl. ex Willd.	Dhaturo	Herb	1500				
693	*Hyoscyamus niger* L.	Bajar bhang	Herb	1800				
694	*Nicandra physaloides* Gaertn.		Herb	1300				
695	*Nicotiana plumbaginifolia* Viviani	Kancho paat	Herb	1400				
696	*Nicotiana tabacum* L.	Surti, Kancho paat	Herb	1400				
697	*Physalis peruviana* L.	Jangali mewa	Herb	1400				
698	*Solanum aculeatissimum* Jacq.		Herb or shrub	1300				
699	*Solanum crassipetalum* Wall.	Ban bihi	Shrub	1400				
700	*Solanum indicum* L.	Bihi	Herb or shrub	1600				
701	*Solanum nigrum* L.	Bihi	Herb	1700-2000				
702	*Solanum pseudo-capsicum* L.		Herb	1700				
703	*Solanum torvum* Swartz	Thulo bihi	Shrub	1500				
704	*Solanum verbascifolium L.*		Shrub	1500				

SN	Scientific name	Nepali name	Habit	Elevation (m)	IUCN	CITES	GoN	Endemism
Stachyuraceae								
705	*Stachyurus himalaicus* Hook. & Thoms. ex Benth.	Chunitro, Seto bhasak	Shrub	1800				
Staphyleaceae								
706	*Turpinia nepalensis* Wall. ex Wight & Arn.		Tree	1600				
Symplocaceae								
707	*Symplocos crataegoides* Buch.- Ham. ex D. Don	Lodh	Tree	2300				
708	*Symplocos phyllocalyx* C. B. Clarke		Tree	2500				
709	*Symplocos purifolia* Wall. ex G. Don	Seto birauli	Tree	1500-2300				
710	*Symplocos ramosissima* Wall. ex G. Don	Kharane	Tree	2000				
711	*Symplocos sumuntia* Buch.- Ham. ex D. Don	Hakulal	Tree	2100				
712	*Symplocos theaefolia* D. Don	Bakal pate, Ghole	Tree	2200				
Theaceae								
713	*Actinidia callosa* Lindl.		Trailing shrub	1700				
714	*Camellia kissi* Wall.	Chiapate, Hinguwa	Shrub or tree	1500-2200				
715	*Cleyera ochnacea* DC.	Bakal pate	Tree	1500-2200				
716	*Eurya acuminata* DC.	Jhingane	Tree	1400-2300				
717	*Eurya cerasifolia* (D. Don) Kobuski		Tree	2000-2200				
718	*Eurya japonica* Thunb.		Shrub or tree	1700				
719	*Schima wallichii* (DC.) Korth.	Chilaune	Tree	1500-2100				
Thymelaeaceae								
720	*Daphne bholua* Buch.-Ham. Ex D. Don	Kagat pate	Shrub	2200				
721	*Diplomorpha canescens* (Meissn.) C.A. Meissner	Phurke pate	Shrub	2200				
722	*Edgeworthia gardneri* (Wall.) Meissner	Argeli	Shrub	2200				
Tiliaceae								
723	*Grewia asiatica* L.		Tree	1500				

SN	Scientific name	Nepali name	Habit	Elevation (m)	IUCN	CITES	GoN	Endemism
724	*Grewia oppositifolia* Ham. Ex Roxb.	Syal phusre	Tree	1600				
725	*Triumfetta annua* L.		Herb	1400				
726	*Triumfetta bartramia* L.		Shrub	1500				
727	*Triumfetta pilosa* Roth.	Ban kuro	Herb	1400				
Ulmaceae								
728	*Celtis australis* L.	Khari	Tree	1500				
Umbelliferae								
729	*Archangelica officinalis* var. *himalaica* C.B. Clarke		Herb	2200				
730	*Bupleurum tenue* Buch.-Ham. ex D. Don		Herb	1600				
731	*Centella asiatica* (L.) Urban		Herb	1500				
732	*Chaerophyllum reflexum* Lindl.		Herb	2700				
733	*Heracleum candicans* Wall. Ex DC.		Herb	2400				
734	*Heracleum nepalense* D. Don		Herb	2600				
735	*Hydrocotyl podantha* Molkenboer		Herb	2000				
736	*Hydrocotyle nepalensis* Hook.		Herb	1600-2100				
737	*Hydrocotyle sibthorpioides* Lamarck		Herb	1400				
738	*Oenanthe linearis* Wall. ex C.B. Clarke		Herb	1400				
739	*Pimpinella diversifolia* DC.	Bhooke phul	Herb	2700				
740	*Pleurospermum benthami* (DC.) C.B. Clarke		Herb	2200				
741	*Sanicula elata* Buch.-Ham. Ex D. Don.		Herb	1400-2400				
742	*Selinum tenuifolium* Wall. ex C. B. Clarke		Herb	1600-2600				
743	*Vicatia coniifolia* DC.		Herb	2000				
Urticaceae								
744	*Boehmeria hamiltoniana* Wedd.		Shrub	1800				
745	*Boehmeria platyphylla* D. Don	Gargalo	Shrub	1500				
746	*Boehmeria rugulosa* Wedd.	Getha	Tree	1600				
747	*Boehmeria ternifolia* D. Don		Shrub or tree	1500				
748	*Debregeasia longifolia* (Burm. f.) Wedd.	Tushare	Shrub or tree	1500				

SN	Scientific name	Nepali name	Habit	Elevation (m)	IUCN	CITES	GoN	Endemism
749	*Elatostema lineolatum* Wight		Herb	2000				
750	*Elatostema platyphyllum* Wedd.	Sano gagleto	Herb	1500				
751	*Elatostema pusillum* C.B. Clarke		Herb	2200				
752	*Elatostema sessile* Forster		Herb	2500				
753	*Girardinia diversifolia* (Link) Friis	Bhangre sisnu	Herb	1700				
754	*Gonostegia hirta* (Bl.) Miq.	Mas lahare	Herb	1300-2000				
755	*Laportea terminalis* Wight.	Sisnu	Herb	2500				
756	*Lecanthus peduncularis* (Royle) Wedd.	Khole jhar	Herb	1900				
757	*Maoutia puya* (Hook. f.) Wedd.		Shrub	1600				
758	*Pilea peploides* Hook. & Arn.		Herb	1400				
759	*Pilea scripta* (Buch.-Ham.) Wedd.		Herb	2100				
760	*Pilea symmeria* Wedd.		Herb	2300				
761	*Pilea umbrosa* Wedd.		Herb	2500				
762	*Pouzolzia zeylanica* (L.) J. Bennet & Brown		Herb or shrub	1400				
763	*Urtica dioica* L.		Herb	1300				
Valerianaceae								
764	*Valeriana hardwickii* Wall.	Nakkali jatamansi	Herb	1500-2700				
765	*Valeriana jatamansi* Jones	Sugandhawal	Herb	1500		II	P	
Verbenaceae								
766	*Callicarpa arborea* Roxb. Ex C. B. Clarke	Mas gede	Tree	1500				
767	*Callicarpa macrophylla* Vahl.		Shrub	1300-1800				
768	*Caryopteris foetida* (D. Don) Thellung.		Shrub	1300				
769	*Caryopteris odorata* (Buch.- Ham ex D. Don) B. L. Robinson		Shrub	2100				
770	*Clerodendron fragrans* Ventenat		Shrub	1300				
771	*Clerodendron indicum* (L.) O. Kuntze		Shrub	2100				
772	*Clerodendron japonicum* (Thunb.) Sweet		Shrub	1300				
773	*Holmskiodia sanguinea* Retz.	Jhule phul	Shrub	2000				

SN	Scientific name	Nepali name	Habit	Elevation (m)	IUCN	CITES	GoN	Endemism
774	*Lantana camara* L.	Gandhe phul	Shrub	1500				
775	*Lippia nodiflora* (L.) L. C. Richard ex Michaux		Creeping herb	1300				
776	*Verbena officinalis* L.		Herb	1300				
777	*Vitex negundo* L.	Simali	Shrub	1600				
Violaceae								
778	*Viola biflora* L.	Siplikan	Herb	2700				
779	*Viola serpens* Wall.	Ghatte ghans	Herb	1300-2000				
Vitaceae								
780	*Ampelocissus glandulosa* (Wall.) Momoyama		Climber	1300				
781	*Ampelocissus sikkimensis* (Laws.) Planch.		Climber	1400-1800				
782	*Cayratia pedata* Gangnep.		Climber	1400				
783	*Cayratia thomsonii* (Lawson) Sussenguth		Climber	2000				
784	*Leea macrophylla* Roxb. ex Hornem.		Shrub	2200				
785	*Parthenocissus semicortata* (Laws.) Planch.		Climber	1400-1900				
786	*Tetrastigma obtectum* (Wall.) Planch.		Creeping herb	1600-2500				
787	*Tetrastigma serrulatum* (Roxb.) Planch.		Climber	1800-2100				
788	*Vitis lanata* Roxb.		Climbing shrub	2200				
789	*Vitis parviflora* Roxb.		Climbing shrub	1800				

ANNEX 7

Monocot Flora of Shivapuri Nagarjun National Park

SN	Scientific name	Local name	Habit	Altitude (m)	IUCN	CITES	GoN	Endemism
Agavaceae								
1	*Agave americana* L.	Ketuke	Shrub	1500				
Amaryllidaceae								
2	*Crinum amoenum* Roxb.	Hade lasun	Herb	1300				
3	*Zephyranthes citrina* Baker		Herb	2700				
Araceae								
4	*Acorus calamus* L.	Bojho	Herb	2200				
5	*Amorphophallus bulbifer* (Roxb.) Blume		Herb	1400				
6	*Ariopsis peltata* J. Grah.		Herb	1500				
7	*Arisaema concinnum* Schott		Herb	1600				
8	*Arisaema consanguineum* Schott		Herb	1700				
9	*Arisaema costatum* (Wall.) Martius		Herb	1600				Endemic to Nepal
10	*Arisaema echinatum* (Wall.) Schott		Herb	2600				
11	*Arisaema erubescens* (Wall.) Schott	Sarpa makai	Herb	2200				
12	*Arisaema intermedium* Blume		Herb	2800				
13	*Arisaema nepenthoides* (Wall.) Martius	Sarpa makai	Herb	2200				
14	*Arisaema propinquum* Schott		Herb	2500				
15	*Arisaema speciosum* (Wall.) Martius		Herb	2700				
16	*Arisaema tortuosum* (Wall.) Schott		Herb	1800				
17	*Arisaema utile* Hook. f. ex Schott	Tinpate	Herb	2700				
18	*Gonatanthus pumilus* (D. Don) Engler & Krause		Herb	1700				

SN	Scientific name	Local name	Habit	Altitude (m)	IUCN	CITES	GoN	Endemism
19	*Pothos cathcarti* Schott		Climbing shrub	1700				
20	*Raphidophora glauca* (Wall.) Schott		Climbing shrub	1700				
21	*Remusatia vivipara* (Loddiges) Schott		Herb	1500				
22	*Sauromatum brevipes* (Hook. f.) N. E. Brown		Herb	2700				
23	*Thomsonia nepalensis* Wall.		Herb	1500				
24	*Typhonium diversifilium* Wall. ex Schott		Herb	2400				
Commelinaceae								
25	*Amischophacelus axillaris* (L.) Rolla	Kane	Herb	1500				
26	*Commelina bengalensis* L.	Ban kane	Herb	1500				
27	*Commelina hasskarlii* C. B. Clarke		Herb	1400				
28	*Commelina paludosa* Blume		Herb	1600				
29	*Cyanotis cristata* (L.) D. Don		Herb	1300				
30	*Cyanotis vaga* (Lour.) J. A. & J. H. Schultes		Herb	1500				
31	*Floscopa scandens* Lour.	Simkane ghans	Herb	2100				
32	*Murdannia blumei* (Hassk.) Brenan		Herb	1400				
33	*Murdannia japonica* (Thunb.) Faden	Nigale gava	Herb	1800				
34	*Murdannia nudiflora* (L.) Brenan		Herb	1800				
35	*Murdannia spirata* (L.) Bruckner		Herb	1500				
Cyperaceae								
36	*Bulbostylis densa* (Wall. ex Roxb.) Hand. -Mazz.		Herb	1500				
37	*Carex baccans* Nees ex Wight		Herb	1300				
38	*Carex brunnea* Thunb.		Herb	1500				
39	*Carex cruciata* Wahlenb.		Herb	1400				

SN	Scientific name	Local name	Habit	Altitude (m)	IUCN	CITES	GoN	Endemism
40	*Carex daltonia* Boot		Herb	1400				
41	*Carex filicina* Nees ex Wight		Herb	2400				
42	*Carex foliosa* D. Don		Herb	2200				
43	*Carex inanis* Kunth		Herb	2000				
44	*Carex indica* L.		Herb	2000				
45	*Carex japonica* Thunb.		Herb	1400				
46	*Carex ligulata* Nees ex Wight		Herb	1500				
47	*Carex longipes* D. Don		Herb	1500				
48	*Carex myosurus* Nees ex Wight		Herb	1900				
49	*Carex nubigena* D. Don		Herb	1600				
50	*Carex setigera* D. Don		Herb	2600				
51	*Carex stramentita* Boott ex Bockeler		Herb	1500				
52	*Carex vesiculos*		Herb	1800				
53	*Cyperus aristatus* Rottb.		Herb	1300				
54	*Cyperus difformis* L.		Herb	1300				
55	*Cyperus haspan* L.		Herb	1400				
56	*Cyperus iria* L.		Herb	1300				
57	*Cyperus niveus* Retz.		Herb	1500				
58	*Cyperus pilosus* Vahl.		Herb	1600				
59	*Cyperus rotundus* L.	Mothe	Herb	1300				
60	*Cyperus tenuispica* Steudel.		Herb	1400				
61	*Eleocharis congesta* D. Don		Herb	1600				
62	*Eleocharis palustris* (L.) R. Br.		Herb	1300				
63	*Eriophorum comosum* Wall. ex Nees	Rani babio	Herb	1800				
64	*Fimbristylis complanata* (Reitz.) Link		Herb	2400				
65	*Fimbristylis dichotoma* (L.) Vahl		Herb	2500				

SN	Scientific name	Local name	Habit	Altitude (m)	IUCN	CITES	GoN	Endemism
66	*Kyllinga brevifolia* Rottb.		Herb	1300				
67	*Kyllinga monocephala* Rottb.		Herb	1500				
68	*Lipocarpha chinensis* (Osbeck) Kern	Bhakunde ghans	Herb	2100				
69	*Mariscus sieberianus* Nees ex C. B. Clarke		Herb	1300				
70	*Pycreus globosus* Reich.		Herb	1300				
71	*Pycreus sanguinolentus* (Vahl) Nees		Herb	1600				
72	*Scirpus mucronatus L.*		Herb	1300				
Dioscoreaceae								
73	*Dioscorea bulbifera L.*	Ban tarul	Herb	1400				
74	*Dioscorea deltoidea* Wall.	Ban tarul, Bhyakur	Herb	2100		II		
75	*Dioscorea kamoonensis* Kunth	Rani bhyakur	Herb	2100				
76	*Dioscorea melanophyma* Prain & Burkil		Herb	2200				
77	*Dioscorea pentaphylla* L.		Herb	1400				
Eriocaulaceae								
78	*Eriocaulon kathmanduense* Satake		Aquatic herb	1600				Endemic to Nepal
79	*Eriocaulon luzulaefolium* Mart.		Herb	1500				
80	*Eriocaulon nepalense* Prescott ex Bong.	Bhuri ghans	Herb	1500				Endemic to Nepal
Hydrocharitaceae								
81	*Hydrilla verticillata* (L. f.) Royle		Aquatic floating herb	1600				
Hypoxidaceae								
82	*Curculigo orchioides* Gaertn.	Musali	Herb	1300				
83	*Hypoxis aurea* Lour.	Karsul, Ban siru	Herb	1400				
Juncaceae								
84	*Juncus cocinnus* D. Don		Herb	2700				
85	*Juncus prismatocaarpus* R. Br.		Herb	1300				

SN	Scientific name	Local name	Habit	Altitude (m)	IUCN	CITES	GoN	Endemism
Lemnaceae								
86	*Lemma perpusilla* Torrey		Herb	1400				
Liliaceae								
87	*Allium wallichii* Kunth	Ban lasun	Herb	2700				
88	*Asparagus filicinus* Buch.-Ham. ex D. Don	Kurilo	Climbing shrub	1800				
89	*Asparagus racemosus* Willd.	Kurilo, Satawari	Climbing shrub	1800				
90	*Campylandra aurantiaca* (Wall.) Baker		Herb	2000				
91	*Cardiocrinum giganteum* (Wall.) Makino		Herb	2000				
92	*Chlorophytum arundinaceum* Baker		Herb	1800				
93	*Chlorophytum nepalense* (Lind.) Baker		Herb	1300				
94	*Disporum cantoniense* (Lour.) Merrill	Sano kukur daino	Herb	1800				
95	*Lilium nepalense* D. Don	Khiraule	Herb	2400				
96	*Ophiopogon intermedium* D. Don	Ban kasur	Herb	1300				
97	*Ophiopogon wallichianus* (Kunth.) Hook. f.		Herb	2700				
98	*Paris polyphylla* Smith in Rees	Satuwa	Herb	2200				
99	*Polygonatum cirrhifolium* (Wall.) Royle		Herb	2700				
100	*Polygonatum oppositifolium* (Wall.) Royle		Herb	1700				
101	*Polygonatum punctatum* Royle ex Kunth		Herb	2100				
102	*Polygonatum verticillatum* (L.) Allioni		Herb	2100				
Orchidaceae								
103	*Aerides longicornu* Hook. f.		Epiphytic herb	1500		II		
104	*Agrostophyllum callosum* Reichb. f.		Epiphytic herb	2100		II		
105	*Anoectochilus lanceolatus* Lind.		Epiphytic herb	2000		II		

SN	Scientific name	Local name	Habit	Altitude (m)	IUCN	CITES	GoN	Endemism
106	*Anthogonium gracile* Lindl.		Herb	1800		II		
107	*Arundina graminifolia* (D. Don) Hochr.	Gava	Herb	2100		II		
108	*Bulbophyllum affine* Lindl.		Epiphytic herb	1800		II		
109	*Bulbophyllum cylindraceum* Lindl.		Epiphytic herb	2300		II		
110	*Bulbophyllum hirtum* Lindl.		Epiphytic herb	1800		II		
111	*Bulbophyllum polyrhizum* Lindl.		Epiphytic herb	2100		II		
112	*Bulbophyllum reptans* Lindl.		Epiphytic herb	2500		II		
113	*Bulbophyllum secundum* Hook. f.		Epiphytic herb	2100		II		
114	*Bulbophyllum wallichii* (Lindl.) Reichb. f.		Epiphytic herb	2400		II		
115	*Calanthe brevicornu* Lindl.		Herb	2100		II		
116	*Calanthe mannii* Hook. f.		Herb	1800		II		
117	*Calanthe masuca* (D. Don) Lindl.		Herb	1800		II		
118	*Calanthe puberula* Lindl.		Herb	2100		II		
119	*Calanthe tricarinata* Lindl.		Herb	2300		II		
120	*Cephalanthera esnifolia* Rich.		Herb	2600		II		
121	*Chiloschista asneoides* (Don) Lindl.		Epiphytic herb	1700		II		
122	*Chiloschista lunifera* (Reichb. f) J. J. Smith		Epiphytic herb	1700		II		
123	*Chiloschista lunifera* (Reichb. f) J. J. Smith		Epiphytic herb	1700		II		
124	*Cirrhopetalum elatum* Hook. f.		Epiphytic herb	2100		II		
125	*Cirrhopetalum guttulatum* Hook. f.		Epiphytic herb	1500		II		
126	*Cirrhopetalum hookeri* Duthie		Epiphytic herb	2500		II		
127	*Cirrhopetalum maculosum* Lindl.		Epiphytic herb	1800		II		

SN	Scientific name	Local name	Habit	Altitude (m)	IUCN	CITES	GoN	Endemism
128	*Cirrhopetalum refractum* Zolling		Epiphytic herb	1800		II		
129	*Coelogyne corymbosa* Lindl.		Epiphytic herb	2500		II		
130	*Coelogyne cristata* Lindl.		Epiphytic herb	1800		II		
131	*Coelogyne flaccid* Lindl.		Epiphytic herb	1800		II		
132	*Coelogyne flavida* Wall. ex Hook. f.		Epiphytic herb	2100		II		
133	*Coelogyne fuscescens* Lindl.		Epiphytic herb	1800		II		
134	*Coelogyne ovalis* Lindl.		Epiphytic herb	1800		II		
135	*Coelogyne uniflora* Lindl.		Epiphytic herb	2300		II		
136	*Cryptochilus lutea* Lindl.		Epiphytic herb	2300		II		
137	*Cryptochilus sanguineus* Wall.		Epiphytic herb	2100		II		
138	*Cymbidium cyperifolium* Wall. ex Hook. f.		Epiphytic herb	1700		II		
139	*Cymbidium elegans* Lindl.		Epiphytic herb	2400		II		
140	*Cymbidium giganteum* Wall. & Lindl.		Epiphytic herb	1500		II		
141	*Cymbidium lancifolium* Hook.		Epiphytic herb	1800		II		
142	*Cymbidium longifolium* D. Don		Epiphytic herb	2400		II		
143	*Dendrobium amoenum* Wall. ex Lindl.		Epiphytic herb	1700		II		
144	*Dendrobium bicameratum* Lindl.		Epiphytic herb	2100		II		
145	*Dendrobium candidum* Wall. ex Lindl.		Epiphytic herb	2100		II		
146	*Dendrobium clavatum* Wall. ex Lindl.		Epiphytic herb	1600		II		
147	*Dendrobium densiflorum* Lindl. ex Wall.	Sun gava	Epiphytic herb	1800		II		
148	*Dendrobium denudans* D. Don		Epiphytic herb	1800		II		
149	*Dendrobium heterocarpum* Wall. ex Lindl.		Epiphytic herb	2100		II		

SN	Scientific name	Local name	Habit	Altitude (m)	IUCN	CITES	GoN	Endemism
150	*Dendrobium longicornu* Lindl.		Epiphytic herb	2500		II		
151	*Dendrobium pierardi* Roxb.		Epiphytic herb	1600		II		
152	*Dendrobium porphyrochilum* Lindl.		Epiphytic herb	2300		II		
153	*Diplomeris hirsute* Lindl.		Herb	2100		II		
154	*Epigeneium amplum* (Lindl.) Summerh.		Epiphytic herb	2000		II		
155	*Epigeneium rotundatum* (Benth.) Summerh.		Epiphytic herb	1800		II		
156	*Eria bractescens* Lindl.		Epiphytic herb	1800		II		
157	*Eria confusa* Hook. f.		Epiphytic herb	1800		II		
158	*Eria convallarioides* Lindl.		Epiphytic herb	2400		II		
159	*Eria coronaria* (Lindl.) Reichb. f.		Epiphytic herb	2000		II		
160	*Eria excavata* Lindl. ex Hook. f.		Epiphytic herb	1800		II		
161	*Eria graminifolia* Lindl.		Epiphytic herb	1800		II		
162	*Eria paniculata* Lindl. ex Wall.		Epiphytic herb	1300		II		
163	*Esmeralda clarkei* Reichb.		Epiphytic herb	2000		II		
164	*Gastrochilus calceolaris* (Sm.) D. Don		Epiphytic herb	1800		II		
165	*Gastrochilus distichus* (Lindl.) O. Kuntze		Epiphytic herb	2500		II		
166	*Goodyera foliosa* (Lindl.) Benth. ex Hook. f.		Herb	2200		II		
167	*Goodyera hemsleyana* King & Pantl.		Herb	2200		II		
168	*Goodyera repens* (Lindl.) R. Brown		Herb	2200		II		
169	*Goodyera secundiflora* Lindl.		Herb	2200		II		
170	*Habenaria arietina* Hook. f.		Herb	2400		II		
171	*Habenaria aristata* Hook. f.		Herb	2300		II		

SN	Scientific name	Local name	Habit	Altitude (m)	IUCN	CITES	GoN	Endemism
172	*Habenaria bicornuta* Hook. f.		Herb	2000		II		
173	*Habenaria densa* Wall. ex Lindl.		Herb	2700		II		
174	*Habenaria dentate* (Sw.) Schlecht.		Herb	1600		II		
175	*Habenaria galeandra* (Reichb. f.) Benth.		Herb	2000		II		
176	*Habenaria latilabris* (Lindl.) Hook. f.		Herb	2100		II		
177	*Habenaria pectinata* D. Don		Herb	2100		II		
178	*Habenaria stenantha* Hook. f.		Herb	2700		II		
179	*Habenaria stenopetala* Lindl.		Herb	2100		II		
180	*Habenaria triflora* D. Don		Herb	1700		II		
181	*Herminium angustifolium* (Lindl.) Benth. ex Hook.		Herb	2600		II		
182	*Herminium monophyllum* (D.Don) Hunt et Summerhayes		Herb	2000		II		
183	*Herminium quinquelobum* King & Pantl.		Herb	2300		II		
184	*Ione bicolor* Lindl.		Ephiphytic herb	1800		II		
185	*Ione paleacea* Lindl.		Ephiphytic herb	1800		II		
186	*Liparis cordifolia* Hook. f.		Ephiphytic herb	1700		II		
187	*Liparis perpusilla* Hook. f.		Ephiphytic herb	2400		II		
188	*Liparis resupinata* Ridely		Ephiphytic herb	2600		II		
189	*Liparis viridiflora* (Blume) Lindl.		Ephiphytic herb	2100		II		
190	*Luisia teretifolia* Gaud.		Ephiphytic herb	1700		II		
191	*Malaxis acuminate* D. Don		Herb	1700		II		
192	*Malaxis cylindrostachya* (Lindl.) Kuntze		Herb	2300		II		

SN	Scientific name	Local name	Habit	Altitude (m)	IUCN	CITES	GoN	Endemism
193	*Malaxis josephiana* (Reichb. f.) O. Kuntze		Herb	1300		II		
194	*Malaxis khasiana* (Hook. f.) O. Kuntze		Herb	1500		II		
195	*Malaxis muscifera* (Lindl.) O. Kuntze		Herb	2500		II		
196	*Monomeria barbata* Lindl.		Epiphytic herb	1800		II		
197	*Nervillia scottii* (Reichb. f.) Schltr.		Epiphytic herb	1400		II		
198	*Oberonia ensiformis* (Sm.) Lindl.		Epiphytic herb	1400		II		
199	*Oberonia iridifolia* (Roxb.) Lindl.		Epiphytic herb	1300		II		
200	*Oberonia myosurus* Lindl.		Epiphytic herb	1700		II		
201	*Oberonia rufilabris* Lindl.		Epiphytic herb	1700		II		
202	*Oreorchis foliosa* (Lindl.) Lindl.		Herb	2400		II		
203	*Otochilus alba* Lindl.		Epiphytic herb	2100		II		
204	*Otochilus fusca* Lindl.		Epiphytic herb	1800		II		
205	*Otochilus porrecta* Lindl.		Epiphytic herb	2400		II		
206	*Panisea parviflora* Lindl.		Epiphytic herb	2100		II		
207	*Peristylus constrictus* Lindl.		Herb	1600		II		
208	*Peristylus falax* Lindl.		Herb	1700		II		
209	*Peristylus goodyeroides* (D. Don) Lindl.		Herb	1400		II		
210	*Phalaenopsis taenialis* (Lindl.) Christenson & Pradhan		Epiphytic herb	2100		II		
211	*Pholidota articulata* Lindl.		Epiphytic herb	2100		II		
212	*Pholidota griffithii* Hook. f.		Epiphytic herb	2100		II		
213	*Pholidota imbricata* (Roxb.) Lindl.		Epiphytic herb	1700		II		
214	*Pholidota protracta* Hook. f.		Epiphytic herb	2100		II		

SN	Scientific name	Local name	Habit	Altitude (m)	IUCN	CITES	GoN	Endemism
215	*Platanthera bakeriana* (King & Pantl.) Kraenzl.		Herb	2100		II		
216	*Pleione hookeriana* (Lindl.) O. Kuntze		Epiphytic herb	2600		II		
217	*Pleione humilis* (Sm.) D. Don		Epiphytic herb	2600		II		
218	*Pleione praecox* (Sm.) D. Don		Epiphytic herb	2000		II		
219	*Rhynchostylis retusa* Blume		Epiphytic herb	2000		II		
220	*Satyrium nepalense* D. Don		Herb	2100		II		
221	*Spiranthes sinensis* (Pers.) Ames		Herb	2100		II		
222	*Sunipia scariosa* Lindl.		Epiphytic herb	1400		II		
223	*Thunia alba* (Lindl.) Reichb. f.		Epiphytic herb	2100		II		
224	*Vanda alpina* Lindl.		Epiphytic herb	1400		II		
225	*Vanda cristata* Lindl.		Epiphytic herb	1700		II		
226	*Vandopsis undulata* (Lindl.) J. J. Smith		Epiphytic herb	2100		II		
Poaceae								
227	*Agropyron semicostatum* Nees & Steud.		Herb	1500				
228	*Agrostis pilosa* Trin.		Herb	2200				
229	*Alopecurus aequalis* Sobol.		Herb	1500				
230	*Apluda mutica* L.		Herb	1800				
231	*Apocopsis paleacea* (Trin.) Hochr.		Herb	1500				
232	*Arthraxon lancifolius* (Trin.) Hochst.		Herb	1400				
233	*Arthraxon quartinianus* (A. Rich.) Nash		Herb	1400				
234	*Arundinaria falcate* Nees		Herb	1500				
235	*Arundinella bengalensis* (Sreng.) Druce		Herb	1400				
236	*Arundinella nepalensis* Trin.	Phurke khar	Herb	1800				

SN	Scientific name	Local name	Habit	Altitude (m)	IUCN	CITES	GoN	Endemism
237	*Arundo donax* L.		Herb	1500				
238	*Bothriochloa assimilis* (Steud.) Ohwi		Herb	1800				
239	*Bothriochloa bladhii* (Retz.) S.T. Blake		Herb	1400				
240	*Bothriochloa ischaemum* (L.) Keng		Herb	1400				
241	*Bothriochloa parviflora* (R. Br.) Ohwi		Herb	1400				
242	*Brachiaria villosa* (Lamk.) A. Camus		Herb	1400				
243	*Cephalostachyum capitatum* Munro	Gopi bans	Herb	1400				
244	*Chrysopogon aciculatus* (Retz.) Trin.		Herb	1300				
245	*Coix lachryma-jobi* L.	Bhrikaulo	Herb	1300				
246	*Cymbopogon pendulus* (Nees ex Steud.) Wats.	Bhrikaulo	Herb	1300				
247	*Cynodon dactylon* (L.) Pers.	Dubo	Herb	2100				
248	*Cyrtococcum accrescens* (Trin.) Stapf		Herb	2100				
249	*Cyrtococcum patens* (L.) A. Camus		Herb	1700				
250	*Dendrocalamus hamiltonii* Nees & Arn. ex Munro	Tama bans	Arborescent bamboo	1700				
251	*Digitaria adscendens* (HBK) Henr.		Herb	1300				
252	*Digitaria timorensis* (Kunth.) Bal.		Herb	1400				
253	*Digitaria violascens* Link.		Herb	2000				
254	*Dimeria ornithopoda* Trin.		Herb	1400				
255	*Echinochloa crusgalli* (L.) P. Beauv.		Herb	1600				
256	*Eleusine indica* (L.) Gaertn.		Herb	1400				
257	*Eragrostiella bifaria* (Vahl.) Bor		Herb	1900				
258	*Eragrostis atrovirens* (Desf.) Trin. ex Steud.		Herb	1500				
259	*Eragrostis gangetica* (Roxb.) Steud.		Herb	2100				
260	*Eragrostis japonica* (Thunb.) Trin.		Herb	1800				

SN	Scientific name	Local name	Habit	Altitude (m)	IUCN	CITES	GoN	Endemism
261	*Eragrostis tenella* (L.) P. Beauv.		Herb	1300				
262	*Eragrostis unioloides* (Retz.) Nees ex Steud.		Herb	1300-1700				
263	*Erianthus longisetosus* Anderss.		Herb	1700				
264	*Eulalia mollis* (Griseb.) O. Kuntze		Herb	2200				
265	*Festuca leptopogon* Stapf		Herb	1700				
266	*Hemarthria compressa* (L. f.) R. Br.		Herb	1400				
267	*Heteropogon contortus* (L.) P. Beauv. ex Roem. & Schult.	Khar ghans	Herb	1500				
268	*Imperata cylindrica* (L.) P. Beauv.	Siru	Herb	1300				
269	*Isachne albens* Trin.		Herb	1800				
270	*Isachne globosa* (Thunb.) O. Kuntze		Herb	1500				
271	*Isachne miliacea* Roth.		Herb	1400				
272	*Ischaemum rugosum* Salisb.		Herb	1600				
273	*Lolium perenne* L.		Herb	1700				
274	*Microstegium ciliatum* (Trin.) A. Camus		Herb	1300				
275	*Microstegium nudum* (Trin.) A. Camus		Herb	1500				
276	*Miscanthus nepalensis* (Trin.) Hack.		Herb	2100				
277	*Neyraudia reynaudiana* (Kunth) Keng ex Hitch.		Herb	1500				
278	*Oplisemenus burmanii* (Retz.) P. Beauv.		Herb	1300				
279	*Oplisemenus composites* (L.) P. Beauv.		Herb	1500				
280	*Panicum psilopodium* Trin.		Herb	1400				
281	*Paspalum distichum* L.		Herb	1600				
282	*Paspalum scrobiculatum* L.		Herb	1300				
283	*Phalaris minor* Retz.		Herb	1600				
284	*Phragmites karka* (Karka.) Trin. ex Steud.	Narkat	Herb	1600				

SN	Scientific name	Local name	Habit	Altitude (m)	IUCN	CITES	GoN	Endemism
285	*Pogonantherum crinitum* (Thunb.) Kunth		Herb	1500				
286	*Pogonantherum paniceum* (Lam.) Hack.		Herb	1500				
287	*Polypogon fugax* Nees ex Steud.		Herb	2300				
288	*Polypogon monspeliensis* (L.) Desf.		Herb	1600				
289	*Pseudechinolaena polystachya* (HBK) Stapf.		Herb	1500				
290	*Saccharum spontaneum* L.	Kans	Herb	1400				
291	*Sacciolepis indica* (L.) A. Chase		Herb	1500				
292	*Setaria forbesiana* (Nees ex Steud.) Hook. f.		Herb	1300				
293	*Setaria geniculata* (Lamk.) P. Beauv.		Herb	1400				
294	*Setaria glauca* (L.) P. Beauv.		Herb	1500				
295	*Setaria pallidefusca* (Schumach.) Stapf & C. E. Hubb		Herb	1300				
296	*Setaria plicata* (Lam.) T. Cooke		Herb	1500				
297	*Sporobolus diander* (Retz.) P. Beauv.		Herb	1300				
298	*Sporobolus fertilis* (Steud.) W. D. Clayton		Herb	1300				
299	*Sporobolus piliferus* (Trin.) Kunth.		Herb	1300				
300	*Thamnocalamus aristatus* (Gamble) E. G. Camus	Ban nigalo	Herb	2500				
301	*Themeda hookeri* (Griesb.) A. Camus		Herb	1800				
302	*Thysanolaena maxima* (Roxb.) O. Kuntze	Amriso	Herb	1800				
303	*Tripogon filiformis* Nees ex Steud.		Herb	2600				
304	*Tripogon trifidus* Munro ex Stapf		Herb	1300				
Pontederiaceae								
305	*Monochoria vaginalis* (Burm. f.) Presl		Aquatic herb	1400				

SN	Scientific name	Local name	Habit	Altitude (m)	IUCN	CITES	GoN	Endemism
Potamogetonaceae								
306	*Potamogeton crispus* L.		Aquatic submerged herb	1600				
307	*Potamogeton polygonifolius* Pourr		Aquatic, floating or submerged herb	1400				
Smilacaceae								
308	*Smilax aspera* L.	Kukur daino	Climbing shrub	1500				
309	*Smilax ferox* Wall. ex Kunth		Climbing shrub	2000				
310	*Smilax glaucophylla* Klozsch in Reise		Climbing shrub	1900				
311	*Smilax lancaefolia* Roxb.		Climbing shrub	1500				
312	*Smilax menispermoidea* A. DC.	Kukur daino	Climbing shrub	1500				
313	*Smilax osmastonii* Wang and Tang		Climbing shrub	2000				
314	*Smilax perfoliata* Loureiro		Climbing shrub	1500				
315	*Smilax rigida* Wall. ex Kunth		Shrub	2500				
Zingiberaceae								
316	*Cautleya gracilis* (Smith) Dandy	Sano saro, Pani saro	Herb	2100				
317	*Cautleya spicata* (Smith) Baker	Sano saro	Herb	2100				
318	*Curcuma angustifolia* Roxb.	Bakhre saro	Herb	1300				
319	*Globba clarkei* Baker	Devi saro	Herb	1400				
320	*Globba racemosa* Sm.	Lahare pria ghans	Herb	2000				
321	*Hedychium ellipticum* Hamilt. ex Rees	Rato saro	Herb	1900				
322	*Hedychium spicatum* Buch.- Ham. ex Rees	Pankha phul	Herb	1900				
323	*Roscoea alpina* Royle		Herb	2600				
324	*Roscoea purpurea* J. E. Smith	Rasgari	Herb	2200				

ANNEX 8

Gymnosperm Flora of Shivapuri Nagarjun National Park

SN	Scientific name	Habit	Altitude	Local name	IUCN	CITES	GoN	Endemism
Pinaceae								
1	*Abies spectabilis* (D. Don) Mirb.	Tree	2800	Gobre Salla				
2	*Cedrus deodara* (Roxb. ex D. Don) G. Don	Tree	1500	Devdaru				
3	*Pinus roxburghii* Sargent	Tree	1500-2100	Khote Salla				
4	*Pinus wallichiana* A. B. Jacks	Tree	2000	Khote Salla				
Podocarpaceae								
5	*Podocarpus neriifolius* D. Don	Tree	1700	Gunsi		III		
Taxaceae								
6	*Taxus wallichiana* Zucc.	Tree	2100-2800	Lauth Salla, Barme Salla	EN	II	P	

ANNEX 9

Pteridophytic Flora of Shivapuri Nagarjun National Park

SN	Scientific name	Nepali name	Habit	Elevation	IUCN	CITE	GoN	Endemism
Aspleniaceae								
1	*Asplenium bullatum* Wall. ex Mett.		Terrestrial	1800				
2	*Asplenium ensiforme* Wall. ex Hook. & Grev.		Terrestrial & epiphytic	2100-2700				
3	*Asplenium indicum* Sledge		Terrestrial & epiphytic	2100-2700				
4	*Asplenium laciniatum* D. Don		Mostly epiphytic	1500-2100				
5	*Asplenium tenuifolium* D. Don.		Terrestrial	2500				
6	*Asplenium unilateral* Lam.		Terrestrial	2600				
7	*Asplenium varians* Wall. ex Hook. & Grev.		Terrestrial	1500				
Athyriaceae								
8	*Athyrium drepanopterum* (Kunze) A. Brown ex Milde		Terrestrial	1500				
9	*Athyrium foliolosum* (Wall.) Moore		Terrestrial	2500				
10	*Athyrium macrocarpon* (Bl.) Bedd.		Terrestrial	2000				
11	*Athyrium nigripes* (Bl.) Moore		Terrestrial	1500				
12	*Athyrium pectinatum* (Wall. ex Mett.) Bedd.		Terrestrial	1800				
13	*Athyrium schimperi* (A. Br.) Moug. ex Free		Terrestrial	1550				
14	*Athyrium setiferum* C. Chr.		Terrestrial	2300				
15	*Athyrium thalypteroides* (Michx.)		Terrestrial	2150				
16	*Diplazium esculentum* (Retz.) Presl.		Terrestrial	2000				
17	*Diplazium japonicum* (Thunb.) Bedd.		Terrestrial	2000				
18	*Diplazium lanceum* (Thunb.) Presl.		Terrestrial	1400				
19	*Diplazium polypodioides* Bl.		Terrestrial	1450				

SN	Scientific name	Nepali name	Habit	Elevation	IUCN	CITE	GoN	Endemism
20	*Diplazium spectabile* (Wall. ex Mett.) Ching		Terrestrial	2000				
21	*Diplazium stoliczkae* Bedd.		Terrestrial	2700				
22	*Dryoathyrium boryanum* (Willd.) Ching	Kalo neuro	Terrestrial	1500-2400				
Blechnaceae								
23	*Woodwardia unigemmata* (Makino) Nakai	Danthe unyu	Terrestrial	1350				
Cyatheaceae								
24	*Cyathea spinulosa* Wall. ex Hook.		Terrestrial	2000		II		
Davalliaceae								
25	*Davallodes membranulosum* (Wall. ex Hook.) Copel		Terrestrial	1900				
26	*Araiostegia delavayi* (Bedd. ex. Clarke & Bak.) Ching		Terrestrial	1800				
27	*Araiostegia pseudo-cystopteris* (Kunze) Copel		Terrestrial	1800				
28	*Araiostegia pulchra* (D. Don) Copel		Terrestrial	2100				
Dennstaedtiaceae								
29	*Dennstaedtia appendiculata* (Wall.) J. Smith		Terrestrial	1600				
30	*Dennstaedtia scabra* (Wall.) Moore		Terrestrial	1600				
31	*Lindsaea odorata* Roxb.		Terrestrial	1800				
32	*Sphenomeris chinensis* (L.) Maxon		Terrestrial	1550				
Dryopteridaceae								
33	*Arachniodes spectabilis* (Ching) Ching		Terrestrial	1300				
34	*Dryopteris apiciflora* (Wall.) O. Kuntze		Terrestrial	2600				
35	*Dryopteris atrata* (Wall. ex Kuntze) Ching		Terrestrial	2600				
36	*Dryopteris chrysocoma* (Christ) C. Chr.		Terrestrial	1700				
37	*Dryopteris cochleata* (D. Don) C. Chr.		Terrestrial	1600				
38	*Dryopteris khasiana* Chr.		Terrestrial	1400				
39	*Dryopteris marginata* (Wall. ex Christ) Christ		Terrestrial	2700				
40	*Dryopteris sparsa* (D. Don) O. Kuntze		Terrestrial	1600 -1800				

SN	Scientific name	Nepali name	Habit	Elevation	IUCN	CITE	GoN	Endemism
41	*Leucostegia immerse* (Wall.) Presl	Chamsure unyu	Terrestrial	1800				
42	*Olendra neriiformis* Cav.		Terrestrial	1400-1800				
43	*Peranema cyatheoides* D. Don		Terrestrial	2600				
44	*Polystichum lantum* D. Don		Terrestrial	1600				
45	*Polystichum neobatum* Nakai		Terrestrial	2700				
46	*Polystichum obliquum* (D. Don) Moore		Terrestrial	2500				
47	*Polystichum setiferum* (Forsk.) Moore		Terrestrial	2500				
48	*Polystichum squarrosum* (D. Don) Fee		Terrestrial	1300-1800				
49	*Polystichum thomsonii* (Hook. f.) Bedd.		Terrestrial	2500				
Equisetaceae								
50	*E. diffusum* D. Don	Kukure jhar, Ankhe jhar	Herb	2000				
51	*Equisetum debile* Roxb.	Thalche jhar, Ankhe jhar	Herb	2000				
Gleicheniaceae								
52	*Dicranopteris linearis* (Burm.) Undrew.		Creeping herb	1800				
53	*Gleichenia glauca* (Thunb.) Hook.		Very large fern	2700				
Hymenophyllaceae								
54	*Crepidomanes latealatum* (V. D. Bosch) Copel		Herb	1400				
55	*Mecodium badium* (Hook. & Grev.) Copel		Herb	2600				
56	*Mecodium polyanthus* (Sw.) Copel		Herb	2500				
57	*Vandenboschia radicas* (Sw.) Copel		Herb	2400				
Lycopodiaceae								
58	*Lycopodium cernuum* L.	Naagbeli	Creeping herb	1500				
59	*Lycopodium clavatum* L.	Naagbeli	Creeping herb	2500				
60	*Lycopodium hamiltonii* Spreng.		Epiphytic herb	2100				
61	*Lycopodium serratum* Thunb.		Terrestrial herb	2100				
62	*Lycopodium subulifolium* Wall. ex Hook. & Grev.		Epiphytic herb	1950				

SN	Scientific name	Nepali name	Habit	Elevation	IUCN	CITE	GoN	Endemism
Nephrolepidaceae								
63	*Nephrolepis cordifolia* (L.) Presl		Terrestrial	1800				
Ophioglossaceae								
64	*Botrychium lanuginosum* Wall. ex Hook. & Grev		Terrestrial herb	1500				
65	*Botrychium multifidum* (Gmel.) Rupr.		Terrestrial herb	1800				
66	*Ophioglossum petiolatum* Hook.	Jibre saag	Terrestrial herb	2000				
67	*Ophioglossum reticulatum L.*	Jibre saag	Terrestrial herb	2000				
Polypodiaceae								
68	*Arthromeris himalayensis* (Hook.) Ching		Terrestrial & epiphytic	2200				
69	*Arthromeris wallichiana* (Spr.) Ching		Terrestrial & epiphytic	1400-1450				
70	*Colysis hemionitidea* Presl.		Terrestrial	1400				
71	*Colysis latiloba* (Ching) Ching		Terrestrial	1300-1500				
72	*Crypsinus ebinepis* (Hook.) Copel.		Terrestrial & epiphytic	2200-2700				
73	*Crypsinus hastatus* Thunb.		Terrestrial & epiphytic	2100-2500				
74	*Crypsinus malacodon* Copel.		Epiphytic	1700				
75	*Ctenopteris subfalcata* (Bl.) Kuntze		Epiphytic & terrestrial	2200-2600				
76	*Drynaria mollis* Bedd.		Mostly epiphytic	2100				
77	*Drynaria propinqua* (Wall. ex Mett.) J. Smith		Epiphytic & terrestrial	1500				
78	*Lepisorus kashypii* (Mehra) Mehra		Epiphytic & terrestrial	2000				
79	*Lepisorus loriformis* (Wall. ex Mett) Ching		Epiphytic & terrestrial	1600				
80	*Lepisorus nudus* (Hook.) Ching		Epiphytic & terrestrial	1550				
81	*Loxogramme involuta* (D. Don) Presl.		Epiphytic & terrestrial	1550				
82	*Microlepia speluncea* (L.) Moore		Terrestrial	1600				
83	*Microlepia strigosa* (Thunb.) Presl		Terrestrial	1600				
84	*Microsorum cuspidatum* (D. Don) Tagawa		Epiphytic & terrestrial	1800				

SN	Scientific name	Nepali name	Habit	Elevation	IUCN	CITE	GoN	Endemism
85	*Microsorum normale* (D. Don) Ching		Epiphytic & terrestrial	2000				
86	*Polypodium amoenum* Wall. ex Mett.		Epiphytic & terrestrial	1800				
87	*Polypodium argutum* Wall. ex Hook.		Epiphytic & terrestrial	2130				
88	*Polypodium lachnopus* Wall. ex Hook.		Epiphytic & terrestrial	1500				
89	*Pyrrosia beddomeana* (Gies.) Ching		Epiphytic & terrestrial	1400				
90	*Pyrrosia flocculosa* (D. Don) Ching		Epiphytic	1550				
91	*Pyrrosia mannii* (Gies.) Ching		Epiphytic	1500				
92	*Pyrrosia mollis* (Kuntze) Ching		Epiphytic & terrestrial	1500				
Pteridaceae								
93	*Adiantum capillus-veneris* L.	Pakhale unyu	Terrestrial herb	1500				
94	*Adiantum caudatum* L.		Terrestrial herb	1500				
95	*Adiantum edgeworthii* Hook.		Terrestrial herb	1500				
96	*Adiantum philippense* L.	Kani unyu	Terrestrial herb	2000				
97	*Antrophyum reticulatum* (Forst.) Kaulf.		Epiphytic	1400				
98	*Cheilianthes albomarginata* C.B. Clarke	Rani syuka	Terrestrial herb	1500				
99	*Cheilianthes anceps* Blanf.	Rani unyu	Terrestrial herb	1500				
100	*Cheilianthes farinosa* (Forssk.) Kaulf.		Terrestrial herb	1800				
101	*Cheilianthes rufa D. Don*	Sunauli unyu	Terrestrial herb	1800				
102	*Cheilianthes tenuifolium* (Burm.) Sw.		Terrestrial herb	1800				
103	*Coniogramme caudate* (Wall ex. Ettingsch) Ching		Terrestrial herb	2500				
104	*Coniogramme intermedia* Hieron.		Terrestrial herb	1700				
105	*Onychium contiguum* C. Hope		Terrestrial	1600				
106	*Onychium japonicum* (Thunb.) Kunze		Terrestrial	1800				
107	*Onychium lucidum* (D. Don) Spreng.		Terrestrial	1100				
108	*Onychium siliculoslum* (Desv.) C. Chr.		Terrestrial	1800				
109	*Pteridium aquilinum* (L.) Kuhn		Terrestrial	1800				

SN	Scientific name	Nepali name	Habit	Elevation	IUCN	CITE	GoN	Endemism
110	*Pteris aspericaulis* Wall ex. Agardh		Terrestrial	1500				
111	*Pteris biureta L.*		Terrestrial	1400				
112	*Pteris cretica L.*		Terrestrial	1550				
113	*Pteris geminata* Wall.		Terrestrial	1400				
114	*Pteris pellucida* Presl.		Terrestrial	2600				
115	*Pteris quadriaurita* Retz.		Terrestrial	2600				
116	*Pteris wallichiana* Agardh		Terrestrial	2600				
Schizaeaceae								
117	*Lygodium japonicum* (Thunb.) Sw.		Climbing herb	1300				
Selaginellaceae								
118	*Selaginella biformis* A. Br. ex Kuhn		Creeping herb					
119	*Selaginella chrysocaulos* Hook. & Grev.			1500				
120	*Selaginella monospora* Spring			2400				
121	*Selaginella subdiaphana* (Wall.) Spring			2100				
Tectariaceae								
122	*Tectaria macrodonta* (Fee) C. Chr.		Terrestrial	1800				
123	*Tectaria polymorpha* (Wall.) Copel.		Terrestrial	1550				
Thelypteridaceae								
124	*Thelypteris auriculata* (J. Smith) K. Iwats.		Terrestrial	2700				
125	*Thelypteris dentata* (Forsk.) St. John.		Terrestrial	1500				
126	*Thelypteris erubescens* (Wall. ex Hook) Ching		Terrestrial	1700				
127	*Thelypteris esquirolli* (Christ) Ching		Terrestrial	1700				
128	*Thelypteris molliuscula* (Kuhn) K. Iwats.		Terrestrial	1300-1550				
129	*Thelypteris xylodes* (Kuntze) Ching		Terrestrial	1500				
Vittariaceae								
130	*Vittaria elongata* Sw.		Epiphytic	1800				
131	*Vittaria flexuosa* Fee		Epiphytic	1800				

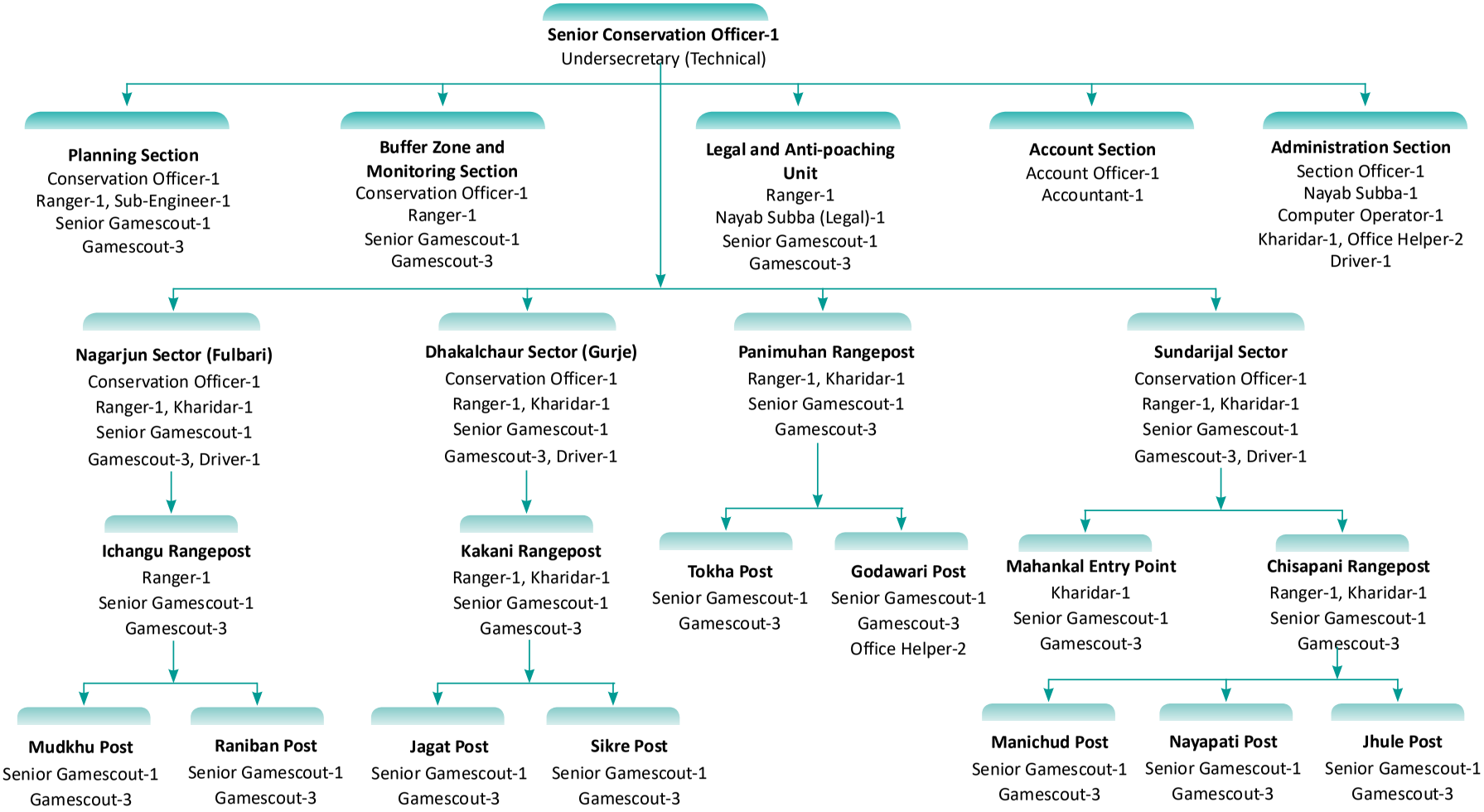
ANNEX 10

Macrofungi Species of Shivapuri Nagarjun National Park

SN	Species	Common name
Agaricaceae		
1	*Agaricus haemorrhoidarius* Schulzer	
2	*Bovista pila* Berk. & M. A. Curtis	Thumbling Puffball
3	*Lepiota ochraceofulva* P. D. Orton	
4	*Microlepiota rhacodes* (Vittad.) Singer	Shaggy Parasol
Amanitaceae		
5	*Amanita phalloides* (Vaill. ex Fr.) Link	
6	*Amanita smithiana* Bas	
7	*Amanita vaginata* (Bull.) Sutara	
Boletaceae		
8	*Boletus chrysenteron* (Bull.) Sutara	Red Cracking Bolete
9	*Xerocomus badius*	
Cantharellaceae		
10	*Cantharellus cibarius* Fr.	Golden Chanterelle
Hygrophoraceae		
11	*Chrysomphalina chrysophylla* (Fr.) Clemencon	Golden-gilled Gerronema
Hymenochaetaceae		
12	*Coltricia cinnamonea* (Pers.) Murrill	Fairy Stool
Lyophyllaceae		
13	*Calocybe chrysenteron* (Bull.) Singer	Yellow Domecap
Meruliaceae		
14	*Omphalotus olearius* (DC.) Sing	Jack-o-Lantern
Rhizopogonaceae		
15	*Abortiporus biennis* (Schwein.) Murrill	
Russulaceae		
16	*Rhizopogon luteolus* Fr. & Nordholm	False Truffles
17	*Russula delica* Fr.	Milk-white Brittlegill
18	*Russula emetica* (Schaeff.) Pers.	Vomiting Russula
19	*Russula fragilis* (Pers.) Fr.	Fragile Brittlegill
20	*Russula sororia* Fr.	
Stereaceae		
21	*Stereum hirsutum* (Willd.) Pers.	
Thelephoraceae		
22	*Thelephora fuscella* (Cesati) Lloyd	

ANNEX 11

Organisational Structure



ANNEX 12

User Groups under each Buffer Zone User Committee

सिं.नं.	समुहको नाम	ठेगाना		क्षेत्रफल हे	घरधुरी संख्या	जनसंख्या			कार्यसमिति			पहिलो कार्ययोजना हस्तान्तरण मिति
		जिल्ला	न.पा./गा.पा.वडा नं.			पुरुष	महिला	जम्मा	पुरुष	महिला	जम्मा	
१	पन्चकन्या	काठमाडौं	बूढानीलकण्ठ-	६३.७६	१७८	४४२	४४१	८८३	४	७	११	२०७६/११/०४
२	च्यानडाँडा	काठमाडौं	बूढानीलकण्ठ-२	४.२१	५६	१५९	१८०	३३९	३	४	७	२०७५/०९/०४
३	आइतबारे	काठमाडौं	बूढानीलकण्ठ-३ र ५ चिसेनी	१४.४९	१०१	२३७	२२८	४६५	७	६	१३	२०७६/०९/०४
४	दडुकुर्नीदेवी	काठमाडौं	बूढानीलकण्ठ-१ तौलुंग	६.०४	८५			०			०	२०७७/०७/०४
५	देउराली महिला	नुवाकोट	शिवपुरी गा.पा.-४	२.६२	३१	५०	४८	९८	०	९	९	२०७६/११/०४
६	सिमपखा	नुवाकोट	शिवपुरी गा.पा.-४	२.६२	३१	९२	९६	१८८	०	७	७	२०७६/११/०४
७	स्याल पिन ढाडपाखा	नुवाकोट	शिवपुरी गा.पा.-४	९.५४	५४	१८४	१६५	३४९	७	४	११	२०७६/१२/३०
८	च्यानडाँडा	नुवाकोट	शिवपुरी गा.पा.-४	१.५७	३२	१२३	१००	२२३			०	२०७६/११/०५
९	वासिंग डाँडा	नुवाकोट	शिवपुरी गा.पा.-४	६.४६	६७	१८४	१६७	३५१	४	३	७	२०७६/११/०४
१०	गंगादेवी	नुवाकोट	शिवपुरी गा.पा.-४	२८.५				०			०	
११	सप्तकन्या	नुवाकोट	शिवपुरी गा.पा.-७	९४.७	९१	३१५	२९१	६०६	११	४	१५	२०७६/११/०४
१२	ग्रामिण देवी	नुवाकोट	शिवपुरी गा.पा.-७	१५.८२	६१	१६८	१६७	३३५	१	८	९	२०७६/१२/२१
१३	कालिका कुम्भेश्वरी	नुवाकोट	शिवपुरी गा.पा.-८	१२१.२६	६७	२४९	२३६	४८५	५	४	९	२०७८/०४/२९
१४	मुडखु श्रीजनशील	काठमाडौं	तार्केश्वर न.पा.-५	३.४७	२७	७६	८२	१५८	२	५	७	२०७५/०४/२३
१५	सिमलको पाखा	काठमाडौं	तार्केश्वर न.पा.-५, बिचारीथोक	७.५	१०७	२७५	२८९	५६४	५	४	९	२०७६/११/०४

सिं.नं.	समुहको नाम	ठेगाना				जनसंख्या			कार्यसमिति			पहिलो कार्ययोजना हस्तान्तरण मिति
		जिल्ला	न.पा./गा.पा.वडा नं.	क्षेत्रफल हे	घरधुरी संख्या	पुरुष	महिला	जम्मा	पुरुष	महिला	जम्मा	
१६	स्युड़ीबार सिमखोला	काठमाडौं	तार्केश्वर न.पा.-५, फुयाँलथोक					०			०	
१७	खोरिया पाखा स्याउली त्याउली	काठमाडौं	तार्केश्वर न.पा.-५, आठमाइल	३.५१	४०	१०७	१०७	२१४	४	५	९	२०७५/११/२४
१८	मरुवा पाखा	काठमाडौं	तार्केश्वर न.पा.-३	५.३	७१	१३८	१४५	२८३	११	०	११	२०७७/०७/०४
१९	सालकोट	काठमाडौं	तार्केश्वर न.पा.-३	२७.१४	७०	२२५	२३७	४६२	७	४	११	२०७६/११/०४
२०	पारीवन पाखा	काठमाडौं	तार्केश्वर न.पा.-३					०			०	
२१	थानागढी	काठमाडौं	तार्केश्वर न.पा.-३	३	४८	१११	१०९	२२०	५	४	९	२०७७/०७/०४
२२	ठाडोपाखा	काठमाडौं	तार्केश्वर न.पा.-३	२.८७८	८२	१२६	१७८	३०४	७	४	११	२०७६/११/०४
२३	देवस्थान सिमडाडा	काठमाडौं	तार्केश्वर न.पा.-२	२५.३९	१९०			०			०	
२४	इचंगुनारायण	काठमाडौं	नागर्जुन न.पा.-३	११.९२	६६	१३६	१४४	२८०	७	४	११	२०७८/०४/२९
२५	जुगेखोला	काठमाडौं	नागर्जुन न.पा.-३	३.२८	१५०	२१३	२२६	४३९	५	४	९	२०७५/११/०४
२६	हरियाली	काठमाडौं	शंखरापुर न.पा.-८	११.५	९८	२२०	२२१	४४१	५	४	९	२०७६/०५/०५
२७	मणिलिंगेश्वर	काठमाडौं	शंखरापुर न.पा.-८	१४.४	११५	३०५	२७४	५७९	६	३	९	२०७७/०७/०४
२८	लुमईदेवी	काठमाडौं	शंखरापुर न.पा.-८	१	९०	२४०	२१८	४५८	५	४	९	२०७८/०५/२५
२९	लप्सौरा	काठमाडौं	शंखरापुर न.पा.-४	३१.४२	११४	२५९	२५१	५१०	५	४	९	२०७७/०७/०४
३०	रातमाटे	काठमाडौं	शंखरापुर न.पा.-४	३३.०८	१३३	३३९	३४७	६८६	६	३	९	२०७७/०७/०४
३१	सेतो भूमिस्थान	काठमाडौं	शंखरापुर न.पा.-१, २, ३ र ४	३९.४५	१४८	३९५	४०३	७९८	७	८	१५	२०७६/०३/१६
३२	मकैचौर	काठमाडौं	कागेश्वरी मनोहरा न.पा.-१	९.३६७	३८			०			०	
३३	घोडयांग पाखा	सिन्धुपाल्चोक	मेलम्ची न.पा.-३	१३.८३	५०	१६९	१७४	३४३	६	३	९	२०७८/०८/१९
३४	जुगेपानी	सिन्धुपाल्चोक	मेलम्ची न.पा.-३	१५.४१	६०			०			०	

सिं.नं.	समुहको नाम	ठेगाना		क्षेत्रफल हे	घरधुरी संख्या	जनसंख्या			कार्यसमिति			पहिलो कार्ययोजना हस्तान्तरण मिति
		जिल्ला	न.पा./गा.पा.वडा नं.			पुरुष	महिला	जम्मा	पुरुष	महिला	जम्मा	
३५	खलु	सिन्धुपाल्चोक	मेलम्ची न.पा.-३	३८.०६	४६			०			०	
३६	मजुवा पाखा	सिन्धुपाल्चोक	मेलम्ची न.पा.-३	१२.३३	३५			०			०	
३७	लामो सुमारा	सिन्धुपाल्चोक	मेलम्ची न.पा.-१	११.३७	२१	६९	६५	१३४	५	२	७	२०७७/०७/०४
३८	भुमेस्थान	सिन्धुपाल्चोक	मेलम्ची न.पा.-१	०.७६	१०२	२६४	२८०	५४४	४	३	७	२०७६/०६/०६
३९	मानेडाडा	सिन्धुपाल्चोक	मेलम्ची न.पा.-१	१.४४	१४६			०			०	
४०	चौतारी डाडा महिला	सिन्धुपाल्चोक	मेलम्ची न.पा.-३	४.२९५	२३	६०	७०	१३०	०	७	७	२०७७/०७/०४
४१	पाताल गुफा सिमथलो	सिन्धुपाल्चोक	मेलम्ची न.पा.-१	५.४७	८०	२००	२१०	४१०	४	३	७	२०७६/०६/०६
४२	चौतारी डाडा काडोखोरिया	सिन्धुपाल्चोक	मेलम्ची न.पा.-१	७२.८७९	५५	१३०	११८	२४८	३	४	७	२०७७/०७/०४
४३	गुठ सल्लाघारी	काठमाडौं	गोकर्णेश्वर न.पा.-३					०			०	
४४	तीन डाडा महिला	काठमाडौं	गोकर्णेश्वर न.पा.-३ तारेभिर	७.३९	१६	३४	३०	६४	०	७	७	२०७६/०८/०६
४५	आहालडाडा चिहानडाडा	काठमाडौं	गोकर्णेश्वर न.पा.-३ तारेभिर	५.२७	३३			०	२	५	७	
४६	चिसापानी	काठमाडौं	गोकर्णेश्वर न.पा.-३ तारेभिर		२९							
४७	बाटुले सिम	काठमाडौं	गोकर्णेश्वर न.पा.-३ तारेभिर	५.६४	५३	३९	१२२	१६१	२	५	७	२०७६/०८/०६
४८	दिदीबहिनी ढुंगा	काठमाडौं	गोकर्णेश्वर न.पा.-३ तारेभिर	१.८१	२३	३९	५३	९२	३	४	७	२०७६/०८/०६
४९	चिसापानी भित्ता	काठमाडौं	गोकर्णेश्वर न.पा.-३ बालुवा	२.२२	१५	३९	४४	८३	२	५	७	२०७७/०७/०४
५०	भन्डारी कुलायण	काठमाडौं	गोकर्णेश्वर न.पा.-पाखाचोक बालुवा	४.१२	६७	१३१	१३३	२६४	३	८	११	२०७५/०७/२६
५१	खानीखोला चियान डाडा	नुवाकोट	ककनी गा.पा.-२	३७.९९	१०८	२५१	२६८	५१९	६	३	९	२०७५/११/०४

सिं.नं.	समुहको नाम	ठेगाना				जनसंख्या			कार्यसमिति			पहिलो कार्ययोजना हस्तान्तरण मिति
		जिल्ला	न.पा./गा.पा.वडा नं.	क्षेत्रफल हे	घरधुरी संख्या	पुरुष	महिला	जम्मा	पुरुष	महिला	जम्मा	
५२	शिरादेवी	नुवाकोट	ककनी गा.पा.-२	१६२	१८०			०			०	
५३	नागाचा	नुवाकोट	ककनी गा.पा.-१	९	२३३	७०५	६८५	१३९०	५	४	९	२०७५/११/०४
५४	महालक्ष्मी	नुवाकोट	ककनी गा.पा.-१	५	१५०	९३०	९३१	१८६१	४	५	९	२०७५/११/०४
५५	ककनी	नुवाकोट	ककनी गा.पा.-५	४	७५			०			०	
५६	हवेली	नुवाकोट	ककनी गा.पा.-२	२९.५	११९	२२८	३९५	६२३	६	३	९	२०७७/०७/०४
५७	घमाइलो पानीघाट	नुवाकोट	ककनी गा.पा.-५		८९	२२१	२२१	४४२	२	७	९	२०७७/०७/०४
५८	उमागाउँ	काठमाडौं	नागार्जुन न.पा.-६	३.५	५२	११४	१०९	२२३	४	३	७	२०७७/०७/०४
५९	घट्टेखोला	काठमाडौं	नागार्जुन न.पा.-८	४	२६	६८	६९	१३७	७	४	११	२०७७/०६/१५
६०	महेश नारायण सल्लाघारी	धादिंग	नागार्जुन न.पा.-१	१८.९१	७०	११०	१०२	२१२	४	५	९	२०७६/११/०४
६१	दमदमे महेश नारायाण	काठमाडौं	धुनिवेशी न.पा.-१	२०.८८	३४	८१	७९	१६०	३	६	९	२०७३/११/०४
६२	गोरखकाली	काठमाडौं	धुनिवेशी न.पा.-१	१३.८	३७	९१	८९	१८०	६	५	११	२०७६/११/०४
६३	परगौपाखा	नुवाकोट	शिवपुरी गा.पा.-२	५.३२	५२	१३५	१४५	२८०	४	५	९	२०७६/०८/०६
६४	च्यानडाडा पाखा	नुवाकोट	शिवपुरी गा.पा.-१	०.५	१४			०	५	२	७	
६५	चिपागांग मुइसेवागांग	नुवाकोट	शिवपुरी गा.पा.-१	२४.७५	९०	१०८	१२२	२३०	१०	३	१३	२०७७/०७/०४
६६	लखेश्वरी	नुवाकोट	शिवपुरी गा.पा.-३	७.३४५	२६	५९	६३	१२२	३	६	९	२०७७/०७/०४
६७	देवीस्थान	नुवाकोट	शिवपुरी गा.पा.-२	०.२२	२४			०			०	
६८	फुम्पारिल्वा	नुवाकोट	शिवपुरी गा.पा.-१	१९.४३	६२	१५१	१६२	३१३	७	६	१३	२०७४/१२/१८
६९	बार्हमाइल एकता	नुवाकोट	ककनी गा.पा.-२	८.३१	५९	१५६	१४२	२९८	४	३	७	२०७८/०५/०४

सिं.नं.	समुहको नाम	ठेगाना		क्षेत्रफल हे	घरधुरी संख्या	जनसंख्या			कार्यसमिति			पहिलो कार्ययोजना हस्तान्तरण मिति
		जिल्ला	न.पा./गा.पा.वडा नं.			पुरुष	महिला	जम्मा	पुरुष	महिला	जम्मा	
७०	तपचुली	सिन्धुपाल्चोक	मेलम्ची न.पा.-२	३.०१	७१			०			०	
७१	धापाकाल्लो	सिन्धुपाल्चोक	मेलम्ची न.पा.-१	५.२१	५४	१७७	१७२	३४९	२	५	७	२०७८/०४/२९
७२	राँगमेन चिसापानी	नुवाकोट	शिवपुरी गा.पा.-१ तलाखु	८.२१	९३	२४०	२३५	४७५	६	३	९	२०७८/०५/०४
७३	बुद्धभूमि	नुवाकोट	शिवपुरी गा.पा.-२ छाप	३.५४	५५	१४४	१३९	२८३	११	४	१५	२०७८/०५/०४
७४	धांगप्रा ब्रामांग खोला	नुवाकोट	शिवपुरी गा.पा.-१ तलाखु	६.२४	६१	१८१	१७८	३५९	५	४	९	२०७८/०५/०५
७५	घट्टे डाडा कुलो परांग	नुवाकोट	शिवपुरी गा.पा.-२, छाप	१.७३	३२	८७	७४	१६१	५	२	७	२०७८/०५/०४
७६	बाटुली	काठमाडौं	शंखरापुर न.पा.-४	७.३७	८७	२०७	२१९	४२६	६	३	९	२०७८/०५/०४

ANNEX 13

Activities and Budget for the Management Plan of Shivapuri Nagarjun National Park

SN	Activities	Unit	Total of 5 Years		Year 1			Year 2			Year 3			Year 4			Year 5			Remarks
			Quantity	Amount	Quantity	Rate	Amount	Quantity	Rate	Amount	Quantity	Rate	Amount	Quantity	Rate	Amount	Quantity	Rate	Amount	
1	**Infrastructure Construction /Maintenance and Facilities Improvement**																			
1	**Building Construction/Maintenance and Facilities Improvement**																			
	Post Construction work	No	5	36631	1	6000	6000	1	6600	6600	1	7260	7260	1	7986	7986	1	8785	8785	
	Post Renovation work	No	20	12210	4	500	2000	4	550	2200	4	605	2420	4	666	2662	4	732	2928	
	Sector Office Construction	No	2	21000	0	0	0	1	10000	10000	1	11000	11000	0	0	0	0	0	0	
	Security Guard Post construction	No	2	66000	1	6000	60000	1	6000	6000	0	0	0	0	0	0	0	0	0	
	Guest House Construction	No	1	5000	1	5000	5000	0	0	0	0	0	0	0	0	0	0	0	0	
	Ticket counter constriction	no	5	5000	1	1000	1000	1	1000	1000	1	1000	1000	1	1000	1000	1	1000	1000	
	Staff quarter construction	No	2	12600	0	0	0	1	6000	6000	1	6600	6600	0	0	0	0	0	0	
	Motor garage construction	No	2	1050	0	0	0	1	500	500	1	550	550	0	0	0	0	0	0	
	Office /Post Building and other facilities (Toilet, Drinking Water etc.) Maintenance work	Year	20	5000	4	250	1000	4	250	1000	4	250	1000	4	250	1000	4	250	1000	
	Security Guard Post Maintenance work	Year	10	7000	3	500	1500	2	500	1000	3	500	1500	3	500	1500	3	500	1500	
	Custody Building Maintenance work	Times	2	1050	0	0	0	1	500	500	0	0	0	1	550	550	0	0	0	
	Boundary wall maintenance	Km	10	12210	2	1000	2000	2	1100	2200	2	1210	2420	2	1331	2662	2	1464	2928	
	Solar Electricity installation in office and Post	No	5	1831	1	300	300	1	330	330	1	363	363	1	399	399	1	439	439	
	Sub-Total			**186582**			**78800**			**37330**			**34113**			**17759**			**18580**	
1	**Road/trails construction & improvement**																			
	Forest road maintenance work	Km	200	12210	40	50	2000	40	55	2200	40	61	2420	40	67	2662	40	73	2928	
	Retaining/Breast wall construction/ maintenance	Place	10	10000	2	1000	2000	2	1000	2000	2	1000	2000	2	1000	2000	2	1000	2000	
	Causeway construction	Place	10	6105	2	500	1000	2	550	1100	2	605	1210	2	666	1331	2	732	1464	
	Culvert construction	Place	5	2500	1	500	500	1	500	500	1	500	500	1	500	500	1	500	500	
	Wooden bridge construction/ maintenance	Place	2	1000	1	500	500	1	500	500	0	0	0	0	0	0	0	0	0	
	Sub-Total			**31815**			**6000**			**6300**			**6130**			**6493**			**6892**	

SN	Activities	Unit	Total of 5 Years		Year 1			Year 2			Year 3			Year 4			Year 5			Remarks
			Quantity	Amount	Quantity	Rate	Amount	Quantity	Rate	Amount	Quantity	Rate	Amount	Quantity	Rate	Amount	Quantity	Rate	Amount	
2	**Habitat Management**																			
a	**Wetland Management**																			
	Medium to small sized water hole construction and regular water supply	Times	4	1459		300	0	2	330	660		363	0	2	399	799		439	0	
	River Sanitation	Times	5	3053	1	500	500	1	550	550	1	605	605	1	666	666	1	732	732	
b	**Grassland Management**	Ha	20	2000	5	100	500	5	100	500	5	100	500	5	100	500	0	0	0	
	Shrubland Management for species like spiny babler	Ha	25	2500	5	100	500	5	100	500	5	100	500	5	100	500	5	100	500	
c	**Forest management**																			
	Quercus restoration	Ha	6	1500	0	0	0	2	250	500	2	250	500	2	250	500	0	0	0	
	Pine Forest conversion to broadleaved forest	Ha	5	2500	1	500	500	1	500	500	1	500	500	1	500	500	1	500	500	
d	**Fire management**																			
	Fire management Plan Preparation	Times	1	500	1	500	500													
	Equipment purchase, Fire Field Gear for staff	Times	5	3053	1	500	500	1	550	550	1	605	605	1	666	666	1	732	732	
	Co-ordination with UG, UC, local stakeholders and security official	Times	10	610	2	50	100	2	55	110	2	61	121	2	67	133	2	73	146	
	Burning material collection and cleaning in fire prone areas	Ha	40	1464	8	30	240	8	33	264	8	36	290	8	40	319	8	44	351	
	Fire line maintenance work	Km	50	5000	10	100	1000	10	100	1000	10	100	1000	10	100	1000	10	100	1000	
	Mobilization of staff, security and local user's	Year	5	610	1	100	100	1	110	110	1	121	121	1	133	133	1	146	146	
	Media Campaign for fire prevention	Times	5	244	1	40	40	1	44	44	1	48	48	1	53	53	1	59	59	
	Fire fighting trainings	Times	2	442	1	200	200		220	0	1	242	242		266	0		293	0	
	Sub-Total			**24935**			**4680**			**5288**			**5032**			**5769**			**4166**	
3	**Species conservation, research and monitoring activities**																			
	Research and monitoring																			
	Common leopard monitoring	Times	1	500	1	500	500		550	0		605	0		666	0		732	0	
	Clouded leopard study	Times	1	550		500	0	1	550	550		605	0		666	0		732	0	
	Himalayan black bear study	Times	1	605		500	0		550	0	1	605	605		666	0		732	0	
	Small mammals survey	Times	1	666		500	0		550	0		605	0	1	666	666		732	0	
	Reptiles and amphibians' study	Times	1	732		500	0		550	0		605	0		666	0	1	732	732	
	Pangolin study	Times	1	500	1	500	500		550	0		605	0		666	0		732	0	
	Fish and aquatic life study	Times	1	605		500	0		550	0	1	605	605		666	0		732	0	

SN	Activities	Unit	Total of 5 Years		Year 1			Year 2			Year 3			Year 4			Year 5			Remarks
			Quantity	Amount	Quantity	Rate	Amount	Quantity	Rate	Amount	Quantity	Rate	Amount	Quantity	Rate	Amount	Quantity	Rate	Amount	
	Sambar population and habitat Study	Times	1	605		500	0		550	0	1	605	605		666	0		732	0	
	Bird survey (Mid-winter Water Bird Count)	Times	2	1216		500	0	1	550	550		605	0	1	666	666		732	0	
	Tourism impact study in SNNP	Times	1	550		500	0	1	550	550		605	0		666	0		732	0	
	Sub-Total			**6529**			**1000**			**1650**			**1815**			**1332**			**732**	
4	**Strengthening intelligence network and Anti-Poaching**																			
	Encroachment data base update, control and management	Times	5	1221	1	200	200	1	220	220	1	242	242	1	266	266	1	293	293	
	Mobility (Sweep operation, long range patrolling, Day Night Patrolling)	Times	60	2931	12	40	480	12	44	528	12	48	581	12	53	639	12	59	703	
	Real time smart patrolling	Times	60	2198	12	30	360	12	33	396	12	36	436	12	40	479	12	44	527	
	Installation and mangement of JOC	no.	2	2000	2	1000	2000													
	Equipment for anti-poaching operation (Night vision Binocular, Tent, Sleeping bags, etc)	Times	5	3053	1	500	500	1	550	550	1	605	605	1	666	666	1	732	732	
	Information collection, purchasing through informant mobilization	Times	5	306	1	50	50	1	55	55	1	61	61	1	67	67	1	73	73	
	Crime investigation	Tri - month	20	733	4	30	120	4	33	132	4	36	145	4	40	160	4	44	176	
	Siezed materials, forest products and animal parts management	Tri - month	20	733	4	30	120	4	33	132	4	36	145	4	40	160	4	44	176	
	Sub-Total			**13175**			**3830**			**2013**			**2215**			**2437**			**2680**	
5	**Human Wildlife Conflict**																			
	Human wildlife conflict study	Times	1	500										1	500	500	0	0	0	
	Mess wire construction	km	25	100000	5	4000	20000	5	4000	20000	5	4000	20000	5	4000	20000	5	4000	20000	
	Equipment for Wildlife Rescue	Times	2	663	1	300	300		330	0	1	363	363		150	0		165	0	
	Orphaned and injured animals' rehabilitation and management	Tri - month	20	610	4	25	100	4	27.5	110	4	30	121	4	33	133	4	37	146	
	Sub-Total			**101773**			**20400**			**20110**			**20484**			**20633**			**20146**	
6	**Eco-Tourism**																			
	Preparation of Eco-Tourism Plan of SNNP	Times	1	500	1	500	500		330	0		363	0		399	0		439	0	
	Formation of tourism management committee	No	1	150	1	150	150		165	0		182	0		200	0		220	0	
	Tourism management committee regulation/meeting/field/WS	Tri - month	20	733	4	30	120	4	33	132	4	36	145	4	40	160	4	44	176	
	Information centre development and maintenance	No	3	1782	1	500	500	1	550	550		605	0		666	0	1	732	732	

SN	Activities	Unit	Total of 5 Years		Year 1			Year 2			Year 3			Year 4			Year 5			Remarks
			Quantity	Amount	Quantity	Rate	Amount	Quantity	Rate	Amount	Quantity	Rate	Amount	Quantity	Rate	Amount	Quantity	Rate	Amount	
	Cultural heritage site conservation, renovation	Place	10	1221	2	100	200	2	110	220	2	121	242	2	133	266	2	146	293	
	Signage, sign post, boards, etc installing and improvement work	Lum sum	12	1463	2	100	200	2	110	220	4	121	484	2	133	266	2	146	293	
	Tourist rest point, round house construction, maintenance and renovation	Place	10	6105	2	500	1000	2	550	1100	2	605	1210	2	666	1331	2	732	1464	
	Foot trail (inside park) improvement, renovation, bush cutting	Km	25	1527	5	50	250	5	55	275	5	61	303	5	67	333	5	73	366	
	Waste management (Plastic restriction)	Monthly	60	3663	12	50	600	12	55	660	12	61	726	12	67	799	12	73	878	
	Toilet Facility development	Place	5	5000	1	1000	1000	1	1000	1000	1	1000	1000	1	1000	1000	1	1000	1000	
	Toilet Facility maintenance	Monthly	60	733	12	10	120	12	11	132	12	12	145	12	13	160	12	15	176	
	Website maintenance and tourism app development	Monthly	60	367	12	5	60	12	5.5	66	12	6	73	12	7	80	12	7	88	
	Initial Impact Assessment of Dham Dam in the vicinity	No	1	500	1	500	500		330	0		363	0		399	0		439	0	
	Sub-Total			**23744**			**5200**			**4355**			**4328**			**4395**			**5466**	
7	**Conservation Awareness**																			
	Special conservation days celebration	No	40	2442	8	50	400	8	55	440	8	61	484	8	67	532	8	73	586	
	Park establishment day celebration (Falgun 6)	No	5	917	1	150	150	1	165	165	1	182	182	1	200	200	1	220	220	
	Wildlife week celebration	No	5	1221	1	200	200	1	220	220	1	242	242	1	266	266	1	293	293	
	Conservation education to school students and local groups	No	18	1074	4	50	200	4	55	220	4	61	242	4	67	266	2	73	146	
	Workshop with stakeholders	No	30	1100	6	30	180	6	33	198	6	36	218	6	40	240	6	44	264	
	Brochure, pamphlet about consrvation	No	5000	306	1000	0.05	50	1000	0.055	55	1000	0	61	1000	0	67	1000	0	73	
	Conservation awareness through local media	Tri-month	20	733	4	30	120	4	33	132	4	36	145	4	40	160	4	44	176	
	Eco-club strengthening and support	Times	20	733	4	30	120	4	33	132	4	36	145	4	40	160	4	44	176	
	Documentary prepration	No	1	500			0		0	0		0	0		0	0	1	500	500	
	Audio-Visual Show	Times	20	977	4	40	160	4	44	176	4	48	194	4	53	213	4	59	234	
	Sub-Total			**10003**			**1580**			**1738**			**1913**			**2104**			**2668**	
8	**Capacity Building**																			
	GIS, RS, SPSS, R-Studio Training	Times	2	256		100	0	1	110	110		121	0		133	0	1	146	146	
	Census techniques training	Times	2	233	1	100	100		110	0		121	0	1	133	133		146	0	

SN	Activities	Unit	Total of 5 Years		Year 1			Year 2			Year 3			Year 4			Year 5			Remarks
			Quantity	Amount	Quantity	Rate	Amount	Quantity	Rate	Amount	Quantity	Rate	Amount	Quantity	Rate	Amount	Quantity	Rate	Amount	
	Capacity building training on wildlife crime (Legal Procedure training, Wildlife Parts identification, Wildlife crime scenes investigation training)	Times	5	500	1	100	100	1	100	100	1	100	100	1	100	100	1	100	100	
	Gender and social equity training/ workshop/orientation	Times	5	610	1	100	100	1	110	110	1	121	121	1	133	133	1	146	146	
	Stakeholders' coordination WS	Times	20	977	4	40	160	4	44	176	4	48	194	4	53	213	4	59	234	
	Conflict management Training	Times	1	121		100	0		110	0	1	121	121		133	0		146	0	
	Wildlife management and job orientation taining for new recurits	Times	2	256		100	0	1	110	110		121	0		133	0	1	146	146	
	Training on wildlife rescue	Times	1	100	1	100	100		110	0		121	0		133	0		146	0	
	Sub-Total			**3053**			**560**			**606**			**536**			**579**			**772**	
9	**Special Programs**																			
	Consultation and coordination meeting with local government and security agency	Times	30	1831	6	50	300	6	55	330	6	61	363	6	67	399	6	73	439	
	Construction of large sized multi purposed ponds	no	5	30526	1	5000	5000	1	5500	5500	1	6050	6050	1	6655	6655	1	7321	7321	
	Climate change sensetization orientation/ training/workshop	Times	5	610	1	100	100	1	110	110	1	121	121	1	133	133	1	146	146	
	Cycling and walking trail around national park boundary (in coordination with local government)	meters	5000	30526	1000	5	5000	1000	5.5	5500	1000	6	6050	1000	7	6655	1000	7	7321	
	Management plan review	Times	1	300													1	300	300	
	Sub-Total			**63793**			**10400**			**11440**			**12584**			**13842**			**15527**	
10	**Watershed and Wetland management**																			
	Riverside Plantation	Ha	2	332	1	150	150		165	0	1	182	182		200	0		220	0	
	Landslide treatment	Times	4	2210	2	500	1000		550	0	2	605	1210		666	0		732	0	
	Sub-Total			**2542**			**1150**			**0**			**1392**			**0**			**0**	
11	**Office Management Cost**																			
	Salary, ration, insurance and inflation amount	Year	5	331451	1	54291	54291	1	59720	59720	1	65692	65692	1	72261	72261	1	79487	79487	
	Vehicle Purchase	No	1	3500				1	3500	3500										
	Motorbike Purchase	No	10	3663	2	300	600	2	330	660	2	363	726	2	399	799	2	439	878	
	Vehicle maintenance	Year	5	5000	1	1000	1000	1	1000	1000	1	1000	1000	1	1000	1000	1	1000	1000	
	Motorbike maintenance	Year	5	5000	1	1000	1000	1	1000	1000	1	1000	1000	1	1000	1000	1	1000	1000	
	Third Party and Vehicle insurance	Year	5	1221	1	200	200	1	220	220	1	242	242	1	266	266	1	293	293	

SN	Activities	Unit	Total of 5 Years		Year 1			Year 2			Year 3			Year 4			Year 5			Remarks
			Quantity	Amount	Quantity	Rate	Amount	Quantity	Rate	Amount	Quantity	Rate	Amount	Quantity	Rate	Amount	Quantity	Rate	Amount	
	Fuel for Vehicles	Lum sum	5	4274	1	700	700	1	770	770	1	847	847	1	932	932	1	1025	1025	
	Furnitures for office	Lum sum	5	3053	1	500	500	1	550	550	1	605	605	1	666	666	1	732	732	
	Uniform for staff	No of Staff	580	14164	116	20	2320	116	22	2552	116	24	2807	116	27	3088	116	29	3397	
	Electronic equipments for office (laptop, desktop, printer, photocopy, camera etc)	Lum sum	5	3663	1	600	600	1	660	660	1	726	726	1	799	799	1	878	878	
	Water, electricity, website, internet, communication	Year	5	9158	1	1500	1500	1	1650	1650	1	1815	1815	1	1997	1997	1	2196	2196	
	Stationery and related	Year	5	1831	1	300	300	1	330	330	1	363	363	1	399	399	1	439	439	
	Monitoring, evaluation and other TA	Year	5	1831	1	300	300	1	330	330	1	363	363	1	399	399	1	439	439	
	Miscellaneous (maternity care, medicine, transfer)	Year	5	917	1	150	150	1	165	165	1	182	182	1	200	200	1	220	220	
	Sub -total			**388726**			**63461**			**73107**			**76368**			**83806**			**91984**	
	Total			**856670**			**197061**			**163937**			**166910**			**159149**			**169613**	

ANNEX 14

Shivapuri Nagarjun National Park Buffer Zone UCs' Activities and Budget

Activities and Budget for the Management Plan of Shivapuri Nagarjun National Park

SN	Activites	Amount						Remarks
		Year 1	Year 2	Year 3	Year 4	Year 5	Total Amount for 5 Years	
1	Conservation Programme (15%)							
	Embankment Construction	450000	300000	300000	300000	300000	1650000	
	Water Resource Sanitation programme	250000	200000	200000	200000	200000	1050000	
	Cultural Heritage Conservation	200000	200000	200000	200000	200000	1000000	
	Antipoaching activities	100000	100000	100000	100000	100000	500000	
	Sub-Total	**1000000**	**800000**	**800000**	**800000**	**800000**	**4200000**	
2	Human Wildlife conflict and Relief (25%)							
	Wildlife damage compensation	50000	50000	50000	50000	50000	250000	
	National Park's wall construction and repair	900000	900000	900000	900000	900000	4500000	
	Alternative Crop management	200000	200000	200000	200000	200000	1000000	
	Scholarship	100000	100000	100000	100000	100000	500000	
	Sub-Total	**1250000**	**1250000**	**1250000**	**1250000**	**1250000**	**6250000**	
3	Community Development (15%)							
	Community Building Construction	3000000	0	0	0	0	3000000	
	Park Construction	200000	200000	200000	200000	200000	1000000	
	Tapachuli Saji foot trail Construction	100000	100000	100000	100000	100000	500000	
	Jhule Patal Gupha Foot trail Construction	200000	200000	200000	200000	200000	1000000	
	Irrigation Canal Construction	50000	50000	50000	50000	50000	250000	
	Public toilet Construction	0	0	300000	0	0	300000	
	Community Sanitation Programme	0	50000	50000	50000	50000	200000	
	Sub-Total	**3550000**	**600000**	**900000**	**600000**	**600000**	**6250000**	

SN	Activites	Amount						Remarks
		Year 1	Year 2	Year 3	Year 4	Year 5	Total Amount for 5 Years	
4	**Eco tourism, income generation and skill development (20%)**							
	Leadership training	300000	300000	300000	300000	300000	1500000	
	Homestay development	500000	0	500000	0	0	1000000	
	Information Board	100000	100000	100000	100000	100000	500000	
	Tea Cropping	20000	20000	20000	20000	20000	100000	
	View Tower Construction	300000	0	0	0	300000	600000	
	Tourist Resting Place Construction	200000	200000	200000	200000	200000	1000000	
	Skill Development Training	100000	100000	100000	0	0	300000	
	Sub-Total	**1520000**	**720000**	**1220000**	**620000**	**920000**	**5000000**	
5	**Conservation Education (10%)**							
	School support programme	100000	100000	100000	100000	100000	500000	
	Educational Tour	175000	175000	175000	175000	175000	875000	
	Conservation liabrary establishment	50000	50000	50000	50000	50000	250000	
	Youth awareness programme	50000	50000	50000	50000	50000	250000	
	Celebration Day (Environment, Wetland etc)	50000	50000	50000	50000	50000	250000	
	Forest fire control education	75000	75000	75000	75000	75000	375000	
	Sub-Total	**500000**	**500000**	**500000**	**500000**	**500000**	**2500000**	
6	**Administrative cost (15%)**							
	Furnishing+electronic appliances	350000	200000	200000	200000	150000	1100000	
	Salary	250000	275000	302500	332750	366025	1526275	
	Stationary	50000	60000	66000	72600	79860	328460	
	TADA	50000	55000	60500	66550	73205	305255	
	Others	50000	160000	121000	78100	80910	490010	
	Sub-Total	**750000**	**750000**	**750000**	**750000**	**750000**	**3750000**	
	Total Budget for 5 Years	**8570000**	**4620000**	**5420000**	**4520000**	**4820000**	**27950000**	
	Total Budget for 5 Years (In Thousands)	**7980**	**4030**	**4830**	**3930**	**4230**		

Kakani Okharpauwa Buffer Zone User Committee

SN	Activites	Amount						Remarks
		Year 1	Year 2	Year 3	Year 4	Year 5	Total Amount for 5 Years	
1	Conservation Programme (15%)							
	Water Resource conservation	250000	250000	250000	250000	250000	1250000	
	Plantation Programme	150000	150000	150000	150000	150000	750000	
	Water Resource Sanitation programme	200000	200000	200000	200000	200000	1000000	
	Community Empowerment and Awareness campaign	100000	100000	100000	100000	100000	500000	
	Poaching controlling methods training	50000	50000	50000	50000	50000	250000	
	Sub-Total	**750000**	**750000**	**750000**	**750000**	**750000**	3750000	
2	Human Wildlife conflict and Relief (25%)							
	Wildlife Damage Compensiation	400000	400000	400000	400000	400000	2000000	
	National Park's wall construction and repair	600000	600000	600000	600000	600000	3000000	
	Alternative Crop management	150000	150000	150000	150000	150000	750000	
	Forest Watcher's management	100000	100000	100000	100000	100000	500000	
	Sub-Total	**1250000**	**1250000**	**1250000**	**1250000**	**1250000**	**6250000**	
3	Community Development (15%)							
	Drinking Water	100000	100000	50000	250000	300000	800000	
	Irrigation	0	50000	150000	200000	100000	500000	
	Road maintenance	100000	150000	200000	200000	300000	950000	
	Public toilet	50000	0	250000	50000	0	350000	
	Community Sanitation Programme	0	50000	50000	50000	50000	200000	
	Community Building	500000	400000	50000	0	0	950000	
	Sub-Total	**750000**	**750000**	**750000**	**750000**	**750000**	**3750000**	
4	Eco tourism, income generation and skill development (20%)							
	Temple Renovation	300000	100000	50000	200000	250000	900000	
	Skill Development training	400000	200000	500000	450000	450000	2000000	

SN	Activites	Amount						Remarks
		Year 1	Year 2	Year 3	Year 4	Year 5	Total Amount for 5 Years	
	Information Board	50000	450000	100000	100000	50000	750000	
	Tour Progrmme	250000	100000	250000	250000	250000	1100000	
	Picnic park	0	150000	100000	0	0	250000	
	Sub-Total	**1000000**	**1000000**	**1000000**	**1000000**	**1000000**	**5000000**	
5	Conservation Education (10%)							
	School support programme	100000	100000	100000	100000	100000	500000	
	Educational Tour	175000	175000	175000	175000	175000	875000	
	Construction of Extension Materials and Distribution	50000	50000	50000	50000	50000	250000	
	Youth awareness programme	50000	50000	50000	50000	50000	250000	
	Celebration Day (Environment, Wetland etc)	50000	50000	50000	50000	50000	250000	
	Forest fire control education	75000	75000	75000	75000	75000	375000	
		500000	**500000**	**500000**	**500000**	**500000**	**2500000**	
6	Administrative cost (15%)							
	Furnishing+electronic appliances	350000	200000	200000	200000	150000	1100000	
	Salary	250000	275000	302500	332750	366025	1526275	
	Stationary	50000	60000	66000	72600	79860	328460	
	TADA	50000	55000	60500	66550	73205	305255	
	Others	50000	160000	121000	78100	80910	490010	
	Sub-Total	**750000**	**750000**	**750000**	**750000**	**750000**	**3750000**	
	Total Budget for 5 Years	**5000000**	**5000000**	**5000000**	**5000000**	**5000000**	**25000000**	
	Total Budget for 5 Years (In Thousands	5000	5000	5000	5000	5000	25000	

Goldhunga Jitpur Buffer Zone User Committee

SN	Activities	Amount						Remarks
		Year 1	Year 2	Year 3	Year 4	Year 5	Total Amount for 5 Years	
1	**Conservation Programme 15%**							
A	**Sustainable management of Community forest**							
	Fire control	30000	30000	30000	30000	30000	150000	
	Clean up Water Resources	10000	10000	10000	10000	10000	50000	
	Community Forest management training	50000	50000	50000	50000	50000	250000	
	Fire control tools equipment	200000	200000	200000	200000	200000	1000000	
	Training/Workshop	50000	50000	50000	50000	50000	250000	
C	**Cultural sites Conservation**	200000	200000	200000	200000	200000	1000000	
	Sub-total Amount	**540000**	**540000**	**540000**	**540000**	**540000**	**2700000**	
2	**Human Wildlife Conflict Resolution 25%**							
	Maintenance of Boundary wall	0	400000	500000	1000000	0	1900000	
	Compensation for Victim	200000	200000	200000	200000	200000	1000000	
	Scholarship programme	250000	250000	250000	250000	250000	1250000	
	Human-wildlife Conflict Resolution awarness Programme	200000	200000	200000	200000	200000	1000000	
	Sub-total Amount	**650000**	**1050000**	**1150000**	**1650000**	**650000**	**5150000**	
3	**Community Development Programme 15%**							
	Drinking water schemes as per procedure	200000	0	0	200000	0	400000	
	Road maintenance	200000	0	200000	0	0	400000	
	Users committee Office Building Construction work	500000	500000	0	0	0	1000000	
	Sub-total	900000	500000	200000	200000	0	1800000	
4	**Tourism development, Income generation and Skill development 20%**							
	Nature Guide training	500000		500000		500000	1500000	
	Leadership training	200000	200000	200000	200000	200000	1000000	

SN	Activities	Amount						Remarks
		Year 1	Year 2	Year 3	Year 4	Year 5	Total Amount for 5 Years	
	Homestay Development	500000		500000		500000	1500000	
	User group mobilization Training	200000	200000	200000			600000	
	Social Mobilization training	100000	100000	100000	100000		400000	
	Trail maintenance work	50000	50000	50000	50000	50000	250000	
	Homestay training	100000	100000	100000	100000	100000	500000	
	Sub-total Amount	**1650000**	**650000**	**1650000**	**450000**	**1350000**	**5750000**	
5	**Conservation education Programme 10%**							
	Celebration days	50000	50000	50000	50000	50000	250000	
	Workshop with stakeholders	40000	40000	40000	40000	40000	200000	
	Eco-club Support	50000	50000	50000	50000	50000	250000	
	Eco-club Networking formation	40000	0	0	0	0	40000	
	Environment Teacher's Networking formation	25000	25000	0	0	0	50000	
	Conservation Tour	200000	200000	200000	200000	200000	1000000	
	Sub-total Amount	**405000**	**365000**	**340000**	**340000**	**340000**	**1790000**	
6	**Administration Fascilities, Expenses Award 15%**							
	Salary for Office Assistant, Social Mobilizer	150000	162000	190000	102000	102000	706000	
	Office Running Cost	50000	50000	50000	50000	50000	250000	
	Equipment (Computer, Printer, Scanner, Binocular)	30000	0	0	0		30000	
	Furnishing	50000	0	0	50000	0	100000	
	Sub-total Amount	**280000**	**212000**	**240000**	**202000**	**152000**	**1086000**	
	Total Amount for 5 Years Programme	**4425000**	**3317000**	**4120000**	**3382000**	**3032000**	**18276000**	
	Total Budget for 5 Years (In Thousands)	**4425**	**3317**	**4120**	**3382**	**3032**	**18276**	

Sundarijal Shivapuri Buffer Zone User Committee

SN	Activites	Amount					Total Amount for 5 Years	Remarks
		Year 1	Year 2	Year 3	Year 4	Year 5		
1	Conservation Programme(15%)							
	Water sources Conservation	200000	200000	200000	200000	200000	1000000	
	Plantation	1000000	1000000	1000000	1000000	1000000	5000000	
	Cultural Heritage Site Conservation	100000	100000	100000	100000	100000	500000	
	Antipoaching activities	100000	100000	100000	100000	100000	500000	
	Watersource Conservation	100000	100000	100000	100000	100000	500000	
	Fire reduction Prograame	0	200000	200000	200000	250000	850000	
	Sub-Total	**1500000**	**1700000**	**1700000**	**1700000**	**1750000**	**8350000**	
2	**Human Wildlife conflict and Relief (25%)**							
	Boundary wall construction and repair	1000000	1000000	1000000	1000000	1000000	5000000	
	Alternative Crop management	100000	100000	100000	100000	0	400000	
	Scholarship	100000	100000	100000	100000	100000	500000	
	Antipoaching activities	100000	100000	0	0	0	200000	
	Compensation for Wildlife Victim	1000000	1000000	1000000	1000000	1000000	5000000	
	Sub-Total	**2300000**	**2300000**	**2200000**	**2200000**	**2100000**	**11100000**	
3	**Community Development (15%)**							
	Community Building	3000000	0	0	0	0	3000000	
	Tourist trail maintenance	250000	250000	250000	250000	250000	1250000	
	Sub-Total	**3250000**	**250000**	**250000**	**250000**	**250000**	**4250000**	
4	Eco tourism, income generation and skill development (20%)							
	Hotel management Training	200000	200000	0	0	0	400000	
	Conservation education tour	300000	0	300000	0	300000	900000	
	Homestay construction	500000	0	500000	0	0	1000000	
	Homestay training	200000	0	200000	0	0	400000	

SN	Activites	Amount					Total Amount for 5 Years	Remarks
		Year 1	Year 2	Year 3	Year 4	Year 5		
	Skill Development Training	200000	200000	200000	0	0	600000	
	Community mobiliazation training	700000	0	0	0	0	700000	
	Nature Guide Training	200000	0	0	0	0	200000	
	Tourist resting place construction	300000	0	300000	0	200000	800000	
	Sub-Total	**2600000**	**400000**	**1500000**	**0**	**500000**	**5000000**	
5	Conservation Education (10%)							
	Ecoclub formation and Support	100000	100000	100000	100000	100000	500000	
	Signboard Constrction	100000	100000	100000	100000	100000	500000	
	Youth awareness programme	100000	100000	100000	100000	100000	500000	
	Celebration Day (Environment, Wetland etc)	100000	100000	100000	100000	100000	500000	
	Forest fire control education	100000	100000	100000	100000	100000	500000	
	Sub-Total	**500000**	**500000**	**500000**	**500000**	**500000**	**2500000**	
6	**Administrative cost (15%)**							
	Furnishing+electronic appliances	350000	200000	200000	200000	150000	1100000	
	Salary	250000	275000	302500	332750	366025	1526275	
	Stationary	50000	60000	66000	72600	79860	328460	
	TADA	50000	55000	60500	66550	73205	305255	
	Others	50000	160000	121000	78100	80910	490010	
	Sub-Total	**750000**	**750000**	**750000**	**750000**	**750000**	**3750000**	
	Total Budget for 5 Years	**10900000**	**5900000**	**6900000**	**5400000**	**5850000**	**34950000**	
	Total Budget for 5 Years (In Thousands)	**10900**	**5900**	**6900**	**5400**	**5850**	**34950**	

Gurje Bhanjyang Buffer Zone User Committee

SN	Activities	Amount					Total Amount for 5 Years	Remarks
		Year 1	Year 2	Year 3	Year 4	Year 5		
1	Conservation Programme (15%)							
1.1	Water Resource conservation	400000	400000	400000	400000	400000	2000000	
1.2	Plantation Programme	150000	150000	150000	150000	150000	750000	
1.3	Water Resource Sanitation programme	200000	200000	200000	200000	200000	1000000	
	Sub-Total	**750000**	**750000**	**750000**	**750000**	**750000**	**3750000**	
2	Human Wildlife conflict and Relief (25%)							
2.1	Wildlife Damage Compensiation	700000	700000	700000	700000	700000	3500000	
2.2	National Park's wall construction and repair	450000	450000	450000	450000	450000	2250000	
2.3	Alternative Crop management	100000	100000	100000	100000	100000	500000	
	Sub-Total	**1250000**	**1250000**	**1250000**	**1250000**	**1250000**	**6250000**	
3	Community Development (15%)							
3.1	Drinking Water	50000	50000	50000	50000	50000	250000	
3.2	Irrigation	0	200000	0	100000	100000	400000	
3.3	Road maintenance	0	150000	250000	200000	200000	800000	
3.4	School Support	0	0	100000	50000	50000	200000	
3.5	Public toilet	0	0	400000	0	0	400000	
3.6	Alternative Energy Support	100000	0	0	150000	150000	400000	
3.7	Community Building	1500000	0	0	0	0	1500000	
		1650000	**400000**	**800000**	**550000**	**550000**	**3950000**	
4	Eco tourism, and income generation and skill development (20%)							
4.1	Temple Renovation	250000	250000	0	200000	250000	950000	
4.2	Home stay	350000	0	0	0	0	350000	
4.3	Skill Development training	350000	350000	400000	400000	350000	1850000	
4.4	Information Board	50000	50000	50000	50000	50000	250000	

SN	Activities	Amount					Total Amount for 5 Years	Remarks
		Year 1	Year 2	Year 3	Year 4	Year 5		
4.5	View Tower	0	0	500000	500000	100000	1100000	
4.6	Tour Progrmme	0	0	0	250000	250000	500000	
	Sub-Total	**1000000**	**650000**	**950000**	**1400000**	**1000000**	**5000000**	
5	Conservation Education (10%)							
5.1	School support programme	200000	200000	200000	200000	200000	1000000	
5.2	Educational Tour	200000	200000	200000	200000	200000	1000000	
5.3	Construction of Extension Materials and Distribution	50000	50000	50000	50000	50000	250000	
5.4	Youth awareness programme	50000	50000	50000	50000	50000	250000	
	Sub-Total	**500000**	**500000**	**500000**	**500000**	**500000**	**2500000**	
6	Administrative cost (15%)							
6.1	Furnishing+electronic appliances	350000	200000	200000	200000	150000	1100000	
6.2	Salary	250000	275000	302500	332750	366025	1526275	
6.3	Stationary	50000	60000	66000	72600	79860	328460	
6.4	TADA	50000	55000	60500	66550	73205	305255	
6.5	Others	50000	160000	121000	78100	80910	490010	
	Sub-Total	**750000**	**750000**	**750000**	**750000**	**750000**	**3750000**	
	Total Budget for 5 Years	**5900000**	**4300000**	**5000000**	**5200000**	**4800000**	**25200000**	
	Total Budget for 5 Years (In Thousands)	5900	4300	5000	5200	4800	25000	

Boudeshwar Mahadev Buffer Zone User Committee

SN	Activites	Amount					Total Amount for 5 Years	Remarks
		Year 1	Year 2	Year 3	Year 4	Year 5		
1	Conservation Programme (15%)							
	Water Resource conservation	250000	250000	250000	250000	250000	1250000	
	Plantation Programme	150000	150000	150000	150000	150000	750000	
	Water Resource Sanitation programme	200000	200000	200000	200000	200000	1000000	
	Community Empowerment and Awareness campeign	100000	100000	100000	100000	100000	500000	
	Poaching controlling methods training	50000	50000	50000	50000	50000	250000	
	Sub-Total	**750000**	**750000**	**750000**	**750000**	**750000**	**3750000**	
2	Human Wildlife conflict and Relief (25%)							
	Wildlife Damage Compensiation	400000	400000	400000	400000	400000	2000000	
	National Park's wall construction and repair	600000	600000	600000	600000	600000	3000000	
	Alternative Crop management	150000	150000	150000	150000	150000	750000	
	Forest Watcher's management	100000	100000	100000	100000	100000	500000	
	Sub-Total	**1250000**	**1250000**	**1250000**	**1250000**	**1250000**	**6250000**	
3	Community Development (15%)							
	Drinking Water	100000	100000	50000	250000	300000	800000	
	Irrigation	0	50000	150000	200000	100000	500000	
	Road maintenance	100000	150000	200000	200000	300000	950000	
	Public toilet	50000	0	250000	50000	0	350000	
	Community Sanitation Programme	0	50000	50000	50000	50000	200000	
	Community Building	500000	400000	50000	0	0	950000	
	Sub-Total	**750000**	**750000**	**750000**	**750000**	**750000**	**3750000**	
4	Eco tourism, income generation and skill development (20%)							
	Temple Renovation	300000	100000	50000	200000	250000	900000	
	Skill Development training	400000	200000	500000	450000	450000	2000000	

SN	Activites	Amount					Total Amount for 5 Years	Remarks
		Year 1	Year 2	Year 3	Year 4	Year 5		
	Information Board	50000	450000	100000	100000	50000	750000	
	Tour Progrmme	250000	100000	250000	250000	250000	1100000	
	Picnic park	0	150000	100000	0	0	250000	
	Sub-Total	**1000000**	**1000000**	**1000000**	**1000000**	**1000000**	**5000000**	
5	Conservation Education (10%)							
	School support programme	100000	100000	100000	100000	100000	500000	
	Educational Tour	175000	175000	175000	175000	175000	875000	
	Construction of Extension Materials and Distribution	50000	50000	50000	50000	50000	250000	
	Youth awareness programme	50000	50000	50000	50000	50000	250000	
	Celebration Day (Environment,Wetland etc)	50000	50000	50000	50000	50000	250000	
	Forest fire control education	75000	75000	75000	75000	75000	375000	
	Sub-Total	**500000**	**500000**	**500000**	**500000**	**500000**	**2500000**	
6	Administrative cost (15%)							
	Furnishing+electronic appliances	>	200000	200000	200000	150000	750000	
	Salary	250000	275000	302500	332750	366025	1526275	
	Stationary	50000	60000	66000	72600	79860	328460	
	TADA	50000	55000	60500	66550	73205	305255	
	Others	50000	160000	121000	78100	80910	490010	
	Sub-Total	**400000**	**750000**	**750000**	**750000**	**750000**	**3400000**	
	Total Budget for 5 Years	**4650000**	**5000000**	**5000000**	**5000000**	**5000000**	**24650000**	
	Total Budget for 5 Years (In Thousands)	5000	5000	5000	5000	5000		

Ramkot Bhimdhunga Chhatredeurali Buffer Zone User Committee

SN	Activities	Year 1	Year 2	Year 3	Year 4	Year 5	Total Amount for 5 Years	Remarks
1	**Conservation Programme 15%**							
	Water sources conservation	100000	100000	100000	100000	100000	500000	
	Forest management	100000	100000	100000	100000	100000	500000	
	Fire control mechanism	100000	100000	100000	100000	100000	500000	
	Cultural sites Conservation	200000	200000	200000	200000	200000	1000000	
	Plastic Control Programme	50000	50000	50000	50000	50000	250000	
	Fireline Constractions	200000	200000	200000	200000	200000	1000000	
	Cleanup Programme of Water resources	50000	50000	50000	50000	50000	250000	
	Waste management	50000	50000	50000	50000	50000	250000	
	Sub-total Amount	**850000**	**850000**	**850000**	**850000**	**850000**	**4250000**	
2	**Human Wildlife Conflict Resolution 25%**							
	Maintenance of Boundary wall	450000	450000	450000	450000	450000	2250000	
	Compensation for Victim	200000	200000	200000	200000	200000	1000000	
	Scholarship programme	200000	200000	200000	200000	200000	1000000	
	Grassland and plantations	200000	200000	200000	200000	200000	1000000	
	Human-wildlife Conflict Resolution awarness Programme	500000	500000	500000	500000	500000	2500000	
	Alternative Crop Promotion	200000	200000	200000	200000	200000	1000000	
	Sub-total Amount	**1750000**	**1750000**	**1750000**	**1750000**	**1750000**	**8750000**	
3	**Community Development Programme 15%**							
	Drinking water schemes	150000	150000	150000	150000	150000	750000	
	Road maintenance	200000	200000	200000	200000	200000	1000000	
	Setogumba, bhirkit, aindada, Thaple Road	250000	250000	250000	250000	250000	1250000	
	Commercial Farming (Coffee, Besar etc.)	500000	500000	500000	500000	500000	2500000	
	Skill Development Training	200000	200000	200000	200000	200000	1000000	
	Small industries and Market promotion	550000	550000	550000	550000	550000	2750000	
	Sub-total Amount	**1850000**	**1850000**	**1850000**	**1850000**	**1850000**	**9250000**	

SN	Activities	Year 1	Year 2	Year 3	Year 4	Year 5	Total Amount for 5 Years	Remarks
4	**Eco-Tourism and Income genearation and Skill development 20%**							
	Jeep Safari	300000	300000	300000	300000	300000	1500000	
	Leadership training	200000	200000	200000	200000	200000	1000000	
	New trekking route open	400000	400000	400000	400000	400000	2000000	
	Homestay Training for Development	400000	400000	400000	400000	400000	2000000	
	Recreation Park/ bridge Construction	500000	500000	500000	500000	500000	2500000	
	View-Tower Construction	500000	500000	500000	500000	500000	2500000	
	User Group mobilization Training	200000	200000	200000	200000	200000	1000000	
	Social Mobilization training	100000	100000	100000	100000	100000	500000	
	Trail maintenance work	100000	100000	100000	100000	100000	500000	
	Garbage Pit Construction	500000	500000	500000	500000	500000	2500000	
	Sub-total Amount	**3200000**	**3200000**	**3200000**	**3200000**	**3200000**	**16000000**	
5	**Conservation education Programme 10%**							
	Celebration days	100000	100000	100000	100000	100000	500000	
	Fire awareness program	100000	100000	100000	100000	100000	500000	
	Documentry program	200000	200000	200000	200000	200000	1000000	
	Brochure, Pamphlet about Conservation	150000	150000	150000	150000	150000	750000	
	Conservation awarness through local media	500000	500000	500000	500000	500000	2500000	
	Eco-club Support	50000	50000	50000	50000	50000	250000	
	Eco-club Networking / School program	150000	0	0	0	0	150000	
	Environment Networking formation	200000	0	0	0	0	200000	
	Conservation Tour	200000	200000	200000	200000	200000	1000000	
	Sub-total Amount	**1650000**	**1300000**	**1300000**	**1300000**	**1300000**	**6850000**	

SN	Activities	Year 1	Year 2	Year 3	Year 4	Year 5	Total Amount for 5 Years	Remarks
6	**Administration Cost 15%**							
	Salary for Office Assistant, Social Mobilizer	325000	325000	325000	325000	325000	1625000	
	Furnishing and Equipment (Computer, Printer etc.)	300000	0	0	0	0	300000	
	TADA	100000	100000	100000	100000	100000	500000	
	Stationery, electricity, water etc.	175000	175000	175000	175000	175000	875000	
	Awards and prize for UG	250000	250000	250000	250000	250000	1250000	
	Sub-total Amount	**1150000**	**850000**	**850000**	**850000**	**850000**	**4550000**	
	Total Amount for 5 years Programme	**10450000**	**9800000**	**9800000**	**9800000**	**9800000**	**49650000**	
	Total Budget for 5 Years (In Thousands)	**10450**	**9800**	**9800**	**9800**	**9800**	**49650**	

Bishnu Chapali Buffer Zone User Committee

SN	Activites	Amount						Remarks
		Year 1	Year 2	Year 3	Year 4	Year 5	Total Amount 5 Years	
1	Conservation Programme (15%)							
	Plantation programme	100000	100000	100000	100000	100000	500000	
	Embankment Construction	200000	200000	200000	200000	200000	1000000	
	Cultural Heritage Conservation	200000	200000	200000	200000	200000	1000000	
	River Sanitation Programme	50000	50000	50000	50000	50000	250000	
	Antipoaching activities	50000	50000	50000	50000	50000	250000	
	Fire reduction Prograame	150000	150000	150000	150000	150000	750000	
	Sub-Total	**750000**	**750000**	**750000**	**750000**	**750000**	**3750000**	
2	Human Wildlife conflict and Relief (25%)							
	Wildlife Damage Compensiation	100000	100000	100000	100000	100000	500000	
	Boundary wall construction and repair	850000	850000	850000	850000	850000	4250000	
	Alternative Crop management	200000	200000	200000	200000	200000	1000000	
	Scholarship	100000	100000	100000	100000	100000	500000	
	Sub-Total	**1250000**	**1250000**	**1250000**	**1250000**	**1250000**	**6250000**	
3	Community Development (15%)							
	Community Building	2000000	0	0	0	0	2000000	
	Road maintenance	200000	200000	200000	200000	200000	1000000	
	Public toilet	0	0	300000	0	0	300000	
	Community Sanitation Programme	0	50000	50000	50000	50000	200000	
	Drinking Water Schemes	0	0	0	250000	0	250000	
	Sub-Total	**2200000**	**250000**	**550000**	**500000**	**250000**	**3750000**	
4	Eco tourism, income generation and skill development (20%)							
	Women's empowerment training	200000	200000	0	0	0	400000	
	Nature Guide Training	150000	0	0	150000	0	300000	

SN	Activites	Amount						Remarks
		Year 1	Year 2	Year 3	Year 4	Year 5	Total Amount 5 Years	
	Leadership training	300000	300000	300000	300000	300000	1500000	
	Homestay development	500000	0	500000	0	0	1000000	
	Information Board	100000	100000	100000	100000	100000	500000	
	Picnic spot	200000	0	200000	0	0	400000	
	Tourist Resting Place Construction			200000	200000		400000	
	Skill Development Training	100000	100000	100000	100000	100000	500000	
	Sub-Total	**1550000**	**700000**	**1400000**	**850000**	**500000**	**5000000**	
5	Conservation Education (10%)							
	Eco club formation and support	100000	100000	100000	100000	100000	500000	
	Awarness programme about conservation	100000	100000	100000	100000	100000	500000	
	School support programme	100000	100000	100000	100000	100000	500000	
	Educational Tour	200000	200000	200000	200000	200000	1000000	
	Conservation library establishment	50000	50000	50000	50000	50000	250000	
	Youth awareness programme	50000	50000	50000	50000	50000	250000	
	Celebration Day (Environment, Wetland etc)	50000	50000	50000	50000	50000	250000	
	Forest fire control education	75000	75000	75000	75000	75000	375000	
	Sub-Total	**725000**	**725000**	**725000**	**725000**	**725000**	**3625000**	
6	Administrative cost (15%)							
	Furnishing+electronic appliances	350000	200000	200000	200000	150000	1100000	
	Salary	250000	275000	302500	332750	366025	1526275	
	Stationary	50000	60000	66000	72600	79860	328460	
	TADA	50000	55000	60500	66550	73205	305255	
	Others	50000	160000	121000	78100	80910	490010	
	Sub-Total	**750000**	**750000**	**750000**	**750000**	**750000**	**3750000**	
	Total Budget for 5 Years	**7225000**	**4425000**	**5425000**	**4825000**	**4225000**	**26125000**	
	Total Budget for 5 Years (In Thousands)	**7225**	**4425**	**5425**	**4825**	**4225**	**26125**	

Chisapani Shivapuri Buffer Zone User Committee

SN	Activities	Amount					Total Amount for 5 Years	Remarks
		Year 1	Year 2	Year 3	Year 4	Year 5		
1	Conservation Programme (15%)							
	Embankment Construction	200000	200000	200000	200000	200000	1000000	
	Water Resource Sanitation programme	150000	150000	150000	150000	150000	750000	
	Cultural Heritage Conservation	100000	100000	100000	100000	100000	500000	
	Antipoaching activities	150000	150000	150000	150000	150000	750000	
	Fire reduction Prograame	150000	150000	150000	150000	150000	750000	
	Sub-Total	**750000**	**750000**	**750000**	**750000**	**750000**	**3750000**	
2	Human Wildlife conflict and Relief (25%)							
	Wildlife Damage Compensiation	50000	50000	50000	50000	50000	250000	
	Boundary wall construction and repair	900000	900000	900000	900000	900000	4500000	
	Alternative Crop management	200000	200000	200000	200000	200000	1000000	
	Scholarship	100000	100000	100000	100000	100000	500000	
	Sub-Total	**1250000**	**1250000**	**1250000**	**1250000**	**1250000**	**6250000**	
3	Community Development (15%)							
	Community Building	2000000	0	0	0	0	2000000	
	Road maintenance	100000	100000	100000	100000	100000	500000	
	Irrigation	50000	50000	50000	50000	50000	250000	
	Public toilet	0	0	300000	0	0	300000	
	Community Sanitation Programme	0	50000	50000	50000	50000	200000	
	Cultural Heritage Conservation	100000	100000	100000	100000	100000	500000	
	Sub-Total	**2250000**	**300000**	**600000**	**300000**	**300000**	**3750000**	
4	Eco tourism, income generation and skill development (20%)							
	Leadership training	300000	300000	300000	300000	300000	1500000	
	Homestay development	500000	0	500000	0	0	1000000	
	Information Board	100000	100000	100000	100000	100000	500000	

SN	Activities	Amount					Total Amount for 5 Years	Remarks
		Year 1	Year 2	Year 3	Year 4	Year 5		
	Picnic spot	0	0	100000	0	0	100000	
	View Tower Construction	300000	0	0	0	300000	600000	
	Tourist Resting Place Construction	200000	200000	200000	200000	200000	1000000	
	Skill Development Training	100000	100000	100000	0	0	300000	
	Sub-Total	**1500000**	**700000**	**1300000**	**600000**	**900000**	**5000000**	
5	Conservation Education (10%)							
	School support programme	100000	100000	100000	100000	100000	500000	
	Educational Tour	175000	175000	175000	175000	175000	875000	
	Conservation liabrary establishment	50000	50000	50000	50000	50000	250000	
	Youth awareness programme	50000	50000	50000	50000	50000	250000	
	Celebration Day (Environment, Wetland etc)	50000	50000	50000	50000	50000	250000	
	Forest fire control education	75000	75000	75000	75000	75000	375000	
	Sub-Total	**500000**	**500000**	**500000**	**500000**	**500000**	**2500000**	
6	Administrative cost (15%)							
	Furnishing+electronic appliances	350000	200000	200000	200000	150000	1100000	
	Salary	250000	275000	302500	332750	366025	1526275	
	Stationary	50000	60000	66000	72600	79860	328460	
	TADA	50000	55000	60500	66550	73205	305255	
	Others	50000	160000	121000	78100	80910	490010	
	Sub-Total	**750000**	**750000**	**750000**	**750000**	**750000**	**3750000**	
	Total Budget for 5 Years	**7000000**	**4250000**	**5150000**	**4150000**	**4450000**	**25000000**	
	Total Budget for 5 Years (In Thousands)	7000	4250	5150	4150	4450	25000	

Ichangu Narayan Buffer Zone User Committee

SN	Activites	Amount						
		Year 1	Year 2	Year 3	Year 4	Year 5	Total Amount for 5 Years	Remarks
1	Conservation Programme (15%)							
	Community forest management	100000	0	0	0	0	100000	
	Plantation	200000	0	200000	0	250000	650000	
	Cultural Heritage Site Conservation	100000	100000	100000	100000	100000	500000	
	Antipoaching activities	150000	150000	150000	150000	150000	750000	
	Wetland Conservation	200000	200000	200000	200000	200000	1000000	
	Fire reduction Prograame	150000	150000	150000	150000	150000	750000	
	Sub-Total	**900000**	**600000**	**800000**	**600000**	**850000**	**3750000**	
2	Human Wildlife conflict and Relief (25%)							
	Boundary wall construction and repair	1000000	1000000	1000000	1000000	1000000	5000000	
	Wildlife rescue Training	130000	0	0	0	0	130000	
	Alternative Crop management	100000	100000	100000	100000	0	400000	
	Scholarship	100000	100000	100000	100000	100000	500000	
	Antipoaching activities	100000	100000	10000	10000	0	220000	
	Sub-Total	**1430000**	**1300000**	**1210000**	**1210000**	**1100000**	**6250000**	
3	**Community Development (15%)**							
	Community Building	2500000	0	0	0	0	2500000	
	Drinking water schemes	100000	100000	100000	100000	100000	500000	
	Tourist trail maintenance	125000	0	0	125000	0	250000	
	Public toilet	0	0	300000	0	0	300000	
	Community Sanitation Programme	0	50000	50000	50000	50000	200000	
	Sub-Total	**2725000**	**150000**	**450000**	**275000**	**150000**	**3750000**	
4	Eco tourism, income generation and skill development (20%)							
	Homestay development	500000	0	500000	0	0	1000000	

SN	Activites	Amount						
		Year 1	Year 2	Year 3	Year 4	Year 5	Total Amount for 5 Years	Remarks
	Conservation education tour	300000	0	300000	0	300000	900000	
	Information Board	200000	200000	100000	100000	100000	700000	
	Picnic spot	0	0	400000	0	0	400000	
	Skill Development Training	200000	200000	200000	0	0	600000	
	Community mobiliazation training	700000	0	0	0	0	700000	
	Nature Guide Training	200000	0	0	0	0	200000	
	Tourist resting place construction	100000	100000	100000	100000	100000	500000	
	Sub-Total	**2200000**	**500000**	**1600000**	**200000**	**500000**	**5000000**	
5	Conservation Education (10%)							
	School support programme	100000	100000	100000	100000	100000	500000	
	Conservation liabrary establishment	500000	0	0	0	0	500000	
	Youth awareness programme	100000	100000	100000	100000	100000	500000	
	Celebration Day (Environment, Wetland etc)	100000	100000	100000	100000	100000	500000	
	Forest fire control education	100000	100000	100000	100000	100000	500000	
	Sub-Total	**900000**	**400000**	**400000**	**400000**	**400000**	**2500000**	
6	Administrative cost (15%)							
	Furnishing+electronic appliances	350000	200000	200000	200000	150000	1100000	
	Salary	250000	275000	302500	332750	366025	1526275	
	Stationary	50000	60000	66000	72600	79860	328460	
	TADA	50000	55000	60500	66550	73205	305255	
	Others	50000	160000	121000	78100	80910	490010	
	Sub-Total	**750000**	**750000**	**750000**	**750000**	**750000**	**3750000**	
	Total Budget for 5 Years	**8905000**	**3700000**	**5210000**	**3435000**	**3750000**	**25000000**	
	Total Budget for 5 Years (In Thousands)	8905	3700	5210	3435	3750		

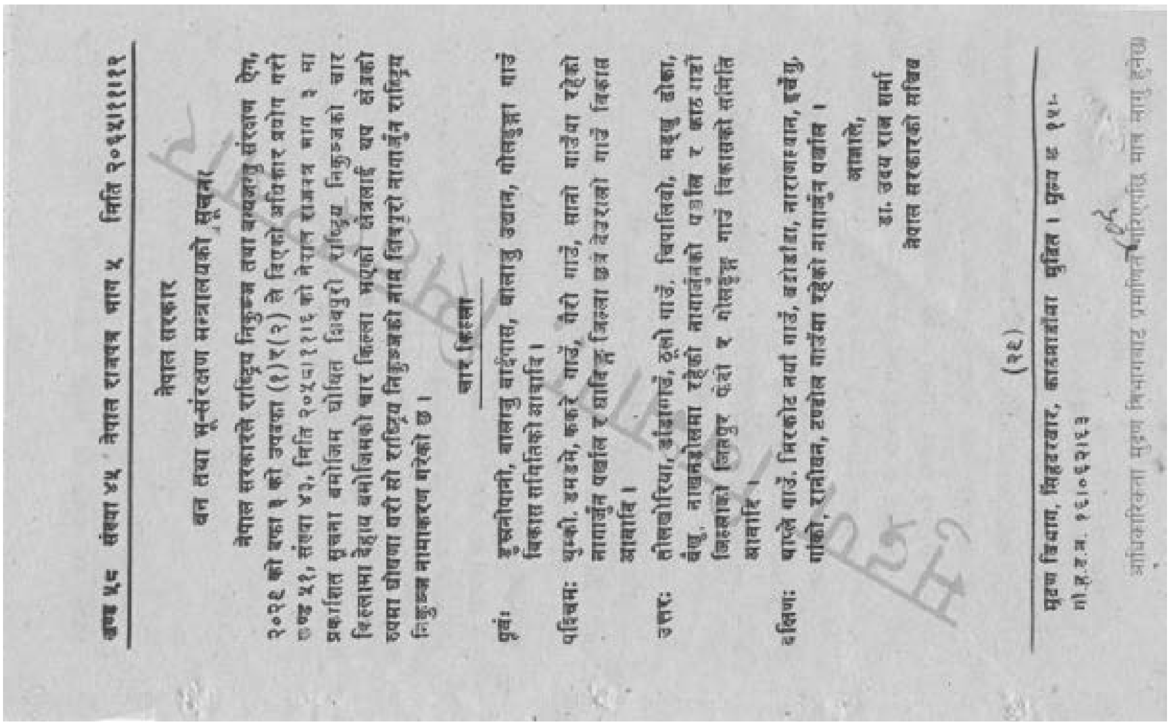
Manichud Kageshwari Buffer Zone User Committee

SN	Activites	Amount						
		Year 1	Year 2	Year 3	Year 4	Year 5	Total Amount for 5 Years	Remarks
1	Conservation Programme (15%)							
	Community forest management	150000	150000	150000	150000	0	600000	
	Water Sources Consarvation	50000	50000	50000	50000	50000	250000	
	Plantation	200000	0	200000	0	200000	600000	
	Cultural Heritage Site Conservation	100000	100000	100000	100000	100000	500000	
	Antipoaching activities	150000	150000	150000	150000	150000	750000	
	Wetland Conservation	200000	200000	200000	0	0	600000	
	Fire reduction Prograame	200000	200000	200000	200000	200000	1000000	
	Sub-Total	**1050000**	**850000**	**1050000**	**650000**	**700000**	**4300000**	
2	Human Wildlife conflict and Relief (25%)							
	Boundary wall construction and repair	150000	150000	150000	150000	150000	750000	
	Quick response Team mobiliazation	50000	50000	50000	50000	50000	250000	
	Alternative Crop management	100000	100000	100000	100000	0	400000	
	Scholarship	100000	100000	100000	100000	100000	500000	
	Antipoaching activities	100000	100000	10000	10000	0	220000	
	Sub-Total	**500000**	**500000**	**410000**	**410000**	**300000**	**2120000**	
3	Community Development (15%)							
	Park Construction	200000	200000	200000	200000	200000	1000000	
	Community Building	2500000	0	0	0	0	2500000	
	Drinking water schemes		20000	20000	20000	20000	80000	
	Tourist trail maintenance	125000	0	0	125000	0	250000	
	Culvert Construction	0	300000	0	0	0	300000	
	Gumba Construction/Maintenance	20000	20000	20000	20000	20000	100000	
	Sub-Total	**2845000**	**540000**	**240000**	**365000**	**240000**	**4230000**	

SN	Activites	Amount						
		Year 1	Year 2	Year 3	Year 4	Year 5	Total Amount for 5 Years	Remarks
4	Eco tourism, income generation and skill development (20%)							
	Alternative Crop management training	200000	200000	200000	200000	200000	1000000	
	Conservation education tour	300000	300000	300000	300000	300000	1500000	
	Homestay construction	500000	500000	500000	500000	500000	2500000	
	Homestay training	200000	0	200000	0	0	400000	
	Skill Development Training	200000	200000	200000	0	0	600000	
	Community mobiliazation training	700000	0	0	0	0	700000	
	Nature Guide Training	200000	0	0	0	0	200000	
	Tourist resting place construction	100000	100000	100000	100000	100000	500000	
	View Tower Construction	500000	500000	500000	500000	500000	2500000	
	Sub-Total	**2900000**	**1800000**	**2000000**	**1600000**	**1600000**	**9900000**	
5	Conservation Education (10%)							
	Educational Tour	100000	100000	100000	100000	100000	500000	
	Ecoclub formation and Support	100000	100000	100000	100000	100000	500000	
	Signboard Constrction	100000	100000	100000	100000	100000	500000	
	Youth awareness programme	100000	100000	100000	100000	100000	500000	
	Celebration Day (Environment, Wetland etc)	100000	100000	100000	100000	100000	500000	
	Forest fire control education	100000	100000	100000	100000	100000	500000	
	Sub-Total	**600000**	**600000**	**600000**	**600000**	**600000**	**3000000**	
6	Administrative cost (15%)							
	Furnishing+electronic appliances	350000	200000	200000	200000	150000	1100000	
	Salary	250000	275000	302500	332750	366025	1526275	
	Stationary	50000	60000	66000	72600	79860	328460	
	TADA	50000	55000	60500	66550	73205	305255	
	Others	50000	160000	121000	78100	80910	490010	
	Sub-Total	**750000**	**750000**	**750000**	**750000**	**750000**	**3750000**	
	Total Budget for 5 Years	**8645000**	**5040000**	**5050000**	**4375000**	**4190000**	**27300000**	
	Total Budget for 5 Years (In Thousands)	**8645**	**5040**	**5050**	**4375**	**4190**	**27300**	

ANNEX 15

Nepal Gazette Regarding National Park Declaration



खण्ड ५८ संख्या ४५ नेपाल राजपत्र भाग ५ मिति २०६५।११।१२

नेपाल सरकार

वन तथा भू-संरक्षण मन्त्रालयको सूचना

नेपाल सरकारले राष्ट्रिय निकुञ्ज तथा वन्यजन्तु संरक्षण ऐन, २०२९ को दफा ३ को उपदफा (१)र(२) ले दिएको अधिकार प्रयोग गरी खण्ड ५१, संख्या ४३, मिति २०५८।११।६ को नेपाल राजपत्र भाग ३ मा प्रकाशित सूचना बमोजिम घोषित शिवपुरी राष्ट्रिय निकुञ्जको चार किल्लामा देहाय बमोजिमको चार किल्ला भएको क्षेत्रलाई थप क्षेत्रको रुपमा घोषणा गरी सो राष्ट्रिय निकुञ्जको नाम शिवपुरी नागार्जुन राष्ट्रिय निकुञ्ज नामाकरण गरेको छ ।

चार किल्ला

पूर्वः इच्छुनीपानी, बालाजु बाईसधारा, बालाजु उद्यान, गोलढुङ्गा गाउँ विकास समितिको आवादि ।

पश्चिमः धुस्की, डमडमे, ककरे गाउँ, भैरी गाउँ, सानो गाउँमा रहेको नागार्जुन पर्खाल र धादिङ्ग जिल्ला छत्रे देउराली गाउँ विकास आवादि ।

उत्तरः तीलखोरिया, डाँडागाउँ, ठूलो गाउँ, चिपालिवो, मढ्खु ढोका, वेंखु, नाखनडोलमा रहेको नागार्जुनको पर्खाल र काठमाडौं जिल्लाको जितपुर फेदी र गोलढुङ्गा गाउँ विकासको समिति आवादि ।

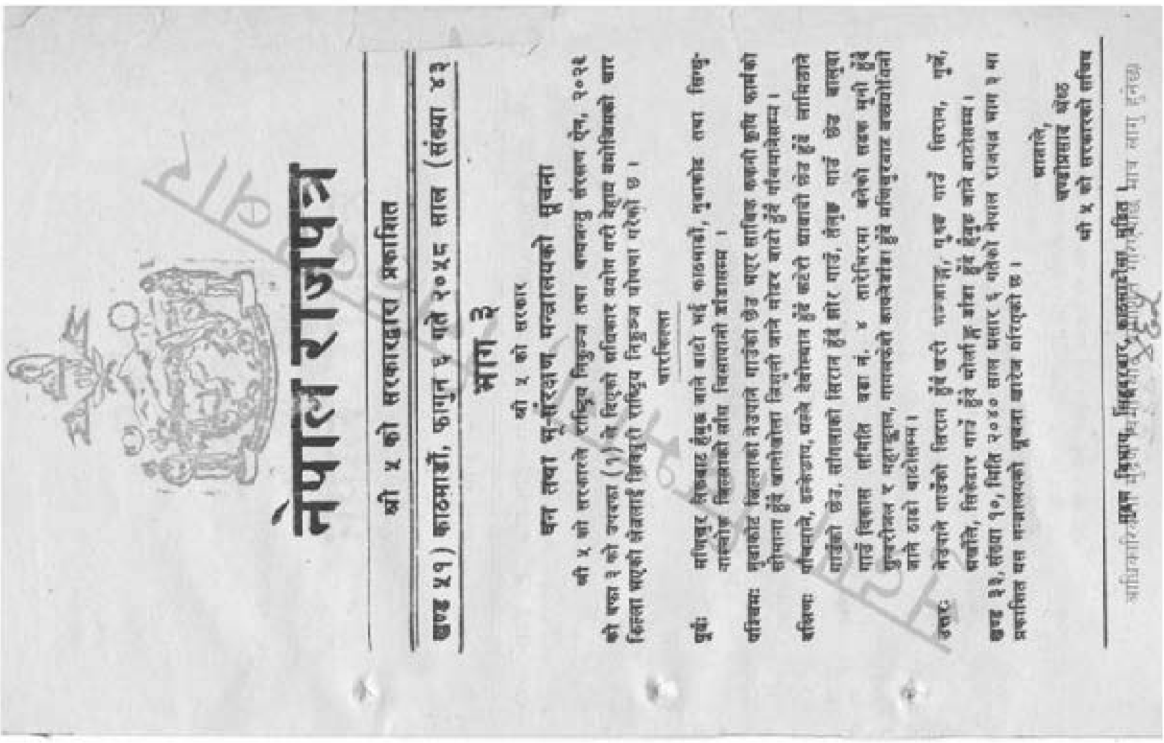
दक्षिणः धाप्ले गाउँ, भिरकोट नयाँ गाउँ, बडीडाँडा, नारायणस्थान, इचँगु, गाँको, रानीवन, टण्डोल गाउँमा रहेको नागार्जुन पर्खाल ।

आज्ञाले,
डा. उदय राज शर्मा
नेपाल सरकारको सचिव

(२६)

मुद्रण विभाग, सिंहदरवार, काठमाडौंमा मुद्रित । मूल्य रु १९।-
गो.द.र.नं. १६।०६२।६३

आधिकारिकता मुद्रण विभागबाट प्रमाणित गरिएपछि मात्र लागु हुनेछ ।



नेपाल राजपत्र

श्री ५ को सरकारद्वारा प्रकाशित

खण्ड ५१) काठमाडौं, फागुन ६ गते २०५८ साल (संख्या ४३

भाग ३

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 देहाय बमोजिमको चार किल्ला भएको क्षेत्रलाई शिवपुरी राष्ट्रिय निकुञ्ज घोषणा गरेको छ ।

चारकिल्ला

पूर्वः मणिचुर शिखबाट हेंबुङ जाने बाटो भई काठमाडौं, नुवाकोट तथा सिन्धुपाल्चोक जिल्लाको सीमा चिसापानी डाँडासम्म ।

पश्चिमः नुवाकोट जिल्लाको नेउपाने गाउँको छेउ भएर साविक ककनी कृषि फार्मको सीमाना हुँदै खानीखोला त्रिशुली जाने मोटर बाटो हुँदै पाँचमानेसम्म ।

दक्षिणः पाँचमाने, डल्केडाप, धल्ले देवीस्थान हुँदै कटेरी धाराको छेउ हुँदै नामिठाने गाउँको छेउ, सांगलाको सिरान हुँदै झोर गाउँ, तेलुङ गाउँ छेउ बालुवा गाउँ विकास समिति वडा नं. ४ तारेभिरमा बनेको सडक मुनी हुँदै सुन्दरीजल र महाङ्काल, गागलफेदी कामनेडाँडा हुँदै मणिचुरबाट बज्रयोगिनी जाने ठाडो बाटोसम्म ।

उत्तरः नेउपाने गाउँको सिरान हुँदै थरी चञ्चाङ्ग, धुस्क गाउँ सिरान, गुर्जे, सर्वोत्ते, सिकेडार गाउँ हुँदै बोर्लाङ्ग डाँडा हुँदै हेंबुङ जाने बाटोसम्म ।

खण्ड ३३, संख्या १०, मिति २०४० साल असार ६ गतेको नेपाल राजपत्र भाग ३ मा प्रकाशित यस मन्त्रालयको सूचना खारेज गरिएको छ ।

आज्ञाले,
चण्डीप्रसाद श्रेष्ठ
श्री ५ को सरकारको सचिव

मुद्रण विभाग, सिंहदरवार, काठमाडौंमा मुद्रित ।

आधिकारिकता मुद्रण विभागबाट प्रमाणित गरिएपछि मात्र लागु हुनेछ ।

ANNEX 16

Code of Conduct for Visitors

When visiting Shivapuri Nagarjun National Park, please note:

1. It is compulsory to issue a ticket from the ticket counter while entering inside the National Park.
2. While entering the National Park, one must fill the form at the ticket counter with the details of food to be taken inside.
3. Littering and waste dumping is not allowed inside the National Park.
4. Any kind of meat-based food, alcoholic beverages, cigarettes, lighers, any kind of sound-polluting instruments (such as guitars, speakers, etc.) are not allowed inside the National Park.
5. No one is allowed to enter and exit the National Park using any illegal route or other than designated by the National Park office.
6. Entering into the water sources inside the National Park, bathing and polluting the water sources etc. are strictly prohibited.
7. Any type of activity that damages forests, wild animals and their natural habitats (loud noises, picking fruits and plucking flowers, breaking branches, etc.) are not allowed.
8. The entry permit ticket taken by the visitor must be kept safe with him/her until he/she exits and must be shown to the relevant staffs when asked.
9. Visitors must leave the National Park abefore sunset.
10. If anyone found violating the above-mentioned rules, action will be taken according to the law.

ANNEX 17

List of trails in Shivapuri Nagarjun National Park

- Sundarijal-Manichud-Jhule-Dhap dam-Chisapani
- Sundarijal-Mulkharka-Nagmati-Dhap dam-Chisapani
- Sundarijal-Mulkharka-Okhreni-Bagdwar-Shivapuri Peak
- Nagarkot-Jhule-Chisapani
- Panimuhan-Nagigumba-Bagdwar-Shivapuri Peak
- Panimuhan-Bagdwar-Shivapuri Peak
- Panimuhan-Chhap Bhanjyang-Shivapuri Peak
- Panimuhan-Chhap Bhanjyang-Sikre
- Panimuhan-Bagdwar-Rolche-Chisapani
- Panimuhan-Bishnudwar-Dandagaun-Gurje Bhanjyang
- Panimuhan-Nagigumba-Tarebhir-Sundarijal
- Tokha- Jagat-Gurje Bhanjyang-Gurunggaun
- Kakani-Gurje-Chhap Bhanjyang-Shivapuri Peak
- Gurje Bhanjyang-Alle-Tarakeshwor
- Panimuhan- Gurje Bhanjyang-Kakani
- Fulbari gate-Jamacho
- Fulbari gate-Aaindanda-Jamacho
- Fulbari gate-Jamacho-Sonagaun

ANNEX 18

List of Participants of the Consultation Meetings

SN	Date	Participants	Location	Participants
1.	2079 Falgun 13	Buffer Zone User Committee and Community forest User group from three_ sectors: Chisapani Sindhushivapuri Manichud Kageswori Sundarijal	Sankhu	38 peoples
2.	2079 Falgun 13	Tourism based institutes from Sundarijal and Chisapani (Sundarijal)	Sankhu	12 people
3.	2079 Falgun 14	Buffer Zone User Committee and Community forest User group from Nagarjun and Kakani sectors	Mudkhu	35 participants
4.	2079. Falgun 15	Buffer Zone User Committee and Community forest User group from Panimuhan Bishnu chapali Baudeshwor Gurje Bhanjyang	Panimuhan	32 people
5.	2079 Falgun 15	Separate FGD with security personals, Park staff and Buffer Management Committee (council level)	Panimuhan	8-12 people from each group
6.	Multiple Dates	KII with 1. Former wardens and officers of SNNP 2. Mayor and deputy mayors of RM and Municipality 3. KUKL representative 4. Irrigation Department: Dhaap Dam and Nagmati Dam construction 5. DNPWC 6. Bagmati Sudhar Aayojana 7. Local authority and local government		

ANNEX 19

List of Participants: Central-Level Workshop

Date: 2080/06/14 Venue: DNPWC Meeting Hall, Babarmahal, Kathmandu.

SN	Name	Designation
1	Dr. Sindhu Prasad Dhungana	Director General, DNPWC
2	Mr. Ajay Karki	Deputy Director General, DNPWC
3	Mr. Hari Bhadra Acharya	Senior Planning Officer, DNPWC
4	Mr. Manoj Kumar Shah	Senior Ecologist, DNPWC
5	Ms. Sushma Rana	Senior M & E Officer, DNPWC
6	Mr. Chandra Shekhar Choudhary	Senior Conservation Education Officer, DNPWC
7	Mr. Bhumi Raj Upadhyaya	Senior Conservation Officer, SNP
8	Dr. Ganesh Pant	Senior Conservation Officer, SNNP
9	Mr. Ramchandra Khatiwada	Senior Conservation Officer
10	Mr. Shiva Lal Gaire	Conservation Officer, SNNP
11	Ms. Pragya Khanal	Conservation Officer, DNPWC
12	Mr. Pemba Sherpa	Planning Officer, DNPWC
13	Mr. Prakash Shah	Ecologist, DNPWC
14	Mr. Asim Thapa	Ecologist, DNPWC
15	Mr. Shyam Kumar Waiba	Chairperson, BZMC, SNNP
16	Mr. Nirajan Tamang	Secretary General, BZMC, SNNP
17	Ms. Sungabha Kayastha	Computer Officer, DNPWC
18	Mr. Puspadeep Shrestha	Ranger, DNPWC
19	Mr. Daya Ram Pandey	Ranger, DNPWC
20	Ms. Mira Chaulagain	Office Assistant, DNPWC
21	Ms. Tara Ban	Office Assistant, DNPWC
22	Ms. Urmila Kumari	Office Assistant, DNPWC
23	Mr. Puran Bhakta Shrestha	Team Leader, EDRC
24	Dr. Narayan Prasad Koju	Team Member, EDRC
25	Mr. Minesh Kumar Ghimire	Team Member, EDRC
26	Dr. Gokarna Gyawali	Team Member, EDRC
27	Ms. Meera Manandhar	Team Member, EDRC

ANNEX 20

Activities Accomplished from Preceding Management Plan

SN	Activities	Target of previous management plan			Accomplishment in Total		Accomplishment of separate five fiscal years										
		Unit	Quantity	Amount in Lakhs	Total Quantity	Total Amount in Lakhs	Amount in lakh										Remarks
							Year 2074/75		Year 2 2075/76		Year 3 FY 2076/77		Year 4 FY 2077/78		Year 5 FY 2078/79		
1	**Infrastructure Construction /Maintenace and Facilities Improvement**																
1.1	Building Construction/Maintenace and Fascilities Improvement																
a	Post Constrution work	No	7	420	3	117.6	1	50	1	49.81					1	17.79	I
b	Post Renovation work	No	1	15	25	81.05	4	19.04	3	6.49	5	10.95	5	9.88	8	34.69	I
c	Range Post Construction Work	No	5	425	1	47.48									1	47.48	I
a	Sector Office Construction	No	3	315	1	39.39					1	39.39					I
b	Security Guard Post Construction	No	5	250	0	0											II
c	Office Buildling Construction	No	1	150	0	0											II
a	Guest House / wildlife rescue center construction renovation	No	1	70	2	26.5	2	26.5									II
b	Staff Quarter	No	1	150	0	0											I
c	Office /Post Building and other fascilities (Toilet, Drinking Water, electricity, etc.) maintenance work and Drinking water maintenance activity by user community	Times	5	100	5	73.08	1	26	1	7.55	1	7.4	1	14.68	1	17.45	I
a	Security Guard Post Maintenance work	Year	5	25	0	0											II
b	Custody Building Maintenance work	No	1	20	2	7.93	1	4.95					1	2.98			II
c	Solar electricity installation in office and Post	No	25	37.5	9	17.97	4	13					5	4.97			III

SN	Activities	Target of previous management plan			Accomplishment in Total		Accomplishment of separate five fiscal years										
		Unit	Quantity	Amount in Lakhs	Total Quantity	Total Amount in Lakhs	Amount in lakh										Remarks
							Year 2074/75		Year 2 2075/76		Year 3 FY 2076/77		Year 4 FY 2077/78		Year 5 FY 2078/79		
	Sub-Total			**1977.5**	**48**	**411**		**139.49**		**63.85**		**57.74**		**32.51**		**117.41**	
1.2	Road/trails construction & improvement				0	0											
a	Forest road Maintenance work (Maintenance of Shivapuri track ring road)	Km	180	45	155	121.15	50	10	7	6.5	15	3.7	60	84.04	23	16.91	I
b	All weather road improvement work	Km	60	90	0	0											II
c	Retaining/Breast wall	Place	5	25	11	22.82	8	7.96			2	9.86			1	5	I
d	Causeway/ culvert construction	Place	10	20	3	12	3	12									II
e	Wooden Bridge Construction Work	Place	5	10	0	0											III
	Sub-Total=			**190**	**169**	**155.97**		**29.96**		**6.5**		**13.56**		**84.04**		**21.91**	
2	**Habitat Management**																
a	Wetland Management																
	Conservation Pond/Water hole	Times	5	20	47	68.42	7	7	30	51.52	10	9.9					II
	River Sanitation	Times	5	20	0	0											II
	Co-ordination and networking to regulate Query and sand/ Gravel excavation,	Times	5	5	0	0											II
b	Grassland Management	Hac	100	20	14	5.96							14	5.96			III
c	Forest management																II
	Quercus restoration	Place	3	9	1	0.5							1	0.5			habitat management
	Pine Forest conversion	Place	3	30	0	0											II
	Seed traping and seedling promotion	Times	5	10	0	0											III
d	Fire management				0	0											
	Equipment purchase	Times	5	7.5	1	4.98							1	4.98			I

SN	Activities	Target of previous management plan			Accomplishment in Total		Accomplishment of separate five fiscal years										
		Unit	Quantity	Amount in Lakhs	Total Quantity	Total Amount in Lakhs	Amount in lakh										Remarks
							Year 2074/75		Year 2 2075/76		Year 3 FY 2076/77		Year 4 FY 2077/78		Year 5 FY 2078/79		
	Co-ordination with UG, UC. local stakeholders and security official	Times	5	5	8	3.73	2	0.75			2	0.98	4	2			I
	Fire Field Gear for staff	Times	5	5	0	0											I
	Fire management plan preparation	Times	1	5	1	2	1	2									II
	Burning material Management	Times	5	5	4	4.49	1	1.49	3	3							I
	Fire line maintenace work	Times	5	10	16	19.92	1	5	5	5			5	4.98	5	4.94	I
	Mobiliazation of staff, security and local user's	Times	5	5	12	8.5	2	3.5	8	4			2	1			I
	Media Campaign for fire prevention	Times	5	5	18	2.3	2	1			6	0.3	10	1			II
	Fire fighting trainings	Times	2	4	3	51	1	50			2	1					I
			Sub-Total=	**165.5**	**125**	**171.8**		**70.74**		**63.52**		**12.18**		**20.42**		**4.94**	
3	**Species Conservation, Research and Monitoring Activities**																
a	Research																
	Common Leopard count	Times	2	25	0	0											I
	Clouded Leopard study	Times	1	2	0	0											I
	Himalayan Black Bear	Times	1	2	1	2	1	2									I
	Small Mammals Study	Times	1	3	0	0											II
	Reptiles and Amphibians Study	Times	1	3	0	0											II
	Pangolin Study	Times	1	2	0	0											II
	Fish and aquatic life study	Times	1	3	0	0											II
	Sambar Population and Habitat Study	Times	1	2	0	0											I
	Birds	Times	5	5	1	1	1	1									II
	Inscets	Times	1	3	0	0											II

SN	Activities	Target of previous management plan			Accomplishment in Total		Accomplishment of separate five fiscal years										
							Amount in lakh										
		Unit	Quantity	Amount in Lakhs	Total Quantity	Total Amount in Lakhs	Year 2074/75		Year 2 2075/76		Year 3 FY 2076/77		Year 4 FY 2077/78		Year 5 FY 2078/79		Remarks
	Vegetation dynamics / watershed dynamics	Times	1	3	1	1	1	1									II
	Carrying capacity / radio collar	Times	1	10	0	0											II
	Mid-winter Water Bird Count	Times	5	5	1	1							1	1			II
	Assemese Monkey				1	2	1	2									II
	Study on Tourism Impact in SNNP	Times	1	2	0	0											I
b	Monitoring																II
	Common leopard conservation	Times	1	0.5	0	0											I
	Clouded leoparad conservation	Times	1	0.5	0	0											I
	Pangolian conservation	Times	1	0.5	0	0											I
	Spiny babbler consevation	Times	1	0.5	0	0											I
	Vulture Conservation	Times	1	0.5	0	0											II
	Prey species conservation	Times	1	1	0	0											I
			Sub-Total	**73.5**	**5**	**7**		**6**		**0**		**0**		**1**		**0**	
4	**Strengthening intelligence network and Anti-Poaching**																
	Encroachment data base update and Control	Hac	1	3	6	2.95	1	1.16					5	1.79			I
	Mobility (sweep operation, long range patrolling, day/ night patrolling)	Times	5	15	24	11.95	3	3	3	2.74	9	2.7	9	3.51			I
	Initiating Real time smart patrolling	Times	5	5	0	0											I
	Mobiliazation and Strengthening of CBAPO	No	11	11	0	0											II
	Equipment for Anti-poaching Operation (Night vision Bionacular, Tent, Sleeping bags, Cameras)	Times	1	5	0	0											I
	Information Collection, Purchasing	Times	5	10	5	2.75	3	1.25	1	1	1	0.5					I
	Preparation of SNNP Regulation	Times	1	3	0	0											II

SN	Activities	Target of previous management plan			Accomplishment in Total		Accomplishment of separate five fiscal years										
		Unit	Quantity	Amount in Lakhs	Total Quantity	Total Amount in Lakhs	Amount in lakh										Remarks
							Year 2074/75		Year 2 2075/76		Year 3 FY 2076/77		Year 4 FY 2077/78		Year 5 FY 2078/79		
	Sub-Total			**52**	**35**	**17.65**		**5.41**		**3.74**		**3.2**		**5.3**		**0**	
5	**Human Wildlife Conflict**				0	0											
	Boundary Wall maintenance Work	Area	5	200	7	46.62	2	19.33	1	7.5	4	19.79					I
	Meshwire (तार जाली) / fence	Km			15.7	200.94			1	10	5	12.95	6	88.97	3.7	89.02	I
	Equipment for Wildlife Rescue	Times	1	5	0	0											I
	Sub-Total=			**205**	**22.7**	**247.56**		**19.33**		**17.5**		**32.74**		**88.97**		**89.02**	
6	**Eco-Tourism**																
	Cultural Heritage Site conservation	Place	15	45	7	5.4	1	1			3	1.5	1	0.96	2	1.94	II
	Signage improvement work	Times	5	20	74	21.97	50	6.5	1	1.5	20	2	2	9.97	1	2	II
	Tourist Bishram Sthal construction/ maintenance	Place	5	25	21	64.94	2	3	6	8.57	4	20	6	28.95	3	4.42	
	Interpretation Centre Development / ticket counter	No	1	100	10	67.9	2	5	1	5	1	42	4	13.91	2	1.99	II
	Foot trail improvement work	M	1000	100	25097	21.99	7	1.4	5000	1.25	20000	2.96	70	10.41	20	5.97	I
	Waste management (Plastic restriction)	Times	5	15	13	10.58	6	5.4			6	3	1	2.18			
	Preparation of Eco-Tourism Plan of SNNP	Times	1	5	0	0											II
	Smart Fascility Center development	Place	5	15	1	5					1	5					I
	Developed tented Camp Fascilities in Specified Core area sites.	Place	3	15	0	0											III
	Tourism Fasility /structure (View Tower, Park, Gumba, Temple etc.) constrictions and maintenance	Place	3	15	4	10.86			1	5			1	4.99	2	0.87	I
	Sub-Total			**355**	**25227**	**208.64**		**22.3**		**21.32**		**76.46**		**71.37**		**17.19**	

SN	Activities	Target of previous management plan			Accomplishment in Total		Accomplishment of separate five fiscal years										
		Unit	Quantity	Amount in Lakhs	Total Quantity	Total Amount in Lakhs	Amount in lakh										Remarks
							Year 2074/75		Year 2 2075/76		Year 3 FY 2076/77		Year 4 FY 2077/78		Year 5 FY 2078/79		
7	**Conservation Awareness Programme**																
	Celebration days	Times	5	5	5	4.5	2	1.5	1	1	1	1	1	1			I
	Park establishment days	Times	5	25	0	0											I
	Conservation education	Times	5	5	3	1.1	3	1.1									II
	Workshop with stakeholders	Times	5	5	9	7.73	1	2.15	2	3.08	5	2	1	0.5			II
	Brochure, pamphlet about conservation	Times	5	5	8	7.309	2	2.02	2	1.29	2	2	2	2			II
	Conservation awareness through local media	Times	5	5	4	0.39							4	0.39			I
	Eco-club support	Times	5	10	15	4.4	3	1.5	1	0.5	6	1.4	5	1			II
	Audio-visual Show	Times	5	10	0	0											II
			Sub-Total	**70**	**44**	**25.429**		**8.27**		**5.869**		**6.4**		**4.89**		**0**	
8	**Capacity Building**																
	GIS & RS Training	Times	1	3	0	0											I
	Census techniques training	Times	1	3	0	0											II
	Tranquillization	Times	1	5	0	0											II
	Appreciative Participatory Planning approach training	Times	1	2	1	2	1	2									II
	Fire fighting trainings	No	5	10	5	4			5	4							I
	Capacity Building training on Wildlife Crime (Legal Procedure training, Wildlife Parts identification, Wilflife crime scenes investigation training)	No	3	6	2	3.1	1	2			1	1.1					I
	Conflict management Training	Times	5	5	4	2.43	1	1			2	0.93	1	0.5			I
	Orientation Training for new recurits on Wildlife management Training	Times	2	2	4	5.9	1	2	1	2	1	0.9	1	1			I
	Training on Wildlife Rescue	Times	4	4	0	0											I

SN	Activities	Target of previous management plan			Accomplishment in Total		Accomplishment of separate five fiscal years										
		Unit	Quantity	Amount in Lakhs	Total Quantity	Total Amount in Lakhs	Amount in lakh										Remarks
							Year 2074/75		Year 2 2075/76		Year 3 FY 2076/77		Year 4 FY 2077/78		Year 5 FY 2078/79		
	Sub-Total			**40**	**16**	**17.43**		**7**		**6**		**2.93**		**1.5**		**0**	
9	**Special Programmes**				0	0											
	Awareness program / Documentary	Times	5	10	1	5	1	5									I
	Fesibility study	Times	1	5	0	0											
	Consultation meeting	Times	5	10	0	0											II
	Climate-forest-agriculture conservation link-up program	Times	5	15	0	0											
	Integrated Pest Management and Smart Farming Practices	Times	5	15	0	0											II
	Climate and Food security Program	Times	5	15	0	0											I
	Establish Data Center	Place	1	23	0	0											I
	Sub-Total			**93**	**1**	**5**		**5**		**0**		**0**		**0**		**0**	
10	**Watershed and Wetland management**																
	Riverside Plantation	Area	2	1000	0	0											II
	Awareness program	Times	5	500	0	0											I
	Landslide treatment	Times	3	1500	5	9.86					5	9.86					II
	Sub-Total			**3000**	**5**	**9.86**		**0**		**0**		**9.86**		**0**		**0**	
11	**Office Management Cost**			2165	5	2278.89	1	236.65	1	411.52	1	486.13	1	531.33	1	613.26	
	Total =			**8386.5**	**25702.70**	**3556.23**		**550.15**		**599.819**		**701.2**		**841.33**		**863.73**	

ANNEX 21

Park Revenue in FY 2079/80

सि.नं.	राजश्व शीर्षक	विवरण	जम्मा रकम	कैफियत
१	११४९१	बाँडफाड हुने बाहेक अन्य स्रोतबाट प्राप्त मूल्य अभिबृद्धि कर	६२८३३४५.६२	
२	१४१५१	सरकारी सम्पतिको वहालबाट प्राप्त आय	२३९०२८.२	
३	१४२२९	अन्य प्रशाशनिक सेवा शुल्क	८८९६०	
४	१४२६४	वन क्षेत्रको अन्य आय	५३४५५३.९४	
५	१४३१२	प्रशाशनिक दण्ड, जरिवाना र जफत	०	
६	१५१११	बेरुजु	२३६६६४	
७	३३३६१	वन क्षेत्रको रोयल्टी	४६०६७०४०.४८	
		जम्मा	**५,३४,४९,५९२.२४**	

ANNEX 22

National Park Revenue FY 2064/065 to 079/080

SN	F. Y.	Revenue (in NRs.)	Remarks
1	2064/065	3083318	
2	2065/066	4646706	
3	2066/067	5674567	
4	2067/068	6622357	
5	2068/069	6622357	
6	2069/070	9490352	
7	2070/071	29488388.59	
8	2071/072	16738715	
9	2072/073	16159847	
10	2073/074	23490477	
11	2074/075	24364425	
12	2075/076	33111419	
13	2076/077	24919181	
14	2077/078	14184202	
15	2078/079	29488388.59	
16	2079/080	53449592.24	
	Total	**301534292.4**	

ANNEX 23

National Park Visitors in FY 2079/080

सि.नं	महिना	इकाई	नेपाली			सार्क मुलुक			अन्य मुलुक			निशुल्क प्रवेश			जम्मा		कुल जम्मा
			पुरुष	महिला	जम्मा	पुरुष	महिला	जम्मा	पुरुष	महिला	जम्मा	पुरुष	महिला	जम्मा	पुरुष	महिला	
१	श्रावण	जना	१०४१४	७९४१	१८३५५	२७	१९	४६	१३३	१०६	२३९	१३१	१०८	२३९	१०७०५	८१७४	१८८७९
२	भाद्र	जना	१३३०८	९५०४	२२८१२	३४	१८	५२	२३०	१३०	३६०	१४१२	२९३	१७०५	१४९८४	९९४५	२४९२९
३	आश्विन	जना	७०६६	६२६७	१३३३३	४३	४३	८६	२७६	१६९	४४५	११५	९३	२०८	७५००	६५७२	१४०७२
४	कार्तिक	जना	१२१०५	९०९१	२११९६	७१	५२	१२३	६५७	५९७	१२५४	४४२	२७३	७१५	१३२७५	१००१३	२३२८८
५	मार्ग	जना	१३३०२	१२०७८	२५३८०	५२	३५	८७	३७३	३४७	७२०	८९८५	४९९	९४८४	२२७१२	१२९५९	३५६७१
६	पौष	जना	११६७१	९०५२	२०७२३	५८	२९	८७	२७०	१२३	३९३	२६०	१७०	४३०	१२२५९	९३७४	२१६३३
७	माघ	जना	११४४९	१०११६	२१५६५	१०६	६१	१६७	२५४	१८१	४३५	५६२	४७६	१०३८	१२३७१	१०८३४	२३२०५
८	फाल्गुन	जना	११३८२	१२५८६	२३९६८	४०	३१	७१	४०३	२१७	६२०	५२१	४७२	९९३	१२३४६	१३३०६	२५६५२
९	चैत्र	जना	११९४४	१२५०३	२४४४७	८४	६४	१४८	६३४	४७०	११०४	२०७२	१६६४	३७३६	१४७३४	१४७०१	२९४३५
१०	बैशाख	जना	२०१४३	१८९४७	३९०९०	७२	४८	१२०	६२३	४६१	१०८४	५३३	४२२	९५५	२१३७१	१९८७८	४१२४९
११	जेष्ठ	जना	१५६६३	१५२८०	३०९४३	८२	४६	१२८	३३९	२६८	६०७	४६३	३१५	७७८	१६५४७	१५९०९	३२४५६
१२	आषाढ	जना	२०९२६	२००६२	४०९८८	१३३	८०	२१३	१०३२	१४७	११७९	७२२	५९५	१३१७	२२८१३	२०८८४	४३६९७
जम्मा		जना	१५९३७३	१४३४२७	३०२८००	८०२	५२६	१३२८	५२२४	३२१६	८४४०	१६२१८	५३८०	२१५९८	१८१६१७	१५२५४९	३३४१६६

ANNEX 24

List of Consultation Meetings

SN	Date	Participants	Location	Participants
1	2079 Falgun 13	Buffer Zone User Committee and Community Forest User group from three_ sectors: Chisapani • Sindhushivapuri • Manichud Kageswori • Sundarijal	Sankhu	38 peoples
2	2079 Falgun 13	Tourism based institutes from Sundarijal and Chisapani (Sundarijal)	Sankhu	12 people
3	2079 Falgun 14	Buffer Zone User Committee and Community Forest User group from Nagarjun and Kakani sectors	Mudkhu	35 participants
4	2079. Falgun 15	Buffer Zone User Committee and Community Forest User group from • Panimuhan • Bishnu chapali • Baudeshwor • Gurje Bhanjyang	Panimuhan	32 people
5	2079 Falgun 15	Separate FGD with security personals, Park staff and Buffer Management Committee (council level)	Panimuhan	8-12 people from each group
6	Multiple dates	KII with • Former wardens and officers of SNNP • KUKL representative • Irrigation Department: Dhaap Dam and Nagmati Dam construction • DNPWC • Bagmati Sudhar Aayojana • Local authority and local government		

ANNEX 25

Visitor Records FY 2051/052 - 2079/080

SN	F. Y.	No.of Visitors	S.N.	F. Y.	No.of Visitors
1	2051/052	10850	16	2066/067	167830
2	2052/053	23100	17	2067/068	147963
3	2053/054	27000	18	2068/069	154845
4	2054/055	22200	19	2069/070	165910
5	2055/056	22100	20	2070/071	180464
6	2056/057	20539	21	2071/072	138084
7	2057/058	23826	22	2072/073	143352
8	2058/059	30094	23	2073/074	209717
9	2059/060	36848	24	2074/075	228743
10	2060/061	39084	25	2075/076	174332
11	2061/062	44500	26	2076/077	109289
12	2062/063	43804	27	2077/078	95407
13	2063/064	83385	28	2078/079	172803
14	2064/065	74418	29	2079/080	334166
15	2065/066	111156			


SHIVAPURI NAGARJUN NATIONAL PARK
Baghdwar: The source of the Bagmati river and a religious site.
Jamacho Stupa: The religious site of Nagarjun Sector of the Park.
Spiny Babbler:

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

Shivapuri Nagarjun National Park Office

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