

INTEGRATED LAKE BASIN MANAGEMENT PLAN OF LAKE CLUSTER OF POKHARA VALLEY, NEPAL (2018-2023)



**Government of Nepal
Ministry of Forests and Environment**

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Foreword



Wetlands are valuable ecosystems of Nepal and provide the foundation for biodiversity, regulatory function of environment and benefits from it serve to the human society in the form of rivers; lakes; pond; marsh; pit; lakes and so on. Wetlands value increases more than any expression in Nepal when her geography aligned unique with environmental mosaics/altitudinal gradients, where numbers of wetlands are nested; culture evolved, promoted and preserved; biological evolution diversified; and socio-economy remitted. Nepal is believed to hold over 5% of country's landmass under wetlands and >10 ethnic communities dependent on it, all linked strongly to lentic and lotic hydrodynamics of the eastern Himalaya. However, many reports indicate that our wetlands are jeopardized, many of these encroached; over polluted; over silted and invaded by invasive alien plant species.

Wetlands are significant element of Nepal's development framework after the government signed the Ramsar Convention in 1971 and ratified it in 1988. Thereafter, commitments on wetlands have been well pronounced in all strategic documents/Acts of environment conservation, some prominent ones include the National Biodiversity Strategy (2002); Water Resource Strategy Nepal (2005); National Land Use Policy and Planning (2010); National Wetlands Policy (2013) and Nepal National Biodiversity Strategy and Action Plan (2014 - 2020). Of these, National Wetlands Policy is the commanding policy instrument pledging high for the sustainable conservation and use of wetlands categorically either within Protected Area Systems or in/outside national forests or under private ownership. Basin level approach has been adopted for wetlands intervention for leveraging larger benefits to diverse audiences.

In this context, Nepal has designated 10 wetlands (60,561 hectares) yet under the Ramsar heritage in different ecological zones. One of these is the Lake Cluster of Pokhara Valley in the mid-hill Pokhara-Lekhnath Metropolitan, Kaski (State No. 4). We believe that sustainable management of this cluster will broaden the socio-ecological benefits not limited only to Pokhara but beyond in harmony of the Ramsar Strategic Plan (2016-2021), National Wetlands Policy (2013) and National Ramsar Strategy (2018). For this, Government of Nepal has prepared this Integrated Lake Basin Management Plan of Lake Cluster Pokhara Valley 2017. This Plan has explored goals, objectives, key strategies and actions in close participation of local institution, district line agencies and other stakeholders in view of strengthening lake basin governance for the prosperity of cluster area. We believe that the Plan will be instrumental to guide our interventions to link overall development process in safeguarding ecological integrity of lake cluster for the prosperity of people and the state, and to contribute much on lake based tourism infrastructure in Pokhara.

We would like to thank funding agency USAID funded Hariyo Ban Program for their consistent support; former District Development Committee, Kaski for all supports throughout the Plan preparation process; and the entire expert team of Conservation Development Foundation for their untiring efforts to carry out this technical task. We further believe that this Plan will go regular updates and use would be meaningful to timely address issues of lake basin improvement in Pokhara valley.

The Ministry is delighted to make this foreword towards implementation of this Plan. We anticipate that environmental institutions involved in wetland conservation will find this Plan very helpful to mainstream vision; goal; objectives; key strategies and actions in their interventions in the main spirit of policies and programs of Government of Nepal.

Hon. Sakti Bahadur Basnet
Minister

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Acknowledgement



This Integrated Lake Basin Management Plan of Pokhara Valley Lake Cluster has come up after the dedicated support from many institution, professionals and individuals from the national as well as global entities. We greatly acknowledge the support of the then DDC, Kaski in designating the Pokhara valley lake clusters as Ramsar site. In this spirit, advisory guidance from Dr. Maheshwar Dhakal, Chief Environment and Biodiversity Division, MoFE, is highly appreciated. The Ministry is thankful to Mr. Ramjee Lamichane (Dipang lake); Mr. Lekhnath Dhakal; Mr. Kul Prasad Adhikari, Mr. Ramchandra Dhungana and Mr. Ganga Gurung (Rupa lake); Mr. Puspa Subedi and Mr. Dinanath Dhakal (Begnas lake); Mr. Dhurbaraj Chalise and Mr. Narayan Lamichhane (Phewa lake); Mr. Dil Bahadur Bikram and Mr. Hastmaya BK (Kamal Pokhari); Mr. Hari Adhikari (Gunde lake); Mr. Bam Bahadur Gharti and Mr. Chunamani Lamichane (Khaste and Neureni lakes); and Mr. Bharatraj Neupane (Maidi lake) who all were involved persistently in this process.

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Dr. Bishwa Nath Oli
Secretary

Acronyms and Abbreviations

ACA	Annapurna Conservation Area
ADB	Asian Development Bank
ARM	Annapurna Rural Municipality
BCN	Bird Conservation Nepal
BLCC	Begnas Lake Conservation Cooperative
BMP	Budhi Bazar Madatko Patan
CBD	Convention on Biological Diversity
CBS	Central Bureau of Statistics
CF	Community Forest
CFUG	Community Forest User Group
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
DADO	District Agriculture Development Office
DCC	District Coordination Committee
DLCC	Dipang Lake Conservation Cooperative
DFDO	District Fishery Development Office
DFO	District Forest Office
DHM	Department of Hydrology and Meteorology
DLSO	District Livestock Service Office
DNPWC	Department of National Parks and Wildlife Conservation
DoF	Department of Forests
DSCO	District Soil Conservation Office
DWCO	District Women and Child Office
EBA	Ecosystem Based Adaptation
FO	Forest Office
GCC	Gunde Conservation Cooperative
GEM	Gender Empowerment Measure
GESI	Gender Equality and Social Inclusion
GIS	Geographic Information System
GoN	Government of Nepal
HAN	Hotel Association of Nepal
HH	Household
ICIMOD	International Centre for Integrated Mountain Development
ILBM	Integrated Lake Basin Management
I/NGO	International Non-Governmental Organizations
IoF	Institute of Forestry
IPCC	Intergovernmental Panel on Climate Change
IUCN	International Union for Conservation of Nature
JICA	Japan International Cooperative Assistance
Km,	Kilometer
KNCC	Khaste Neureni Conservation Cooperative
KP	Kamalpokhari
KPCC	Kamalpokhari Conservation Cooperative
LC	Least Concern
LCPV	Lake Cluster of Pokhara Valley

LI-BIRD	Local Initiatives for Biodiversity, Research and Development
Masl	Meter above sea level
M	Meter
MCC	Maidi Conservation Cooperative
md	Man/day
MDO	Machhapuchre Development Organization
MF	Methodological Framework
mm	millimeter
MFAGA	Ministry of Federal Affairs and General Administration
MoA	Ministry of Agriculture
MoF	Ministry of Finance
MoFE	Ministry of Forests and Environment
MoITFE	Ministry of Industry, Tourism, Forest and Environment
MoALMC	Ministry of Agriculture, Land Management and Cooperatives
MoCTCA	Ministry of Culture, Tourism and Civil Aviation
NAPA	National Adaption Program of Action
NBSAP	Nepal National Biodiversity Strategy and Action Plan
NLCDC	National Lake Conservation Development Committee
NT	Near Threatened
NTB	Nepal Tourism Board
NTFPs	Non-timber Forest Products
NTNC	National Trust for Nature Conservation
NWCC	National Wetlands Coordination Committee
NWP	National Wetland Policy
PES	Payment for Ecosystem Services
PLCC	Phewa Lake Conservation Cooperative
POLEMC	Pokhara Lekhnath Metropolitan City
PTC	Pokhara Tourism Council
PVTDC	Pokhara Valley Town Development Committee
RLRFC	Rupa Lake Restoration and Fisher Cooperative
RSP	Ramsar Strategic Plan (2016-2021)
RRM	Rupa Rural Municipality
SCO	Soil Conservation Office
SFP	Sustainable Fishery Plan
TK	Traditional Knowledge
UNDP	United Nations Development Program
UNEP	United Nations Environment Program
UNFCC	United Nation Framework for Convention on Climate Change
VDC	Village Development Committee

Executive Summary

1. The Lake Cluster of Pokhara Valley (LCPV) of State number four of Nepal consists of nine lakes, which include Phewa, Kamalpokhari, Gunde, Khaste, Neureni, Dipang, Maidi, Begnas, and Rupa lakes. These lakes cover an area of 262 km² with the water bodies covering an area of 9 km². Lake Phewa is the largest in the cluster and the second largest in the country. All these lakes are sub-surface drainage type. Phewa is *meso-eutrophic* while Lake Begnas is *oligo-mesotrophic*. Rest of the lakes are *eutrophic*. The LCPV was listed as Nepal's 10th Ramsar sites in 2016.
2. The LCPV falls under the administrative units of the Pokhara Lekhnath Metropolitan City (POLEMC) as well as Annapurna and Rupa Rural Municipalities. This cluster of lakes also falls within the Chitwan-Annapurna Landscape, and adjoins the boundaries of Annapurna Conservation Area in the North-east of the country.
3. The elevation of the area of the lakes ranges from 622 meters above sea level (masl) at Lake Rupa to 2,403 masl at the basin of Lake Phewa. Around 64 percent of the lake area is below 1,000 meters and 83 percent of which has moderate to gentle sloping terraces. The flat valley floors are intensely cultivated and cover 48 percent of the total land mass of the Valley. Likewise, over 35 percent of the land is covered with forests and shrub land. Water bodies of the Valley including lakes, swamps, ponds, and rivers account for four percent of the land. Similarly, Lake Phewa accounts for over 69 percent of the total basin area, followed by Rupa and Begnas lakes. The built-up area, mainly in POLEMC, covers around four percent of the Lake Cluster.
4. The LCPV falls within one of the highest rainfall zones in Nepal. The hydrological network is complex and represents two hydrologic zones based on climatic features and basin response such as the Mountain Catchment of the Seti River with its headwaters in the High Himalaya and the tributaries of Harpan and Andheri *Khola*. Likewise, Sidhane, Hadi, and Marse *Khola* (stream) are the tributaries of Harpan *Khola* that originates from Bhadaure Tamagi. While the Andheri *Khola* is the major silt carrier to Lake Phewa, the Balaundi and Phirke *kholas* that flow from the northern part of the Valley are highly polluted and cross the sub-metropolis. The north-south flowing River Seti that flows from the middle of the POLEMC narrows down in the heart of the city to a few meters in width with tens of meters in depth, forming a narrow gorge. Bijayapur *Khola* is another prominent river system in the Valley, which originates from Bijayapur Gaun (village) and drains into Rive Seti, forming the basin of Kamalpokhari. While Khaste-Neureni, Gunde, Dipanag, and Lake Maidi do not have perennial river inputs, Lake Begnas and Rupa are fed from Syangkhudi and Dovan *Khola*, respectively.
5. The vegetation in the area is a mosaic of sub-tropical and temperate broad-leaved forests, including *Sal* (*Shorea robusta*) in the south, riparian forests along the banks of the Seti River and its tributaries, and *Schima-Castanopsis* forests in the north and west. The LCPV forms a part of the Panchase Protected Forest, which is regarded as a biodiversity hotspot and is also known as the *Orchid Garden* because of the high diversity of orchids found there.
6. The biodiversity in the LCPV includes over 360 species of plants, 32 species of mammals, 140 species of birds, 24 species of reptiles, 27 species of fish, and 11 species of amphibians. The plants found here include 61 aquatic species and 82 species of plants. These plants are important for agro-biodiversity, out of which 107 species are used as NTFPs. The fish species found here includes six exotic species. Other important species found in the area include several globally threatened migratory birds such as the critically endangered Baer's Pochard and Indian Vulture. Likewise, the area is also home to several species of threatened mammals such as the clouded leopard (*Neofelis nebulosa*), common leopard (*Panthera pardusfusca*), and the Indian pangolin (*Manis crassicaudata*).
7. The spectacular panoramic views of Annapurna and Manaslu mountain ranges, rich local cultural practices and the biological diversity found in the area make the LCPV a top tourist destination.

8. The LCPV is rich in agro-biodiversity. In addition to more than 64 varieties of rice, 24 *taro*, 24 sponge gourd, and 34 species of millet, 876 species of food crops and horticulture species are grown in the Begnas area alone. High value *Anadi*—the only sticky rice species in Nepal—and *Basaune Ghiroula* (a sweet flavored sponge gourd) are the unique agricultural varieties grown in the lake basin of Pokhara Valley.
9. The human population in the urban and rural areas of the Valley is over 378,000. An average household has 3.8 family members. The upstream rural areas have witnessed a negative population growth between 2001 and 2011 with a rate that ranges from 0.31 in former Bharatpokhari to 2.33 in former Hansapur VDCs. However, the urban areas have witnessed a higher population growth rate of 6.34 percent in former Pokhara Sub Metropolitan City and 4.22 percent in former Lekhnath Municipality, respectively. The sex ratio has consistently skewed (female-biased) in all former VDCs and municipalities as there is a general trend of young males migrating to foreign countries for employment.
10. The local population is composed of 101 caste/ethnic groups. Brahmins have the highest population, followed by Gurungs and Chhetris. Over 67 languages are spoken in the area with Nepali being the the common language. Hinduism and Buddhism are the major religions practiced here.
11. Poverty is low in the area, which has decreased from 11percent in 2001 to 4 percent at present. The Human Development Index is 0.576, which is higher than the national average of 0.490 (2014). Likewise, the Human Poverty Index here is 16.5 percent against the national average of 31.1percent. The per capita income of Kaski district is US\$ 1,561 which is higher than the national average. Over 57 percent of the population above 10 years of age is economically active here. Family members of around one third of the households of the area are employed abroad. Agriculture is the mainstay (53%) here which is supplemented by animal husbandry. However, all-season irrigation facilities are limited only to 17 percent of agricultural land of the area. Farmers for livestock raising are organized into 86 user groups, including 65 women's groups. Major industries are located in (former) Pokhara Sub-Metropolitan City and Lekhnath Municipality which number 145 (and run with an investment of NRs 1,380 million and provide employment for over 3,600 people. The cluster is full of community cooperatives, the majority of which being in the fishery and tourism sector. Kaski district is the first to become an open defecation-free district in Nepal (2011), although there are still few households that lack good toilet facilities.
12. Gender and Social Inclusion (GESI) in LCPV rank 3rd in the Gender Development Index (GDI) of the country. There is a systematic inclusion of GESI in natural resource management, i.e. about 32 percent of women are involved at the executive level of community forest (CF) management, whereas 76 percent of livestock management groups are fully run by female members. Majority of them are from indigenous and schedule caste groups. These women have around NRs 500 million in informal fund-baskets. The initiation of conservation works in Kamlpokhari had been started by Dalit women leaders of former Pokhara Sub-Metropolis (ward no. 13).
13. The lake cluster provides different ecosystem services, including income-generating opportunities for trade and business communities. Moreover, the lakes and waterways are important sources of drinking water and water for biodiversity, navigation, fishery, irrigation, and hydropower. Moreover, the lakes provide recreational, religious, spiritual and inspirational values to local inhabitants and visitors. The Payment for Ecosystem Services (PES) mechanism is already operational in the LCPV, i.e. the Rupa Lake Restoration and Fishery Cooperative (RLRFC) has been providing grants to 21 community forest user groups (CFUGs) and 19 schools under the PES project.. Likewise, in 2016, the Hotel Association of the Phewa area provided economic incentives to upstream communities worth NRs 3.2 million.
14. The lake cluster is presently experiencing the impacts of climate change. The maximum and minimum average temperatures have increased by 0.81°C and 0.2°C over a period of 30 years (1981-2011). Similarly, rainfall patterns have become erratic, with intense rainfall, more thunderstorms, lightning and hailstorm. There has also been an increase in forest-fire in the area in recent years.
15. The aforementioned changes in climatic and non-climatic trends have begun to affect the structure and functions of lake ecosystems in the LCPV. The vulnerability assessment found that encroachment, siltation, pollution, and the invasion of exotic species are the problems in all the said lakes. For example, the encroachment of Phewa and Rupa lake areas is so intense that over 50 percent of the surface area and the depth of Rupa have declined over the past 100 years. Rural roads around Lake Phewa account for the deposit of 269,752 m³ sediment. Moreover, the lakes are being polluted by sewage and liquid waste. Fertilizers, manure and pesticides are carried by the streams that drain into Lake Phewa. Both plant and animal invasive

species are widespread in the lake area. The invasive plant species include *Parthenium hysterophorus*, *Mikania micrantha*, *Eichornia crassipes*, *Leersia hexandra*, and *Pistia stratiotes*, while the major invasive animals include *Tilapia nilotica* (Tilapia) and *Clarias gairiepinus* (African Catfish).

16. The management of lakes is a concurrent matter for both the federal and state government. Prevailing lake management practices are governed by over 30 legal provisions under the Multilateral Environmental Agreement as well as national strategies and policies, and sectoral laws, including conventions like the Ramsar Convention (1971), Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) (1973), and the Convention on Biological Diversity (CBD) (1992). The Ministry of Forests and Environment (MoFE) has prepared a draft National Wetlands Act which is presently being reviewed. Owing to inadequate legal provisions for the protection and conservation of lakes there is a rapid degradation of these lakes.
17. The responsibility of lake management overlaps several sectoral departments. The Ministry of Forests and Environment is the focal ministry for management of the Ramsar sites, and the responsibility of overseeing the protection of wetlands outside the protected areas (Pas) is vested in the Department of Soil Conservation and Watershed Management (DSCWM) and the Department of Forests (DoF). The National Wetland Policy is implemented by the District Forests Coordination Committees. The GoN has set up a National Lake Conservation Development Committee (NLCDC) within the Ministry of Culture, Tourism and Civil Aviation (MoCTCA) because of the importance of the lakes for tourism promotion. But there is little coordination among these multiple line agencies. Moreover, inadequate budget, insufficient staff, and weak technical capacity are the major constraints of the NLCDC. The District Development Committee (DDC) of Kaski District has a Wetlands Cell while the POLEMC has a Phewa Project Unit. Likewise, line agencies like the District Forests Office (DFO), District Soil Conservation Office (DSCO), and POLEMC allocate annual fund for lake management. DSCO is the prominent line agency responsible for making regular investment for the stabilization of soil and improving livelihoods of local inhabitants living around Phewa, Begnas, and Lake Rupa. However, the scale of intervention from these institutions is inadequate to deliver sustained impact on lake conservation. For this reason, local institutions and communities have been making demands for a separate empowered entity to take care of the lake cluster.
18. LiBird is the major NGO engaged in the research and development of agricultural biodiversity, and has been active in LCPV since 1996. In conjunction with local communities, it has helped initiate a Biodiversity Resource Conservation Movement by forming three satellite cooperatives: (i) the Rupa Lake Restoration and Fishery Cooperative; (ii) the Seed Foundation Cooperative which is engaged in improving agricultural husbandry and (iii) the Machhapuchchre Development Organization (MDO) which is engaged in the implementation of biodiversity-based livelihoods in the Panchase Area of Lake Phewa. The Boat Associations at Phewa and Begnas are engaged in recreational boating and navigation services. The Pokhara Valley Lake Conservation Committee has specific committees for each lake. Overall, there are 343 community forests in the lake basin that covers 12,700 ha of forests there.
19. These lakes are degrading rapidly. The major drivers of degradation include: policy overlaps creating lack of institutional clarity about their respective roles and responsibilities; weak technical capacity for wetlands management and governance in aforementioned line agencies and communities; weak knowledge management; and political instability of the past. Other proximate threats include conversion of watershed and lake reservation lands, reclamation of lake area and encroachment. Similarly, other persisting threats include sedimentation and siltation, pollution and eutrophication, spread of alien invasive species, overharvesting of fish and illegal poaching. These threats have increased management tasks, especially in the context of emerging socio-economic challenges such as changing demographics, farming practices, and growing real estate business.
20. The then DDC of Kaski district requested Ramsar Administrative Authority and USAID funded Hariyo Ban Program to support the Integrated Lake Basin Plan for the LCPV. The plan is in compliance with goals of the National Wetlands Policy (2012) and other relevant policies and strategies. This plan envisions the *socio-ecological integrity of the Lake Cluster of Pokhara Valley for long term prosperity of local people* with the goal of ensuring the fact that the *Lake Cluster is managed through an integrated lake basin approach and to restore the lake basin environment to a near-natural condition that provides ecosystem services and goods for socio economic prosperity*.
21. The plan has eight thematic areas focussed on strengthening lake basin governance based on Integrated Lake Basin Management approaches:

- i. **Thematic Area A** will focus on establishing an *Empowered Governance System*. It will ensure and empower the Pokhara Lekhnath Metropolitan City, Annapurna Rural Municipality and Rupa Rural Municipality backed by institutional framework, and prepare a mechanism for multi-stakeholder collaboration for synergy, and thereby establish a system for financial sustainability. This theme also establishes lake-specific cooperatives for grass-roots level intervention for socio-ecological prosperity in the area in harmony with Articles 3.2; 4.6; 4.8; 4.10; 5.1.4; 5.1.8 and 5.3 of the NWP (2012), Goal 1 of the Ramsar Strategic Plan (RSP) (2016-2021), and Principles 4; 5; 6 and 7 under World Lake Vision-2007 (WLV).
 - ii. **Thematic Area B** presents the basis for *Biodiversity and Ecosystem Service Conservation*. It is governed by Goal 2 of the RSP and its Targets 5 and 7, under the Principles 1 and 2 of the WLV (2007), and Articles 5.16; 5.1.7; 5.1.10; 5.1.12 of the NWP (2012).
 - iii. **Thematic Area C** is about ensuring *Socio-Economic Prosperity*. It emphasizes on strong motivation for local people and agencies to engage in lake conservation. It provides recommendations for improving infrastructure facilities in each lake for tourism and sustainable agriculture practices. It consolidates the strengths of communities to identify their resources, and develop and implement business plans for local prosperity based on sustained water resources and clean energy.
 - iv. **Thematic Area D** focuses on improving *Gender and Social Inclusion*. It focuses on social and economic empowerment of lake-dependent vulnerable communities. It will strengthen meaningful participation of women and targeted groups in the management of Lake Basin, while also mainstreaming GESI in formulating policies, programs, and actions.
 - v. **Thematic Area E** details a strategy promoting *environmentally friendly 'Green' Infrastructure* to minimize impacts on the fragile ecosystems. It proposes a shift from poorly planned and ad hoc infrastructure to better planning, designs and engineering that are also climate resilient.
 - vi. **Thematic Area F** addresses *Climate Change and Disaster Reduction*. It assesses the vulnerabilities of human and ecological communities to climate change and disaster risks, and identifies the sites that are vulnerable to erosion, landslides, and sediment sources. It then presents strategies to promote soil and water conservation.
 - vii. **Thematic Area G** presents a *Monitoring and Knowledge Management System*. It presents a knowledge management mechanism with long-term socio-ecological monitoring practices for each lake. It provides strategies to build capacity of communities in different fields.
 - viii. **Thematic Area H** addresses *Financial Sustainability* to implement this plan and the plans that follow. It explores innovative ways to make conservation and management of the LCPV for socio-ecological security and better sustainability.
22. The plan will be implemented by the Pokhara Lekhnath Metropolitan City, Annapurna Rural Municipality and Rupa Rural Municipality in close coordination and support from the State Government. This provision will also provide for the setting up of a Ramsar Unit in the POLEMC to coordinate interventions in the lakes.
23. The total estimated budget for implementing this plan is NRs 12.5 Million over a five-year period (2018-2023).

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Chapter 1

Overview of Lake Cluster Pokhara Valley

1.1 Background

The Lake Cluster of Pokhara Valley (LCPV) is located in State 4, Kaski district, in the central region of Nepal (Figure 1). The cluster consists of nine diverse lakes of different sizes (Table 1), set against the backdrop of the Annapurna Himalayan Range which has three out of the ten highest mountain peaks in the world Dhaulagiri, Annapurna First, and Manaslu. These peaks add to the spectacular scenic beauty of the lake cluster, making the area an acclaimed tourist attraction.

Phewa is the largest lake in the cluster, and the 2nd largest lake in Nepal. Begnas and Rupa are also relatively large, but the other lakes are smaller and shallower. The total area of water included in the cluster of lakes in the 262 km² basin is about 9 km².

The riparian and upper watershed areas are important for maintaining lake integrity, and thus have also been included within the ambit of this management plan. Conservation of the forested slopes, restoration of degraded slopes and maintaining ecological linkages are vital for a strategy to conserve and sustain the ecology, hydrobiology, geology and biodiversity of the lake cluster.

The Pokhara valley is a mosaic of sub-tropical and temperate broad-leaved forests, including Hill *Sal* (*Shorea robusta*) in south, mixed broadleaf riparian forests along the banks of the Seti River and its tributaries, *Schima-Castanopsis* forests in the north and west that transition into *Quercus-Castanopsis-Rhododendron* forests in the upper hills. The valley is in the transitional zones of the Palearctic and Oriental zoogeographical realms and the Circumboreal and Paleotropical phyto-geographical kingdom, which contributes to its rich biodiversity. The Panchase region in particular is one of Nepal's biodiversity important areas, and known for the high orchid diversity. The valley also occupies a key geographic and socio-ecological position in the Chitwan-Annapurna Landscape (CHAL), serving as an important corridor link between the southern and northern ecosystems and climate refuge. The Annapurna Conservation Area to the northeast of the valley is one of Nepal's first conservation areas, and renowned for being one of the first community-managed protected areas in the world.

Pokhara is the main urban area in the LCPV, and is a highly popular tourism destination. Pokhara is also the headquarter of State 4, and has air and road links with Kathmandu.

Table 1: Location and Area Description by Lakes in LCPV

SN	Lake Basin	Latitude	Longitude	Altitude (m)	Catchment Area (km ²)	Water Body (Km ²)	% water body
1	Phewa	28.1943-28.2902	83.8004-83.9898	763-2482	119.39	4.33	3.6
2	Begnas	28.1621-28.2167	84.0814-84.1332	647-1447	18.6	3.13	16.8
3	Rupa	28.139-28.2061	84.1004-84.1699	580-1420	26.02	1.11	4.3
4	Khaste	28.1908-28.2115	84.0449-84.0603	739-1186	2.69	0.13	4.8
5	Dipang	28.1777-28.2025	84.0645-84.0821	687-1269	2.39	0.14	6.2
6	Maidi	28.1753-28.1952	84.0785-84.0895	672-1123	1.6	0.007	0.4
7	Gunde	28.1889-28.2001	84.0392-84.0476	741-948	0.61	0.08	13.1
8	Neureni	28.1889-28.195	84.0465-84.0533	742-866	0.18	0.027	15.0
9	Kamalpokhari	28.2169-28.2377	84.0102-84.0217	822-1440	1.35	0.013	1.0
	Total				172.8	8.97	5.2

Note: This table does not cover Riparian area; Source: Assessment study, 2016

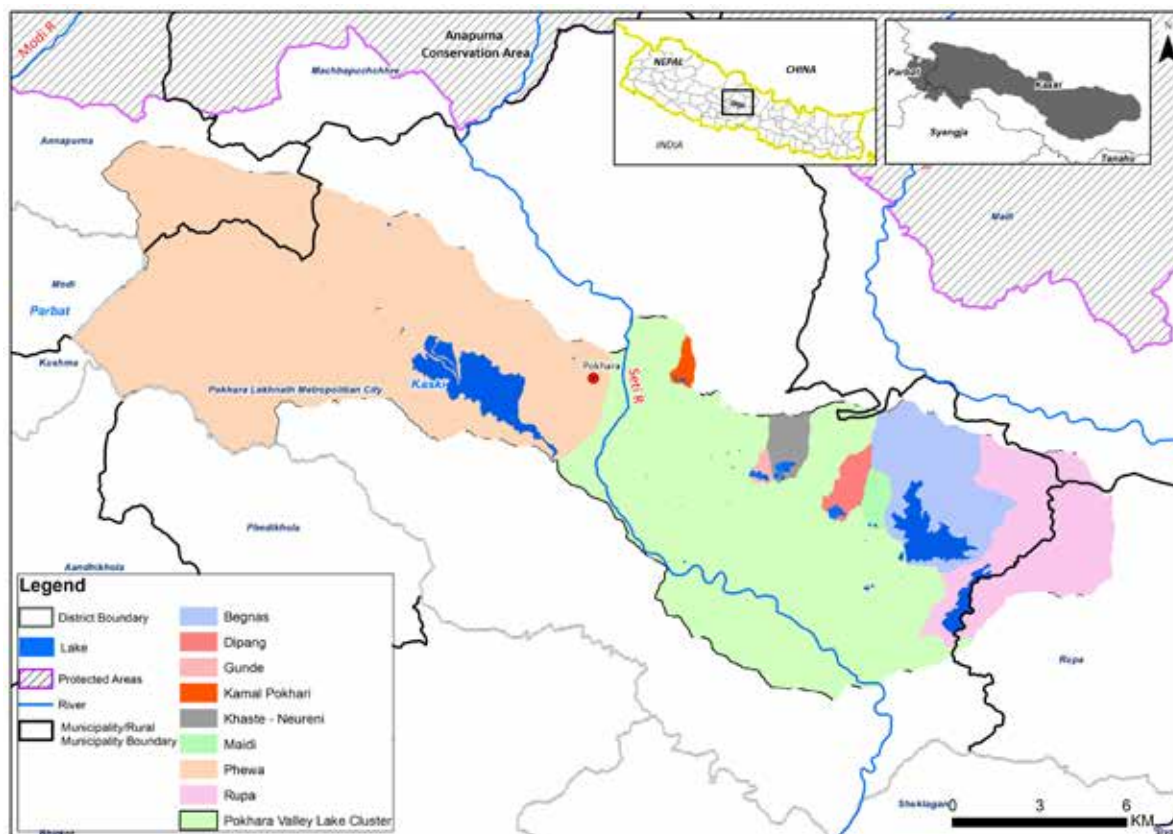


Figure 1: Location Map of Lake Cluster Pokhara Valley, 2016

Phewa, Rupa, and Begnas are major lake attractions in Pokhara. There are several religious sites, including temples such as Barahi, Bindhebashini, and Stupa that are visited by pilgrims, and caves that people believe to be the abodes of Gods and Goddess. *Ramghat* and *Sitaghat* are important sites for Hindus to conduct funeral rituals.

The lakes are spread across the flat Pokhara valley, with its unique Karst limestone plates, sharply dissected into deep gorges by the perennial rivers (RIS 2016). Two schools of thought explain the geological formation of the lake cluster differently. One proposes that the existing lakes are remnants of the *Paleo-Pokhara Lake* (Hagen 1969), while the second claims the lakes were formed when the Seti River system was dammed by debris and sediment flows centuries ago (Gurung 1970; Monique 2010). The LCPV was listed as Nepal's 10th Ramsar Site in February 2016. It is the only Ramsar site that represents Nepal's midhills.

Each lake in the cluster supports important biodiversity and provides vital ecosystem services that sustain livelihoods of local residents and the local economies. Among the biodiversity are several globally threatened migratory birds, including the critically endangered Baer's pochard (*Aythya baeri*) and Indian vulture (*Gyps indicus*). The threatened mammals include the clouded leopard (*Neofelis nebulosa*), common leopard (*Panthera pardus fusca*), jungle cat (*Felis chaus*), crab-eating mongoose (*Herpestes urva*), masked

palm civet (*Paguma larvata*), common otter (*Lutra lutra*), and the Indian pangolin (*Manis crassicaudata*).

Pokhara valley gets the highest amounts of rainfall in Nepal. The valley and lakes play an important role in the hydrological cycle in the area by recharging groundwater, controlling floods and trapping sediments. Thousands of people depend on the lakes for income from tourism, fishing, irrigation, electricity generation, and water supply. An economic valuation has shown that Phewa Lake provides goods and services worth more than USD 279,000 per year. The Rupa Lake Restoration and Fishery Cooperative (RLRFC) consisting of over 600 households and earns more than USD 56,000 per year from fishing (Ramsar 2016).

1.2 Physical Features

Administrative areas: The basin of the LCPV spreads into the Pokhara Lekhnath Metropolitan City (POLEMC), Annapurna Rural Municipality and Rupa Rural Municipality. Phewa extends to POLEMC and Annapurna Rural Municipality. Kamalpokhari, Gunde, Khaste, Neureni, Dipang, Maldi and Begnas lies in the metropolitan city and Rupa lies in both metropolitan city and Rupa Rural Municipality (Table 2). Over 90% of the Phewa lake basin falls in POLEMC.

Physical features: The elevation of the LCPV varies greatly, ranging from 622 masl in Rupa Lake to the highest point at 2,482 masl in the Panchase Mountain in the Phewa lake

Table 2: Administrative Distribution of Lake Cluster Basin of Lake

Lakes	Metropolitan city/Rural Municipality	Area (km ²)
Phewa	Pokhara Lekhnath Metropolitan City	103.47
	Annapurna Rural Municipality	15.82
Kamalpokhari	Pokhara Lekhnath Metropolitan City	1.35
Gunde	Pokhara Lekhnath Metropolitan City	0.61
Khaste	Pokhara Lekhnath Metropolitan City	2.69
Neureni	Pokhara Lekhnath Metropolitan City	0.18
Dipang	Pokhara Lekhnath Metropolitan City	2.39
Maidi	Pokhara Lekhnath Metropolitan City	1.6
Begnas	Pokhara Lekhnath Metropolitan City	18.6
Rupa	Pokhara Lekhnath Metropolitan City	12.25
	Rupa Rural Municipality	13.75
Riparian	Pokhara Lekhnath Metropolitan City	87.88
	Rupa Rural Municipality	0.36
Total Lake Basin Area		260.95

basin. Almost 35% (93 km²) of the total area lies between 1,000 to 2,000 masl and 1% is above 2,000 m. About 64% (165 km²) of the area is below 1,000 m (Figure 2).

Most of the area (83%) of the LCPV has moderate to gently sloping terraces (Figure 2), with about 45% being less than 15°, and 41% between 15-30°. The less steep slopes are more stable and have less frequent slope failure and wasting during extreme precipitation events (Dixit *et al.* 2014). Only about 3 km² is > 45° slope. About 64% (165 km²) of the sloped areas are below 1,000 masl. The flat valley floors are intensely cultivated (Figure 2).

Geology: The LCPV sits on a top of a gigantic debris fan from a cataclysmic flashflood that, according to geologists, was caused by the Seti River bursting through a landslide or avalanche dam in its headwaters below Annapurna IV about 800 years ago (RIS 2016). It consists of a 7,000 m thick section of para-autochthonous crystalline rock with mostly unfossiliferous sedimentary and meta-sedimentary rocks such as shale, sandstone, slate, conglomerate, phyllite, schist, quartzite, limestone, and dolomite. Geological formations in *Naudanda* consist of white, fine to medium-grained quartzite with ripple marks inter-bedded with green-phyllites. Seti which is in turn made up of grey-greenish gritty chlorite muscovite sand and grit stones with conglomerates and white quartzite in its upper parts (RIS 2016).

Morphologically, LCPV has five major land units, including alluvial plains and fans (depositional), alluvial plains,

ancient river terraces (tars), and moderate to steep mountain slopes. Agriculture is concentrated in alluvial plains and river terraces because the soil is most fertile in those areas. According to Rana (1990) and Ross (1998), weakly-bedded, low to mid-grade metamorphic rocks and phyllitic schist underlie the catchment area of Harpan Khola. Phyllites composed of mica and chlorites characterize the northern section of the catchment while grey phyllitic schist dominates the southern section. The fragility of phyllites and the steep topography make the northern section geologically more susceptible to erosion than the southern section.

The lake areas consist of layered clastic deposits with gravel, silt, and clay from the Quaternary age, brought from the Annapurna range by series of catastrophic debris flow (Yamanaka *et al.*, 1982). The Seti River and its tributaries have carved out river terraces and deep gorges in the clastic sediments, where most (25-65% by volume) of the substrate is easily soluble calcareous materials. Karst structures like sub-surface flow channels, solution cavities and chimneys, sinkholes, and pinnacles are distributed widely at the surface and underground. The clasts are mainly represented by gneiss, granites, quartzite, and schist (Gautam *et al.*, 2000).

Hydrology: The hydrological network in the basin is complex and represents two hydrologic zones based on climatic features and the basin response, such as the Mountain Catchment in the Seti River that has its headwaters in the high Himalaya region, and the Pokhara tributary (WECS 2011) in the *Harpan* and *Andheri Khola*.

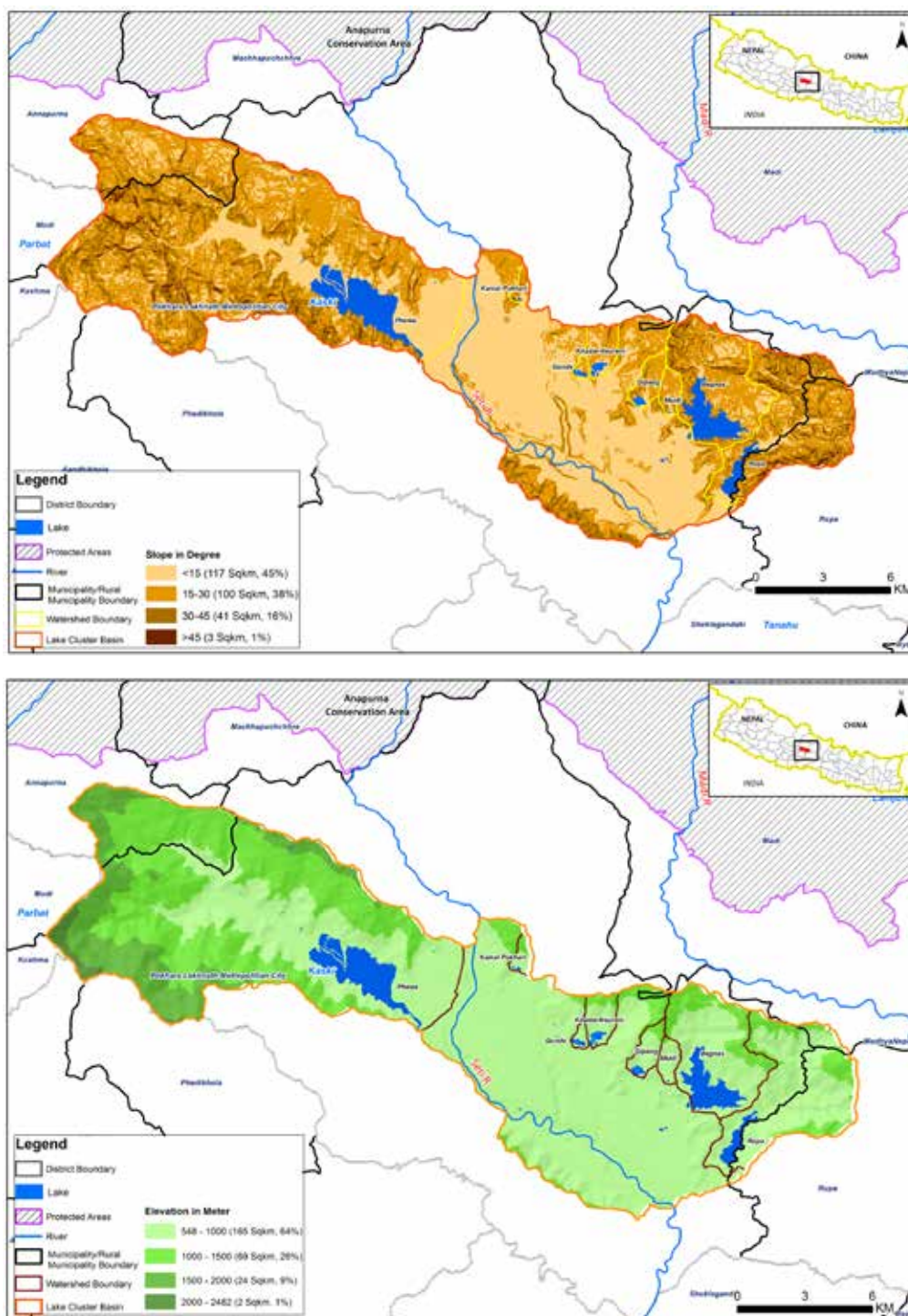


Figure 2: Elevation and Slope Map of Lake Cluster Pokhara Valley, KASKI, 2016

The major rivers and seasonal streams in each lake basin are listed in Table 3.

Sidhane, Hadi, and Marse Khola are roots of *Harpan Khola* that originates from *Bhadaure Tamagi* whereas *Andheri Khola* is a major silt carrier to Phewa as it flows down from *Dhikur Pokhari*. Many seasonal rivers originate from *Sarangkot, Kaskikot, Chapakot, and Pumdibhumdi*, and feed into the Phewa during the monsoon. *Balaundi and Phirke* flowing from the north, across the sub-metropolis, are the most polluting rivers since they carry an enormous load of

sewage and solid waste that is discharged into the lake.

The Seti River flows for 223 km from north to south. In the heart of Pokhara city it narrows to form a gorge that is a few meters and several tens of meters in depth. It does not feed any lake, but widens in *Ramghat* and becomes part of the Ramsar Site as it confluences with *Phusre Khola* in the south, at *Lamtara*, where *Seeta ghat* holds ultimate abode of the Seti River. All rivers and drainages in the south finally rest at the Seti.

Table 3: Major Rivers and Kholas associated to Lake System in LCPV

Lake Basin	Major river	Major Streams	Others
Phewa	Hadi Khola, Marse Khola and Sidhane Khola (Harpan) and Andheri Khola	Khahare Khola, Laurek Khola, Betani Khola, Gheutro Khola, Kanjire Khola, Khahare (Bhakunde) Khola, Khapaudi Khola, Balaudi, Phirke, Machha Pokhari, Bhumdi, Mure, Sasurke, Bhupan Khola	Pardi and Phusre Khola and Seti River
Kamalpokhari	Bans Khola	Thado Khola	Kahu Khola
Gunde			Soto Khola
Khaste	Thulo Khola	Nuwara Khola and Rote Khola	Gadua Khola
Neureni			Gadua Khola
Dipang	Khatre and Kusunde Khola	Kahur Khola and Kaure Khola	Deurali Khola
Maidi		Piple Khola, Bhudrung Khola, Baskot Khola, Raule Khola and Saunne Khola	Maidi Khola
Begnas	Syangkhudi	Kanmarang Khola, Dud Khola, Dhandhunge Khola, Baguwa Khola, Banspani Khola and Khahare Khola	Chyanladi and Khudi Khola
Rupa	Dovan	Chisa Khola, Sanophadi Khola, Dholphadi Khola, Bhangara Khola, Kuraundi Khola and Kalaundi Khola	Tal Khola

Source: Field Assessment, 2016

Bijayapur Khola is the next prominent river system, with its headwater from *Bijayapurgau* and drains down from *Amrot*, *Jantre*, *Ryaltari*, *Bhaktekuna*, and *Soto Khola* before it becomes confluent with the Seti River, the basin of *Kamalpokhari*. The *Bans Khola* is the major inlet of *Kamalpokhari* at *Baralthar* and *Machaurigau*. An outlet canal from this Pokhari finally drains to *Khau Khola*.

In western flank of *Bijayapur Khola*, across the ridges of *Silingedanda*, *Thapathar*, and *Nareshpur*, the basin is shared by Khaste & Neureni and Gunde lakes. Khaste & Neureni, Gunde, *Dipanag*, and *Maidi* lakes do not have perennial inputs from streams and *Khola* but Begnas and Rupa are fed during all seasons by *Syangkhudi* and *Dovan Khola*, respectively.

All lakes are subsurface drainage type. Phewa is meso-eutrophic, Begnas is oligo-mesotrophic, and the other lakes are eutrophic and degrading (Forsberg & Ryding, 1980, cited in Rai 2000; UGC 2011).

Temperature and precipitation: The LCPV has converging features of sub-tropical, cool temperate, and warm temperate climatic zones at varying altitudes. The sub-tropical zone lies below 1000 masl, with a temperature range from 15–20°C, the warm temperate zone (1000–2000 masl) has a temperature range from 10–15°C, and the cool temperate zone (2000–2500 masl) has a lower temperature. The mean annual air temperature in the cluster ranges from 20°C to 25°C, and average annual maximum and minimum temperatures are 21°C and 11°C (1981–2011), respectively (Dixit *et al.*, 2014).

Pokhara valley receives the highest rainfall in the country, with a reference record of 4000 mm annual precipitation in *Lumle*. Hourly rainfall records at Pokhara Airport shows that the LCPV received 108 mm on 10 June 2013 and the second highest of 70 mm in 1998. The LCPV in general, but the individual lakes, play an important regional hydrological role, contributing to groundwater recharge, flood control, and sediment trapping.

1.3 Landuse

Landuse pattern: Over 35% of the land area in the valley is covered by forests and shrubland, and over 48% is under cultivation (Figure 4). Water bodies, including the lakes, swamps, ponds and rivers represent only 4%.

At individual lake basin level, Phewa is the largest, with more than 69% of the total basin area (119.4 km²), followed by Rupa (15%), and Begnas (10.8%). The built-up areas mainly the urbanized POLEMC cover about 4% of the total area. Rural municipalities are included in a greater proportion of the lake basin (59%), which is an indication for management to have village focussed interventions to address conservation issues of lake cluster (Figure 5, 6).

Landuse change: Many attempts have been made in the past to generate landuse information on the lakes, particularly for Phewa, Begnas, and Rupa (Sthapit and Balla 1998; Dixit *et al.*, 2015; Gauli *et al.*, 2016). Although the findings vary somewhat across the different analytical efforts, they all agree that the lake areas, especially Phewa, have become reduced.

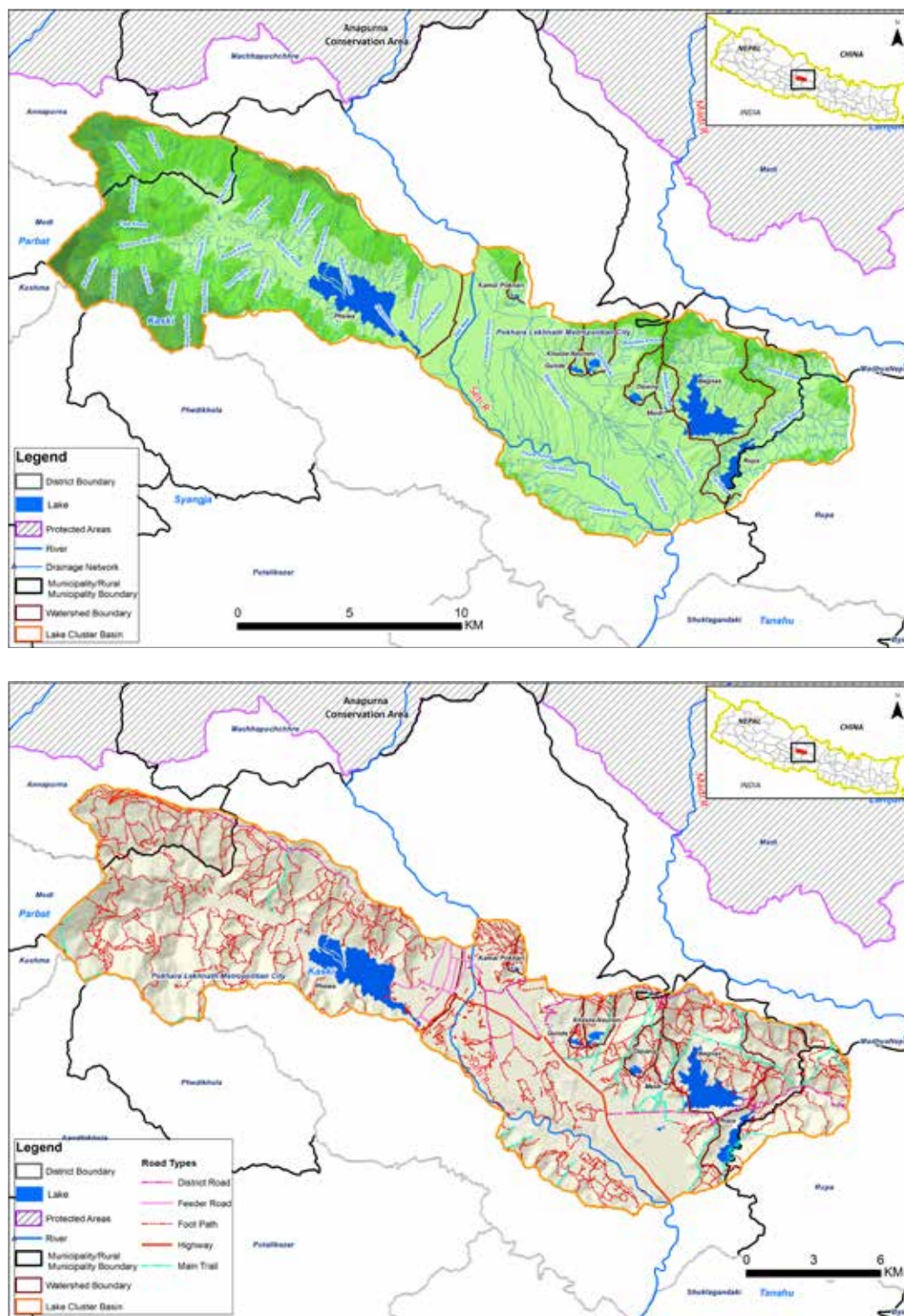


Figure 3: Drainage, Hydrology and Urban Outlines in Lake Cluster Pokhara Valley, Kaski, 2016

A recent landuse map was prepared using imagery from Google Earth, updated during a field visit in August 2016. This was compared with landuse changes during the 20-year period from 1996 to 2016. The Geographical Information System (GIS) overlays from 1996 and 2016 show significant spatial changes in cultivation, forest, grassland, and shrubland in the basins of individual lakes. In general, cultivated land has reduced from 88 km² to

~71.2 km², while there has been an increase in forested lands from 66.9 km² to 73.5 km², shrubland from 2.2 km² to 6 km², and grassland from 1.3 km² to 2.2 km² in the basin. Grasslands in Phewa and Begnas basins have increased by 0.45% and 0.85%, respectively, since 1996. Grasslands have also increased considerably (~9%) along the Madi shoreline. However, the river and stream area has decreased (0.7 to 0.08 km²) in the Phewa basin, with an

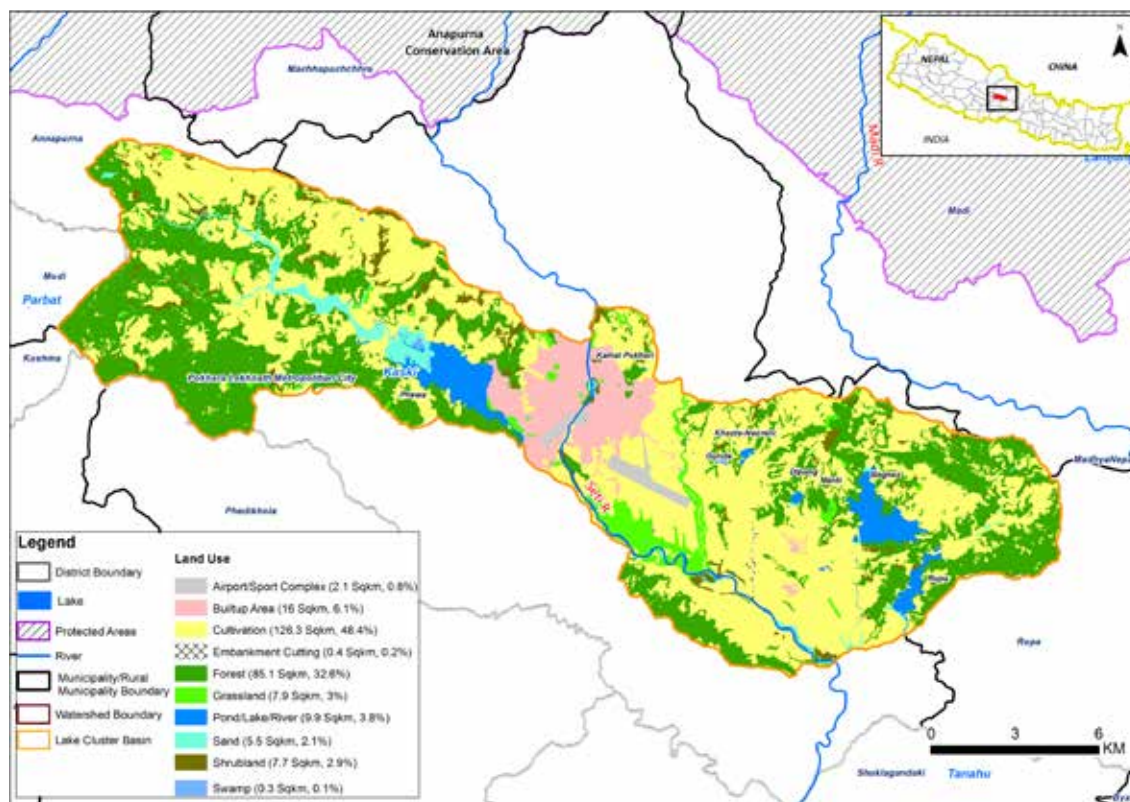


Figure 4: Landuse of Lake Cluster of Pokhara Valley, Kaski, 2016

increase in sand and sediment areas (Annex 12).

But there is also an increase in built-up areas due to the construction of roads, schools, residential buildings, and other community infrastructure. This is especially significant in the Phewa basin, where infrastructure development in the PoLENT has expanded.

Some of the key features of land use-land cover change analysis are as follows:

- ▶ Core water areas in Phewa, Begnas, Mairi, Kamalpokhari, and Gunde lakes have decreased over the past 20 years. The trend is greatest in Phewa and Begnas with 4 and 17% decreases, respectively. There has been an increase in sand and sedimentation from 1.3% in 1996 to 4% in 2016 in Phewa. During interviews, respondents claim that heavy loads of sediments were deposited during and after road construction, and debris flow from *Harpan* and *Andheri Khola* in Phewa, and *Syankhudi Khola* in Begnas. Lake areas of Kamalpokhari, Mairi and Gunde also have been reduced.
- ▶ The core water areas in Rupa, Dipang, Khaste, and Neureni have increased over the past 20 years. The water area in Rupa has increased from 1.1 to 1.2 km², with a decrease in sand and sediment deposition. The extent of Dipang lake has almost doubled in area, from 0.06 to 0.15 km². Interventions by the RLRF have

resulted in successful lake restoration with fisheries benefits.

- ▶ Forests, grasslands, and shrublands have increased in all lake basins, which follows the findings of Sthapit and Balla (1998), Dixit et al., (2015), and Gauli et al., (2016). Local respondents attributed this to an increase in community forestry programs that were initiated after the intense floods of 1979, following heavy rainfall. Land abandonment, which is becoming a common practice, has also resulted in natural regeneration.
- ▶ Cultivated land is decreasing in all lake basins. People claim this is due to a labour shortage. But agricultural lands are being abandoned, especially as the younger generations give up agriculture for foreign employment. Khanal and Watanabe (2006) reported a positive correlation between land abandonment and agriculture damage in plots from landslides in Sikles, Kaski.
- ▶ Intense urbanization in all lake basins, especially along the shorelines is growing. In Phewa, the extent of builtup structures has increased from 0.02% to 5.2% over the past two decades. Similar changes are occurring in the areas downstream of Gunde, Khaste, Neureni, Dipang, Mairi, Begnas, and Rupa.

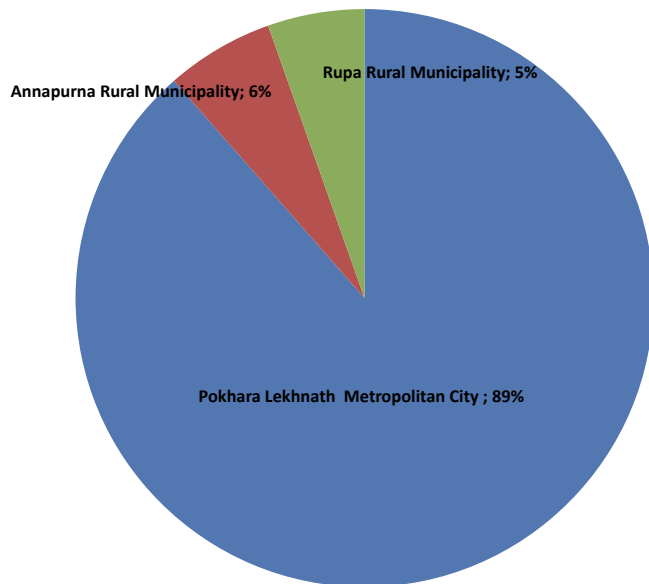


Figure 5: Proportion of Lake Basin Area by Metropolitan City and Rural Municipality in LCPV, 2016

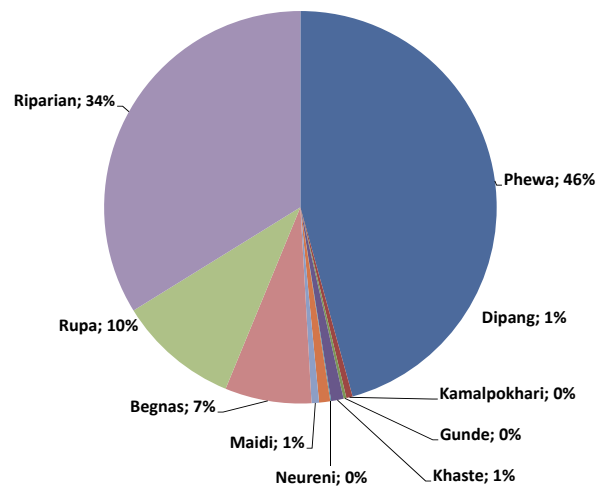


Figure 6: Proportion of Land Use Coverage of Each Lake Basin in LCPV 2016

Chapter 2

Socio-Economics of Lake Cluster Pokhara Valley

2.1 Population and Ethnicity

Population and demographic trends: The total population in all former VDCs and municipalities in the LCPV is 378,807 with an average household size of 3.8 people (CBS 2013). The population growth trends in urban and rural areas oppose each other; the rural, upstream areas of former 11 VDCs had negative population growth rates during the inter-census period from 2001 to 2011, whereas the urban areas had a positive growth (Figure 7). The negative growth in rural areas ranged between -0.31 in Bharatpokhari to -2.33

growth rates, of 2.63 and 0.76, respectively. The numbers of households in Pokhara and Lekhnath increased by 83% and 60%, respectively, during the inter-census decade. These figures reinforce the observed pattern of rural and urban migration. Such trends have implications on waste management system and pollution in the lake, especially the Phewa.

The sex ratios of the populations in LCPV are also changing, with an increasing bias towards females (Figure 7-Source:

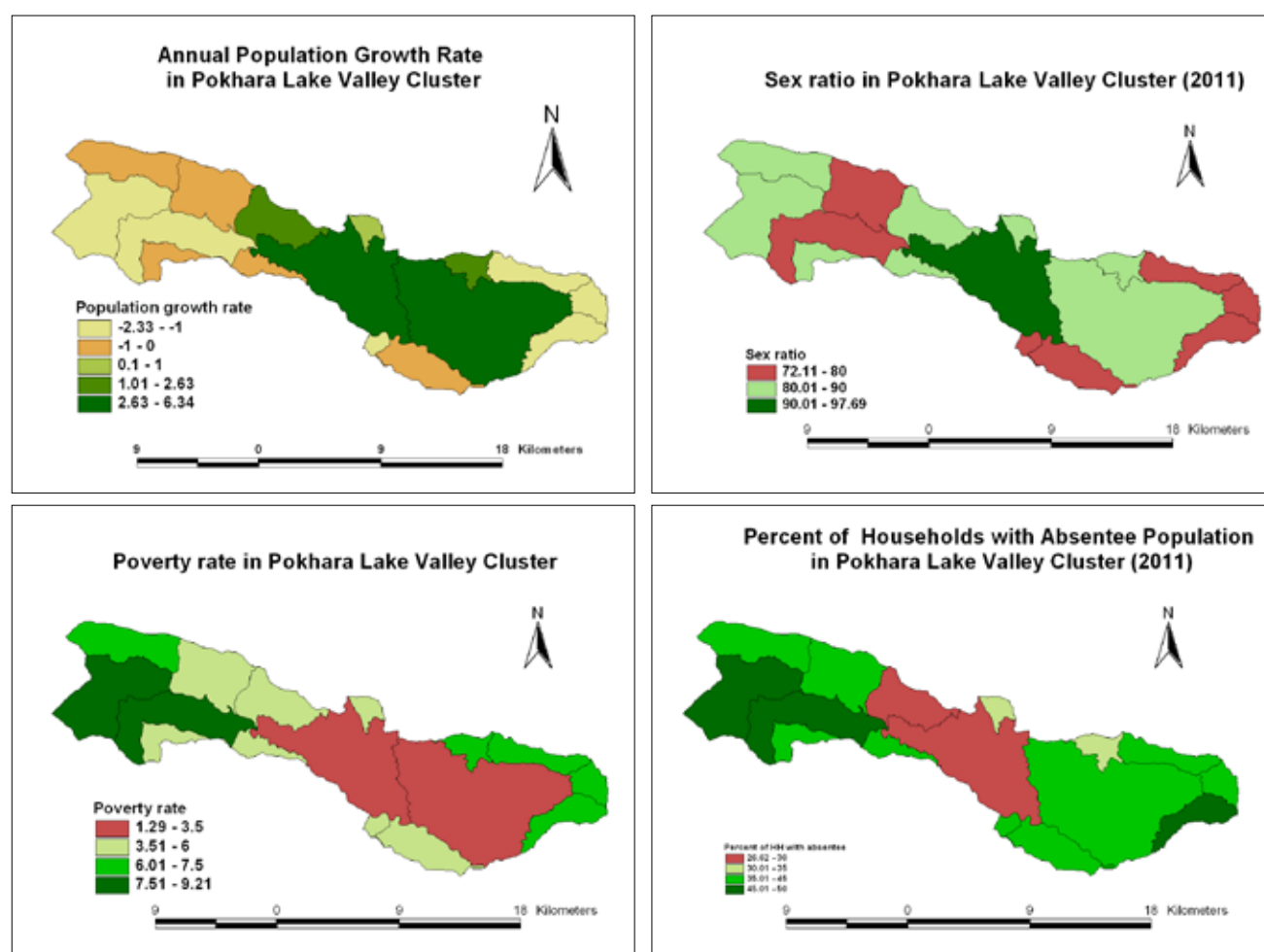


Figure 7: Demographic Features in LCPV, 2016

in Hansapur, whereas the growth in urban areas ranged between 6.34 in the former Pokhara Sub Metropolitan City to 4.22 in the Lekhanath Municipality. Only 2 VDCs, Sarangkot and Kahun (former VDCs), had positive population

Field Assessment 2016). In 2001, the average sex ratio in the LCPV area was 96, but was 92 in 2011; less than the national average of 94.

The current range varies between 72 in Majhthana and 98 in the Pokhara. The female bias is attributed to the outmigration of male youth for foreign employment. The absentee population is an indicator of such migration (Figure 7); in 2011, about 30% of the households had one or more absentee household members. Absentee household members range from 29% in Sarangkot to 50% in Chapakot. Of the total absentee population, females account for only 17%. The declining sex ratio has significant socio-economic implications, including for resource management at local levels, changing gender roles, and contributions to the rural economy.

Ethnic diversity: There are 101 ethnic groups in the LCPV. The majority group is Brahmin (27%), followed by Gurung (16%) and Chhetri (14%), while 89 groups comprise of <1% of the population (Figure 8).

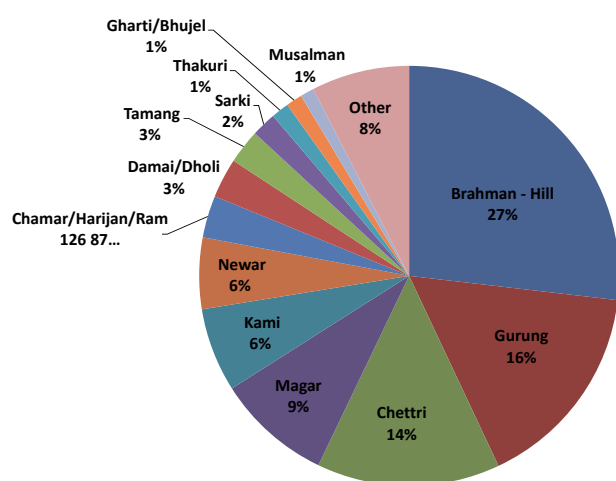


Figure 8: Ethnic Groups Represented in LCPV (CBS 2011)

Overall, 67 languages are spoken in the region, with Nepali being the common language. Hinduism (>82%) and Buddhism (>13%) are the major religions. But several communities also worship the lakes as the abodes of deities. During *Janai Purnima*, *Nag Panchami* and *Maghe Sakranti*, people take holy baths in the lakes and celebrate with local fairs. Releasing of fishes into lakes is a common practice among the Buddhist.

2.2 General Economic Activities

About 51% of the population is considered to be the economically active population (EAP), within which 47% is employed and 4% is unemployed. Of the former, 61% is self-employed and 32% is engaged in government and non-government services. The majority of Gurung are with the army, Newar are in trade and business, and others in government services and agriculture (DDC 2016). Of the population older than 10 years, 57% is active in some form of economic activity, which is less (by 6%) than the national average (DDC 2016). This proportion is less by 10% in

females than males.

Agriculture and animal husbandry: Agriculture is the main livelihood in the LCPV for most people (53%), but is supplemented by animal husbandry in rural areas. Over the years, the farming system has been changing. Major crops grown in the area are rice, maize, wheat, and potato. But with the decline in availability of agricultural labor owing to out-migration of youth, agricultural fields are being abandoned in the upper watersheds of the lakes. But because of declining water availability, cropping intensity has also reduced, and farmers cultivate only in the rainy season (MDO 2012). Only about 75% of agricultural land is irrigated with farmer-managed systems. However, downstream, market access and commercial vegetable production is increasing. Consequently, there is an increase in the use of chemical fertilizers (such as Urea, DAP and Murate of Potash) in the downstream reaches of streams.

Cattle, buffalo, and goats are the common livestock (Figure 9). Kaski district alone has more than 280,000 head of livestock, including both local and improved breeds (Figure 9). Milk, meat, and hide are the main livestock products. Production of milk and meat is increasing whereas the production of hide is decreasing. Over the years, there has been an increase in stall-feeding; thus, herd sizes have declined. In areas close to POLEMC, people sell milk to dairies which is also increasing in number. The Government has established centers for local livestock services. There is one main center and four sub centers in the LCPV. The farmers are also organized into 86 livestock groups in the district, of which 65 are groups of women farmers (DLSO 2011/12).

Pumdibhumdi, *Chapakot*, *Kaskikot*, and *Bharatpokhari* have been designated as pocket areas for cattle dairies, whereas *Kalika*, *Dhikurpokhari*, *Kahun*, *Nirmalpokhari*, *Sarangkot*, *Pumdibhumdi*, and *Bharatpokhari* are designated as buffalo-farming pocket areas under the planning schedule of the government. Similarly, *Rupakot*, *Nirmalpokhari*, *Bharatpokhari*, *Kaskikot*, *Dhikurpokhari*, and *Hansapur* are recognized for goat farming.

Overseas employment: Foreign employment has profound social and economic impacts in the LCPV. Currently about 75% of the households in the lake cluster area have members engaged in foreign employment, and the remittance by these overseas workers has transformed the rural economy, but has also created significant socio-economic changes.

Industry, trade and commerce: The major industries are concentrated in the POLEMC. There are 145 larger industries that provide employment to over 3,600 persons, and

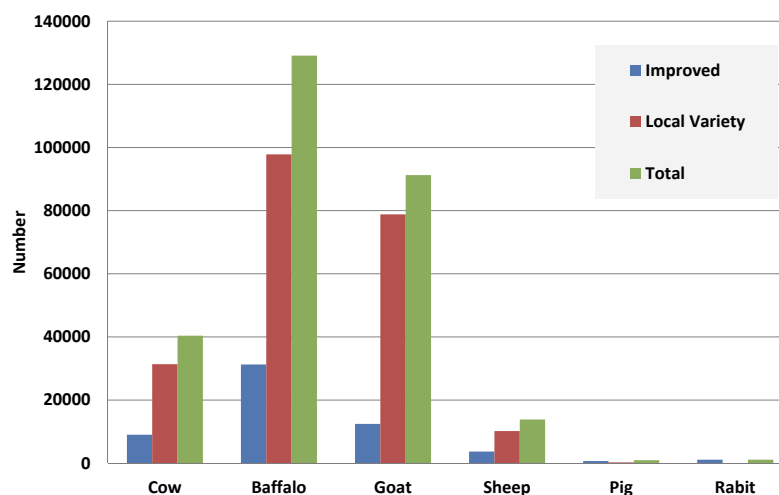


Figure 9: Livestock in Kaski

together represent an investment of over NRs 1380 million.

Microenterprises and cooperatives: The LCPV is well furnished with community cooperatives, many backstopped by the government. These include savings and credit facilities (60%), agriculture extension and support (19%), consumers (6%), dairy products (4%), coffee (2%), multi-purpose (2%), media (1%), and others like livestock, fishery, NTFP, bee keeping, tea, tourism, and health (DCO 2015).

The Jalhari, Majhi, and Poda communities depend primarily on fishing in Phewa, Begnas and Rupa lakes; 92 households of Jalahari in Phewa own cooperatives for fishery activities. Tourism is a major economic activity in the POLEMC. Phewa, Begnas, and Rupa lakes provide infrastructure for tourism promotion, whereas other lakes currently do not have much tourism activities.

2.3 Ecotourism

Tourism has multiple impacts on the economy, from the national to household levels. Pokhara is the gateway to the Annapurna Circuit, which has more than 20 trekking destinations and is also known for adventure tourism, from para-gliding and ultralight flying to zip-lining, mountain biking, rock climbing, and white-water rafting. The lake cluster has over 475 registered hotels with an accommodation capacity of 11,144 persons per day, and homestay facilities at 28 places in Pokhara and nearby villages. Over 125 trekking agencies, 215 travel agents and 616 licensed tourist guides provide services to the visitors (DDC Kaski, 2011, 2012, 2016).

Lake tourism is one of the top 10 tourism activities. About 40% of foreigners visiting Nepal make Pokhara their choice destination, and the number of tourists has been increasing

at about 5% between 1976 and 2010. A dramatic increase of 20% occurred between 2007 and 2011 (GoN 2014; Figure 10).

Tourism in Pokhara contributes to the annual income of the retail trade, including 87% of the travel, food and lodging sectors and 13% of the total number of businesses (Sharma, 2013). There is a potential to increase employment by 29% doubling tourism investments and 13% by opening new business enterprises in LCPV (Sharma, 2013). Therefore, investment by the government and private sectors is growing every year in LCPV. Hence, the then DDC Kaski had initiated 3-year ecotourism programs in 2014 with a vision of *Kaski District as the Tourism Capital of Nepal* with four objectively anticipated outcomes: (i) development of sustainable village tourism, (ii) environment friendly tourism infrastructure (e.g., view towers, trekking routes and a *Janajati* museum), (iii) tourism promotional programs (para gliding, bungee-jumping, tourism festivals and lake conservation), and (iv) creation of tourism based employment. However, the district investment for tourism promotion seems inadequate to meet the target.

2.4 Education

The level of education among the population in the lake cluster is high. Over 68% of students have qualified with school leaving certificates, compared with the national average of 47%, and over 24,000 students qualify and enter colleges for further education each year. In the last decade, overall literacy has increased to 83% in the lake cluster area. There is also progress in female literacy, with an increase from 62% in 2001 to 75% in 2011. The LCPV is also the educational hub for the western region, with 122 primary schools, 24 lower secondary schools, 6 private higher secondary boarding schools, 32 high schools, 26 higher secondary schools, and 5 colleges. There are also three sign language schools and three schools for

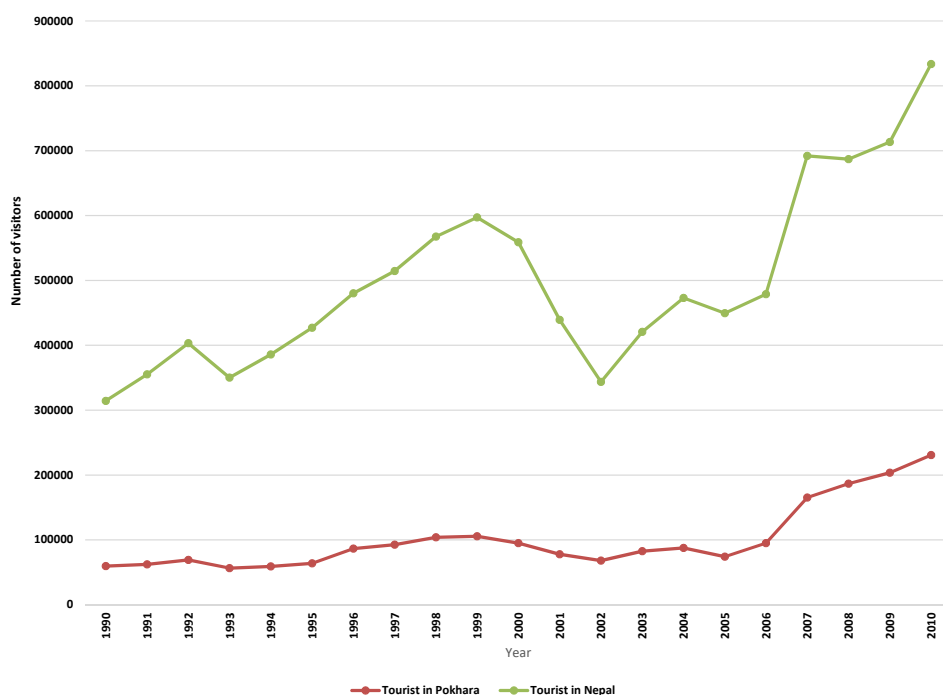


Figure 10: Number of Foreign Visitors in Pokhara and Nepa

the visually impaired, two Gurukul, one Madarasha and three Buddhist schools. The population has access to para-technical institutions, including 17 vocational education institutions, 10 public libraries, and 70 community learning centers. About 97% of teachers are trained in their focal subjects (DDC 2015).

2.5 Health and Sanitation

In 2011, Kaski district became the first open-defecation free district in Nepal. Over 87% of households have good access to safe, pipe-bourne drinking water. The LCPV is also the health hub for clinical services and medical education. There are three primary health centers, 11 health posts, 34 sub-health posts, 5 Ayurveda pharmacies, one regional hospital, one eye hospital, one regional TB center, one Leprosy hospital, and several privately-run hospitals. Gandaki and Manipal hospitals provide medical education facilities conforming to international standards. There are also several nursing institutions (DDC 2015).

2.6 Livestock Health and Services

The District Livestock Service Office (DLSO) has established 6 service centers and 8 sub-service centers for local livestock farmers in Kaski District. One service center and four sub-service centers are in the LCPV. Major activities of these centers include programs for improving the socio-economic conditions for communities by promoting an import-base for livestock development, developing markets for livestock products, fodder and grass development in fallow lands, and identification and conservation of threatened livestock

genes. The centers also help farmers get organized into livestock groups.

2.7 Irrigation Facilities

Irrigation facilities are poor in the lake cluster area. Only 17% of agricultural land has access to all season. About 95% of irrigation canals are *Kulo*-based. Other structural facilities include irrigation from deep bore tubewells and ponds. Major irrigation structures in LCPV supply water to agriculture fields in Phewa (320 ha), Pokhara (1030 ha), Bijaypur (1280 ha), Begnas (580 ha), Sisuwa (50 ha), Kimbesi/Begnas (50 ha), Sadhikhet/Bhadauretamagi (30 ha), Gaduwa/Lekhnath (50 ha), Aiseluchaur/Chapakot (55 ha), Harpankhola/ Bhadauretamagi (10 ha), Tarikhet/ Bhadauretamagi (5 ha), Sheraphant/ Pumdibhumdi (10 ha), and Kimbesi/Lekhnath (20 ha). Phewa and Begnas provide direct irrigation facilities, but Gunde, Khaste & Neureni, Dipang, and Kamalpokhari need improvement in their outlets.

2.8 Transport

The LCPV has good transportation facilities. It has one all-season airport with night landing capability, and a 120 person per hour terminal building capacity in Pokhara. Seven airlines operate out of this airport, with connections to Kathmandu, Jumla, Jomsom, Manang, and Dolpa. Another international airport is under construction in *Chhinnedanda*.

The cluster has 186 km of black-topped roads, 110 km of

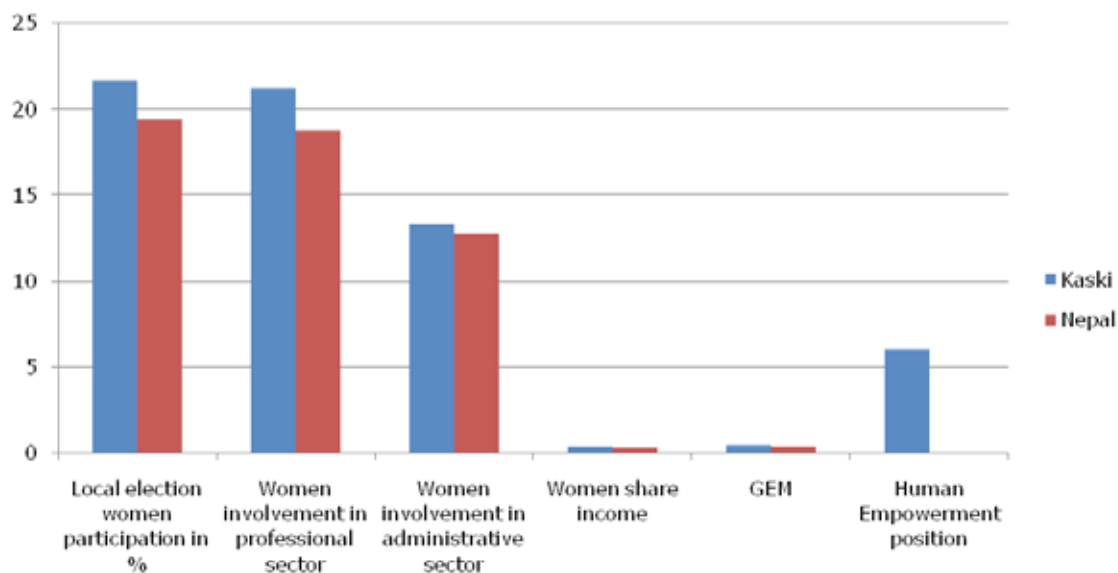


Figure 11: Sector wise women involvement in Kaski

feeder, and 145 km of earthen fair weather roads. An all-season road connects to Kathmandu, Baglung, and Palpa-Butwal. Microbus facilities operate at five-minute intervals from Pokhara to Kathmandu and other destinations. The Kaski District Transport Master Plan (DTMP) for 2014 targets enhancing road access to 95.5% of the population by 2019¹. Many *Krishi-Sadak* are also under construction. All these may have impacts on the lake environments because of unavoidable and intense earthwork and deforestation that will cause siltation. This scenario is considered one of the more serious concerns in this Plan.

2.9 Banks and Financial Institution

There are good financial networks within the LCPV. Kaski district alone has 24 commercial banks (Class-A) operating through 41 branches in Pokhara, 18 banks (Class-B) with 42 branches, 16 finance companies (Class-C) with 26 branches and 8 Gramin Development Bank (Class D) with 14 branches. There are more than 550 grassroots cooperatives that provide financial services to different tiers of users (DDC 2015).

2.10 Media and Communication

The LCPV has very good media access through audio-visual and print media. There are 13 daily newspapers, 20 weekly, 2 fortnightly, 8 monthly, 2 trimester newspapers, 4 television stations, and 22 FM and regional radio stations. Telephone access is widely available, either through land lines or cellular phone services provided by the government (NTC) and private companies (NCell, United Telecom,

CDMA). Internet access and social media are widespread. *Hello Jilla Bikas Samiti* is an online service provided by DDC Kaski to inform citizens about the programs and performances of the government program and actions. This provision also receives public hearing and complaints for immediate resolutions from the concerned actors. Post Office and private courier services are available for mail and material deliveries.

2.11 Gender Equality and Social Inclusion (GESI)

The female population outnumbers the male population in the LCPV. About 39% of households are female-headed (CBS 2013). The *Janajati* and schedule casts represent about 1% of the population. GESI has been constitutionalized as a State Statute in all formal and non-formal groups, from political parties to community organizations. The then Ministry of Women, Child and Social Welfare, supported by over 156 NGOs, is engaged in GESI programs. They have organized 404 committees and 2,647 women groups, 359 *Dalit* groups, and 423 groups of *Janajati* women. These groups are provided with paralegal services, skills against drug abuse and domestic violence, and child care. The women's groups have a collective fund of NRs. 800 million (DWCO 2014). As a result, the Gender Development Index in Kaski is ranked third in the country (DDC, 2010) (Figure 11).

Women and indigenous members are also well represented in the major political parties from the villages to district levels. Very systematic inclusion of these groups has

¹ For this, DTMP has identified about 750.65 km of roads (112.96 km of strategic roads, 100 km urban roads and 537.69 km of rural roads). Of this, 26 rural roads (402.47 km) will add on the district road core network (DRCN), and the remaining 135.21 km as village roads (DDC 2016).

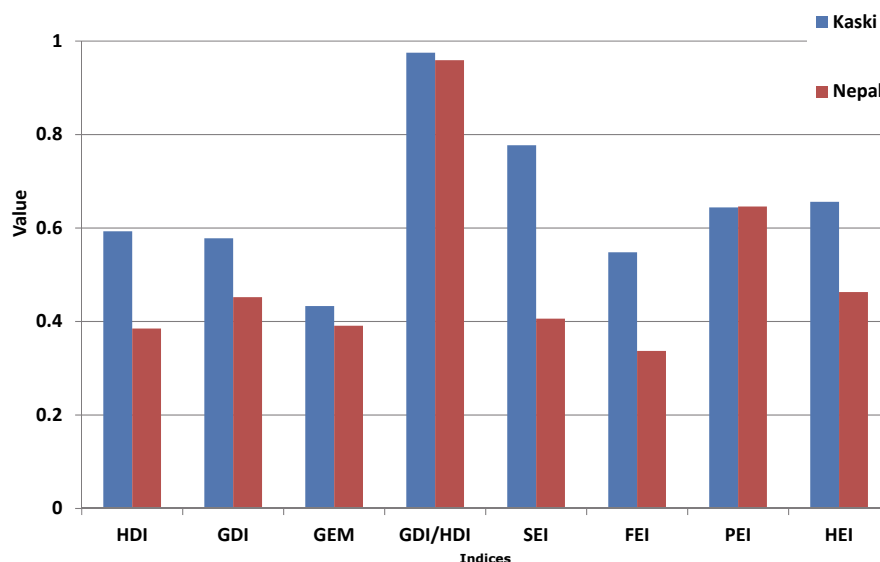


Figure 12: Human Development Index of Kaski

been recognized in natural resource management. For example, about 32% of women hold executive positions in community forest management groups.

The emigration of males for foreign employment has created a labor gap, which has shifted the workload to women. In addition to leading farmer and livestock groups, women are also operating savings and credit mechanisms.

Conservation initiatives in Kamlpokhari were begun by the women leader of *Dalit* in the former Pokhara SMP-13. There is a women's lake conservation committee established as a NGO for Gunde and Khaste & Neureni. The RLRF has women representation in its executive body. The wetlands dependent women, especially the *Jalahari*, also have savings and credit mechanism in Phewa and Begnas. *Jalahari* women are also engaged in boat operations in Phewa and Begnas.

2.12 Socio-economic Indices

Kaski district is ranked low in the percentage of poverty (4%) in Nepal, a decline from 11% in 2001 (CBS 2013). In general, the poverty rate (percentage of poor) is low compared to the national average of 25%. A small percent of the population is engaged in small businesses and hotel operation, particularly in Rupa and Begnas (PARD 2008) but the proportion is higher in the Phewa lake area.

Kaski district fares well in national economic indices as well. The Human Development Index is 0.576 against the national average of 0.490 (2014 data) (Figure 12). Similarly, the Human Poverty Index is 16.5% against the national average of 31.1% and the *Per Capita* income of the district is USD 1,561 against the national average of USD 1,160 (GoN/UNDP, 2014). Thus, the socio-economic indices of LCPV are much better, especially because of the employment and livelihood options available in the Pokhara SM and municipality through wages, entrepreneurship, trade, business, and tourism. This scenario strongly suggests a need for prioritizing prosperity focused programs in the LCPV.

Chapter 3

Biodiversity and Ecosystem Services

3.1 Ecosystem and Habitat Diversity

Nepal has 12 of the 867 terrestrial ecoregions of the world. The LCPV area is represented by the Eastern Himalaya Temperate Broadleaf Forests, Himalayan Subtropical Pine Forests, and Himalayan Subtropical Broadleaved Forests ecoregions (NBSAP 2014). The major natural ecosystems of LCPV are the wetlands, rivers, forests, and grasslands. But each lake in the cluster has a diverse habitat mosaic consisting of an open water body, adjacent marshes and swamps, various forest types, and agricultural fields. The latter includes terraced fields and valley paddy fields. Village settlements and community forests are common in the Phewa, Begnas, and Rupa lake basin.

3.2 Vegetation and Forests

The LCPV has four main forest types. The sub-tropical and lower temperate forests are dominated by *Shorea robusta* (Sal), *Schima* spp., *Castanopsis* spp., *Daphniphyllum himalense*, and *Alnus nepalensis* (Table 4; LRMP 1984; Shrestha and Janauer 2001; IUCN 2013). Several aquatic macrophytes, hydrophytes and helophytes add to the biodiversity (IUCN 1995; Kafle *et al.* 2008; IUCN 2013). In Phewa Lake, the sub-tropical forests are on the southern and western side, and has a mix of both deciduous and evergreen species dominated by *Schima* spp. and *Castanopsis* spp. Chir pine and Oak are dominant species in the subtropical pine and temperate forests, respectively. A major part of the Panchase Protected Forest,¹ falls in the

Harpan sub-watershed of Phewa lake, and includes the historic Hill-top (*Lek*) called 'Panchase', rich in endemic orchids. Begnas and Rupa lake catchments are dominated by sub-tropical vegetation represented by hill sal forest (*Shorea robusta*) and Chilaune-Katus (*Schima-Castanopsis*) forests. The other lake watersheds have vegetation compositions similar to Phewa, Begnas, and Rupa at corresponding altitudes; i.e., between 1,000 and >2,000 masl. Overall, 438 species of vascular plants have been recorded from Begnas and Rupa lakes and their catchments (Oli 1996).

3.3 Species Diversity

Species richness of plants and animals in the lake cluster is high (Annexes 1-10). New species records, such as *Dischidia bengalensis* from Raniban and Harpan and *Phreatia elegans* from Chapakot (Bhandari *et al.*, 2015, Bhandari and Shrestha 2016), indicate that there is a lot more biodiversity to document.

Flora: Overall, 362 species of plants have been recorded from the lake cluster, with 286 terrestrial species under 83 families, and 61 aquatic species under 22 families (Annexes 1, 2, 9, 10). These include 32 orchids, of which 10 are endemic species. Over 146 species are used as NTFPs and 82 species represents plants important for agrobiodiversity. Table 5 summarizes the composition of plants in the LCPV.

Table 4: Vegetation Type and Distribution in LCPV

Altitude (masl)	Vegetation Types			
	Hill Sal Forest	<i>Schima-Castanopsis</i> forest	<i>D. himalense</i> dominated forest	<i>A. nepalensis</i> dominated forest
1000	√	√		
1000-1500	√	√	√	√
1500-2000		√	√	√
>2000			√	

Source: Assessment study 2016

1 With an area of 57.8 km², Panchase is full of biological, cultural, and religious diversities and natural beauty, and represents an important middle mountain ecological zone, and the only corridor linkage to lowland Chitwan-Nawalparasi and Annapurna Himalaya range.

Table 5: Class Diversity of Flora in LCPV

Category	Terrestrial plants			Aquatic plants			Cultivated plants		
	Dicot	Monocot	Pteridophyte	Dicot	Monocot	Pteridophyte	Dicot	Monocot	Pteridophyte
Family	83	8	3	22	6	3	33	8	1
Genera	184	48	10	26	16	3	49	16	1
Species	207	65	14	34	24	3	58	17	1

Source: Assessment Study 2016

The submerged, emergent, floating-leaf, and free-floating aquatic macrophytes constitute an important component of the lake cluster biodiversity. Common aquatic macrophytes are *Trapa quadrispinosa*, *T. bispinosa*, *Nelumbo nucifera*, *Eichornia crassipes*, and *Ceratophyllum demersum*. By growth form, the emergent species have the highest richness, followed by submerged and rooted floating species (Shrestha 2000; Shrestha and Janauer 2001; Adhikari 2002).



The common floating and emergent hydrophytes are lotus and water lilies; namely *Nelumbo nucifera*, *Nymphaea nouchali*, *Nymphaea stellata*, *Nymphoides indica*. Others include *Trapa quadrispinosa* and *T. bispinosa* (water chest-nut), *Eichornia crassipes* (water hyacinth), *Lemna minor* and *L. perpusilla* (duck weed), *Pistia stratiotes* (water cabbage), *Azolla imbricate*, *Sagittaria guyanensis* (arrowhead), *Alternanthera sessilis*, *Ipomoea aquatica* (swamp-cabbage), *Persicaria barbata*, *P. hydropiper* (hydropiper), *Ranunculus scelerates* (celery-leaved buttercup), *Typha angustifolia* (cattail), *Stellaria patens* (stitchwort), *Cyperus difformis*, and *C. digitatus*.

The predominant submerged hydrophytes are *Hydrilla verticillata* (water fern), *Utricularia aurea* (bladderwort), *Vallisneria natans*, *V. spiralis*, *Potamogeton crispus*, and *Ceratophyllum demersum*.

There are also several species of alga, diatoms, liverworts, mosses, and ferns in the wetlands (Annexes 1, 2).

Fauna: The LCPV harbors 128 species of vertebrates that include 32 species of mammals (18 Families), 140 birds (37 Families), 24 reptiles (10 Families), 27 fishes, and 11 amphibians (3 families) (Tamrakar 2008). The bird community includes 52 wetland species. The fish fauna consists of 21 native species and 6 alien species. 13 species of zooplankton have also been recorded from the lakes. Felidae and Muridae are the most species-rich mammal families (Table 6, Annexes 3-8, 11). Corvidae, Accipitridae, Passeridae, and Silviidae are the bird families with the highest species, with 17, 13, 12, and 12, respectively.

Some of the fauna that qualified the lake cluster for listing as a Ramsar site are *Turdoides nepalensis*, *Panoepyga immaculata*, *Panoepyga pusilla* (Wren babbler), and the globally threatened *Sarkidiornis melanotos* (Comb duck, CE-IUCN), *Aythya baer* (VU-IUCN), and *Aythya nyroca* (Ferruginous Duck, NT-IUCN).

The known biodiversity of the Phewa lake basin includes 104 bird species (43 water birds and 14 migratory species), 34 mammals, 16 fishes (4 exotic), 14 reptiles,

Table 6: Classified Diversity of Fauna in LCPV

Class	Mammals	Wetland Birds	Terrestrial Birds	Reptiles	Amphibians
Family	17	17	37	10	3
Genera	32	38	101	19	8
Species	32	52	140	24	11

Source: Assessment study 2016

and 6 amphibians (IUCN, 1995a). The known fauna of Begnas includes 36 water birds. The Rupa Lake basin has 6 amphibians (2 toads, 4 frogs), 29 fishes (22 native, 7 exotic), 14 reptiles, and 104 birds (including 17 species of rare birds and 14 migratory species) and 34 mammals (Oli 1996; Tamrakar 2008).

3.4 Agrobiodiversity

The farmers of LCPV are dependent on traditional systems and associated knowledge, practices and processes developed for food crops, livestock and horticulture. More than 64 varieties of rice, 24 taro, 24 sponge gourd, 34 millet land races, and 876 species and varieties of food crops and horticulture species are grown in Begnas alone (Rijal 1998). High valued *Anadi*—the only sticky rice of Nepal - and *Basaune Ghiroula* (sweet flavored sponge gourd) are unique agriculture varieties grown in the lake basin of Pokhara valley.

There are varieties of crops in home gardens to ensure access to fresh produce throughout the year. Although home gardens occupy a very small proportion of the total land holdings of a family (2-11%), they are rich in biodiversity (≈87 species) (Gautam *et al.*, 2004). Wetland rice and maize are always grown as the first crop in agriculture lands. Farmers adapt a number of coping strategies to tide through periods of food deficit; these including growing crops, raising animals, collecting wild foods from the forests and seeking off farm jobs. Annex 9 lists some major agrobiodiversity of homesteads in the LCPV.

3.5 Invasive Species

There are 219 alien plant species recorded from Nepal, and 25 are recognized as threats to the native biodiversity (Siwakoti *et al.*, 2014; Siwakoti and Shrestha 2014; Shrestha 2016). Of these, *Parthenium hysterophorus*, *Mikania micrantha*, *Eichornia crassipes*, *Leerisa hexandra*, and *Pistia stratiotes* are common in the LCPV.

There are six alien invasive fish species in the lakes. Of these, *Tilapia nilotica* (Tilapia) and *Clarias gairiepinus* (African Catfish) are common in all lakes, having been released for a fishery and as part of cultural practices to release animals. Control of these species is now difficult. Bighead carp, Silver

carp and Grass carp are other common exotic species that were introduced to augment a fishery, but has depressed native fish populations. For instance, there is a 42% decline of the native fishes in Begnas Lake (Swar and Gurung 1988).

Insect pest species cause a decline in agricultural productivity. The African giant land snail (*Lissachanina fulica*) is reported to be the most common pest in vegetable gardens and orchards.

3.6 Endemism

The adjacent Annapurna Conservation Area has the highest endemism in Nepal. The biogeographic and environmental correlates that produce this endemism spills over into



Table 7: Nationally and Globally Significant Biodiversity in Lake Cluster Pokhara Valley 2016

Status	Birds			Mammals			Reptiles			Amphibia			Fish			Flora		
	Nepal	LCPV	%	Nepal	LCPV	%	Nepal	LCPV	%	Nepal	LCPV	%	Nepal	LCPV	%	Nepal	LCPV	%
Critically Endangered	61	4	6.56	2			1											
Endangered	38	2	5.26	26	1	3.85	3									2		
Vulnerable	50			14	3	21.4	7	1	14.3							5	2	40
Near Threatened	19*	4	21.1		1	100	4						1	100		2		
Least Concern	738	113	15.3		17	100												
GoN (Protected)	9			27	2	7.41	3			2						19**	3	15.8
CITES I	12			28	5	17.9	2	2	100							2		
CITES II	95	14	14.7	17	3	17.6	2	2	100	2	1	50				458	33	7.21
CITES III	1			5			8									4		
Endemic																	10	

(* BCN 2005, ** NBSAP 2014) Source: Assessment study 2016

the lake cluster region. There are several endemic plants, especially orchids, recorded from the lake cluster area. Some of the endemic orchids are *Oberonia nepalensis*, *O. eridifolia*, *Papilionanthe res* sp., *Rhynchostylis retusa*, *Arisaema tortuosum*, *Cissampelos pareira*, *Berberis aristata*, *Asparagus racemosus*, *Reinwardtia indica*, and *Ficus neriifolia* (IUCN 2013).

The lake cluster basin also harbors endemic birds, notably *Turdoides nepalensis* (Spiny babbler) and *Panoepyga immaculata* (Wren babbler) which have limited distributions within Nepal.

3.7 Conservation Significance

The LCPV has a rich flora and fauna of national and global significance (Table 7). The Nationally Protected species of LCPV includes: 2 species of mammals, *Neofelis nebulosa* (Dhwise Chituwa) and *Manis crassicaudata* (Salak); and 3 species of plants, *Rauvolfia serpentina* (Sarpaghandha), *Bombax ceiba* (Simal), and *Shorea robusta* (Sal). The IUCN-listed fauna includes one Endangered and two vulnerable mammals, four Critically Endangered and two endangered birds, and the flora includes two vulnerable species.

The Near-threatened *Lutra lutra* (Eurasian otter) has been reported from Rupa and Begnas lakes, and *Lutra perspicillata* (Smooth coated otter) occurs along tributaries of the Seti River, such as *Bijayapur Khola* (Bhandari and Subedi 2006, 2008). Five mammals and two reptiles are classified under CITES I. Fourteen birds, three mammals, two reptiles, one amphibian, and 33 plants are listed under CITES II. Indigenous fishes of conservation significance include *Tor tor* (Mahseer), *T. putitora* (Golden Mahseer), *Acrossocheilus*

hexagonolepsis (Katle), and *Changunius changunio* (Rewa), all found in Phewa, Begnas and Rupa lakes.

Nepal's wetlands hold several species of cultivars and wild relatives of cultivated crops, including four species of wild rice and two species of wild relatives of rice. Rupa, Begnas, Dipang, and Khaste lakes have the wild rice *Oryza nivara*, and the wild gene pool of cultivated rice (*Oryza rufipogon*) is distributed in most of the lakes. Other agrobiodiversity includes *Tinospora sinensis* and monogeneric species like *Ceratophyllum demersum*, *Trapa natans* and, *Typha angustifolia*.

3.8 Ecosystem Services

The lake ecosystem provides several different ecosystem services to people, including drinking water, NTFPs, biodiversity, access for navigation, a fishery-based livelihood, irrigation, and hydropower. The lake cluster also holds important religious, spiritual and inspirational values for the local inhabitants and visitors. Relatively successful Payment for Ecosystem Services (PES) mechanisms are already practiced in the LCPV; for example, the RLRF provides grants to 21 community forest user groups and 19 schools under a PES project. Table 8 summarizes ecosystem services matrix in LCPV. PES mechanism has also been piloted in Phewa lake.

3.8.1 Provisional services

Grazing and Fodder: The lake basin has 2.2 km² of grassland, with the highest extent in Phewa (1.7 km²) followed by Begnas (0.3 km²) and Maidi (0.2 km²). The *Kisan to Kisan* program has been facilitating farmers in the Begnas-Rupa municipality to stall feed livestock. Open

grazing is common on all lakeshores in all basins where a wide range of grasses such as *Imperata cylindrica* (Blady grass), *Themeda villosa*, *Saccharum spontaneum* (Thatch grass), *Paspalum species* (Dallis grass), and *Cynodon dactylon* (Bermuda grass) are available. Overgrazing in the upstream areas of Phewa, Begnas and Rupa lakes has encouraged the spread of invasive species such as *Eupatorium*, *Lantana*, *Mikania* and *Parthenium*. Farmers cultivate fodder trees and winter grasses such as *Artocarpus lakoocha* (Monkey jack), *Bahunia variegata* (Mountain ebony), *Leucaena leucocephala* (Ipilpil), *Litsea monopetala*, *Ficus auriculata*, *F. lacor*, *F. neriifolia*, and *F. semicordata*.

Freshwater: Phewa, Begnas and Rupa lakes have water storage capacities of 46X10⁶ m³; 17.9X10⁶ m³ and 3.25X10⁶ m³, respectively. The lake cluster is serviced by a dense network of perennial streams that eventually drain into the Seti. *Harpan Khola* that meanders for about 5 km in

the lakehead and has a mean flow of 5.58 m³/second (Pokharel 2009), and *Andheri Khola* are the main inlets. *Harpan* debouches at the *Pardi* outlet of Phewa whereas *Chandi*, *Dandhunge*, *Dudh*, and *Baguwa Khola* triangulate to originate at the *Syankhudi* inlet of Begnas, with *Khudi Khola* forming the outlet. *Dovan* and *Kurlung Khola* are inlets and *Sistani Ghat* is the outlet of Rupa Lake. *Kahu Khola* characterizes the Kamalpokhari lake basin that contributes to *Bijayapur Khola*. *Gadhuwa Khola* travels north to south in the Khaste & Neureni Lake basin.

Approximately 33% of water from Phewa is used for domestic purposes and irrigation (MDO 2012). The Begnas canal irrigates 600 ha of cropfields. Kamalpokhari, Khaste & Neureni, Dipang, Maidi, and Gunde irrigate vast areas of cropfields downstream. Phewa Lake also generates 1 MW of hydropower at *Pardi*, *Birauta*.

Fishery: The Fishery Research Station of NARC in Pokhara

Table 8: Ecosystem Services from Lakes & Basin of LCPV 2016

Type of Services		Phewa	K. Pokhari	Gunde	Khaste	Neureni	Dipang	Maidi	Begnas	Rupa
Provisional	Drinking water supply	**	-	-	-	-	-	-	**	**
	Irrigating water supply	**	***	***	***	*	**	*	***	*
	Domestic water supply	**	-	*	-	*	-	-	-	-
	Industrial water supply	-	-	-	-	-	-	-	-	-
	Fish supply	**	*	-	*	-	*	-	**	***
	Timber supply	**	*	*	*	*	**	**	**	**
	Fiber supply	-	-	-	-	-	-	-	-	-
	Fuel wood supply	**	*	*	**	*	**	**	**	**
	Fodder/forager/grass supply	***	**	*	**	*	**	**	***	***
	Food (plants and animals)	**	-	-	*	*	*	*	*	*
	Medicine	**	-	-	*	-	*	*	**	**
	Hydropower	*	-	-	-	-	-	-	-	-
	Mining and extraction	**	-	-	-	-	-	-	*	*
	Handicraft material	*	-	-	*	-	*	-	*	*
	Genetic material	**	-	-	-	-	-	-	**	**
Cultural	Aesthetic and scenic service	***	-	-	-	-	*	-	**	**
	Religious/spiritual service	**	*	-	*	-	-	*	-	*
	Historic site	**	-	-	-	-	-	-	*	*
	Recreational/tourism	***	-	-	-	-	*	-	**	**
	Educational resource services	***	-	-	-	-	*	*	**	**
	Festivals/hat bazaar/mela	**	*	*	*	*	*	*	**	**
Regulatory	Climate regulation	***	***	***	***	***	***	***	***	***
	Flood regulation	*	-	-	-	-	-	-	*	*
	Disease Regulation	**	**	**	**	**	**	**	**	***
	Water purification	***	**	**	**	**	***	***	***	***

(- = No; * = Low; ** = Moderate; *** = High)



Youth in Kamalpokhari, Pokhara-13 cleaning little harvest of *Tilapia* the leisure income (Pokharel S. 2016).

has research facilities in Begnas, Phewa, and Rupa lakes. *Pode* or *Jalahari* in Phewa (92 HHs), Begnas (22 HHs) and Rupa (15 HHs) rely solely on a fishery for their livelihoods. Commercial cage fisheries using *Aristichthys nobilis* (Bighead carp), *Hypophthalmichthys molitrix* (Silver carp), *Ctenopharyngodon idella* (Grass carp), *Tilapia*, and African Catfish have been introduced in Pokhara. Phewa Lake alone provides benefits from 98 metric tons of annual turnover of cage culture and open water recapture fisheries (Gurung 2005). Begnas, Rupa and Khaste produce 48, 18 and 8 mt

of fish annually (Sharma 1979). Other small lakes are also engaged in small-scale fish harvest using traditional hook and line fishing, bamboo cages, and fishing nets.

The RLRF has >600 HHs reaping benefits worth NRs 10 million from fisheries over the last 15 years. However, fisheries are still not considered an organized practice to maximize lake benefits in the cluster.

NTFPs and MAPs: The LCPV has over 360 species of plants with food, medicinal, and ornamental value. These include 8 fiber-yielding species, 23 species used to extract natural dyes, 18 wild species with floriculture potential (excluding the 32 species of orchids), and 98 edible fern species (Subedi 2006). *Paris polyphylla* (Himalayan Paris), *Swertia augustifoila* (Felwort), *Saxifraga ligulata* (Pakhanbed), *Tinospora cordifolia* (Guduchi), and *Lycopodium clavatum* (wolf's claw) are commonly used by traditional Ayurvedic healers for common health ailments (MDO 2012). Other medicinal plants include *Swertia chirayita* (Chiraito), *S. nervosa* (Tite), *Bergenia ciliate* (Pakhanbed), *Tinospora sinensis* (Gurjo), and *Lycopodium phlegmaria* (Nagbeli).

Agro-ecology: More than 48% of the LCPV consists of agricultural land. Except for Rupa, the downstream areas of all lakes are irrigated. About 40% of the total agricultural land in the Panchase Area is irrigated (MDO 2012). The dominant crops are cereals (paddy, maize, wheat, barley, finger millet, naked barley, and common buckwheat), legumes (soybeans, black gram, and lentils), oilseeds (rapeseed and mustard), vegetables (potato, cauliflower, cabbage, carrot, and tomato), spices (ginger, turmeric, and garlic), and horticultural crops. The agricultural practices include both *Khet* and *Bari*. Most of the vegetable produced is consumed locally but some are sold in urban centers like Pokhara, *Talchowk*, and *Talpari*.



On farm engagement of community in paddy field preparation, Kharnepant, Khaste Neureni (Pokharel S. 2016).



Socio-ecological landscape view of the Begnas-Sisuwa Bazar Phant from Begnas Hill (Pokharel S. 2012).

3.8.2 Religious-cultural, recreational and educational services

The LCPV has historical, religious, environmental and cultural values. It is a key destination for both tourists and pilgrims because of the presence of Buddhist shrines and Hindu temples, including the 200-year-old Shraban Kumar temple in Panchase. Phewa has the Barahi temple, Kamalpokhari has Sitaladevi Mandir and Nagdev, Khaste & Neureni has Barahai temple, and Rupa has the Devi Temple. Some of the important historical temples in the Phewa SM include Bindeshari Mandir, Kalika Mandir, Sunapdeli Mandir, Chandi Mandir, Santaneshwari Mandir, Kahu Baudhha Gumba, Bhairab Mandir, Gopeshwar Mandir, Matikhana Mandir Bahakot Devi Mandir, Global Peace Stupa, Ramchedevi Mandir, and Armalakot Mandir. Bhadauretamagi is famous for Kyulubarahasthan, Siddhabaraha and Devasthan Mandir, Kaskikot for Guptakali Mandir, Rupakot for Baraha and Chisapani Mandir,

Hansapur for Deurali, Bhmeshthan, Saraswati Mandir, and Autarimaisthan (DDC Kaski 2016).

Sarangkot, Chapakot, Rupakot, Paudurkot, David Fall, Harihargufa, Mahendra gufa, Mahadev gufa in the Annapurna Himalayan Range and gorges of Seti and Kaligandaki are outstanding tourist attractions. The LCPV is also close to world famous trekking routes, including the Annapurna Circuit and treks to *Ghorepani*, *Tatopani*, *Jomsom*, and *Mukthinath*. Recreational tourism, including paragliding and trekking depends on intact surrounding forests and a pristine environment that provides the aesthetic appeal (Dixit *et al.*, 2014). Boating in Phewa lake is one of the most attraction among visitors. All these, together with lakes, attract thousands of domestic and international visitors, especially nature lovers. Pilgrims flock to the LCPV during the Balachaturdasi festival in November, Janai Purnima and other cultural events.

Table 9: Forest Management under Community Forestry in LCPV 2016

Lake Basin	Metropolitan City and Municipality	No. of FUG	Area (Ha)	HHs No.	Total Population	Committee Members	No of Women in Committee	% of Women
Phewa	Bhadauretamagi	11	440.14	1125	6514	106	36	34.0
	Chapakot	12	446.84	890	5049	124	48	38.7
	Dhikurpokhari	19	772.59	2954	14965	198	63	31.8
	Hemja	5	188.94	722	3516	51	18	35.3
	Kaskikot	21	470.54	1937	10974	227	82	36.1
	Sarangkot	25	611	2405	11938	245	82	33.5
	Salyan	3	154.69	300	1290	33	14	42.4
	Pokhara Lekhnath Metropolitan City	14	656.84	1649	8882	148	46	31.1
	Sub-total	110	3741.58	11982	63128	1132	389	35.4
Kamalpokhari	Kahun	7	225.54	717	3761	83	36	43.4
	Pokhara Lekhnath Metropolitan City	1	4.55	58	359	11	0	0.0
	Sub-total	8	230.09	775	4120	94	36	21.7
Gunde	Pokhara Lekhnath Metropolitan City	1	570.05	2025	9995	161	66	41.0
	Sub-total	1	570.05	2025	9995	161	66	41.0
Khaste & Neureni	Kalika	9	104.25	1285	6515	93	32	34.4
	Pokhara Lekhnath Metropolitan City	23	801.53	2669	13419	231	67	29.0
	Sub-total	32	905.78	3954	19934	324	99	31.7
Dipang	Kalika	6	134.09	1601	8053	64	12	18.8
	Pokhara Lekhnath Metropolitan City	11	780.02	2794	13827	230	80	34.8
	Sub-total	17	914.11	4395	21880	294	92	26.8
Maidi	Kalika	6	134.09	1601	8053	64	12	18.8
	Pokhara Lekhnath Metropolitan City	5	540.68	946	4493	60	19	31.7
	Sub-total	11	674.77	2547	12546	124	31	25.2
Begnas	Kalika	7	156.25	1659	8344	73	15	20.55
	Majhthana	22	400.46	1239	6496	204	83	40.7
	Pokhara Lekhnath Metropolitan City	3	513.58	837	3870	32	12	37.5
	Sub-total	32	1070.29	3735	18710	309	110	32.9
Rupa	Hansapur	7	450.38	615	2766	67	23	34.3
	Majhthana	6	288.26	372	2019	58	17	29.3
	Pokhara Lekhnath Metropolitan City	11	540.68	946	4493	60	19	31.7
	Sub-total	24	1279.32	1933	9278	185	59	31.8
Riparian Area	Aarbabijaya	4	80.97	257	1504	36	15	41.7
	Bharat Pokhari	19	1055.78	1770	10899	185	84	45.4
	Kahun	6	100.73	618	3280	64	29	45.3
	Kalika	18	363.37	2188	11176	182	56	30.8
	Nirmalpokhari	6	233.63	659	3790	60	21	35.0
	Pokhara Lekhnath Metropolitan City	55	1494.96	5865	29626	562	199	64.7
	Sub-total	108	3329.44	11357	60275	1089	404	43.8
	Total	343	12715.43	42703	219866	3712	1286	32.2

Source: DFO Kaski, 2016



Forests Associated with Khaste & Neureni Lake Basin (Pokharel S. 2012).

3.8.3 Regulatory services

An economic assessment of the regulatory services from the biodiversity and forested watersheds and water body of Phewa Lake was estimated at USD 279,000 (CSUWN 2012; Ramsar 2016). The total regulatory services from the entire lake system has to be assessed.

3.9 Management of Forests

All national forests in the lake cluster are under community management. About 0.22 million persons comprising 425,703 households are organized under 343 CFUGs that represent 127 km² of community forests (Table 9). Because of these community forests, the forest cover is more than 93 km² the extent indicated in the landuse data for the cluster. The statistics also have some overlapping of community

forests in few wards of one or two VDCs, contributing to additional discrepancies that have to be resolved through better mapping, interpretation and verification.

Of the total forests in basin, the density of community forest users in Phewa is highest (with more than 63,000 persons in 12,000 households that manage 38 km² of forests), followed by Khaste & Neureni and Begnas, Rupa, and Dipang. Gunde lake basin has only one community forest.

The executive membership of all 343 community forest groups include over 3,700 members. The average women representation in the committees is 32%. However, communities in Gunde lake basin has over 40% of women representatives.

Chapter 4

Climate Change and Vulnerability of Lake Cluster Pokhara Valley

4.1 Evidence of Climate Change

Climate models predict that the temperature in Nepal will increase by 1.4°C by 2030, 2.8°C by 2060, and 4.7°C by 2090 (MoE 2010). Nepal is already experiencing an increasing warming trend, with an average increase of 0.7°C annually (Bajracharya *et al.* 2007). This rise in temperature may increase evapotranspiration rates from the lake and increase humidity in the valley (Trenberth 2011; Agarwal *et al.*, 2014), that could in turn affect precipitation regimes and river and stream hydrology (Agrawala *et al.*, 2003; Chaulagain 2006), with impacts on lake ecology. The changes will very likely affect species, natural communities, availability of sustained and regulated water for irrigation, drinking, other daily and commercial uses. Thus, climate change is likely to become one of the most significant agents of biodiversity loss and impacts on people and economic development (CBD 2009).

Trends in temperature change

There is an increasing trend in the inter-quartile range of maximum and minimum monthly temperatures. Over the past 30 years (1981-2011), the maximum and minimum average temperatures have increased by 0.81°C and 0.2°C, respectively. The temperature has increased at the rate of 0.04°C per year in the month of May (Dixit *et al.*, 2014). The average winter temperature has increased slightly, particularly in January. The impact of the temperature change is expected to increase during drought periods (Dixit *et al.*, 2014). Kaski district is ranked low for vulnerability in the Drought Vulnerability Index (0.181-0.331) (MoE 2010)

Trends in precipitation change

The average total precipitation in Pokhara Valley over the period of 25 years (1985-2010) is 4,062 mm, with an average of 128 rainy days annually and a maximum of 164 rainy days in 1985 (DHM/Nepal 2012). The highest rainfall was recorded during the monsoon of 1988, with total rainfall was 4,937 mm. Seasonal precipitation trends in the same period shows a total average rainfall of 473 mm during the pre-monsoon period, 3,336 mm during the monsoon, 171 mm during the post-monsoon, and 82 mm in winter. The highest and lowest mean monsoon rainfall in the region is 1,236 mm and 506 mm, respectively (Dixit *et al.*, 2014). Mean maximum winter rainfall is 63 mm, with an average

Box 1: Community perceptions on climate change and potential measures against climate impacts

Q: Who are the major actors involved in climate change?

Response: Local community (CFUG, Lake Mmanagement Committee, mother groups, Jalahari, farmers, government, non-government bodies.

Q: What are the climate issues in upstream basins?

Response: Temperature rise, erratic/intense rainfall pattern, forest fire, thunderstorm/hailstorm/lightning, water source depletion, increase in landslides, erosion and siltation, reduction in local races of agrobiodiversity (crops and fishes), etc.

Q: What are the climate issues in downstream basins?

Response: Temperature rise, change in rainfall pattern, landslides, erosion, siltation, decrease in lake area, decline in water sources, increase in invasive alien species, loss of local races of aquatic species.

Q: What are the community responses to adapt to climate change?

Response: Increase forest cover through conservation practices such as agroforestry, control gully erosion, protect water sources, raise awareness, construct embankments, and activate Lake Management Committees.

Source: Assessment Study 2016

of 27 mm. Climate projections by OECD (2003) and IPCC (2007) indicate that the annual precipitation will increase throughout the country. In general, pre-monsoon and monsoon will increase and winter rainfall decrease variations (Nicholas Institute 2011).

Community responses and perceptions of climate change

Local communities report that the frequency of forest fires, thunderstorms, lightning, and hailstones have increased in recent years. Increases in temperature, rainfall (amount and intensity), and changes in number of rainy days might accelerate the spread of invasive species thereby reducing

Box 2: Vulnerability Scenario in Lake Cluster Pokhara Valley

Indicators	Scenario	Sensitivity	Impact	Response
Temperature	Increasing	Increase drought, forest fire, evaporation, high weathering	Water level declined	Ecosystem based adaptation
Rainfall	More erratic/intense	Decrease water sources, increased erosion and landslides	Quality and quantity of lake water decrease	Water source protection, conservation, river training
Sediment flow	Likely increase	Highly affected	Decrease lake area and depth	Gully control, stream bank protection
Evaporation	High in dry months	Change in water budget	Decrease water level	Forest and water conservation
Invasive Species	Likely to increase	Highly	Impact on water quality and aquatic life	Upland farming, city waste management
Eutrophication	Likely to increase	Likely increased algal population and invasive species	Impact on water quality and aquatic life	Upland farming, city waste management, green enterprise
Non- climatic: encroachment	Likely to increase	Decrease lake water from siltation	Impact on lake management	Lake boundary, strong lake governance

Source: Field Assessment 2016

agriculture yields, loss of indigenous biodiversity, changes in ecosystem compositions, drying up of water sources, and enhance climate-related hazards (Box 1). Additionally, direct anthropogenic, non-climatic activities such as road building, urban growth, and influx of large numbers of tourists will lead to an increase in the number of hotels, haphazard expansion of the road network, and increase vehicle traffic, causing pollution and other forms of environmental degradation of the lake ecosystems. The climatic and non-climatic stressors could act in synergy to affect the structure, functioning, and stability of the lake ecosystems throughout the Pokhara valley lake cluster.

4.2 Climate Vulnerability Scenario in LCPV

Climate vulnerability² is the combined result of topography, climate, geological instability, political conflict, and unsustainable human interventions (ICIMOD 2007). In the LCPV, anthropogenic activities,³ make the lake ecosystems and the area communities more vulnerable to natural hazards. Box 2 summarizes the climate vulnerability scenario in LCPV.

4.3 Vulnerability Assessment of the Lakes

The vulnerability rank of Kaski district is moderate (0.356-0.600) (MoE 2010). But moderate vulnerability may add more complexities to the *Himalayan Dilemma* from the potential effects of climate change (Ives and Messerli 1989; Sharma *et al.*, 2000). The National Adaptation Plan of Action has already ranked Kaski district as being highly vulnerable to landslides (MoE 2010), which reflects the present climate vulnerability trends in the LCPV (Figure 13). The vulnerability trends are based on exposure, sensitivity, and adaptive capacity determined through field assessments that looked at the current exposure of the lakes to landslides, intense floods, and siltation. Lakes are overstressed from encroachment, siltation, pollution, and invasion by alien species (Figure 13).

Encroachment: All lakes are being encroached, but is higher in Phewa and Rupa. In Rupa, the lake surface area and volume of water and depth is decreasing. The surrounding areas are used for cultivation and settlement. The community response is that the surface area and depth of Rupa has declined by about 50% over the past century. Phewa lake is also being encroached (Table 10), for

² Vulnerability is assumed to directly proportionate to exposure and sensitivity, and inversely proportionate to adaptive capacity.

³ Anthropogenic activities such as road connectivity; tourism and unplanned infrastructure development; encroachment, pollution; siltation; invasive species; algal bloom; and land degradation

Indices		Lakes of LCPV							
		Phewa	Kamalpokhari	Gunde	Khaste	Neureni	Dipang	Maidi	Begnas
Encroachment	↑	→	→	→	→	→	↑	→	↑
Siltation	↑	→	↑	↑		→	→	↑	↑
Pollution	↑	↑	↑	↑	→	↑	↑	↑	↑
Invasive species	↑	↑	↑	↑	↑	↑	↑	↑	↑

Note:	Low	Medium	High	Very High	None	→	Constant	↑	Increasing	↓	Decreasing
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Figure 13: Vulnerability Matrix of Individual 9 Lake in LCPV 2016

Table 10: Change in Lake Area

SN	Parameters	Phewa*		Rupa**	
		1988	2011	1978	2011
1	Surface area (sq. km)	4.58	4.11	1.17	1.07
2	Water volume (MCM)	--	--	2.7	2.08
3	Maximum depth (m)	--	--	4.5	3.52
4	Average depth (m)	--	--	2.3	1.95
5	Perimeter (m)	18301	18205		

Source: *Heyojoo and Takhachhe (2012), **Dhakal and Dixit (2013)

settlements, hotels, houses and business enterprises, and for agriculture practices.

Siltation: Phewa Lake is subject to heavy siltation because of landslides and erosion in the Harpan and Andehri Khola sub-basins due to extensive deforestation in the past. Unplanned urban growth and construction of a network of rural roads are also contributing to siltation. For example, 25 rural roads totaling 63 km in Phewa accounts for a 269,752 m³ sediment load. Similarly, the rural road induced landslides contribute about 25,593 m³ of sediment, with an average of 1,024 m³ per landslide (Heyojoo and Takhachhe 2012). Table 11 lists the major silt carrying streams in LCPV.

Pollution: Chemical fertilizers, pesticides, and disposal of solid, sewage, and liquid wastes in the lakes and their

Table 11: Rivers and Streams Accountable as Silt carriers in Lakes of LCPV 2016

Lakes	Siltation sources
Phewa	Bhumdi, Marse, Budhimul, Singare, Hadi, Sidhane, Orlang, Andheri, Pokhrebyase, Harpan streams
Rupa	Dovan stream
Begnas	Maladi Khola, Bhalbhali Khola, Leudi Khola, Biruwa Khola, Simale Khola, Chhare Khola, Kusunde Khola, Dobhane Khola, and Shangphudeen Khola
Dipang	Kusunda Khola, Kaura and Khara Khola
Neureni	Thulo and Rote Khola
Kamalpokhari	Bans Khola and Bhanjyang Khola

Source: Assessment Study 2016

basins are the main causes of the pollution in the LCPV. All the lakes are eutrophic. Rupa is largely colonized by blue-green algae. Sewage and liquid wastes from *Phirke* and *Balaundi Khola*, lakeside wastes, waste from *Pame* site, and upstream fertilizer, manure and pesticides are continually being fed into Phewa. In Begnas, urbanization and intensive farming intensify pollution. Nutrient enrichment and waste disposal in the basin is widespread.

Invasive species: The Pokhara lake basin is extensively colonized by the invasive alien plant species, especially by water hyacinth, *Parthenium*, morning glory, and *Lantana camara*. The major invasive alien animal species are African Catfish and Tilapia. These species have especially threatened the Rupa lake ecosystem, posing threats to the survival of native fishes (Chadhauri *et al.*, 2015).

Chapter 5

Institutions, Policies, and Practices

5.1 Legal Provisions

Lakes are the concurrent matters of the state and federal governments, however the Constitution of Nepal has provisioned the Ramsar Sites under jurisdiction of central government. The use of water in Nepal is subject to strict scrutiny by various stakeholders and only 'beneficial use' is permitted. The prevailing lake practices are governed by over two dozen legal provisions under the multilateral environmental agreement, national strategies and policies, and sectoral laws such as Ramsar (1971), CITES (1973) and CBD (1992). The Ramsar Strategic Plan 2016-2024 (RSP) is an important guiding document for management of the LCPV since the lakes are now a Ramsar Site.

The relevant national strategies and policies include, *inter alia*, the National Conservation Strategy (1987, under revision), National Environment Plan and Action Program (1993), National Biodiversity Strategy (2002), Water Resource Strategy (2002), National Wetland Policy (2012), National Irrigation Policy, National Energy Policy, Climate Change Policy (2011), National Landuse Policy (2012), Nepal National Biodiversity Strategy and Action Plan (2014-2020), and National Ramsar Strategy and Action Plan (2018-2024). Lakes in buffer zones of protected areas are regulated through the Buffer Zone Regulations and Guidelines, those in state forests are governed by the National Forest Act, and those in public lands through the Local Self-Governance Act. Except for the Ramsar Strategic Plan and the National Wetlands Policy (2012), none of the other policies and regulations relate specifically to the lakes and their management. Thus, with the uncoordinated and overlapping multiple policies, but no single responsible agency, the conservation management of the lake cluster has been neglected (DNPWC 2010).

The National Wetlands Act, prepared by the Ministry of Forests and Environment⁴, is currently under review by the National Wetlands Coordination Committee (NWCC). The Department of Soil Conservation and Watershed Management, empowered by the Soil Conservation Act, has been tasked with forming a District Soil Conservation and

Watershed Committee, Kaski, under Article 3 (1) to declare the Phewa Protected Watershed. However, none of these committees have been active, perpetuating the neglect of the lakes.

5.2 Institutional Provisions

National actors: Lake Management comes under the purview of several ministries including the Ministry of Forests and Environment (MoFE), Ministry of Federal Affairs and Local Development, Ministry of Agriculture Development, Ministry of Irrigation, and several departments within these ministries.

District and Sub-district actors: The then District Development Committee, Kaski established a Wetlands Cell in 2010 to coordinate activities related to wetlands management. The then Pokhara SM established a Phewa Conservation Office in 2014 to consolidate investments in Phewa. The then Lekhnath Municipality also allocated resources for lakes within its municipality limits.

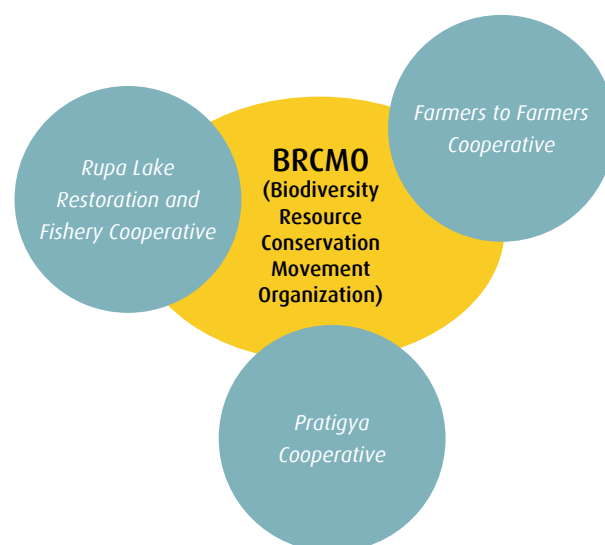


Figure 14: Three Satellite Cooperatives under BRCMO in Rupa-Begnas of LCPV

4 Ministry of Forests and Soil Conservation and Ministry of Population and Environment are now merged together to form Ministry of Forests and Environment (MoFE).

Table 12: Major Government Line Actors for Lake in LCPV

Major Agencies	Major Engagement in LCPV
Pokhara Lekhnath Metropolitan City	Socio-economic and infrastructure development in Metropolitan City
Pokhara Valley Town Development Committee	Infrastructure related to urban development in Pokhara valley
Tourism Office, Pokhara	Tourism infrastructure; Tourism promotional activities
Irrigation Development Division Office	Irrigation infrastructure development and maintenance
District Soil & Watershed Conservation Office	Landslide control; River training; Gully mgmt; Plantation; Agroforestry
District Forest Office	Plantation, management of national and CFs
District Agriculture Development Office	Multi year crops; fruits; Kitchen garden; Coffee; Bee-keeping and drip irrigation services
District Livestock Development Office	Livestock health; Hybrid promotion; Agroforestry
Cottage & Small Industry Office	Registration of private industry; Skill development
Vocational & Skill Development Training Center	Training for skill; Promotion of skill based enterprises
District Education Office	Capacity building; Schools' management
Water Born Disaster Control Sub-Division-2	River training
Nepal Electricity Authority Pokhara	Production and distribution of electricity
District Women & Child Office	Training, skill development and education to women; Small enterprise for women
District Fishery Development Office	Research and fishery promotion
Road Division	Development of strategic road networks and maintenance

Source: DDC Kaski, 2016

The District Soil and Watershed Conservation Office (DSCO) is another important line agency for interventions in soil stabilization and livelihoods in Phewa, Begnas and Rupa lakes. Through past JICA and CARE projects, DSCO implemented projects to the lake basin environments in Rupa and Begnas. Table 12 summarizes other line agencies and their engagement in LCPV.

Li-Bird is an important NGO engaged in agriculture biodiversity research and development at the local level. Since 1996, Li-Bird has helped communities to organize under the Biodiversity Resource Conservation Movement Organization with three satellite cooperatives (Figure 13); i.e., RLRFC, Pratigya Cooperative (PC) and Farmers to Farmers Cooperative (FFC). While the RLRFC has been able to leverage benefits to local communities and the Rupa lake environment, the Biodiversity Resource Conservation Movement Organization is non-functional.

The Seed Foundation is promoting the *Kisan to Kisan* program that engages communities in agriculture, livestock, bee-keeping, and vegetable farming. The Pragya Coopera-

tive implements NTFP-related activities, and has a nursery in the Begnas lake basin. The Machhapuchre Development Organization is engaged in biodiversity-based livelihoods, including orchid conservation in the Panchase area. The Boat Associations in Phewa and Begnas provides recreational boating services for communities in their respective areas.

The Pokhara Valley Lake Conservation Committee acts as an umbrella institution with satellite lake conservation committees in each lake. Most of the committees are funded by the National Lake Conservation Development Committee. USAID funded Hariyo Ban Program is engaged in lake conservation activities, mainly in Phewa, Khaste, Neureni, and Gunde lake basins.

5.3 Management at Lake Basin Levels

Most forests in the lake basins are under community forestry. The MoFE has declared the forests adjoining the Phewa as a Biodiversity Peace Park and has prepared a master plan for management (Table 13).

Table 13: Forest management under Community Forestry in LCPV 2016

Lake Basin	No. of FUG	Area (Ha)	HHs No.	Total Population	Committee Members	No of Women in Committee	% of Women committee
Phewa	110	3741.58	11982	63128	1132	389	35.4
Kamalpokhari	8	230.09	775	4120	94	36	21.7
Gunde	1	570.05	2025	9995	161	66	41.0
Khaste & Neureni	32	905.78	3954	19934	324	99	31.7
Dipang	17	914.11	4395	21880	294	92	26.8
Maidi	11	674.77	2547	12546	124	31	25.2
Begnas	32	1070.29	3735	18710	309	110	32.9
Rupa	24	1279.32	1933	9278	185	59	31.8
Riparian Area	108	3329.44	11357	60275	1089	404	43.8
Total	343	12715.43	42703	219866	3712	1286	32.2

Source: DFO Kaski, 2016

5.4 Ecosystem Management and PES in LCPV

Communities have been maximizing environmental benefits from sustainable conservation of biodiversity and ecosystems in the lake cluster since 2004, mostly due to interventions by Li-BIRD. Some of these include arrangements for PES and natural resources. For instance, the RLRF initiated a nominal charge from each kilogram of fish sold that was used to develop community forests and schools in the upper Rupa lake basin, which were guaranteed Rs. 5,000 annually. This was an incentive to conserve upstream forests and their biodiversity.

An Ecosystem Based Adaptation Project in the Panchase Area also piloted a PES mechanism to link upstream and downstream communities. This initiative extended technical, financial and institutional support to local communities to mitigate sedimentation in Phewa Lake and improve livelihoods of people in the upstream areas.

Recently, USAID funded Hariyo Ban Program successfully facilitated a program that linked the hotel and tourism associations in Phewa with upstream communities, and provided the latter with Rs. 3.2 million to protect the watershed forests.

Chapter 6

Issues, Threats and Opportunities

6.1 Institutional Drivers of Lake Degradation

Conflicting and overlapping policy instruments and institutional responsibilities: There are several strategies, policies, and legal provisions relevant to wetlands and wetland management that places responsibilities and purviews under several agencies. This arrangement with overlap creates conflicts in resource use, governance, and management. The National Lake Conservation Development Committee (NLCDC) under the Ministry of Culture, Tourism and Civil Aviation (MoCTCA) is the only government institution that is specifically tasked with lake management in Nepal. But its institutional, administrative, and technical capacities are poor. The NLCDC also has only a 'Formation Order', but lacks a legal framework. Although the government has commissioned an even higher-level provision for the National Wetlands Coordination Committee (NWCC) under the MoFE to coordinate all wetlands-related programs and issues, the NWCC is not functional. Thus, there is no clear responsibility or strategy for lake management. Thus, there is no synergy; instead, there is conflict and lack of action that hampers effective management. As a result, even small government investments, have not been able to yield significant impacts.

Weak governance: An assessment of six governance pillars (i.e., Institutions, Policy, Participation, Information, Technology, and Finance) in Integrated Lake Basin

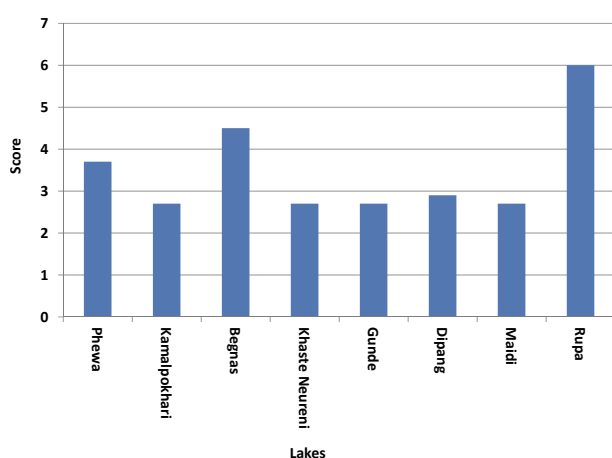


Figure 15: Bar chart on Lake Basin Governance of each lake in LCPV

Management shows that Rupa has a comparatively better governance mechanism, followed by Begnas and Phewa (Figure 15). The scores for the other lakes are similar, and lower, due to sectoral legal frameworks and presence of district line actors within the governance tiers. Without the engagement of line agencies—such as the metropolitan cities, municipality, etc.—lake governance and conservation in Kamalpokhari, Gunde, Dipang, Khaste & Neureni, and Maidi will be non-existent (Annex 14).

Weak technical capacity: Lakes are highly dynamic ecosystems. Wetland experts are required to support management of the lakes and maintain the biodiversity and ecosystem services in a strategic way. The current approach to management is uncoordinated and ad-hoc, and the weak technical capacity and understanding of Integrated Lake Basin Management has not helped to improve the health of wetlands.

Knowledge management mechanism: The CEPA Strategy of Ramsar (2011-2015) and the National Wetlands Policy (2012) intends to produce a range of products and tools to generate conservation education and public awareness on wetlands. This is meant to facilitate the process of change that is oriented towards sustainable and wise use of wetland resources. There is no single mechanism in Nepal that generates information and human resources necessary for healthy wetland ecosystem management and conservation.

Political transition and instability: Nepal's fluid national political scenario has multiple impacts on governance mechanisms necessary to influence institutional and government resources, and implementation of decisions on lake management. For example, former DDC Kaski, POLMC have set criteria for demarcating lakes, but such decisions are never executed. In 2009, NLCDC had funded an earthen dam for restoration of Rupa. But later the fund was transferred for other non-planned tasks with the change of government structure.

6.2 Proximate Threats from Unsustainable Land and Resource Use

Over harvesting and poaching of fishes and the spread of

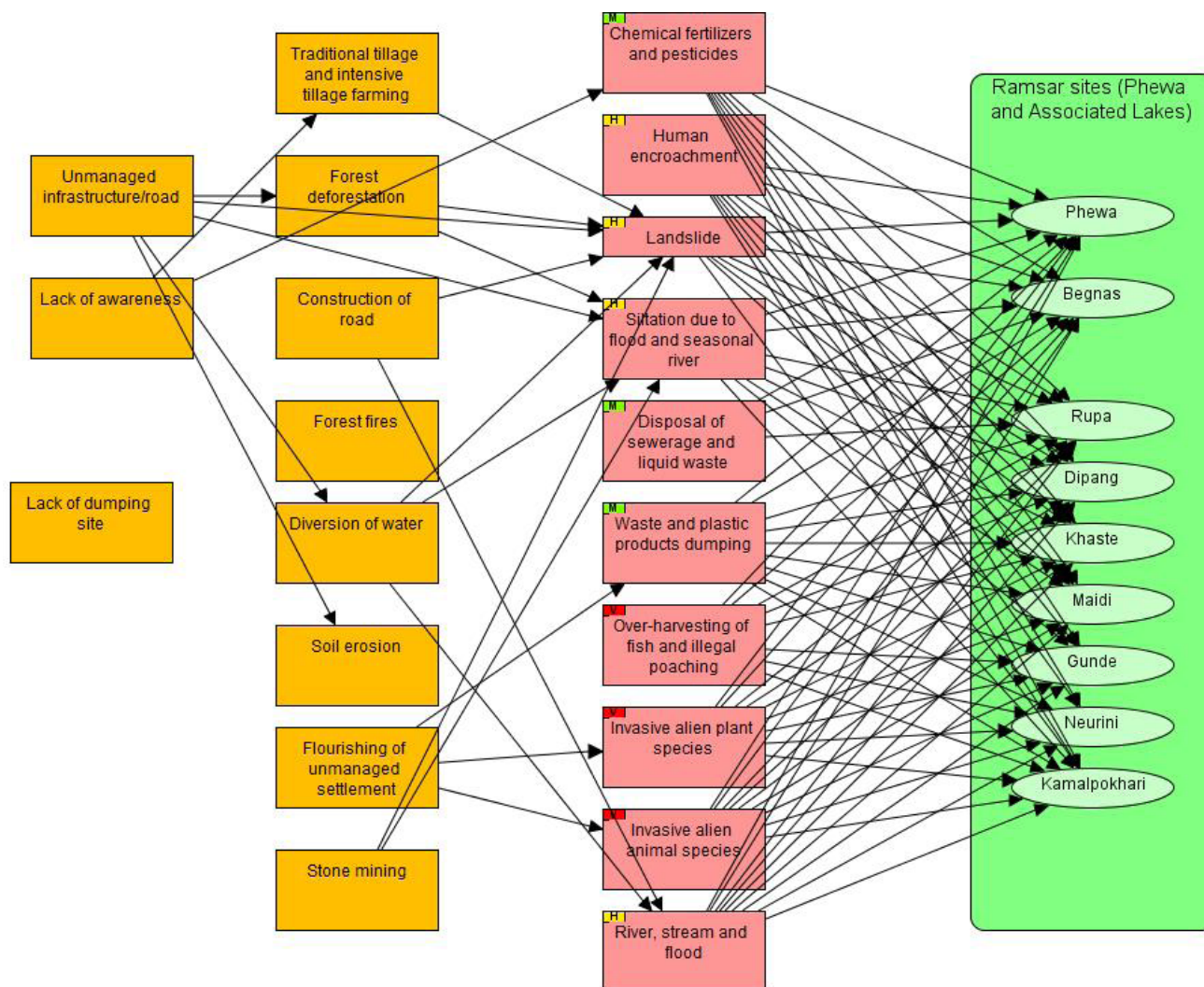


Figure 16: A web matrix of proximate threats in each lake of LCPV

(Source: Field Assessment 2016)

invasive plants and animals were considered the highest threats during a threat assessment, while encroachment into the lake and lake reservation, floods and landslides and consequent siltation were considered to be high threats (Figure 16). Pollution from chemical fertilizers, pesticides, sewage and other liquid and solid waste were considered to be medium level threats. But the relative impacts of these threats within the different lakes in the system are different (Figure 17). Thus, the priorities vary among the lakes, and the interventions to address these threats should be applied strategically and prioritized accordingly. The overall threat rating for the lake cluster was Very High, with Phewa Lake also being rated Very High. All other lakes were rated High for the combined threat impacts.

Unsustainable harvesting of fish and poaching: Over-harvesting of fish and wildlife poaching were considered to be high in Kamalpokhari, Neurini, Begnas, Phewa, and Dipang lakes, and lowest in Rupa lake (Figure 17). These practices have depressed fish populations, and have

affected the presence of birds, especially the migrant populations that depend on fishes for food. Poaching of wildlife has also depressed wildlife species in the lake cluster.

Spread of alien invasive species: The spread of alien invasive plants was ranked Very High in Gunde lake, and High in all other lakes, except Begnas and Rupa, where the threat was Medium (Figure 17). But the threats from alien invasive animals was ranked as High in all lakes. The overall ranks for threats from both invasive animals and plants was Very High for the lake cluster.

Encroachment: Encroachment and reclamation of the lakes and lake reservations are High threats in the lake cluster (Figure 17). Phewa is severely encroached, and Rupa also has high encroachment. But encroachment in the smaller lakes is relatively low (Figure 17). Encroachment is primarily due to reclamation and conversion of the reservation for urbanization and related structures, and for

Threats \ Targets	Kamalpokhari	Neurini	Begnas	Khaste	Phewa	Maidi	Rupa	Gunde	Dipang	Summary Threat Rating
Landslide	Medium		Medium	Medium	High	High	High		Medium	High
Chemical fertilizers and pesticides	Medium	Low	Medium	Medium	Medium	Medium	Medium	Medium	Medium	Medium
Over-harvesting of fish and illegal practices	High	High	High	High	High		Low	Medium	High	Very High
Waste and plastic products dumping	Medium	Low	Medium	Low	Medium	Low	Low	Low	Medium	Medium
Siltation due to flood and seasonal river	Medium		Medium	High	High	Medium	High	Low	Medium	High
Human encroachment	Low	Low	Low	Low	High	Low	High	Low	Low	High
Invasive alien plant species	High	High	Medium	High	High	High	Medium	Very High	High	Very High
Disposal of sewerage and liquid waste			Low		High		Low			Medium
River, stream and flood	Medium	Medium	Medium	High	High	Medium	High	Medium	Medium	High
Invasive alien animal species	High	High	High	High	High	High	High	High	High	Very High
Summary Target Ratings:	High	High	High	High	Very High	High	High	High	High	Overall Project Rating: Very High

Figure 17: Magnitude of threats in each lake of LCPV

agriculture. Some of the structures include roads, poorly constructed small houses, government buildings (e.g., municipality guest house, Armed Police Office and quarters), and squatter settlements along the shoreline and in the lake reservation. As a result, there has been a significant reduction in the lake area, especially in Phewa.

Areas, both up and downstream of Rupa, have been reclaimed for agriculture. Infrastructure, including concrete buildings and road networks are being constructed to the south of *Satmuhane Bazaar*. Encroachments for agriculture and real estate are also spreading in both Maidi and Kamalpokhari.

Siltation. The ecological integrity of the lake cluster is threatened by siltation, especially from silt and sediments carried and deposited from the rivers. Siltation is highest in Phewa, Khaste, and Rupa lakes (Figure 17). Phewa is the sink of *Hapan* and *Andheri Khola*. *Seti Canal*, *Bulanudi* and *Phirke Khola* are the main carriers of urban garbage. Siltation has reduced Phewa by more than 50% in area within 5 decades (JICA/SILT 2002).

Dovan and *Khurlung Khola* inputs tons of silt into Rupa, and is further aggravated by the construction of temporary roads within the watershed area. As a result, Rupa Lake has lost >60 percent of the original water body (Oli 1996), which by 2000, was only 0.12 km² (Erica 2007). Siltation is less severe in Begnas, Kamalpokhari, and Maidi.

The primary causes of siltation are deforestation of the surrounding watershed areas, poorly planned and

constructed infrastructure, diversion of water, and gravel and stone mining in ecologically sensitive areas (Figure 17).

Landslides. Landslides in the surrounding watersheds are considered to be one of the primary sources of siltation and degradation in Phewa, Maidi, and Rupa lakes. Most of the landslides are caused by deforestation of the surrounding slopes, unmanaged and poorly constructed roads and other infrastructure, and poor agricultural practices (Figure 17).

Pollution. Pollution from agricultural chemicals, sewage, and other liquid and solid waste was prevalent in all lakes, although disposal of sewage was low in Begnas and Rupa lakes (Figure 17). Despite the picturesque setting, Phewa is the most polluted lake in the cluster because of sewerage outfalls, solid waste disposal, and agricultural run-off. *E. coli* counts in the lake was 39-123 units/100 ml, while over 125 mt of solid waste is dumped into the lake together with >100 kg of soaps and detergents from laundry activities in the lake (Pokharel 2009). Eutrophication of Phewa in the early 1990s caused an algal bloom that resulted in mass fish kills and health impacts to local communities. Although the severity of pollution in other lakes is lower, the inputs of solid waste is increasing and should be addressed through proactive interventions.

6.3 Opportunities

Despite threats and challenges, there are enormous opportunities for conserving the lake cluster.

LCPV is an integral component of the Chitwan-Annapurna Landscape. The Chitwan Annapurna Landscape Strategy and Action Plan (2016-2025) approaches conservation at the Gandaki Basin scale, and includes strategies for the conservation management of the aquatic systems. Thus, the lake cluster fits within this strategic plan, which provides the large scale perspective for integrated basin management, and will treat the management of the lake cluster as a priority.

LCPV has already implemented ecosystem service and PES projects. There are opportunities to broaden and replicate the PES and ecosystem-related projects that have already been piloted in some areas of the lake cluster. These projects, when replicated at the basin scale, can become models for basin management for Nepal and globally. National investment in this lake cluster is therefore important

Past learning from Ecosystem Based Approach (EBA) from Panchase Area already documented for further implementation. Recent learnings from the EBA piloted in Panchase Area with MoFE/UNDP/IUCN involvement is a comparative advantage for further implementation and expansion. This learning recommends bioengineering to stabilize road slopes, rehabilitate degraded lands, expand agroforestry, and change cropping patterns and land use in the upper catchments of *Dhikurpokhari*, *Kaskikot*, *Bhaduretamangi*, and *Phumdibhumdi* VDCs to address soil erosion. It also recommends the gradual replacement of traditional cereal crops to climate smart, perennial crop production systems and agro-forestry practices to stabilize slopes and reduce the vulnerabilities of farmer communities. These recommendations are relevant and can be introduced to other areas of the lake cluster.

Institutional and policy reforms. The State is in the process of political transformation under the intended federal structure. This process will require enormous energy and resources to adjust, amend, and reform institutions, policies and legal instruments. The lake cluster can be an example of how this transition can take place, and to empower the

Metropolitan City and Municipalities to administer plans and programs of the LCPV as a Ramsar Site, which has international significance.

LCPV holds high social capital.

- ▶ The LCPV holds many active community-based non-governmental and governmental institutions that can facilitate smooth implementation of the programs and actions.
- ▶ Kaski district has a low poverty ranking, and the relative prosperity of the people offers opportunities for initiating activities focusing on enhancing economic prosperity.
- ▶ The proximity to nearby cities and capital make the lake cluster area very accessible from different parts of the country, and is an opportunity to increase tourism and businesses that can be part of an emerging Green Economy.
- ▶ The Government of Nepal has embraced several policies for wetland management in Nepal that will create an enabling environment for sustainable management of the lakes.
- ▶ The DCC and municipalities have a lake basin governance focal unit which can effectively coordinate the conservation and development activities in the LCPV.
- ▶ A considerable amount of private funds has already been invested in few lakes, creating a foundation on which to build a more holistic, basin-scale conservation program.
- ▶ The Government of Nepal has also committed over NRs 1 billion for improvement of Rupa Lake, that reflects the direction and priorities of the of government towards conservation of the country's lakes and wetlands vis-à-vis its development paradigm.

Chapter 7

The Management Plan of the Lake Cluster of Pokhara Valley

The LCPV is the most important wetland of Nepal. It contributes significantly to national and local economy and local livelihoods. It is an important freshwater ecosystem that supports and sustains vital ecosystem services, and, its biodiversity has been recognized as a Global heritage under the Ramsar Convention. This integrated management plan is designed to conserve and ensure the sustainability of these attributes. Because the wetland is a Ramsar Site, the plan is also aligned with the mission of the Ramsar Convention and its management guidelines; i.e., “conservation and wise use of all wetlands through local and national actions and international cooperation, as a contribution towards achieving sustainable development throughout the world”, and the goals envisioned in the National Wetlands Policy (2012) of Nepal.

7.1 Vision

The Lake Cluster of Pokhara Valley contributes and supports the socio-ecological integrity of the basin with long-term prosperity of communities and the country.

7.2 Strategic Goal

In view of Nepal’s successful experiences in community-led management of natural resources, the strategic goal of this plan is “to manage the Lake Cluster of Pokhara Valley through an integrated lake basin approach that will restore the degraded environment to a near-natural condition that provides and sustains ecosystem services and goods for socio-economic prosperity, and ensures persistence of indigenous biodiversity”

Figure 18 provides a generalized illustration of the strategic outcomes under this goal.

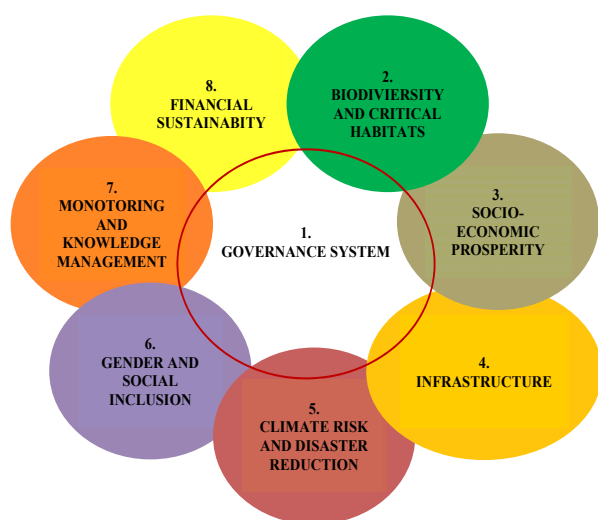


Figure 18: Strategic outcomes of Management plan of LCPV

7.3 Guiding Principles and Approach

Effective lake basin governance is pivotal

This plan has a basin scale perspective that includes the water body and watershed. Thus, governance related to lake management will extend to watersheds of the lakes in the cluster. Management will also require a good understanding and familiarity of the dynamics of the entire basin, and take an integrated approach that engages the range of relevant stakeholders and actors.

Construction, design, and of infrastructure to minimize impacts

Because infrastructure development is a major contributor to lake degradation, all planning related to design, and construction will be adapted to ensure near zero impacts.

Integrated Lake Basin Management (ILBM) approach

ILBM is a management prescription that advocates strengthening existing governance practices. This prescription will help to attain sustainable management and good governance of the lake cluster through a spatially and thematically holistic and integrated approach.

Adopting lessons from previous pilots and lessons learned

This plan will adopt, adapt, and include lessons learned especially from the Ecosystem Based Adaption pilot initiative in the Panchase Area.

Adopting PES at all levels

PES will be a central principle to ensure sustainability of conservation management of the lake cluster. PES will also help to mobilize and engage local communities and business interests in lake management, and to ensure fair and equitable benefit sharing.

Knowledge management

Knowledge management is crucial to understand the complexities of wetlands and ecological dynamics, and to be able to communicate, measure, and monitor progress.

Global networking

The plan will include a mechanism to coordinate and influence global institutions and agreements such as Ramsar, International Lake Environment Committee Foundation (Japan), Wetlands International, IUCN, WWF, and UNEP. The mechanism will improve networking capacity, technical and financial ability, and advocacy capacity of Nepal to share learning from wetlands for socio-ecological prosperity, and to leverage global assistances.

7.4 Strategies for Thematic Areas

The strategic themes and corresponding key actions for this plan are as follows:

A. Thematic area: Governance system

Because of the weak system of governance for wetlands, the complex ecosystem dynamics of the LCPV, and recognizing the importance for an efficient, streamlined system with a dedicated responsibility to ensure ecological integrity and socio-economic prosperity of the communities, this thematic area is strategic. It will seek to establish a separate management entity that will be focused on managing the LCPV, will be equipped to deal with multisectoral and multistakeholder coordination, and ensure financial sustainability in harmony with Articles 3.2; 4.6; 4.8; 4.10; 5.1.4; 5.1.8 and 5.3 of the NWP (2012), Goal 1 Drivers of Wetlands Loss and Degradation (Target 1, 2, 3) of the RSP (2016-2024), and Principles 4; 5; 6 and 7 of the WLV (2007).

B. Thematic area: Biodiversity conservation and ecosystem services

Recognizing the biodiversity values of the lake cluster and the spirit of the RSP (2016-2021) that states “...the largest changes in loss of wetlands continue to be from unsustainable agriculture and extractive industries, ..., the impacts of population growth (including migration and urbanisation) and changes in land use that override environmental considerations. Addressing and engaging the drivers behind these pressures on wetlands is a condition for limiting, adapting to, and mitigating their impacts. Realization of this fact and its consideration in planning and decision-making requires that wetland resources and wetland ecosystem benefits are measured, valued and understood widely within societies” (under Para#35), the LCPV is obliged, as a Ramsar Site, to respect this core essence of the RSP under Goal 2 (Effectively Conserving and Managing) and its Targets 5 and 7, as well as under Principles of 1 and 2 of the WLV (2007), and in accordance with Articles 5.16, 5.1.7, 5.1.10, and 5.1.12 of the NWP (2012). This thematic area provides for biodiversity conservation, valuation of ecosystem services (including PES mechanisms), management of invasive species, conservation of indigenous species (including crop varieties), plan-based management of ecosystems, and conservation of critical habitats for sustainable lake health and prosperity of people.

C. Thematic Area: Socio-economic prosperity

The Pokhara Lake district is a prime tourist destination; thus, the potential for linking nature-and adventure-based tourism to improve socio-economic prosperity with environmental conservation is very high. This theme is concordant with Article 5.2 of the NWP (2012) and in line with RSP Goal 3 (Sustainable & Wise Use) under Targets 9 to 12, which are to create economic options through entrepreneurship mechanisms that can retain local youth in areas as human capital.

The expected outcome, and proposed strategies and key actions are below.

Expected outcome 1	Empowered Lake Basin Governance System for the LCPV is institutionalized, and contributes to strong inter-sectoral coordination with meaningful public participation
Strategy 1.1	Formulation of a specific institutional mechanism and legal framework for implementation of management plan
Key Strategic Actions	Create and institutionalize the Pokhara Valley Lake Cluster Conservation Unit Formulate an enabling legal instrument for the Pokhara Valley Lake Cluster Conservation Unit Incorporate local level lake management practices into sectoral management frameworks
Strategy 1.2	Strengthening multi-sectoral and multi-stakeholder coordination and capacities
Key Strategic Actions	Identify key stakeholders and strengthen their capacities for lake management activities at different levels Strengthen vertical and horizontal coordination mechanisms with appropriate protocols and guidelines

The expected outcome, and proposed strategies and key actions are below.

Expected outcome 2	Ecosystem health and integrity is maintained to sustain ecosystem services and conserve indigenous biodiversity in the LCPV
Strategy 2.1	Active conservation, management (wise use) of biodiversity (especially wetland birds, native fishes, and indigenous/traditional crop varieties and wild relatives), critical habitats, and ecosystem services to reduce impacts from current and emerging threats
Key Strategic Actions	Conduct a comprehensive baseline documentation of biodiversity and threats to their persistence in each lake in the cluster Identify and value the ecosystem services of the lake cluster Identify and manage critical species and habitats of lake cluster and basin areas according to specific management plans, based on the baseline surveys and ecosystem valuations Develop and implement sustainable use and extraction plans (that include green enterprise-based approaches) for biodiversity resources for each lake in the cluster Control invasive plant species (especially water hyacinth) through sustainable use to support livelihoods. Document culture and practices related to use of indigenous and traditional crops, and develop incentive mechanisms (e.g., niche marketing) to promote practices Promote native fish farming and sustainable harvesting

The expected outcome, and proposed strategies and key actions are below.

Expected outcome 3	Socio-economic prosperity of lake basin communities is enhanced
Strategy 3.1	Promotion of lake-based nature and adventure tourism
Key Strategic Actions	Develop a cluster-level supplementary tourism development plan with emphasis on nature, culture, and adventure-based tourism Build tourism infrastructure in a planned and strategic way that takes advantage of the natural environment with minimal impacts Engage private sector and communities in nature and adventure tourism in the lake cluster Promote responsible tourism and practices among visitors, operators, and responsible businesses Explore potential, and implement if feasible, for a tourism tax or surcharge for environmental conservation in LCPV
Strategy 3.2	Promotion of sustainable agricultural practices
Key Strategic Actions	Promote perennial crops (to replace annual crops) that require less frequent and less intensive tillage, especially on steeper slopes (e.g., shade coffee, shade tea, fruit, agro-forestry), to stabilize slopes in the watershed and lake reservations Promote conservation farming Develop niche and branded products for local, national, and international markets for value addition
Strategy 3.3	Development of lake-specific business enterprises
Key Strategic Actions	Support establishment of lake-specific business enterprises and link it with wider network
Strategy 3.4	Promotion of sustainable water resources and clean energy technology
Key Strategic Actions	Promote sustainable water use and conservation practices Promote alternative energy

The expected outcome, and proposed strategies and key actions are below.

Expected outcome 4	Environmental degradation and natural disasters from large infrastructure projects are minimized through better planning and designs.
Strategy 4.1	Promotion and development of better planning, designs, and siting of climate-smart, disaster-resilient infrastructure
Key Strategic Actions	Develop guidelines for environment friendly lake basin infrastructure planning and design Formulate and implement good urban waste management/recycling plans and mechanisms, and sewerage systems for treatment and disposal Retro-fit existing sewerage systems to prevent direct discharge of urban/domestic sewage and industrial effluents into the lakes Promote green infrastructure and earthquake-proof structural designs Use bioengineering and other structural measures to control and restore landslides, and prevent erosion and siltation Build river training structures in key river stretches that are vulnerable to erosion, river cutting, and flooding Develop an electric railway and ropeways to link lakes in the cluster Ensure that proper IEE and EIA assessments are conducted and recommendations are followed in lake basin development

The expected outcome, and proposed strategies and key actions are below.

Expected outcome 5	Climate resilience of ecological and human communities, and infrastructure is enhanced.
Strategy 5.1	Integration of climate change adaptation into management of the lake basin and livelihoods
Key Strategic Actions	Assess and identify vulnerabilities of ecological and human communities to climate change and disaster risks Identify and map the vulnerable sites (erosion, landslides and sediment source) Promote soil and water conservation practices Promote climate resilient crops and agricultural practices, and climate resilient/adaptive trees for reforestation and bioengineering Focus on ecological connectivity and monitoring of key climate sensitive indicator species to facilitate lake management Link upstream-downstream communities for the benefit of lake conservation and to sustain ecosystem services
Strategy 5.2	Promotion of awareness and education programs on climate change and disaster risks
Key Strategic Actions	Raise public awareness on the importance and value of the LCPV as a Ramsar site and vulnerabilities to climate change Conduct awareness programs of the potential risks from natural disasters due to the interplay of ecosystem degradation and climate change on livelihoods, lives, and environment Mobilize, train, and institutionalize a rapid response team to deal with natural disasters
Strategy 5.3	Development and enforcement of climate-smart, and disaster- resilient infrastructure
Key Strategic Actions	Develop guidelines and policies for climate resilient infrastructure design Promote policies to make climate and disaster resilient infrastructure mandatory

The expected outcome, and proposed strategies and key actions are below.

Expected outcome 6	GESI mainstreamed into lake basin management at all levels of implementation, practice, governance, and monitoring.
Strategy 6.1	Social and economic empowerment of lake dependent vulnerable communities
Key Strategic Actions	Establish lake specific or collective cooperatives in each lake with equitable engagement and participation of women and marginalized/ vulnerable groups Develop and implement plans for economic empowerment of women, and marginalized/vulnerable groups.
Strategy 6.2	Facilitating meaningful participation of women and vulnerable and marginalized groups in management of Lake Basin
Key Strategic Actions	Strengthen and actively mobilize engagement and roles of women, poor and marginalized communities in lake conservation and development at all levels Facilitate and support participation of women, marginalized and socially excluded people in leadership roles in lake governance
Strategy 6.3	Mainstreaming GESI in policy, programs, and actions
Key Strategic Actions	Mainstream and implement GESI provisions in policies and guidelines for lake and basin management Ensure meaningful participation of women and marginalized groups in the management of lake cluster

The expected outcome, and proposed strategies and key actions are below.

Expected outcome 7	A functioning, long-term socio-ecological monitoring, and knowledge management system in place.
Strategy 7.1	Long term social and ecological monitoring of the LCPV
Key Strategic Actions	Develop a long-term monitoring plan with detailed protocols and indicators to monitor landuse/land cover, water quality, biodiversity, and socio-economic parameters Establish the infrastructure and systems (hardware, software, institutions, and human resources) necessary to manage and maintain the knowledge management system
Strategy 7.2	Institutionalizing a networked system to develop, manage, and disseminate knowledge about the LCPV
Key Strategic Actions	Strengthen/establish lake information centers and disseminate knowledge products Develop and disseminate knowledge products Support presentations and publications through national and global networking Engage eco-clubs and members as citizen scientists, and network them for lake cluster-scale perspectives through seminars, meetings, and exchange visits

D. Thematic Area: Infrastructure

Poorly planned and designed infrastructure has been identified as a major driver of environmental degradation in the lake basin. This is especially true where infrastructure is built on steeper slopes, along the riparian areas of streams and rivers, and within the lake reservations. The Environment Protection Act (EPA) provides a basis for ensuring that there is minimal environmental damage while pursuing development and the need to take appropriate precautions and mitigations, especially for large infrastructure projects. These provisions are in line with Goal 4 (Enhancing Implementation) and Targets 15 and 18 of the RSP and the Bali declaration of the World Lake Conference (2016).

E. Thematic Area: Climate risk and disaster reduction

Climate-resilient planning began in Nepal with the Three-Year Plan (2010/11-2012/13). Nepal has also prepared a National Adaptation Plan of Action (NAPA) in accordance with the decision of 29/CP.7 of the UNFCCC. Kaski district, which includes most of the LCPV, is ranked 34th for combined risk exposure (0.416, moderate) and 54th for combined vulnerability (0.389, low) but 2nd for combined adaptive capability (MOE 2010). However, it is ranked high (22nd, 0.686) for landslide vulnerability. The landslides result in heavy silt inputs into the lakes. Reversing this trend, especially given the likelihood of an increasing trend expected due to climate change is necessary. This theme, therefore, will complement programs and activities under Combined Profiles of the NAPA, and will be guided by the Climate Change Policy (2011) and NWP (Articles 5.1.15; 5.2.5 and 5.2.3), EPA (1996), and the Local Administration Act (1971).

F. Thematic Area: Gender and social inclusion

Gender and social inclusion (GESI) is one of four pillars of state policies in the poverty reduction strategy, and is also in line with Agenda 21 (Rio Declaration). Nepal has progressive sectoral policies on social development that seek to enhance access and equity issues, and have provisions to target women, the poor, and excluded groups. However, the challenge is to translate these policies and plans into action; therefore, this plan makes GESI one of the major elements for achieving socio-economic prosperity and ensuring environmental integrity in LCPV. This theme will strive to reduce gaps within and between ethnicities, as well as among marginal and disadvantaged groups by providing vocational skills and training, entrepreneurship opportunities, credit for microenterprise startup, access to technology, and market linkages, etc.

G. Thematic Area: Monitoring and knowledge management system

This theme will establish a strong monitoring system in accordance with the National Landuse Policy (2012) and Articles 3.3.3; 5.1.4; 5.1.19; 5.2.14 and 5.3.9 of the NWP (2012), and will be aligned with the monitoring and evaluation requirement of the RSP (2016).

H. Thematic Area: Financial sustainability

Sustainable financing is essential for long term program implementation. This theme is designed to explore innovative mechanisms to develop a sustained financing mechanism, including through PES and accessing global funds.

Expected outcome 8	Management of the LCPV is financially sustainable
Strategy 8.1	Ensuring financial sustainability
Key Strategic Actions	Develop an approved mechanism for financial sustainability of lake cluster intervention
	Secure assured funding mechanism from the government
	Levy Pokhara-based tourism activities (e.g. hotel, flights) for lake cluster management
	Institutionalize PES mechanisms and replicate in areas with potential (Phewa, Rupa, and Begnas)
	Explore and develop innovative funding opportunities (such as Ramsar Fund, Climate Fund)
	Promote private sector engagement for lake-based enterprises

Chapter 8

Implementation Mechanism

The implementation of the plan involves the direct roles of the local government such as POLEMC in all cases except the Rupa Lake. The Rupa Lake is divided under the administration of the POLEMC and the Rupa Rural Municipality (RRM). However, the federal government and state government have backstopping roles to support the local government but key roles for policy formulation, resource mobilization and national and international coordination. Figure 19 illustrates Institutional arrangement for the implementation of management plan of LCPV.

The key roles of each institution for the sustainable conservation of LCPV are described below.

8.1 Institutions

A. The Ministry of Forests and Environment

MoFE is the focal ministry of the federal government responsible for the management of all wetlands of Nepal including LCPV. It has no direct roles in the site-specific wetlands but the wetlands of international importance. Its key roles include:

- Formulation of enabling policy and legal framework for the sustainable conservation and wise use of wetlands in Nepal;

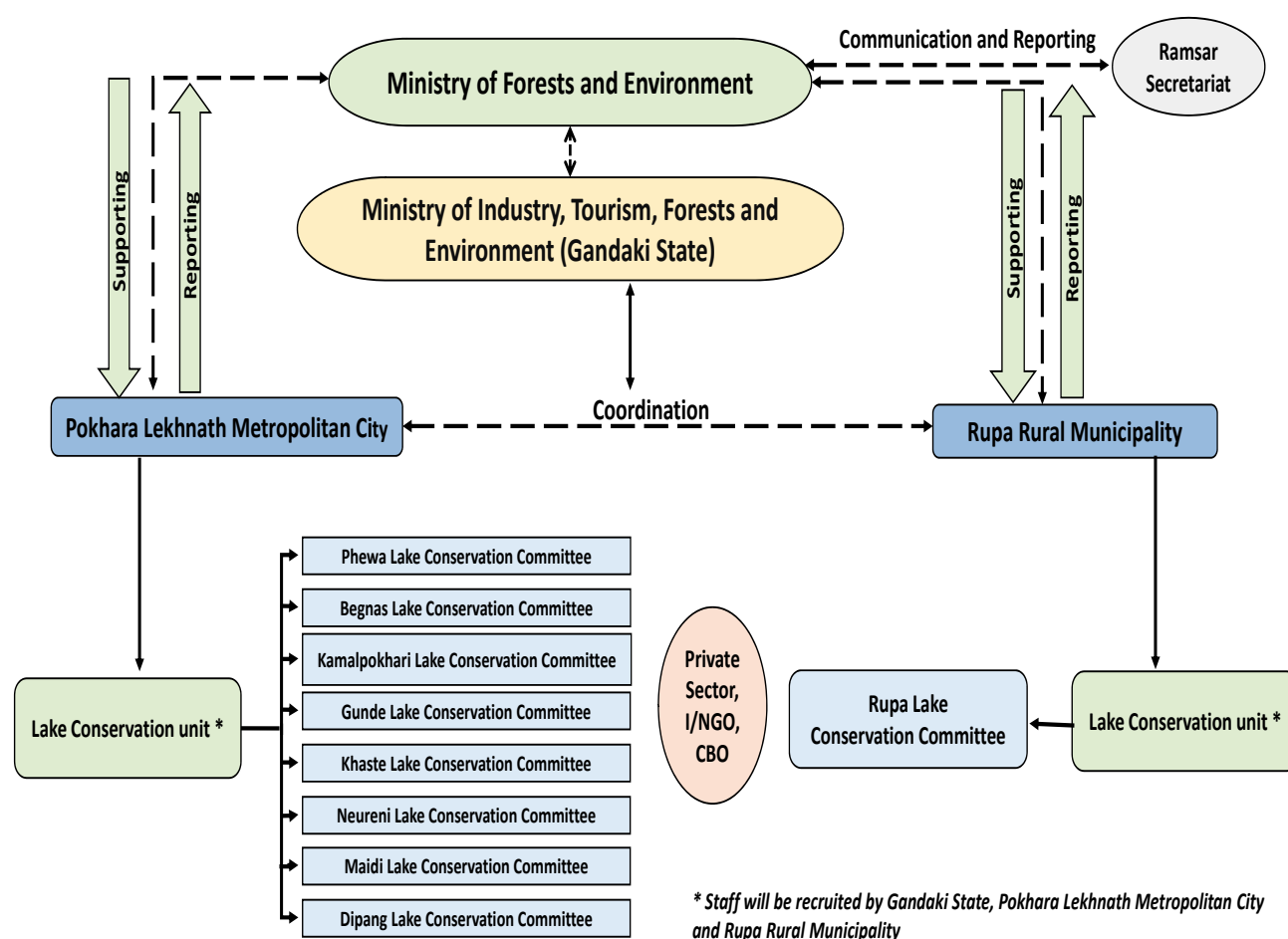


Figure 19: Institutional Arrangement for the Implementation Plan of LCPV

- ▶ Coordination to the Ramsar Secretariat and other wetlands related stakeholders for the fulfillment of the national obligations that Nepal committed through the Conventions, bilateral and multilateral agreements;
- ▶ Coordination among sectoral and cross sectoral entities under the different ministries of GoN that have linkages with interventions in wetlands;
- ▶ Allocation of the federal budget for the sustainable conservation and wise use of wetlands in Nepal;
- ▶ Supervision, monitoring and evaluation of the implementation of wetlands programs and actions, and
- ▶ Update Ramsar Information Sheet (RIS) at every 6 years;

B. The Ministry of Tourism, Industry, Forests and Environment

MoTIFE is the ministry in State 4 obliged for the implementation of all wetlands in the state number 4 of Nepal. However, MoTIFE has following key roles for the implementation of the management plan:

- ▶ Formulation of the enabling policy and legal instruments based on the policy and legal framework of the federal government;
- ▶ Devise and set up of institution for the implementation of the plan;
- ▶ Coordination with MoFE and among other relevant ministries of the state government for the policy implementation and synergy development;
- ▶ Coordination among relevant local governments (Metropolitan city, and Rural Municipality) for the enforcement of policy and legal instruments;
- ▶ Coordination among relevant local governments for linking issues of the upstream and downstream and PES wherever LCPV share its ecosystem boundaries and services;
- ▶ Allocation of the state budget for the implementation of management plan;
- ▶ Establishment partnership in international and national environmental and private institution for the sustainable conservation and wise use of LCPV, and
- ▶ Supervision, monitoring and evaluation of the implementation of management plan.

C. The Pokhara-Lekhnath Metropolitan City, and Rupa Rural Municipality

POLEMC is the key implementing institution of management of LCPV for 8 lakes such as Phewa; Kamalpokhari; Gunde; Khaste; Neureni; Dipang; Maidi and Begnas. In case of implementing LCPV in Rupa lake, RRM and POLEMC collaborates to implement management plan. Other key roles of these institution to implement management plan of LCPV include:

- ▶ Coordination at federal, state and local levels;
- ▶ Implementation policy, enforcement, and restoration of law;
- ▶ Allocation of budget to implement management plan;
- ▶ Implementation of management plan with annual planning and monitoring;
- ▶ Development and transfer of technology appropriate for the sustainable conservation and wise use of LCPV;
- ▶ Establishment of the knowledge management system from the researches and share those knowledge through dissemination mechanism;
- ▶ Capacity building of the local government and non-government personnel including communities for the sustainable conservation and wise use of lake cluster;
- ▶ Engagement of communities' organization and communities including lake dependent one for sustainable conservation and wise use of lake resources for their prosperity;
- ▶ Exploration of opportunities for the national and international partnership and private investment to implement management plan of LCPV so the scale of benefits are enlarged on equitable benefits; and
- ▶ Mainstream PES in up-and-down stream communities for the sustainability of lake environment in the basin of LCPV.

D. The Academia and Media

Academic institution and individual researchers will collaborate with local government, and assist local government to explore scientific information of lakes and their basin environment, and share those information from national and international fora. Similarly, media and their groups will assist federal, state, and local governments to share issues of LCPV from their press and audio-visual media centers to inform different audiences about status and issues of LCPV.

E. The Private Sectors

The private sector will work with local government in a view that their investment will contribute to the sustainable development goals by implementing management plan of LCPV. Other specific roles of private sector include:

- ▶ Development of the entrepreneurship based on sustainable use of lake and basin resources;
- ▶ Investment in the improvement of infrastructure for lake based recreation and tourism, and business linkages; and
- ▶ Partnership for joint investment from the national and international for the sustainable conservation and wise use of lake resources of LCPV and conservation financing.

F. The Community Institutions and Networks

Communities institutions and their network are the direct beneficiaries instrumental for day-to-day actions in implementing management plan. With this regard, learning from the RLRF will be replicated. Lake communities will be brought under lake specific 'Lake Conservation Cooperatives' to carry out following key roles:

- ▶ Management implementation of the plan in lake specific sites;
- ▶ Partnership with local government, national NGOs and intergovernmental institution and private sectors for the sustainable conservation and wise use of lake resources of LCPV;
- ▶ Leveraging the resource from the local government and other resources for sustainable conservation and wise use of lake resources of LCPV;
- ▶ Application of the learning from the EBA and PES for the sustainability of lake basin environment, and mainstreaming climate risk and disaster reduction and social gender and inclusion in all stages of planning and implementation of site specific plan of lakes; and
- ▶ Implement actions for the socio-ecological prosperity in each lake.

G. National and International Environmental Institutions, NGOs and CBOs

The Ramsar Secretariat; UNEP and UNDP are prominent constitution at the global front to assist Nepal to implement different conventions which Nepal is obliged to including the Ramsar Convention. ICIMOD; WWF and IUCN intergovernmental institution with 'wetlands' as one of their major portfolio for the interventions in Nepal. International

Lake Environment Committee Foundation (ILEC) and Wetlands International are key non-governmental global institution which work directly in lakes and wetlands, which will collaborate with local government. Their key roles include:

- ▶ Assist GoN for draft policy and legal instruments towards implementation of the international conventions;
- ▶ Building the technical capacity of GoN and non-governmental institution for the sustainable conservation and wise use of wetlands;
- ▶ Generate knowledge through researches, and disseminate information on the sustainable conservation and wise use of wetlands;
- ▶ Provide grants; and
- ▶ Transfer technology.

National Lake Conservation Development Committee is the government institution that has the formation order to guide its objective to conserve lakes and ponds of Nepal for the biodiversity and tourism based livelihoods Nepal. This institution will continue providing small fund directly to the local communities for the restoration of lakes in LCPV, and capacity development activities.

Many NGOs like BCN; Conservation Development Foundation; Farmers to Farmers; Machhapuchre Development Committee; LI-BIRD etc are active in LCPV. These organization will coordinate with local government to implement management plan by exploring resources from the national and international communities.

8.2 Pokhara Valley Lake Cluster Conservation Unit

Though the wetlands are the sole authority of federal government by constitution, its nature and characteristics are common to all three tiers of the government. Based on prevailing global practices of effective implementation of lake programs and actions, this plan has envisioned Pokhara Valley Lake Cluster Conservation Unit as the institutional device for the sustainable management of LCPV. The Unit will be a functional unit under the administrative jurisdiction of the Pokhara Metropolitan City and Rupa Rural Municipality following the National Wetlands Policy (2012), objectives of the National Ramsar Strategy and Action Plan (2018-2024), and the Goal 1 and Target 1 of the Ramsar Strategic Plan (2016-2024). The governing body of the Unit will be decided based on the local situation. The number of staff will be recruited based on the availability of the fund. As the wetlands are the matters of the federal, state and local governments, a coordination committee can be formed considering to the stakeholders of the lake cluster. The

three government can also provide financial and technical support to the Unit for long-term sustainability, even they can make a special authority to restore the encroached land and rehabilitation of the lake. The Unit will be legally empowered agency which leads, promotes and accelerates sustainable development of the lake cluster, the Ramsar site in Pokhara. Other Specific task of the Unit will be:

- ▶ To protect the ecosystem with all its genetic diversity and augment environmental quality of the lake cluster,
- ▶ To formulate the plan of actions for integrated lake cluster basin management and wise use of the lake's resources by the communities in the firm view of conserving biodiversity and promoting ecotourism,
- ▶ To execute multidisciplinary and holistic developmental activities either itself or in partnership with other agencies,
- ▶ To build federal and local stakeholder's capacities for the integrated management of lake basin of Pokhara Valley,
- ▶ To enhance knowledge through effective knowledge management mechanism for lakes and their resources, and share learning in the national and international fora,
- ▶ To enhance the Ramsar implementation through the national and international cooperation, and
- ▶ To monitor and evaluate the implementation of lake programs/actions in compliance with the national and international obligations.

8.3 Financing

Government budget: The federal, state and local government will allocate budget to implement management plan of LCPV on annual basis. National Lake Conservation and Development Committee (NLCDC) will also support for the implementation of the plan.

PES: The state and local government will coordinate among all stakeholders; financial institutions; trade/businesses; and industrial communities (including hotels and transportation sectors) to impose lake-tax as the means to pay for ecosystem services that lakes of Pokhara Valley are providing to the national and international visitors.

Private investment: The state and local government will initiate conclave and meeting among private sector and business communities such as the Chamber of Commerce/ FNCCI to make investment for the sustainable conservation and wise use of lake resources.

Global fund: The state and local government will set mechanism to prepare investment proposal to leverage global fund like Carbon Trade Fund, Clean Development Mechanism Fund and other fund from REDD+, Global Environment Fund; Swith Asia Fund and so on. Further, local government requires to endorse local and national NGOs to access larger and small fund from the global communities.

Chapter 9

Budget

9.1 Budget Estimate

The total estimated budget for implementation of this plan is NRs. 12,532,166 thousand over a five- year period, under the current exchange rate of US \$ 1 = NRs 109. Of the total estimated budget, the major proportion is to improve socio-economic prosperity (Outcome 3) and reduce the impacts of climate risk and disaster risk reduction in the basin of each lake (Table 14).

Table 14: Estimated Budget for Five Years Activities of LCPV

Name of Lake	Outcome 1	Outcome 2	Outcome 3	Outcome 4	Outcome 5	Outcome 6	Outcome 7	Outcome 8	Total
Phewa	50,850	38,000	1,663,450	3,300	1,843,195	68,400	73,065	63,000	3,803,260
Kamalpokhari	3,400	5,910	223,470	2,300	160,595	9,550	21,589	13,130	439,944
Gunde	5,475	11,420	203,270	800	261,820	3,150	14,467	16,610	517,012
Khaste & Neureni	6,150	29,400	672,115	2,800	573,845	5,150	17,279	18,930	1,325,669
Dipang	5,950	28,530	431,250	2,800	365,525	11,350	18,003	19,380	882,788
Maidi	5,950	9,000	629,570	2,800	303,820	5,650	12,883	19,530	989,203
Begnas	8,360	37,630	2,176,670	2,800	493,850	27,340	26,154	19,505	2,792,309
Rupa	8,110	35,810	1,194,820	2,800	464,060	23,840	26,963	25,578	1,781,981
Total	94,245	195,700	7,194,615	20,400	4,466,710	154,430	210,403	195,663	12,532,166
Percent	0.75%	1.56%	57.41%	0.16%	35.64%	1.23%	1.68%	1.56%	100%

Figure 20 shows the distribution of the budget by individual lake. Phewa being the largest lake will require NRs. 3,803,260 (30%) thousands, with a large proportion devoted to improving the lake basin environment and to improve the linkage between rural communities and the urban environment through improved infrastructure for ecotourism and development. Landslide and gulley erosion control are high priority tasks to reduce the silt loads in Phewa Lake.

The next largest budget allocations are for activities in Begnas, Rupa, and Khaste & Neureni. Much of the earmarked budget for Rupa is to construct a multipurpose earthen dam to retain water volume of each lake, and to establish a zoo in the area between Begnas and Rupa lake close to the *Sundare Danda*. By these ways, Phewa lake takes 30% of total budget of the LCPV followed by Begnas (22%); Rupa (14%); Khaste &

Neureni (11%), Maidi (8%), and Dipang (7%). Each of Gunde and Kamalpokhari takes 4% of the total budget of the LCPV.

Table 15 and Figure 21 present the annual budgetary requirement in each year for individual lakes. Over 7% of the budget is required during Year 1 to conduct technical study and assessments and initiate administrative and contractual task for the structural interventions. By 2nd year, about 55% of total budget will be required for building the physical

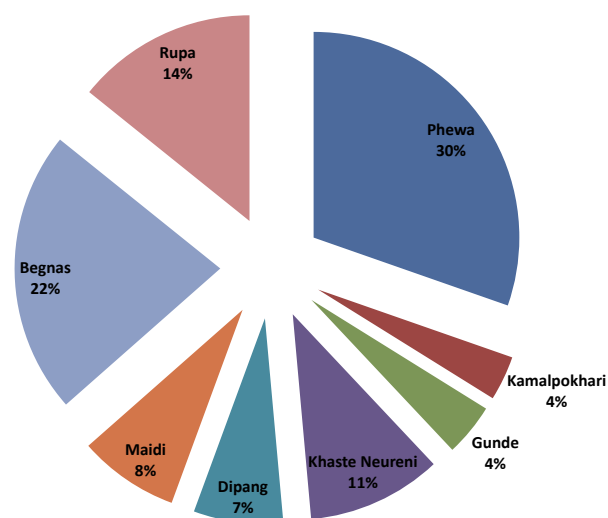
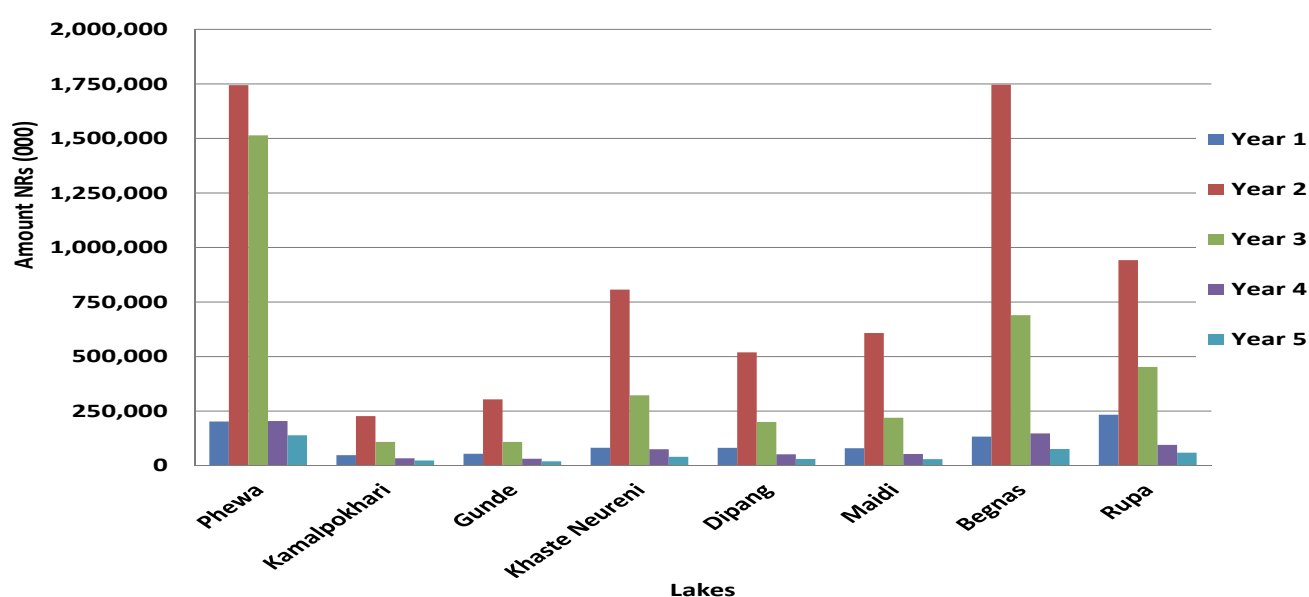


Figure 20: Lake specific budget estimate in LCPV

Table 15: Year-wise Estimated Budget for Individual Lake in LCPV for Five Years Period (Rs. 000)

	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Phewa	201,995.5	1,744,103.0	1,513,946.0	204,261.5	138,954.0	3,803,260
Kamalpokhari	47,707.8	226,655.6	108,434.6	33,641.8	23,504.3	439,944
Gunde	54,175.9	303,568.4	108,371.9	31,255.4	19,640.4	517,012
Khaste & Neureni	81,666.8	806,694.8	322,172.8	74,937.8	40,196.8	1,325,669
Dipang	81,245.1	519,226.6	200,144.1	51,783.6	30,388.6	882,788
Maidi	79,516.1	607,789.6	219,250.6	53,157.1	29,489.6	989,203
Begnas	133,006.8	1,746,146.3	689,454.3	147,594.8	76,106.8	2,792,309
Rupa	233,136.2	941,976.2	452,474.7	95,073.2	59,320.7	1,781,981
TOTAL	912,450.2	6,896,160.5	3,614,249.0	691,705.2	417,601.2	12,532,166.0
Percent	7.28%	55.03%	28.84%	5.52%	3.33%	100%

**Figure 21: Bar chart showing lake specific budget plan in LCPV**

infrastructure, such as silt-traps, dams, road improvement, construction of trails, and tourism-related infrastructure. The 3rd year will continue to accomplish multi-year targets of the first and second years.

Table 16 provides outline of budget requirement based on the outcome on yearly basis of each lake. Phewa is the largest lake with basin. Considering the climate risk as one the major threats, Phewa demands 48.5% of its five-year

budget to address the climate risk and disaster reduction in outcome 5, whereas outcome 3 takes 43.7% of total budget for socio-economic prosperity. Most of the budget of Phewa is used in 2nd and 3rd years. Such trend of budget use in other lakes are a little different. Gunde; Khaste-Neureni; Dipang; Maidi; Begnas and Rupa lakes take the greater proportion of the fund for improving the socio-economic condition of lake basin communities followed by the next higher proportion of budget use to reduce climate risk and disaster associated with it.

Table 16: Outcome and Year wise Budget of Individual Lake of Pokhara Valley

Lake/Year	Outcome 1	Outcome 2	Outcome 3	Outcome 4	Outcome 5	Outcome 6	Outcome 7	Outcome 8	Total	(%)
Phewa										
Year 1	11,670	11,300	35,342.5	2,160	63,090	22,100	43,373	12,960	201,995.5	5.31
Year 2	11,670	14,550	709,710	285	965,275	21,800	7,463	13,350	1,744,103	45.86
Year 3	9,170	5,550	800,150	285	668,460	9,950	7,431	12,950	1,513,946	39.81
Year 4	9,170	3,300	68,177.5	285	96,660	7,400	7,399	11,870	204,261.5	5.37
Year 5	9,170	3,300	50,070	285	49,710	7,150	7,399	11,870	138,954	3.65
Sub Total	50,850	38,000	1,663,450	3,300	1,843,195	68,400	73,065	63,000	3,803,260	100
(%)	1.3	1	43.7	0.1	48.5	1.8	1.9	1.7	100	
Kamalpokhari										
Year 1	1,100	2,155.5	10,093.5	1,360	20,905	3,180	5,567.8	3,346	47,707.8	10.84
Year 2	950	2,154.8	116,867	235	94,475	4,765	4,012.8	3,196	226,655.6	51.52
Year 3	450	926.8	66,690	235	32,670	1,260	4,006.8	2,196	108,434.6	24.65
Year 4	450	336.5	17,678.5	235	8,410	335	4,000.8	2,196	33,641.8	7.65
Year 5	450	336.5	12,141	235	4,135	10	4,000.8	2,196	23,504.3	5.34
Sub Total	3,400	5,910	223,470	2,300	160,595	9,550	21,589	13,130	439,944	100
(%)	0.8	1.3	50.8	0.5	36.5	2.2	4.9	3	100	
Gunde										
Year 1	1,552.5	5,637	11,639.5	160	23,965	2,200	4,955.9	4,066	54,175.9	10.48
Year 2	1,402.5	3,243.5	124,468	160	167,170	800	2,388.4	3,936	303,568.4	58.72
Year 3	840	2,103.5	50,217.5	160	49,660	75	2,379.9	2,936	108,371.9	20.96
Year 4	840	218	9,755	160	15,025	50	2,371.4	2,836	31,255.4	65
Year 5	840	218	7,190	160	6,000	25	2,371.4	2,836	19,640.4	3.8
Sub Total	5,475	11,420	203,270	800	261,820	3,150	14,467	16,610	517,012	100
(%)	1.1	2.2	39.3	0.2	50.6	0.6	2.8	3.2	100	
Khaste & Neureni										
Year 1	1,800	6,676	16,572.5	1,760	42,000	3,730	4,582.3	4,546	81,666.8	6.16
Year 2	1,650	12,428	428,276	260	355,185	1,315	3,184.8	4,396	806,694.8	60.85
Year 3	900	6,983	176,297.5	260	131,100	60	3,176.3	3,396	322,172.8	24.3
Year 4	900	2,094	33,155	260	32,030	35	3,167.8	3,296	74,937.8	5.65
Year 5	900	1,219	17,814	260	13,530	10	3,167.8	3,296	40,196.8	33
Sub Total	6,150	29,400	672,115	2,800	573,845	5,150	17,279	18,930	1,325,669	100
(%)	0.5	2.2	50.7	0.2	43.3	0.4	1.3	1.4	100	
Dipang										
Year 1	1,725	4,721	15,160	1,760	41,260	7,000	4,983.1	4,636	81,245.1	9.2
Year 2	1,525	18,970	268,600	260	217,945	4,125	3,265.6	4,536	519,226.6	58.82

Lake/Year	Outcome 1	Outcome 2	Outcome 3	Outcome 4	Outcome 5	Outcome 6	Outcome 7	Outcome 8	Total	(%)
Year 3	900	2,351	112,390	260	77,350	100	3,257.1	3,536	200,144.1	22.67
Year 4	900	1,244	22,440	260	20,280	75	3,248.6	3,336	51,783.6	5.87
Year 5	900	1,244	12,660	260	8,690	50	3,248.6	3,336	30,388.6	3.44
Sub Total	5,950	28,530	431,250	2,800	365,525	11,350	18,003	19,380	882,788	100
(%)	0.7	3.2	48.9	0.3	41.4	1.3	2	2.2	100	
Maidi										
Year 1	1,725	4,105	18,192	1,760	41,265	3,980	3,703.1	4,786	79,516.1	84
Year 2	1,525	3,082.5	414,828	260	179,687.5	1,565	2,305.6	4,536	607,789.6	61.44
Year 3	900	1,322.5	148,180	260	62,695	60	2,297.1	3,536	219,250.6	22.16
Year 4	900	245	32,480	260	13,612.5	35	2,288.6	3,336	53,157.1	5.37
Year 5	900	245	15,890	260	6,560	10	2,288.6	3,336	29,489.6	2.98
Sub Total	5,950	9,000	629,570	2,800	303,820	5,650	12,883	19,530	989,203	100
(%)	0.6	0.9	63.6	0.3	30.7	0.6	1.3	2	100	
Begnas										
Year 1	2,517	12,060	54,972	1,760	34,141	10,650	12,225.8	4,681	133,006.8	4.76
Year 2	2,117	12,177.5	1,423,228	260	292,782	7,570	3,495.8	4,516	1,746,146.3	62.53
Year 3	1,242	9,412.5	537,865	260	130,584	3,090	3,484.8	3,516	689,454.3	24.69
Year 4	1,242	2,315	109,395	260	24,473	3,040	3,473.8	3,396	147,594.8	5.29
Year 5	1,242	1,665	51,210	260	11,870	2,990	3,473.8	3,396	76,106.8	2.73
Sub Total	8,360	37,630	2,176,670	2,800	493,850	27,340	26,154	19,505	2,792,309	100
(%)	0.3	1.4	78	0.1	17.7	1	0.9	0.7		
Rupa										
Year 1	2,392	11,880.5	27,549.5	1,760	161,497	9,810	12,387.6	5,859.6	233,136.2	138
Year 2	1,992	11,114	737,343	260	174,980	6,870	3,657.6	5,759.6	941,976.2	52.86
Year 3	1,242	5,184	340,497.5	260	94,355	2,530	3,646.6	4,759.6	452,474.7	25.39
Year 4	1,242	3,821	58,965	260	20,210	2,340	3,635.6	4,599.6	95,073.2	5.34
Year 5	1,242	3,810.5	30,465	260	13,018	2,290	3,635.6	4,599.6	59,320.7	3.33
Sub Total	8,110	35,810	1,194,820	2,800	464,060	23,840	26,963	25,578	1,781,981	100
(%)	0.5	2	67.1	0.2	26	1.3	1.5	1.4	100	
Grand Total	94,245	195,700	7,194,615	20,400	4,466,710	154,430	210,403	195,663	12,532,166	
(%)	0.75	1.56	57.41	0.16	35.64	1.23	1.68	1.56	100	

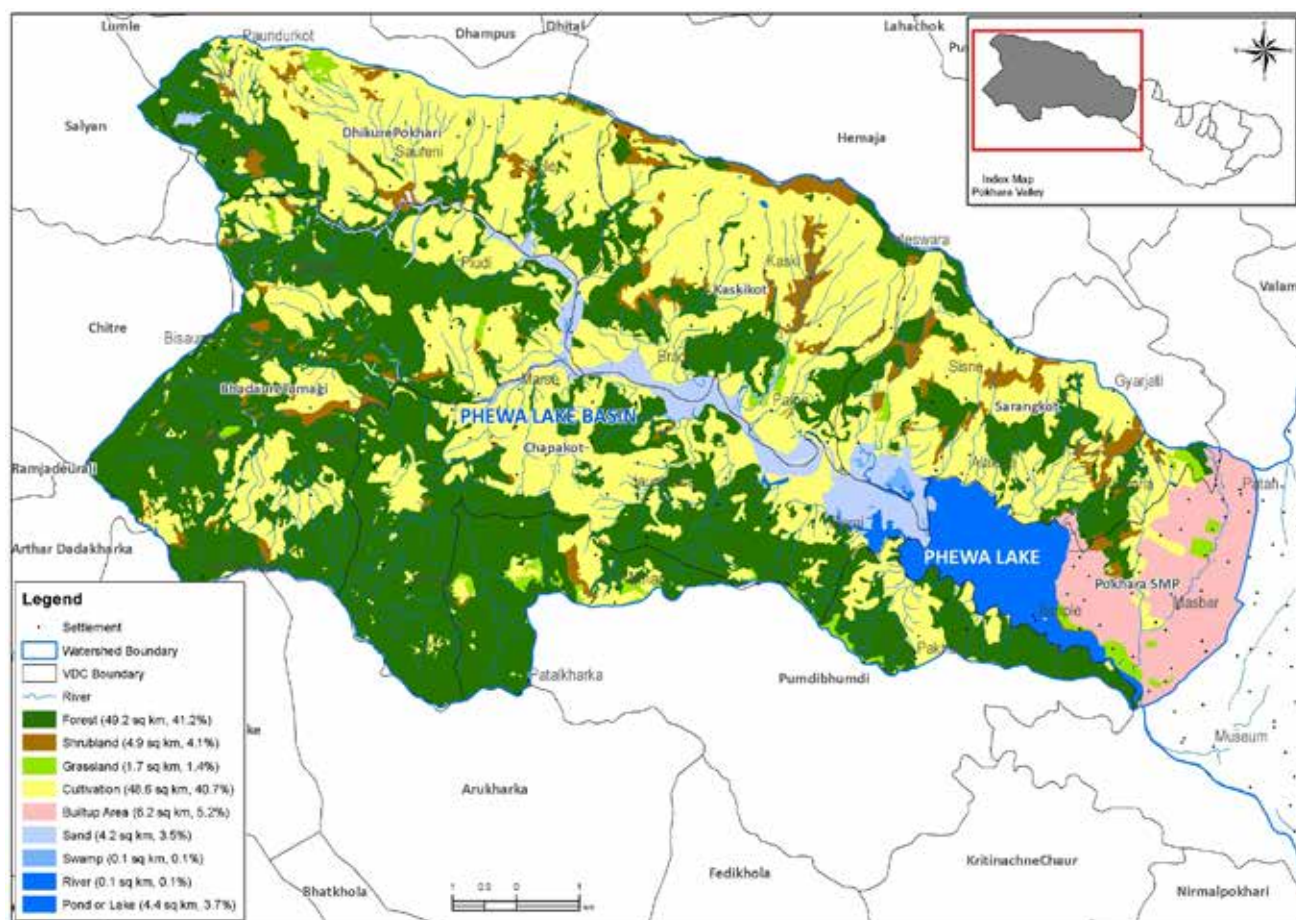
Chapter 10

Logframe and Activities

This Chapter provides Integrated Lake Basin Plan of each lake of the LCPV. In each lake, plan is furnished with log frame followed by output and activities. Following is the order of ILBM Plan of lakes:

- A. ILBM Plan of Phewa
- B. ILBM Plan of Kamalpokhari
- C. ILBM Plan of Gunde
- D. ILBM Plan of Khaste & Neureni
- E. ILBM Plan of Dipang
- F. ILBM Plan of Maidi
- G. ILBM Plan of Begnas, and
- H. ILBM Plan of Rupa

A. ILBM PLAN OF PHEWA



10.1 Integrated Lake Basin Management Plan of Phewa Lake

10.1.1 Log frame of ILBM plan of Phewa

Re	Narratives	Indicators	Means of verification
1	Outcome: Empowered lake basin governance system for the LCPV contributes to efficient management with inter-sectoral coordination and meaningful public participation for Phewa lake management	Functioning institutions dedicated for LCPV management Legal framework and policies for the LCPV	Government gazettes, decrees, Annual Reports
	Outputs		
1.1	Legal framework and policies for LCPV are formulated and enforced for lake basin governance	Legal framework and policies specific for LCPV	Government decrees
1.2	Framework for the implementation of the management plan institutionalized	Functional Ramsar Unit	Government Decrees
1.3	Boundary (core and buffer area) of Phewa lake is clearly demarcated	Cadastral map with clear boundary demarcation	Map available
2	Outcome: Biodiversity and critical habitats are conserved and ecosystem services and processes enhanced in Phewa lake basin	Status of key indicator species and critical habitats	Survey reports
	Outputs		
2.1	Comprehensive assessment of biodiversity and critical habitats in Phewa lake basin is conducted	Biodiversity assessment critical habitats assessed and mapped	Study reports, management plans, maps
2.2	Valuation of ecosystem services of Phewa lake is conducted	Ecosystem value assessment	Study report
2.3	Native fish species, indigenous and traditional crop varieties and their wild relatives are conserved	Number of native species conservation plan in practice population status of native species	Management plan, progress reports
3	Outcome: Socio-economic prosperity communities of Phewa lake basin is enhanced	Socio economic development indices Number of functioning businesses created Number of jobs created	Standard of Living Survey
	Outputs		
3.1	Lake based nature and adventure tourism is promoted and expanded	Number of tourism related facilities/ infrastructure created Direct and indirect income generated through tourism	District Tourism report, Report of FNCCI, Living Standard Survey
3.2	Perennial crops and sustainable agriculture is promoted	Area of fields under perennial agriculture	DADO annual report
4	Outcome: Infrastructure		
	Output		
4.1	Environmental guidelines enforced	Environmental guidelines enforced	Progress reports
5	Outcome: Vulnerability of lake basin to climate change and disaster risk is reduced and lake basin environment improved		
	Outputs		
5.1	Natural and anthropogenic vulnerable sites and their causes are identified	Number of vulnerable sites and causes identified	Multi-hazard risk assessment Study reports

Re	Narratives	Indicators	Means of verification
5.2	Mitigatory measures are implemented	Number of mitigatory measures undertaken Area of lake restored Decrease in flow of waste & drain into the lake	Progress reports
6	Outcome: GESI mainstreamed at all levels and processes of lake basin management		
	Outputs		
6.1	Lake dependent vulnerable communities including women are empowered for economic sovereignty	Number of vulnerable households supported Increased income level of vulnerable households in comparison to other households	Progress reports Survey reports
6.2	Meaningful participation of women and vulnerable groups in lake governance enhanced	Number of representatives of vulnerable group in managerial position in lake basin institutions	Progress reports Tally participation lists
7	Outcome: Long-term socio-ecological monitoring, and knowledge management systems are established and functional		
	Outputs		
7.1	Long term social and ecological monitoring system for lake basin is established	Implementation of socio-ecological monitoring Lake health card in practice	Periodic Assessment reports Progress Reports
7.2	Knowledge management and communication center established	functioning and staffed knowledge center Number of knowledge products developed	Progress reports Knowledge products
7.3	Capacity of stakeholders strengthened	Number of people trained	Progress reports Event reports
8	Outcome: Financial Sustainability		
	Outputs		
8.1	Phewa Lake Conservation Cooperative (PLCC) is created and operationalized	Functioning Phewa Lake Conservation Cooperative, Resources generated	Annual progress Report
8.2	Sustainable administrative and financing and administrative mechanism for LCPV is created and operational	Functioning financing mechanism in place Volume of fund generated	Annual Progress Report
8.3	Multi-stakeholders institution for stakeholder engagement	Coordination protocol Number of jointly operated activities	Annual Progress Report

10.1.2 Activities and Implementation Units for Phewa

Re	Narrative	Responsible Implementing Unit	
		Main	Ancillary
1	Outcome: Empowered lake basin governance system for the LCPV contributes to efficient management with inter-sectoral coordination and meaningful public participation for Phewa lake management		
1.1	Output: Legal framework and policies for LCPV are formulated and enforced for lake basin governance		
1.1.1	Formulate policies, Insitutional framework for Implementation of Managment Plan	POLEMC	MFAGA
1.2	Output: legal framework for institutionalized Implementation of Managment Plan		
1.2.1	Establish 'RAMSAR UNIT (R-Unit)' within the structure of POLEMC	POLEMC	MoITFE
1.2.2	Strengthen POLEMC with administrative, technical and financial capabilities	FO ¹	MoITFE, MoCTCA
1.3	Output: Boundary (core and buffer area) of all lakes is clearly demarcated		
1.3.1	Install reference pillars in shoreline of Phewa as per recommendation of PVTDC	POLEMC	MoALMC; PVTDC
1.3.2	Declare and enforce buffer area of lake 65m from reference pillars and regulate all interventions ensuring '0' damage in water quality	POLEMC	MoALMC; PVTDC; POLEMC
1.3.3	Demarcate buffer zone of Phewa for urban structures, garden and museum, religious and cultural site, fish culture, recreation and conservation, forests, wetlands, and regulate activities in buffer zone	PVTDC; POLEMC	MoALMC; DCC
2	Outcome: Biodiversity and critical habitats are conserved and ecosystem services and processes enhanced in Phewa lake basin		
2.1	Output: Comprehensive assessment of biodiversity & critical habitats in Phewa lake basin is conducted		
2.1.1	Conduct comprehensive assessment of biodiversity and critical habitats in lake basin	FO	PLCC; IoF
2.1.2	Review Operation Plan of CFs with a focus on Phewa conservation, scientific management and forest products based enterprises	FO	PLCC; CFUGs
2.1.3	Prepare and implement management plans for biodiversity and habitat conservation including 'Orchid Garden' in Panchase Lek	FO	PLCC; FO
2.1.4	Provide technical and financial support to CFs to implement plan for scientific management of forests and biodiversity including control of illegal activities	FO	PLCC
2.2	Output: Valuation of ecosystem services of Phewa lake is conducted		
2.2.1	Conduct valuation of ecosystem services of lake	NLCDC	DoF; SCO; IoF
2.2.2	Initiate PES for conservation activities in the upstream area	SCO ² ; FO	POLEMC; IoF
2.3	Output: Native fish species, indigenous and traditional crop varieties and their wild relatives are conserved		

- 1 FO mainly refers to District Forest Offices, however, it is not limited to DFO only. What it denotes presently might change with the adoption of the federal structure and thus it should be understood as the district level offices managing the forest and soil conservation.
2. SCO refers to District Soil Conservation Offices, however it is not limited to DSCO only. What is denotes might change with the adoption of the federal structure and, thus it should be understood as the district level offices managing the forest and soil conservation.

Re	Narrative	Responsible Implementing Unit	
		Main	Ancillary
2.3.1	Develop and implement plan to conserve native fish species	DFDO	POLEMC; PLCC; Li-BIRD
2.3.2	Conduct and protect cultural practices and Traditional Knowledge (TK) documentation related with biodiversity	POLEMC; MoFE, ARM	I/NGOs
2.3.3	Identify TK practitioners and institutions, prepare their plan and implement plan	POLEMC; MoFE	I/NGOs
2.3.4	Develop incentive mechanism for cultivation of native species of crops i.e., Jethobudho; Kaguno etc	DAO; DLSO	PLCC; I/NGOs
3	Outcome: Socio-economic prosperity communities of Phewa lake basin is enhanced		
3.1	Output: Lake based nature and adventure tourism is promoted and expanded		
3.1.1	Upgrade road condition for 2 lane structure from Hallanchowk to Laureni (6.5 km) with side drain; roadside plantation; traffic junction; rest places and parking sites	DCC; POLEMC	PVTDC; Road division
3.1.2	Construct decorative suspension bridge (1.5 km) connecting Khapaudi-Lamdanda for traffic and midplace view tower and coffee shop	DCC; POLEMC	Department of Roads
3.1.3	Prepare an Integrated Urban Development Site Plan in Karaudi-Pardi-Baskot-Dadakhet-Pame, and Chanakpur-Bhakune Bagar-Khapaudi (building code; drain; electricity; telephone; health post; security post; link road; electricity; roadside plantation; bank; sanitation facilities; market; recreational site and etc) area with diversion water pathways to reduce volume of water in rivers	PVTDC; POLEMC	DCC
3.1.4	Improve existing walking-trail from Brahi Mandir to Kyamp Chowk with side garden, and extend it up to Sedaiddanda with restplaces and garbage collection sites	NLCDC; NTB	PVTDC; POLEMC; DCC
3.1.5	Prepare building codes in LCPV area, and implement it	PVTDC; POLEMC	DCC
3.1.6	Facilitate communities to access Investment Mechanism to implement plan of Karaudi-Pardi-Baskot-Dadakhet-Pame, and Chanakpur-Bhakune Bagar-Khapaudi	POLEMC; NTB	PTC; HAN; TAN; PLCC
3.1.7	Conduct study assessment for Lake Museum with multipurpose visitor information center and quality facilities and services, and implement assessment recommendation	POLEMC; NTB	PTC; HAN; TAN; PLCC
3.1.8	Prepare beautification Site Plan of Bashundhara Park with water amusement and fountain; restplaces; mini-restaurant; children park etc, and implement it	NLCDC; NTB	HAN; TAN; POLEMC
3.1.9	Construct wooden trail along Phewa shoreline having with full of rattan bush in north fence connecting Bashundhara Park with Ratna Mandir (1000 m x 1.5 m)	HAN; PLCC	POLEMC
3.1.10	Construct 25 floating house with modern conference facilities in wetlands of Bhakunda Bagar accessible from boat with provision of PES	FO	POLEMC; I/NGO
3.1.11	Improve facilities in Raniban and wetlands for birds watchers with observation tower	DCC; NTB	POLEMC; LM; NTB; FNCCI; Private

Re	Narrative	Responsible Implementing Unit	
		Main	Ancillary
3.1.12	Conduct assessment survey for ropeway encircling Phewa from David Fall to World Peace Monastery to Chapakot-Panchase-Sarangkot-Bindebasini to other lakes/gorges and vantage sites, and implement it	DCC; NTB	POLEMC; NTB; FNCCI; Private
3.1.13	Conduct assessment survey for tram boggies around Phewa shoreline, and implement it	NTB; POLEMC	FO; Private
3.1.14	Create facilities for meditation and cultural studies at World Peace Monastery	NTB; POLEMC	Private
3.1.15	Increase water sports for recreation in Phewa for example water-ballooning	NTC; POLEMC	Boat Association
3.1.16	Upgrade boat park and boating facilities	TAN; HAN	NTB
3.1.17	Assess for package tour linking Phewa with other lakes, and organize tour	PLCC	I/NGO
3.1.18	Continue organizing cultural festival such as Ropain Day (Asadh 15)		
3.2	Output: Perennial crop agriculture is promoted		
3.2.1	Assist communities for assessment/development of Business Plan for perennial crops and livestock with the provision of PES	DAO; DLSO	PLCC
3.2.2	Support people to implement Business Plan for organic coffee, banana, bamboo, citrus in 700 ha	DAO	PLCC
3.2.3	Promote private forestry in 300 ha of abandoned and fallow land	FO	PLCC
3.2.4	Conduct assessment and prepare Business Plan for at least one NR based enterprise development in each potential ward, and provide technical and financial support to groups to implement plan	Cottage Industry	FO; PLCC; Private
3.2.5	Assist users to brand their products of basin in markets through PLCC	Cottage Industry	FO; PLCC; I/NGO
3.2.6	Support 150 HHs to implement Business Plan for commercial Piggery integrated to biogas	DLSO	PLCC
3.2.7	Support 300 HHs to implement Business Plan for diary integrated to biogas installation	DAO	PLCC
3.2.8	Support 75 HHs to implement Business Plan for Poultry integrated to bio manure production and marketing	DLSO	PLCC
4	Outcome: Infrastructure		
4.1	Output: Environmental guidelines are enforced		
4.1.1	Enforce environmental regulations in road and building construction	DCC; POLEMC	PVTDC
4.1.2	Develop and implement landuse plan for controlling indiscriminate plotting and construction	POLEMC; PVTDC	DCC
5	Outcome: Vulnerability of lake basin to climate change and disaster risk is reduced and lake basin environment improved		
5.1	Output: Natural and anthropogenic vulnerable sites and their causes are identified		
5.1.1	Conduct vulnerability assessment at sub-basin level of Phewa	DCC; SCO	FO; IoF
5.2	Output: Mitigatory measures are implemented to reduce the vulnerability of the lake basin		
5.2.1	Prepare micro-basin plan of Andheri (Khare) Khola in Andheri Khola sub-watershed with focus to control landslide and debris flow	SCO	DCC

Re	Narrative	Responsible Implementing Unit	
		Main	Ancillary
5.2.2	Construct bio-engineering measures to control landslide and debris flow from Damthiban; Thulachaur; Ratopahiro and Rudhi, and implement it	SCO	DCC; NLCDC
5.2.3	Construct 25 speed breaker cascade in major order of Andheri Khola with plantation of bamboo, rattan; broom grasses and banana in Galchi and abandoned land (150 ha)	SCO	DCC; NLCDC
5.2.4	Construct silt trap device for Andheri Khola before it discharges to Harpan Khola (0.5 million m ³ capacity) with provision of using silt for land reclamation	SCO	DCC; POLEMC; NLCDC
5.2.5	Prepare micro-basin plan of Harpan; Handi Khola & Marse Khola in Harpan Khola sub-watershed with focus to control landslide and debris flow in Harpan	SCO	DCC; POLEMC; NLCDC
5.2.6	Construct bio-engineering measures to control landslide and debris flow from such as Bhirpani and Dundephat (Chainpur 4)	SCO	DCC; POLEMC; NLCDC
5.2.7	Construct 50 speed breaker cascade in major order of Harpan Khola (40) and Marse Khola (10) with plantation of bamboo, rattan; broom grasses and banana in Galchi and abandoned land (300 ha)	SCO	PLCC
5.2.8	Construct silt trap device for Harpan, Handi and Marse Khola before they discharges to Phewa (1.5 million m ³ capacity) with provision of using silt for land reclamation	SCO	DCC; NLCDC
5.2.9	Prepare micro-basin plan (3) of Ghuetre and Betani Khola in Pame, and Lauruk Khola in Lauraudi in south flowing mid subwatershed, and implement these to stabilize Harpan	SCO	DCC; NLCDC; PLCC
5.2.10	Construct 27 speed breaker cascade in Ghuetre (10); Betani (10); and Lauruk (7) with plantation of bamboo, rattan; broom grasses and banana in Galchi flowing south and abandoned land (75 ha)	SCO	DCC; NLCDC; PLCC
5.2.11	Construct 2 silt trap device each for Betani & Lauruk Khola before they discharge to Harpan (million m ³ capacity) with provision of using silt for land reclamation	SCO	DCC; NLCDC; PLCC
5.2.12	Plantation of bamboo, rattan and banana in all Galchi in north flowing subwatershed close of Phewa (100 ha)	SCO	DCC; NLCDC; PLCC
5.2.13	Design, estimate and implement core-engineering and biocontrol measures of landslide and river bank stabilization in Kanjare and Khahare Khola in Bhakunde Bagar. 100 ha of bamboo, broom grass, and rattan plantation	SCO	DCC; NLCDC; PLCC
5.2.14	Construct 3.5 km x 1.5 m wide drain to trap monsoon wash with organic matter & agriculture run off with silt-trap devices in every 500 m distance out of buffer zone in south (Bamdi to the end of Raniban), and discharge it down to damside	POLEMC; PVTDC	DCC; NLCDC; PLCC
5.2.15	Construct 10 km x 1.5 wide roadside drain facing mountain slope from Lauren-Pame-Hallanchowk to Phirke Khola/damside (with provision of canal from Gairachautara) with silt-trap devices in every 500 m distance	POLEMC; PVTDC	NLCDC; DCC
5.2.16	Construct 9 km x 1.5 m wide sewerage drain from Pame Bazar-Bhakunde Bagar-Pardi Bazar connecting Phirke Khola to Chhore Patan with multipurpose treatment facilities at the confluence of Pardi and Phusre Khola	POLEMC; PVTDC	NLCDC; DCC

Re	Narrative	Responsible Implementing Unit	
		Main	Ancillary
5.2.17	Promote construction of safety tank integrated to biogas facilities in 500 HHs of Chapakot; Kaskikot; Sarangkot and Pumdi Bhumdi VDCs	DCC; DAO	PLCC
5.2.18	Incorporate '0' trash procedures (process, provision & penalties) in the constitutional provision of PLCC, and enforce strictly the principles in shoreline settlements, and then gradually extended to other areas	POLEMC; PLCC	DCC
5.2.19	Installation of sign at 150 places for '0 Trash' in vantage points of Phewa lake and basin area	NTB	POLEMC; DCC; HAN; TAN
5.2.20	Install trash collection center at 10 places along damside to Pame Bazar, and set mechanism to ensure its disposal quite regularly	POLEMC;	PLCC
5.2.21	Remove silt from uncertified and occupied land to restore lake area from Bhakunde Bagar to Pame	NLCDC	DCC; POLEMC; PLCC
5.2.22	Modify existing dam to increase water level of Phewa by 3 m from the current capacity	DCC	
5.2.23	Piloting for water hyacinth in 2 km shoreline as decorative greenbelt from Hallachowk Buspark (lake side) to Bhakunde Bagar in view of generating income	NLCDC	PLCC: Jalhari group
5.2.24	Develop mechanism to regularly remove water hyacinth from the piloting site for manure	NLCDC	Jalhari group
5.2.25	Scaling up greenbelt of water hyacinth 2 m wide along shoreline from Damside to Bhakunde Bagar based on learning from the piloting	PLCC	Jalhari group
6	Outcome: GESI mainstreamed at all levels and processes of lake basin management		
6.1	Output: Lake dependent vulnerable communities including women are empowered for economic sovereignty		
6.1.1	Strengthen cooperative of Jalahari for preparing Sustainable Fishery Plan (SFP)	DFDO	PLCC; DCC
6.1.2	Assist Jalahari to implement their SFP for expanding fishery and regulating harvesting mechanism	DFDO	PLCC
6.1.3	Assist cooperative of Jalahari for better housing of each HHs	DCC; POLEMC	PVTDC; PLCC
6.1.4	Assist women groups to form women's organization in potential wards	DWCO	PLCC
6.1.5	Assist women's organization to build their plans with focus of vulnerable groups, and implement these plans	DWCO	PLCC
6.1.6	Strengthen associations of women and groups of vulnerable groups for their income activities	DWCO	PLCC
6.1.7	Assist disadvantage groups (Dalit) of Phewa basin to organize them under umbrella structure	DWCO	PLCC
6.1.8	Assist disadvantage group to prepare their plan and implement it for economic empowerment	DWCO	PLCC
6.2	Output: Meaningful participation of women and vulnerable groups in lake governance		
6.2.1	Ensure representation of women and vulnerable groups in lake management and community institutions	DWCO	PLCC; NLCDC

Re	Narrative	Responsible Implementing Unit	
		Main	Ancillary
6.2.2	Promote leadership role for women and vulnerable groups in the lake governance	PLCC; DWCO	
7	Outcome: Long-term socio-ecological monitoring, and knowledge management systems are established and functional		
7.1	Output: Socioecological monitoring protocol is in place and operational		
7.1.1	Develop Long term social and ecological monitoring protocol for Phewa lake	NLCDC	DCC; POLEMC
7.1.2	Assess and monitor Land Use Land Change in the lake basin	DCC; SCO	POLEMC
7.1.3	Assess, prepare monitoring plan, and monitor the biodiversity status and ecological characters of lake	NLCDC	FO; SCO; IoF; I/NGO
7.1.4	Introduce lake health card to monitor water quality in quarterly basis at National Standards for irrigation, fishery and recreation, and establish monitoring major sites (physical, chemical and biological properties)	NLCDC	POLEMC; MoITFE; FO; SCO; IoF; I/NGO
7.1.5	Conduct baseline assessment of socio-economic features of Phewa lake basin area	NLCDC	PLCC
7.2	Output: Knowledge management and communication center established		
7.2.1	Develop and disseminate knowledge products on Phewa lake basin	POLEMC	I/NGOs
7.2.2	Develop/strengthen community level network for knowledge sharing	POLEMC	DCC; POLEMC; I/NGOs
7.2.3	Prepare and publish awareness materials on lakes & Ramsar provision for government personnel; students; communities and village leaders (4 sets)	POLEMC; NLCDC	DCC; MoFEITFE; DoF; DNPWC; I/NGOs
7.3	Output: Capacity of stakeholders strengthened		
7.3.1	Organize sensitization annual events for personnel of line agencies (40*3 days) to integrate lake issues in their planning	POLEMC; NLCDC	DCC; DoF; I/NGOs
7.3.2	Organize training for communities (50*3days) of Phewa lake conservation and Ramsar provision	POLEMC; NLCDC	DCC; DoF; DNPWC; I/NGOs
7.3.3	Organize training to village leaders (20*3 days) of Phewa lake basin for integrating issues of Phewa and Ramsar provision in their annual planning	POLEMC; NLCDC	DCC; DNPWC; I/NGOs
7.3.4	Organize sensitization event to urban communities (70*3days) of Metropolis on Phewa lake & Ramsar	POLEMC; NLCDC	DCC; DNPWC; I/NGOs
7.3.5	Organize training for school teachers (50*3days) to incorporate lake and Ramsar provision in their extracurricular activities in each schools	POLEMC; NLCDC	DCC; DNPWC; I/NGOs
7.3.6	Conduct regular conservation programs at schools including events management such as World Wetlands Day; World Environment Day; World Biodiversity Day etc	POLEMC; NLCDC	DCC; DNPWC; I/NGOs
7.3.7	Organize exposure visit for integrated lake basin management for government personnel (35); communities (60); village leaders (25) and teachers (50)	POLEMC	DCC; POLEMC; NLCDC
7.3.8	Conduct awareness programs on biodiversity conservation, climate change (Local fair)	POLEMC	FO; NLCDC
7.3.9	Conduct capacity building trainings for EBA with a view of lake conservation integrated to the prosperity of communities	FO	POLEMC; IoF

Re	Narrative	Responsible Implementing Unit	
		Main	Ancillary
7.3.10	Conduct training for scientific management of CFs (110) of Phewa lake basin	FO	POLEMC; PLCC; NLCDC
7.3.11	Conduct capacity building trainings for business and entrepreneurship (50)	FO	PLCC; NLCDC
7.3.12	Conduct capacity building trainings for hotel and guide (70)	NTB	DCC; POLEMC
8	Outcome: Financial Sustainability		
8.1	Output: Phewa Lake Conservation Cooperative is created and operationalized		
8.1.1	Assist communities to consolidate scattered many institution for the establishment of Phewa Lake Conservation Cooperative (PLCC) from learning of Rupa lake area	DCC	POLEMC; NLCDC
8.1.2	Organize meeting and workshops to bring existing NGOs/CBOs in Phewa lake basin for their collective inputs and actions under PLCC	DCC	POLEMC; NLCDC
8.2	Output: Sustainable administrative and financing and administrative mechanism created and operationalized		
8.2.1	Develop a plan for sustainable financing including resources from tourism businesses, government support, and international funding mechanisms	DCC; NLCDC	MoF; PLCC
8.2.2	Conduct meeting with DCC, Pokhara POLEMCs, Phewa Boat Association and etc for mobilizing the Phewa Trust Fund created in 1997	DCC	DCC; POLEMC; MoF; PLCC
8.2.3	Conduct workshop to discuss and agree on concept note with government entities; tourism & hotel association; FNCCI; Chamber of Commerce; financial institution and trade/business; communities; NGOs etc for their contribution keeping PES as incentives to all	DCC	POLEMC; PLCC; MoF; NLCDC
8.2.4	Creation of Trust Fund with clearly defined proportion of contribution from the government and other sources regularly for Phewa	DCC	MoF; POLEMC; NLCDC; PLCC
8.2.5	Explore collaborative business fund from PPP for lake business and scale up such intervention	DCC	DCC; POLEMC; NLCDC
8.2.6	Explore national and global networking for scale up intervention	MoFE; DNPWC	DCC; PLCC; POLEMC; NLCDC
8.2.7	Support NGOs for proposal based funding for Phewa lake basin program and activities focusing on climate resilient biodiversity and prosperity	NLCDC	DCC; POLEMC; PLCC
8.2.8	Provide grant Rs 1 million for initial 2 years administrative support to PLCC	MoF; NLCDC	DCC; POLEMC
8.3	Output: Multi-stakeholders institution for stakeholder engagement		
8.3.1	Conduct workshop to set functional mechanism for synergy from sectoral intervention with protocol and action plan	PLCC	DCC; POLEMC
8.3.2	Conduct coordination meeting for review progresses and prospects for shared resources and opportunities following protocol and implementation of action plan	PLCC	DCC; POLEMC

10.1.3 Budget for Phewa

No.	Output/Activities	Unit	Target	Amount NRS (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
Outcome 1												1.34
Output 1.1	Legal framework and policies for LCPV are formulated and enforced for lake basin governance											
1.1.1	Formulate policies, institutional implementation of management plan	Legal Document	1	1000	1000	1,000	0	0	0	0	1000	
Output 1.2	Framework for implementation of the management plan institutionalized											
1.2.1	Formulate 'RAMSAR UNIT (R-Unit)' within the structure of DCC Kaski	R-Unit, mm	39	150	5850	1,170	1,170	1,170	1,170	1,170	5850	
1.2.2	Strengthen POLEMC with administrative, technical and financial capabilities	mm + structural facilities	195	200	39000	7,800	7,800	7,800	7,800	7,800	39000	
Output 1.3	Boundary (core and buffer area) of all lakes is clearly demarcated											
1.3.1	Install reference pillars in shoreline of Phewa as per recommendation of PVTDC at 20 m intervals	Pillars	120	25	3000	1,500	1,500	0	0	0	3000	
1.3.2	Declare and enforce buffer area of lake 65m from reference pillars and regulate all interventions ensuring '0' damage in water quality	Meeting, monitoring	10	100	1000	200	200	200	200	200	1000	
1.3.3	Demarcate buffer zone of Phewa for urban structure; garden and museum; religious and cultural site; fish culture; recreation and conservation; forests; wetlands; and regulate activities in buffer zone	BZ demarcation site plan	1	1000	1000	0	1,000	0	0	0	1000	
Sub Total A					50850.0	11670.0	11670.0	9170.0	9170.0	9170.0	50850.0	
Outcome 2												1
Output 2.1	Comprehensive assessment of biodiversity & critical habitats in Phewa lake basin is conducted											
2.1.1	Conduct comprehensive assessment of biodiversity and critical habitats in lake basin	Research	1	2000	2000	2,000	0	0	0	0	2000	
2.1.2	Review Operation Plan of CFs with a focus on Phewa conservation, scientific management and forest products based enterprises	Review	110	50	5500	1,100	3,300	1,100	0	0	5500	
2.1.3	Prepare and implement management plans for biodiversity and habitat conservation including 'Orchid Garden' in Panchase Lek	Plan	1	5000	5000	0	5,000	0	0	0	5000	
2.1.4	Provide technical and financial support to CFs to implement plan for scientific management of forests and biodiversity including control of illegal activities	Lumpsum	1	5000	5000	1,000	1,000	1,000	1,000	1,000	5000	
Output 2.2	Valuation of ecosystem services of Phewa lake is conducted											

No.	Output/Activities	Unit	Target	Amount NRS (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
2.2.1	Conduct valuation of ecosystem services of lake	Valuation study	1	2000	2000	2,000	0	0	0	0	2000	
2.2.2	Initiate PES for conservation activities in the upstream area	Workshop	6	1000	6000	900	1,650	1,650	900	900	6000	
Output 2.3	Native fish species, indigenous and traditional crop varieties and their wild relatives are conserved											
2.3.1	Develop and implement plan to conserve native fish species	Plan + implement	1	5000	5000	2,500	1,000	500	500	500	5000	
2.3.2	Conduct and protect cultural practices and TK documentation related with biodiversity	Documentation	1	1000	1000	100	900	0	0	0	1000	
2.3.3	Identify TK practitioners and institutions, prepare their plan and implement plan	Plan	1	4000	4000	1,200	1,200	800	400	400	4000	
2.3.4	Develop incentive mechanism for cultivation of native species of crops such as jethobudho, Kaguno etc	Mechanism	1	2500	2500	500	500	500	500	500	2500	
Sub Total B					38000.0	11300.0	14550.0	5550.0	3300.0	3300.0	38000.0	
Outcome 3												43.74
Output 3.1	Lake based ecotourism is promoted											
3.1.1	Upgrade road condition for 2 lane structure from Hallanchowk to Laureni (6.5 km) with side drain; roadside plantation; traffic junction; rest places and parking sites	km	6.5	60000	390000	7,800	273,000	78,000	19,500	11,700	390000	
3.1.2	Construct decorative suspension bridge (1.5 km) connecting Khapaudi-Lamdanda for traffic and midplace view tower and coffee shop	km, tower etc	1.5	10000	15000	300	4,800	9,000	450	450	15000	
3.1.3	Prepare an Integrated Urban Development Site Plan in Karaudi-Pardi-Baskot-Dadakheta-Pame, and Chanakpur-Bhakune Bagar-Khapaudi (building code; drain; electricity; telephone; health post; security post; link road; electricity; roadside plantation; bank; sanitation facilities; market; recreational site and etc) area with diversion water pathways to reduce volume of water in rivers	Plan	2	4000	8000	4,000	4,000	0	0	0	8000	
3.1.4	Improve existing walking-trail from Brahi Mandir to Kyamp Chowk with side garden, and extend it up to Sedaidanda with restplaces and garbage collection sites	km	3	6000	18000	360	9,360	7,200	540	540	18000	
3.1.5	Prepare building codes for all VDCs in LCPV area, and implement it	Building code	1	700	700	700	0	0	0	0	700	
3.1.6	Facilitate communities to access Investment Mechanism to implement plan of Karaudi-Pardi-Baskot-Dadakheta-Pame, and Chanakpur-Bhakune Bagar-Khapaudi	Mechanism	1	1000	1000	300	300	200	100	100	1000	

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
3.1.7	Conduct study assessment for Lake Museum with multipurpose visitor information center and quality facilities and services, and implement assessment recommendation	Lake museum	1	40000	40000	400	20,000	16,000	2,000	1,600	40000	
3.1.8	Prepare beautification Site Plan of Bashundhara Park with water amusement and fountain; restplaces; mini-restaurant; children park etc, and implement it	Site plan + implementation	1	100000	100000	1,000	50,000	40,000	5,000	4,000	100000	
3.1.9	Construct wooden trail along Phewa shoreline having with full of rattan bush in north fence connecting Bashundhara Park with Ratna Mandir (1000 m x 1.5 m)	km	1	12000	12000	120	6,000	4,800	600	480	12000	
3.1.10	Construct 25 floating house with modern conference facilities in wetlands of Bhakunda Bagar accessible from boat with provision of PES	Floating house	25	35000	875000	8,750	262,500	568,750	17,500	17,500	875000	
3.1.11	Improve facilities in Raniban and wetlands for birds watchers with observation tower	Tower improvement	1	8000	8000	400	5,600	1,200	400	400	8000	
3.1.12	Conduct assessment survey for ropeway encircling Phewa from David Fall to World Peace Monastery to Chapakot-Panchase-Sarangkot-Bindebasini to other lakes/gorges and vantage sites, and implement it	Survey; 30 km	1	5000	5000	500	4,500	0	0	0	5000	
3.1.13	Conduct assessment survey for buggy tram around Phewa shoreline, and implement it	Survey	1	5000	5000	500	4,500	0	0	0	5000	
3.1.14	Create facilities for meditation and cultural studies at World Peace Monastery	Structural facilities	2	15000	30000	900	15,000	12,000	1,500	600	30000	
3.1.15	Increase water sports with water balloon for recreation in Phewa	Sport balloon	10	500	5000	150	2,000	2,500	250	100	5000	
3.1.16	Upgrade boat park and boating facilities	Boat park	2	15000	30000	900	12,000	15,000	1,500	600	30000	
3.1.17	Assess for package tour linking Phewa with other lakes, and organize tour	Lumpsum	1	2500	2500	125	1,125	1,000	125	125	2500	
3.1.18	Continue organizing cultural festival such as Ropain Day (Asadh 15)	Festival	5	500	2500	500	500	500	500	500	2500	
Output 3.2	Multi-year conservation agriculture is promoted											
3.2.1	Assist communities for assessment/development of Business Plan (BP) for multiyear crop and livestock with the provision of PES	Business plan	1	2000	2000	2,000	0	0	0	0	2000	
3.2.2	Support people to implement BP for organic coffee, banana, bamboo, citrus in 700 ha in all VDCs	Ha	700	40	28000	1,400	8,400	11,200	4,200	2,800	28000	
3.2.3	Promote private forestry in 300 ha of abandoned and fallow land	Ha	300	30	9000	450	2,700	3,600	1,350	900	9000	

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
3.2.4	Conduct assessment and prepare Business Plan for at least one NR based enterprise development in each potential wards, and provide technical and financial support to groups to implement plan	Business plan	6	2000	12000	600	3,600	3,600	3,000	1,200	12000	
3.2.5	Assist users to brand their products of basin in markets through PLCC	Lumpsum	1	1000	1000	0	700	100	100	100	1000	
3.2.6	Support 150 HHs to implement Business Plan for commercial Piggery integrated to biogas	HH	150	100	15000	750	4,500	6,000	2,250	1,500	15000	
3.2.7	Support 300 HHs to implement Business Plan for dairy integrated to biogas installation	HH	300	100	30000	1,500	9,000	12,000	4,500	3,000	30000	
3.2.8	Support 75 HHs to implement Business Plan for Poultry integrated to biomanure production and marketing	HH	75	250	18750	937.50	5,625	7,500	2,812.50	1,875	18750	
Sub Total C					1663450	35342.5	709710	800150	68177.5	50070	1663450	
Outcome 4												0.09
Output 4.1	Environmental guidelines are enforced											
4.1.1	Enforce environmental regulations in road and building construction	Lumpsum	1	500	800	160	160	160	160	160	800	
4.1.2	Develop and implement landuse plan for controlling indiscriminate plotting and construction	Plan	1	2500	2500	2,000	125	125	125	125	2500	
Sub Total D					3300.0	2160.0	285.0	285.0	285.0	285.0	3300.0	
Outcome 5												48.46
Output 5.1	Natural and anthropogenic vulnerable sites and their causes are identified											
5.1.1	Conduct vulnerability assessment at sub-basin level of Phewa	Assessment study	1	3500	3500	3,500	0	0	0	0	3500	
Output 5.2	Mitigatory measures are implemented to reduce the vulnerability of the lake basin											
5.2.1	Prepare micro-basin plan of Andheri (Khare) Khola in Andheri Khola sub-watershed with focus to control landslide and debris flow	Basin Plan	1	2000	2000	100	1,900	0	0	0	2000	
5.2.2	Construct bio-engineering measures to control landslide and debris flow from Damthiban, Thulachaur, Ratopahiro and Rudhi, and implement it	Bioengineering +Plastering	4	5000	20000	400	6,000	7,200	6,000	400	20000	

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
5.2.3	Construct 25 speed breaker cascade in major order of Andheri Khola with plantation of bamboo, rattan; broom grasses and banana in Galchi and abandoned land (150 ha)	Cascade + Plantation	25	5000	125000	2,500	62,500	50,000	6,250	3,750	125000	
5.2.4	Construct silt trap device for Andheri Khola before it discharges to Harpan Khola (0.5 million m ³ capacity) with provision of using silt for land reclamation	Silt trap	1	200000	200000	2,000	80,000	100,000	10,000	8,000	200000	
5.2.5	Prepare micro-basin plan of Harpan; Handi Khola & Marse Khola in Harpan Khola sub-watershed with focus to control landslide and debris flow in Harpan	Basin Plan	3	2000	6000	300	5,700	0	0	0	6000	
5.2.6	Construct bio-engineering measures to control landslide and debris flow from such as Bhirpani and Dundephat (Chainpur 4)	Bioengineering +Plastering	4	9000	36000	720	10,800	12,960	10,800	720	36000	
5.2.7	Construct 50 speed breaker cascade in major order of Harpan Khola (40) and Marse Khola (10) with plantation of bamboo, rattan; broom grasses and banana in Galchi and abandoned land (300 ha)	Cascade + Plantation	50	5000	250000	5,000	125,000	100,000	12,500	7,500	250000	
5.2.8	Construct silt trap device for Andheri Khola before it discharges to Harpan Khola (0.5 million m ³ capacity) with provision of using silt for land reclamation	Silt trap	2	200000	400000	4,000	160,000	200,000	20,000	16,000	400000	
5.2.9	Prepare micro-basin plan (3) of Ghuetre and Betani Khola in Pame, and Lauruk Khola in Lauraudi in south flowing mid subwatershed, and implement these to stabilize Harpan	Basin Plan	3	1500	4500	225	4,275	0	0	0	4500	
5.2.10	Construct 27 speed breaker cascade in Ghuetre (10); Betani (10); and Lauruk (7) with plantation of bamboo, rattan; broom grasses and banana in Galchi flowing south and abandoned land (75 ha)	Cascade + Plantation	27	3000	81000	1,620	40,500	32,400	4,050	2,430	81000	
5.2.11	Construct 2 silt trap device each for Betani and Lauruk Khola before they discharge to Harpan with provision of using silt for land reclamation	Silt trap	2	15000	30000	300	12,000	15,000	1,500	1,200	30000	
5.2.12	Plantation of bamboo, rattan and banana in all Galchi in north flowing subwatershed close of Phewa (100 ha)	HH	100	30	3000	0	450	900	1,050	600	3000	
5.2.13	Design, estimate and implement core-engineering and biocontrol measures of landslide and river bank stabilization in Kanjare and Khahare Khola in Bhakunde Bagar. 100 ha of bamboo, broom grass, and rattan plantation	Plan + implementation	2	9000	18000	360	9,000	7,200	900	540	18000	

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
5.2.14	Construct 3.5 km x 1.5 m wide drain to trap monsoon wash with organic matter & agriculture run off with silt-trap devices in every 500 m distance out of buffer zone in south (Bamdi to the end of Raniban), and discharge it down to damside	km roadside drain	3.5	10000	35000	700	24,500	7,000	2,100	700	35000	
5.2.15	Construct 10 km x 1.5 wide roadside drain facing mountain slope from Laureni-Pame-Hallanchowk to Phirke Khola/damside (with provision of canal from Gaichautara) with silt-trap devices in every 500 m distance	km roadside drain	10	10000	100000	2,000	70,000	20,000	6,000	2,000	100000	
5.2.16	Construct 9 km x 1.5 m wide sewerage drain from Pame Bazar-Bhakunde Bagar-Pardi Bazar connecting Phirke Khola to Chhore Patan with multipurpose treatment facilities at the confluence of Pardi and Phusre Khola	km sewerage drain + treatment structure	9	18000	162000	1,620	113,400	40,500	4,860	1,620	162000	
5.2.17	Promote construction of safety tank integrated to biogas facilities in 500 HHs of Chapakot, Kaskikot, Sarangkot and Purni Bhumdi	Biogas plant	500	400	200000	2,000	140,000	50,000	6,000	2,000	200000	
5.2.18	Incorporate 'O' thrash procedures (process, provision & penalties) in the constitutional provision of PLCC, and enforce strictly the principles in shoreline settlements, and then gradually extended to other areas	Lumpsum	1	45	45	45	0	0	0	0	45	
5.2.19	Installation of sign at 150 places for 'O Thrash' in vantage points of Phewa lake and basin area	Signpost	150	15	2250	1,800	450	0	0	0	2250	
5.2.20	Install thrash collection center at 10 places along damside to Pame Bazar, and set mechanism to ensure its disposal quite regularly	Thrash center	10	600	6000	4,800	300	300	300	300	6000	
5.2.21	Remove XXX tons of soil from uncertified and occupied land (XXX ha) to restore lake area from Bhakunde Bagar to Pame	Lumpsum	1	30000	30000	24,000	6,000	0	0	0	30000	
5.2.22	Modify existing dam to increase water level of Phewa by 3 m from the current capacity	Lumpsum	1	120000	120000	1,200	90,000	24,000	3,600	1,200	120000	
5.2.23	Piloting for water hyacinth in 2 km shoreline as decorative greenbelt from Hallinchowk Buspark (lake side) to Bhakunde Bagar in view of generating income	km	2	700	1400	1,400	0	0	0	0	1400	
5.2.24	Develop mechanism to regularly remove water hyacinth escaped out from the piloting site for manure	Mechanism -1 + Times	5	500	2500	500	500	500	500	500	2500	
5.2.25	Scaling up greenbelt of water hyacinth 2 m wide along shoreline from Damside to Bhakunde Bagar based on learning from the piloting	Lumpsum	1	5000	5000	2,000	2,000	500	250	250	5000	
Sub Total E					1843195.0	63090.0	965275.0	668460.0	96660.0	49710.0	1843195.0	

No.	Output/Activities	Unit	Target	Amount NIRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
Outcome 6												1.80
Output 6.1	Output: Lake dependent vulnerable communities including women are empowered for economic sovereignty											
6.1.1	Strengthen cooperative of Jalahari for preparing Sustainable Fishery Plan (SFP)	SFP Plan	1	500	500	500	0	0	0	0	500	
6.1.2	Assist Jalahari to implement their SFP for expanding fishery and regulating harvesting mechanism	Support; Time	2	2000	4000	0	2,000	2,000	0	0	4000	
6.1.3	Assist cooperative of Jalahari for better housing of each HHs	HH	50	700	35000	7,000	7,000	7,000	7,000	7,000	35000	
6.1.4	Assist women groups of each ward to form ward level women's organization	Network	6	100	600	300	300	0	0	0	600	
6.1.5	Assist women's organization to build their plans with focus of vulnerable groups, and implement these plans	Plan	6	300	1800	900	900	0	0	0	1800	
6.1.6	Strengthen associations of women and groups of vulnerable groups for their income activities	Lumpsum to group	6	3000	18000	9,000	9,000	0	0	0	18000	
6.1.7	Assist disadvantage groups (Dalit) of Phewa basin to organize them under umbrella structure	Network	1	3000	3000	3,000	0	0	0	0	3000	
6.1.8	Assist disadvantage group to prepare their plan and implement it for economic empowerment	Plan + Lumpsum	1	1500	1500	0	750	600	150	0	1500	
Output 6.2	Meaningful participation of women and vulnerable groups in lake governance											
6.2.1	Ensure representation of women and vulnerable groups in lake management and community institutions	Meeting	15	200	3000	1,200	1,350	150	150	150	3000	
6.2.2	Promote leadership role for women and vulnerable groups in the lake governance	Lumpsum	5	200	1000	200	500	200	100	0	1000	
Sub Total F					68400	22100	21800	9950	7400	7150	68400	
Outcome 7												1.92
Output 7.1	Output: Socioecological monitoring protocol is in place and operational											
7.1.1	Develop Long term social and ecological monitoring protocol for Phewa lake	Protocol	1	400	400	100	80	76	72	72	400	
7.1.2	Assess and monitor Land Use Land Change in the lake basin	Monitoring time	15	50	750	150	150	150	150	150	750	

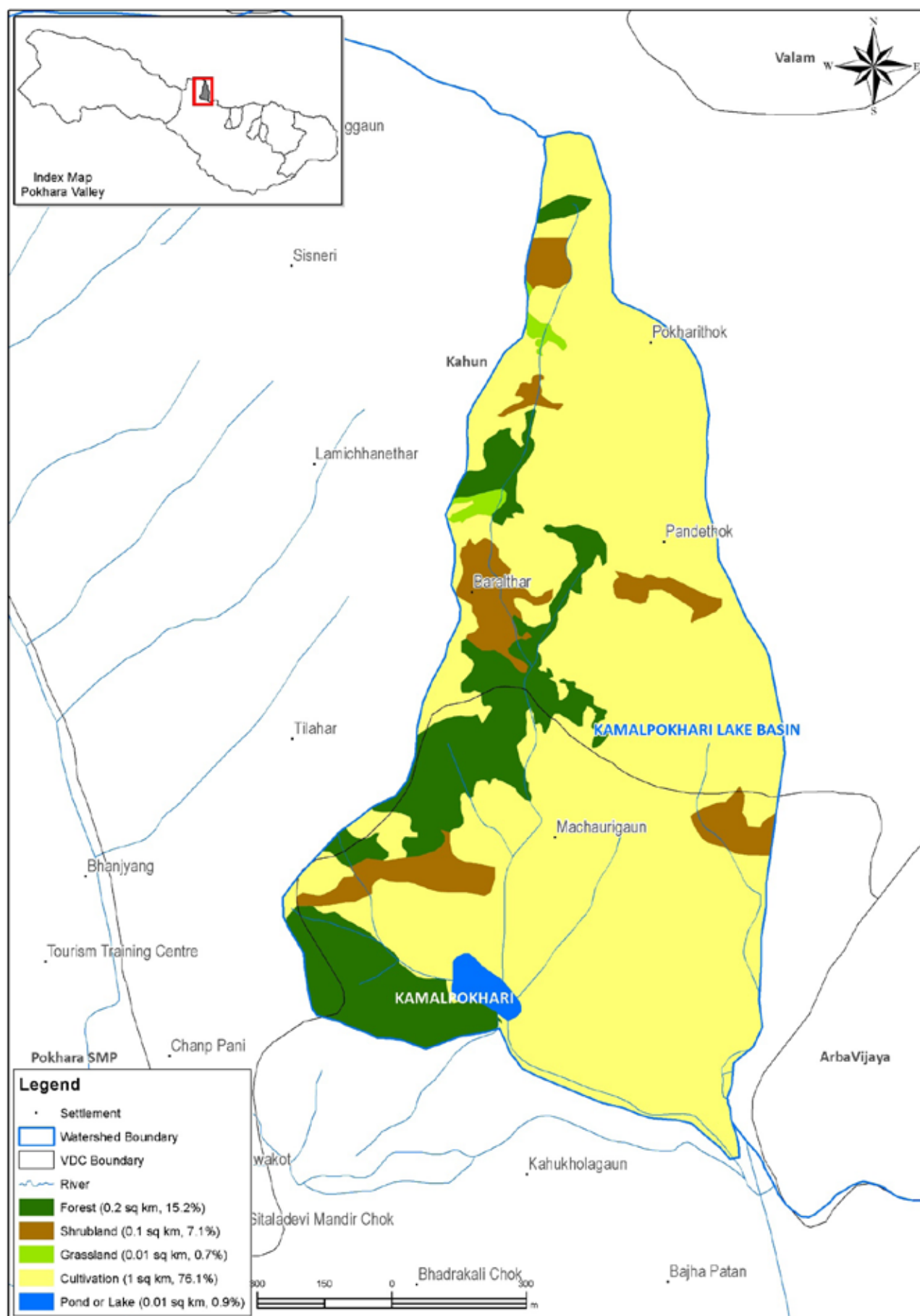
No.	Output/Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
7.1.3	Assess, prepare monitoring plan, and monitor the biodiversity status and ecological characters of lake	Plan-1 + Times	15	50	750	450	75	75	75	75	750	
7.1.4	Introduce lake health card to monitor water quality in quarterly basis at National Standards for irrigation, fishery and recreation, and establish monitoring major sites (physical, chemical and biological properties)	Station-1 + Times	15	2500	37500	34,500	750	750	750	750	37500	
7.1.5	Conduct baseline assessment of socio-economic features of Phewa lake basin area	Assessment study	1	2000	2000	2,000	0	0	0	0	2000	
Output 7.2	Knowledge management and communication center established											
7.2.1	Develop and disseminate knowledge products on Phewa lake basin	Learning document	3	500	1500	0	375	375	375	375	1500	
7.2.2	Develop/strengthen community level network for knowledge sharing	Network	1	700	700	140	140	140	140	140	700	
7.2.3	Prepare and publish awareness materials on lakes & Ramsar provision for government personnel; students; communities and village leaders (4 sets)	Resource material	4	700	2800	700	560	532	504	504	2800	
Output 7.3	Capacity of Stakeholders strengthened											
7.3.1	Organize sensitization annual events for personnel of line agencies (40*3 days) to integrate lake issues in their planning	md	120	4	480	96	96	96	96	96	480	
7.3.2	Organize training for communities (50*3days) of Phewa lake conservation and Ramsar provision	md	150	4	600	120	120	120	120	120	600	
7.3.3	Organize training to village leaders (20*3 days) of Phewa lake basin for integrating issues of Phewa and Ramsar provision in their annual planning	md	60	4	240	48	48	48	48	48	240	
7.3.4	Organize sensitization event to urban communities (70*3days) of Metropolis on Phewa lake & Ramsar	md	210	4	840	168	168	168	168	168	840	
7.3.5	Organize training for school teachers (50*3days) to incorporate lake and Ramsar provision in their extracurricular activities in each schools	md	150	4	600	120	120	120	120	120	600	
7.3.6	Conduct regular conservation programs at schools including events management such as World Wetlands Day; World Environment Day; World Biodiversity Day etc	Event	5	25	125	25	25	25	25	25	125	
7.3.7	Organize exposure visit for integrated lake basin management for government personnel (35); communities (60); village leaders (25) and teachers (50)	md (170*5)	850	12	10200	2,040	2,040	2,040	2,040	2,040	10200	

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
7.3.8	Conduct awareness programs on biodiversity conservation, climate change (Local fair)	Fair	5	700	3500	700	700	700	700	700	3500	
7.3.9	Conduct capacity building trainings for EBA with a view of lake conservation integrated to the prosperity of communities	Training (30*3)	90	4	360	72	72	72	72	72	360	
7.3.10	Conduct training for scientific management of CFs (110) of Phewa lake basin	Training (110*3)	330	4	1320	264	264	264	264	264	1320	
7.3.11	Conduct capacity building trainings for business and entrepreneurship (50)	Training (50*7)	350	4	1400	280	280	280	280	280	1400	
7.3.12	Conduct capacity building trainings for hotel and guide (70)	Training (70*20)	1400	5	7000	1,400	1,400	1,400	1,400	1,400	7000	
Sub Total G					73065.0	43373.0	7463.0	7431.0	7399.0	7399.0	73065.0	
Outcome 8												1.66
Output 8.1	Phewa Lake Conservation Cooperative is created and operationalized											
8.1.1	Assist communities to consolidate scattered many institution for the establishment of Phewa Lake Conservation Cooperative (PLCC) from learning of Rupa lake area	Workshop	4	50	200	40	40	40	40	40	200	
8.1.2	Organize meeting and workshops to bring existing NGOs/CBOs in Phewa lake basin for their collective inputs and actions under PLCC	Workshop	3	50	150	30	30	30	30	30	150	
Output 8.2	Sustainable financing mechanism is created and operational											
8.2.1	Develop a plan for sustainable financing including resources from tourism businesses, government support, and international funding mechanisms	Workshop	2	200	400	400	0	0	0	0	400	
8.2.2	Conduct meeting with DCC, Pokhara POLEMCs, Phewa Boat Association and etc for mobilizing the Phewa Trust Fund created in 1997	Meeting	10	25	250	50	50	50	50	50	250	
8.2.3	Conduct workshop to discuss and agree on concept note with government entities; tourism & hotel association; FNCCI; Chamber of Commerce; financial institution and	Workshop	1	50	50	50	0	0	0	0	50	
8.2.4	Creation of Trust Fund with clearly defined proportion of contribution from the government and other sources regularly for Phewa	Annual input	5	10000	50000	10,000	10,000	10,000	10,000	10,000	50000	
8.2.5	Explore collaborative business fund from PPP for lake business and scale up such intervention	Event	6	200	1200	240	480	480	0	0	1200	

No.	Output /Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
8.2.6	Explore national and global networking for scale up intervention	Proposal	12	500	6000	600	1,200	1,800	1,200	1,200	6000	
8.2.7	Support NGOs for proposal based funding for Phewa lake basin program and activities focusing on climate resilient biodiversity and prosperity	Workshop	10	200	2000	400	400	400	400	400	2000	
8.2.8	Provide grant Rs 1 million for initial 2 years administrative support to PLCC	Grant	1000	2	2000	1,000	1,000	0	0	0	2000	
Output 8.3	Multi-stakeholders institution is coordinated for the shared strength											
8.3.1	Conduct workshop to set functional mechanism for synergy from sectoral intervention with protocol and action plan	Workshop	5	70	350	70	70	70	70	70	350	
8.3.2	Conduct coordination meeting for review progresses and prospects for shared resources and opportunities following protocol and implementation of action plan	Meeting	10	40	400	80	80	80	80	80	400	
Sub Total H					63000	12960	13350	12950	11870	11870	63000	
GRAND TOTAL					3803260	201995.5	17441030	1513946	204261.5	138954	3803260	
Yearly distribution in %						5.31	45.86	39.81	5.37	3.65	100	

*** Activity indicate complementing activity to other lake basin

B. ILBM PLAN OF KAMALPOKHARI



10.2 Integrated Lake Basin Mangement Plan of Kamalpokhari

10.2.1 Logframe for ILBM plan of Kamalpokhari

Re	Narratives	Indicators	Means of verification
1	Outcome: Empowered lake basin governance system for the LCPV contributes to efficient management with inter-sectoral coordination and meaningful public participation for Kamalpokhari Lake management	Functioning institution dedicated for KP	Government gazettes, decrees, Annual Reports
	Outputs		
1.1	Ramsar Unit within Ward is formed and operationalized	Functioning Ramsar Unit	Government decrees
1.2	Boundary of Kamalpokhari lake is clearly demarcated and lake and reservation zoned to identify core area and buffer zones	Cadastral map with clear boundary and zones	map available
2	Outcome: Biodiversity and critical habitats are conserved and ecosystem services and processes enhanced in Kamalpokhari lake basin	Status of the biodiversity and critical habitats	District Reports
	Outputs		Study reports
2.1	Comprehensive assessment of biodiversity & critical habitats in Kamalpokhari lake basin is conducted and plan prepared in Jaykot CF	- Biodiversity assessment - Number of critical habitats conserved	
2.2	Forests and lake basin of Kamalpokhari lake are conserved	Number of ecosystem units conserved	Study reports, management plans
2.3	Valuation of ecosystem services of Kamalpokhari lake is conducted	Ecosystem value assessment	Study report
2.4	Native fish species, indigenous and traditional crop varieties and their wild relatives are conserved	- Number of native species conservation plan in practice - population status of native species	Management plan, progress reports
3	Outcome: Socio-economic prosperity of Lake Basin communities is enhanced	- Socio economic development indices - Number of functioning businesses created - Number of jobs created	Standard of Living Survey
	Outputs		
3.1	Lake based nature and adventure tourism is promoted and expanded	- Number of tourism related facilities/infrastructure created - Direct and indirect income generated through tourism	District Tourism report, Report of FNCCI, Living Standard Survey
3.2	Perennial crops and sustainable agriculture is promoted	Area of fields under perennial agriculture	Periodic Landuse landcover change assessment report DADO annual report
4	Outcome: Infrastructure		
	Outputs		
4.1	Environmental guidelines are enforced	Environmental guidelines enforced	Progress reports
5	Outcome: Vulnerability of lake basin to climate change and disaster risk is reduced and lake basin environment improved		
	Outputs		

Re	Narratives	Indicators	Means of verification
5.1	Natural and anthropogenic vulnerable sites and their causes are identified	Number of vulnerable sites and causes identified	Multi-hazard risk assessment Study reports
5.2	Mitigation measures are implemented	- Number of mitigation measures undertaken - Area of lake restored - Decrease in the flow of waste and drain into the lake	Progress reports
6	Outcome: GESI mainstreamed at all levels and processes of lake basin management		
	Outputs		
6.1	Women and vulnerable groups of Bishwakarma communities are supported for economic sovereignty	- Number of vulnerable households supported - Increased income level of vulnerable households in comparison to other households	Progress reports Survey reports
6.2	Meaningful participation of women and vulnerable groups in lake governance enhanced	Number of representatives of vulnerable group in managerial position in lake basin institutions	Progress reports
7	Outcome: Long-term socio-ecological monitoring, and knowledge management systems are established and functional		
	Outputs		
7.1	Long term social and ecological monitoring system of lake basin is established	- Implementation of Socio-ecological monitoring - Lake health card in practice	Periodic Assessment reports Progress Reports
7.2	Knowledge management and communication mechanism established	- One collaborative mechanism - Number of knowledge products developed	Progress reports Knowledge products
7.3	Capacity of stakeholders strengthened	Number of people trained	Progress reports Event reports
8	Outcome Financial sustainability		
	Outputs		
8.1	Kamalpokhari Lake Conservation Cooperative (KPCC) is created and operationalized	- Functioning KPCC - Resources generated	Government decrees
8.2	Sustainable financing and administrative mechanism for KPCC is created and operational	- Functioning financing mechanism in place - Volume of fund generated and managed	Annual progress Report
8.3	Multi-stakeholders institution for stakeholder engagement and inter-sectoral coordination	- Coordination protocol - Number of jointly operated activities - Joint resources generation	Annual Progress Report

10.2.2 Activities and implementation units for Kamalpokhari

Re	Narrative	Responsible Unit	
		Main	Ancillary
1	Outcome: Empowered lake basin governance system for the LCPV contributes to efficient management with inter-sectoral coordination and meaningful public participation for Kamalpokhari Lake management		
1.1	Output: Ramsar Unit within Municipality is formed and operationalized		
1.1.1	Formulate special 'RAMSAR UNIT (R-Unit)' within Pokhara sub metropolis and delegate authority for lake conservation program	DCC; NLCDC	POLEMC; PVTDC; DNPWC
1.2	Output: Boundary (core and buffer area) of Kamalpokhari lake is clearly demarcated		
1.2.1	Install reference pillars in shoreline of KP	DCC	MoALMC; PVTDC; POLEMC
1.2.2	Declare and enforce buffer area of lake in construction work (65m) from reference pillars and regulate all interventions ensuring scenic view and '0' damage in water quality	DCC	MoALMC; PVTDC; POLEMC
1.2.3	Demarcate buffer zone of KP for urban structure (south/west); garden (north/east); religious and cultural site; fish culture; recreation; CFs; wetlands (west); and regulate all intervention activities in buffer zone	PVTDC; POLEMC	MoALMC; DCC
2	Outcome: Biodiversity and critical habitats are conserved and ecosystem services and processes enhanced in Kamalpokhari lake basin		
2.1	Output: Comprehensive assessment of biodiversity & critical habitats in Kamalpokhari lake basin is conducted		
2.1.1	Conduct comprehensive assessment of biodiversity and critical habitats in the lake and Jaykot CF	FO	POLEMC; KPCC; IoF
2.2	Output: Forests and lake basin of Kamalpokhari lake are conserved		
2.2.1	Prepare and implement management plan for biodiversity in Jaykot CF with a provision of community managed small botanical garden	FO	POLEMC; KPCC; CFUG
2.2.2	Provide technical and financial support to CFs to implement plan for scientific management of CF	FO	POLEMC; KPCC
2.2.3	Assist communities to manage other private forest in different settlements of KP basin	FO	KPCC
2.2.4	Assist CFs for the control of illegal wildlife hunting and collection of plants	FO	KPCC
2.3	Output: Valuation of ecosystem services of Kamalpokhari lake is conducted		
2.3.1	Conduct valuation of ecosystem services of lake	NLCDC	DoF; SCO; IoF
2.3.2	Initiate PES for conservation activities in the upstream area	SCO; FO	IoF
2.4	Output: Native fish species, indigenous and traditional crop varieties and their wild relatives are conserved		
2.4.1	Conduct and protect cultural practices and TK documentation related with biodiversity	MoFE	I/NGO
2.4.2	Identify TK practitioners and institutions, prepare their plan and implement plan	MoFE	I/NGO
2.4.3	Develop incentive mechanism for cultivation of native species of Jetho Budho & Pahelo rice	DAO; DLSO	POLEMC; KPCC; I/NGO, CBOs

Re	Narrative	Responsible Unit	
		Main	Ancillary
3	Outcome: Socio-economic prosperity of Lake Basin communities is enhanced		
3.1	Output: Lake based ecotourism is promoted		
3.1.1	Upgrade road condition for 2 lane structure from Bhadrakali Chowk to KP (1.4 km) with side drain; roadside plantation; rest places and parking sites	DCC; POLEMC	PVTDC; Road division
3.1.2	Prepare an Integrated Village Plan (building code; drain; electricity; telephone; security post; link road; electricity; roadside plantation; sanitation facilities; recreational site and etc) of Machaurigau, Kahukholagau with '0' impact on KP	PVTDC; POLEMC	DCC
3.1.3	Prepare building code for Machaurigau; Pandethole; Pokharithok; Simalchaur; and Baralthal of Kamalpokhari basin, and implement it	PVTDC; POLEMC	DCC
3.1.4	Connect access trail (1.9 km) from KP to Sitala Deve Temple with side garden, rest places and tree tag and sign	POLEMC; NLCDC	DCC; FO
3.1.5	Construct a visitor information center with moderate facilities in entry of KP	NTB	PTC; HAN; TAN; KPCC
3.1.6	Prepare beautification plan of KP with a fountain at center; rest places; children park etc, and implement it	NLCDC	PTC; KPCC
3.1.7	Establish facilities for tea and coffee house with water and sanitation facilities	KPCC	User Groups, CBOs
3.1.8	Construct trail around KP (500 m) just align with side drain with side plantation of decorative trees and garden in appropriate places	NLCDC; NTB	PVTDC; POLEMC; DCC
3.1.9	Improve facilities in Jayakot CF for birds watchers	FO; Jayakot CF	KPCC; I/NGO, CBO
3.1.10	Collaborate in assessment survey for ropeway connecting Phewa circuit with KP via Sitala Devi Mandir to other lakes/gorges and vantage sites, and implement it**	DCC; NTB	POLEMC; NTB; FNCCI; Private
3.1.11	Introduce 2 boats with gears/facilities for water sport	NLCDC; NTB	POLEMC;
3.1.12	Assess for package tour linking Phewa with other lakes, and organize tour	TAN; HAN	NTB
3.1.13	Continue organizing cultural festival such as Ropain Day (Asadh 15)	KPCC	I/NGOs, CBOs
3.1.14	Conduct Baseline information on socio-economic features in Kamalpokhari lake basin	NLCDC	KPCC
3.2	Output: Perennial crop agriculture is promoted		
3.2.1	Assist communities for assessment/development of Business Plan for multiyear crop and livestock in Machaurigau; Pandethole; Pokharithok; Simalchaur; and Baralthal with the provision of PES	DAO; DLSO	CBOs; KPCC
3.2.2	Support people to implement business plan for organic coffee in 80 ha in all villages with provision of their selling to Phewa Lake Conservation Cooperative	DAO	CBO; KPCC
3.2.3	Support people implement business plan for bamboo; banana and other fruits in 70 ha in all wards in Gullies and abandoned land	SCO, FO	DAO; KPCC; I/NGOs
3.2.4	Promote private forestry in 20 ha of abandoned and fallow land	FO	KPCC
3.2.5	Conduct assessment and prepare Business Plan for 1 NR based enterprise development in KP basin	Cottage Industry	FO; KPCC; Private

Re	Narrative	Responsible Unit	
		Main	Ancillary
3.2.6	Provide technical and financial support to groups for implementation of enterprise Business Plan	Cottage Industry	FO; KPCC; Private
3.2.7	Assist users to brand their products of basin in markets through PLCC	Cottage Industry	FO; KPCC; Private
3.2.8	Assist users to brand their products of basin in markets	DLSO	KPCC
3.2.9	Support 10 HHs to implement Business Plan for Poultry integrated to biomanure production and marketing	DAO	KPCC
3.2.10	Support 20 HHs to implement Business Plan for dairy integrated to biogas installation		
4	Outcome: Infrastructure		
4.1	Output: Environmental guidelines are enforced		
4.1.1	Develop and implement landuse plan for controlling indiscriminate plotting and construction	DCC; POLEMC	PVTDC
4.1.2	Enforce environmental regulations in road and building construction	POLEMC; PVTDC	DCC
5	Outcome: Vulnerability of lake basin to climate change and disaster risk is reduced and lake basin environment improved		
5.1	Output: Natural and anthropogenic vulnerable sites and their causes are identified		
5.1.1	Conduct vulnerability assessment at sub-basin level of Kamalpokhari	DCC; SCO	FO; loF
5.2	Output: Mitigatory measures are implemented to reduce the vulnerability of the lake basin		
5.2.1	Prepare micro-basin plan of Bans Khola, and implement it (10 ha of bamboo & rattan in Galchi and basin)	SCO	DCC
5.2.2	Construct speed breaker cascade at 5 places in Bans Khola from Machaurigau to Baralthal before it discharges water into KP	SCO	DCC; NLCDC
5.2.3	Construction of silt trap device for Bans Khola at the base of Machaurigau	SCO	DCC; POLEMC; NLCDC
5.2.4	Plant multipurpose trees in private/public land in Baralthal, Machaurigau & Pandetole (70 ha)	SCO; FO	KPCC
5.2.5	Bamboo and broomgrass plantation in Galchi from Bhanjyang (east) of Kamalpokhari	KPCC	SCO; FO
5.2.6	Construct 6 km x 1 m wide drain at 840 masl around Kamalpokhari in east, north and west and below Jayakot CF to trap monsoon wash with organic matter & agriculture run off and along east of Kauhkhola-gau-Machaurigau link road, and discharge it down to Kauh Khola	POLEMC; PVTDC	DCC; NLCDC; KPCC
5.2.7	Promote construction of safety tank facilities in 100 HHs of major settlements integrated to biogas facilities in Machaurigau; Pandethole; Pokharithok; Simalchaur; and Baralthal of Kamalpokhari basin area	DCC; DAO	KPCC; POLEMC
5.2.8	Incorporate 'O' trash procedures (process, provision & penalties) in the constitutional provision of KPCC, and enforce strictly the principles in shoreline settlements at first (Kriyaputri Bhavan and Machaurigau), and then gradually extended at other areas	POLEMC; KPCC	DCC

Re	Narrative	Responsible Unit	
		Main	Ancillary
5.2.9	Install signpost at 25 places for 'O Trash' in vantage points of Kamalpokhari lake basin such as Machaurigau; Pandethole; Pokharithok; Simalchaur; Baralthal; Sitala Devi Mandir; Bhadrakali Chowk; and Kauhkhologau	NTB	POLEMC; DCC; HAN; TAN
5.2.10	Install trash collection center at 5 places each in Machaurigau; Pandethole; Pokharithok; Simalchaur; Baralthal; Sitala Devi Mandir; Bhadrakali Chowk; and Kauhkhologau, and set mechanism to ensure its disposal quite regularly	POLEMC	PLCC
5.2.11	Install thrash collection center at 5 places along damside to Pame Bazar, and set mechanism to ensure its disposal quite regularly	NLCDC	DCC; POLEMC; KPCC
5.2.12	Remove XXX tons of soil from uncertified and occupied land (8 ha) in east, west and north to restore core area of KP	NLCDC	DCC; POLEMC; KPCC
5.2.13	Develop a business plan of landowners with their increased role in alternative business from consensus to expand lake area with additional 2 ha of private land in east and north up to 820 masl foothill circumventing KP	KPCC; NLCDC	POLEMC; DCC
5.2.14	Remove weeds from lake twice a year, and use weeds for manure for basin level plantation	DCC	FO, CBO
5.2.15	Construct dam from Kriyaputri Bhavan to foothill (north), and regulate all season water level at least 3 m in lake to ensure water spread in 10 ha with irrigation structure	KPCC; DFDO	FO; POLEMC
5.2.16	Encourage extensive fishing of Tilapia following PES mechanism and discourage strictly any introduction of it	KPCC; NLCDC	DCC; POLEMC
6	Outcome: GESI mainstreamed at all levels and processes of lake basin management		
6.1	Output: Women and vulnerable groups of Bishwakarma communities are supported for economic sovereignty		
6.1.1	Assist women groups of Kamalpokhari to work under one umbrella structure	DWCO	POLEMC; KPCC
6.1.2	Assist umbrella women group to prepare their plan with focus on vulnerable groups, and implement it	DWCO	POLEMC; KPCC
6.1.3	Strengthen women and groups of Bishwakarma communities for their income activities	DWCO	POLEMC; KPCC
6.1.4	Assist disadvantage group to prepare their plan and implement it for economic empowerment	DWCO	POLEMC; KPCC
6.2	Output: Meaningful participation of women and vulnerable groups in lake governance		
6.2.1	Ensure representation of women and vulnerable groups in lake management and community institutions	DWCO	KPCC; NLCDC
6.2.2	Promote leadership role for women and vulnerable groups in the lake governance	KPCC; DWCO	POLEMC
7	Outcome: Long-term socio-ecological monitoring, and knowledge management systems are established and functional		
7.1	Output: Socio-ecological monitoring protocol is in place and operational		
7.1.1	Develop Long term social and ecological monitoring protocol for Kamalpokhari	NLCDC	DCC; POLEMC

Re	Narrative	Responsible Unit	
		Main	Ancillary
7.1.2	Assess and monitor land use land change in the lake basin	DCC; SCO	POLEMC; VDCs
7.1.3	Assess, prepare monitoring plan, and monitor the biodiversity status and ecological characters of lake	NLCDC	FO; SCO; IoF; I/NGOs
7.1.4	Introduce lake health card to monitor water quality in quarterly basis at National Standards for irrigation, fishery and recreation	NLCDC	POLEMC; FO; SCO; IoF; I/NGOs
7.2	Output: Prepare and disseminate knowledge products		
7.2.1	Develop and disseminate knowledge products on Kamalpokhari lake basin		I/NGOs
7.2.2	Develop/strengthen community level network for knowledge sharing		DCC; POLEMC; VDCs; I/NGOs
7.2.3	Prepare and publish awareness materials on lakes & Ramsar provision for government personnel; students; communities and village leaders (4 sets)	NLCDC	DCC; DoF; I/NGOs
7.3	Outputs: Capacity of stakeholders strengthened		
7.3.1	Organize sensitization annual events for personnel of line agencies (7*3 days) to integrate lake issues in their planning	NLCDC	DCC; DoF; I/NGOs
7.3.2	Organize training for communities (25*3days) of Kamalpokhari lake conservation and Ramsar provision	NLCDC	DCC; DoF; DNPWC; I/NGOs
7.3.3	Organize training to village leaders (7*3 days) of Kamalpokhari basin for integrating issues of lake and Ramsar provision in their annual planning	NLCDC	DCC; DNPWC; I/NGOs
7.3.4	Organize sensitization event to urban communities (100*1 day) of Metropolis on Kamalpokhari lake & Ramsar	NLCDC	DCC; DNPWC; I/NGOs
7.3.5	Organize training for school teachers (15*3days) to incorporate lake and Ramsar provision in their extracurricular activities in each schools	NLCDC	DCC; DNPWC; I/NGOs
7.3.6	Conduct regular conservation programs at schools including events management such as World Wetlands Day; World Environment Day; World Biodiversity Day etc	NLCDC	DCC; DNPWC; I/NGOs
7.3.7	Organize exposure visit for integrated lake basin management for government personnel (35); communities (60); village leaders (25) and teachers (50)	POLEMC	DCC; POLEMC; NLCDC
7.3.8	Conduct awareness programs on biodiversity conservation, climate change (Local fair)	POLEMC	FO; NLCDC
7.3.9	Conduct capacity building trainings for EBA with a view of lake conservation integrated to the prosperity of communities	FO	IoF
7.3.10	Conduct training for scientific management of CFs (8) of Kamalpokhari lake basin	FO	KPCC; NLCDC
7.3.11	Conduct capacity building trainings for business and entrepreneurship (25)	FO	KPCC; NLCDC
7.3.12	Conduct capacity building trainings for hotel and guide (20)	NTB	DCC; POLEMC
8	Outcome: Financial Sustainability		
8.1	Output: Kamalpokhari Lake Conservation Cooperative is created and operationalized		
8.1.1	Assist communities to consolidate scattered many institutions for the establishment of Kamalpokhari Conservation Cooperative (KPCC) based on proven experience cooperative mechanism	DCC	POLEMC; NLCDC

Re	Narrative	Responsible Unit	
		Main	Ancillary
8.1.2	Organize meeting and workshops to bring existing NGOs/CBOs in Kamal Pokhari (KP) lake basin for their collective inputs & actions under KPCC	DCC	POLEMC; NLCDC
8.2	Output: Sustainable administrative & financing mechanism for KPCC is created and operational		
8.2.1	Develop a plan for sustainable financing mechanism including resources from tourism businesses, government support, and international funding mechanisms	DCC; NLCDC	MoF; PLCC
8.2.2	Conduct workshop to discuss and agree on concept note with government entities; tourism & hotel association; FNCCI; Chamber of Commerce; financial institution and trade/business communities; NGOs etc for their contribution keeping PES as incentives to all	DCC	DCC; MoF; PLCC
8.2.3	Creation of Trust Fund with clearly defined proportion of contribution from the government and other sources regularly for Kamalpokhari lake	DCC	POLEMC; KPCC; MoF; NLCDC
8.2.4	Support NGOs for proposal based funding for Kamalpokhari lake basin program and activities on climate resilient biodiversity and prosperity	NLCDC	DCC; POLEMC; KPCC
8.2.5	Provide grant Rs. 1 million for initial 2 years administrative support to KPCC	MoF; NLCDC	DCC; POLEMC
8.3	Output: Multi-stakeholders institution is coordinated for the shared strength		
8.3.1	Conduct workshop to set functional mechanism for the synergy from sectoral intervention with protocol and action plan	KPCC	DCC; POLEMC
8.3.2	Conduct coordination meeting for review progresses and prospects for shared resources and opportunities following protocol and implementation of action plan	KPCC	DCC; POLEMC

10.2.3 Budget for Kamalpokhari

No.	Output/Activities	Unit	Target	Amount NRS (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
Outcome 1												0.77
Output 1.1	Ramsar Unit within Municipality is formed and operationalized***											
1.1.1	Formulate special 'RAMSAR UNIT (R-Unit)' within Pokhara Lekhnath Metropolitan City and delegate authority for lake conservation program	R-Unit, mm	13	150	1950	390	390	390	390	390	1950	
Output 1.2	Boundary (core and buffer area) of all lakes is clearly demarcated											
1.2.1	Install reference pillars in shoreline of KP	Pillars	40	25	1000	500	500	0	0	0	1000	
1.2.2	Declare and enforce buffer area of lake in construction work (65m) from reference pillars and regulate all interventions ensuring scenic view and 'o' damage in water quality	Meeting, monitoring	6	50	300	60	60	60	60	60	300	
1.2.3	Demarcate buffer zone of KP for urban structure (south/west); garden (north/east); religious and cultural site; fish culture; recreation; CFs; wetlands (west); and regulate all intervention activities in buffer zone	Demarcation Plan	1	150	150	150	0	0	0	0	150	
Sub Total A					3400	1100	950	450	450	450	3400	
Outcome 2												1.34
Output 2.1	Comprehensive assessment of biodiversity & critical habitats in Kamalpokhari lake basin is conducted											
2.1.1	Conduct comprehensive assessment of biodiversity and critical habitats in lake basin	Research	1	1000	1000	1000	0	0	0	0	1000	
Output 2.2	Forests and lake basin of Kamalpokhari lake are conserved											

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Total	Rate	1	2	3	4	5		
2.2.1	Prepare and implement management plan for biodiversity in Jaykot CF with a provision of community managed small botanical garden	Review workshop	2	60	30	30	30	0	0	0	60	
2.2.2	Provide technical and financial support to CFs to implement plan for scientific management of CF	Capacity building support	3	180	60	90	45	45	0	0	180	
2.2.3	Assist communities to manage other private forest in different settlements of KP basin	HH	70	2100	30	420	840	630	105	105	2100	
2.2.5	Assist CFs for the control of illegal wildlife hunting and collection of plants	Capacity building support	3	180	60	72	45	27	18	18	180	
Output 2.3	Valuation of ecosystem services of Kamalpokhari lake is conducted											
2.3.1	Conduct valuation of ecosystem services of lake	Valuation study	1	500	500	500	0	0	0	0	500	
2.3.2	Initiate PES for conservation activities in the upstream area	Workshop	2	90	45	13.5	24.75	24.75	13.5	13.5	90	
Output 2.4	Native fish species, indigenous and traditional crop varieties and their wild relatives are conserved											
2.4.1	Conduct and protect cultural practices and TK documentation related with biodiversity	Documentation	1	300	300	30	270	0	0	0	300	
2.4.2	Identify TK practitioners and institutions, prepare their plan and implement plan	Plan	1	500	500	0	500	0	0	0	500	
2.4.3	Develop incentive mechanism for cultivation of native species of Jetho Budho & Pahelo rice	Mechanism	1	1000	1000	0	400	200	200	200	1000	
Sub Total B				5910		2155.5	2154.75	926.75	336.5	336.5	5910	

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
Outcome 3												50.80
Output 3.1	Lake based ecotourism is promoted											
3.1.1	Upgrade road condition for 2 lanes structures from Bhadrakali Chowk to KP (1.4 km) with side drain; roadside plantation; rest places and parking sites	km	1.4	60000	84000	1680	58800	16800	4200	2520	84000	
3.1.2	Prepare an Integrated Village Plan (building code; drain; electricity; telephone; security post; link road; electricity; roadside plantation; sanitation facilities; recreational site and etc) of Machaurigau, Kahukholagau with '0' impact on KP	Plan	1	2000	2000	1000	1000	0	0	0	2000	
3.1.3	Prepare building code for Machaurigau; Pandethole; Pokharithok; Simalchaur; and Baralthal of Kamalpokhari basin, and implement it	Building code	1	700	700	700	0	0	0	0	700	
3.1.4	Connect access trail (1.9 km) from KP to Sitala Devei Temple with side garden, rest places and tree tag and sign	km	1.9	8000	15200	304	7904	6080	456	456	15200	
3.1.5	Construct a visitor information center with moderate facilities in entry of KP	Visitor center	1	7000	7000	70	3500	2800	350	280	7000	
3.1.6	Prepare beautification plan of KP with a fountain at center; rest places; children park etc, and implement it	Plan + implementation	1	25000	25000	250	12500	10000	1250	1000	25000	
3.1.7	Establish facilities for tea and coffee house with water and sanitation facilities	Lumpsum	1	2000	2000	100	1600	100	100	100	2000	

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
3.1.8	Construct trail around KP (500 m) just align with side drain with side plantation of decorative trees and garden in appropriate places	Lumpsum	1	3500	3500	35	1750	1400	175	140	3500	
3.1.9	Improve facilities in Jayakot CF for birds watchers	Lumpsum	1	2000	2000	100	1400	300	100	100	2000	
3.1.10	Complement in assessment survey for ropeway connecting Phewa circuit with KP via Sitala Devi Mandir to other lakes/gorges and vantage sites, and implement it ^{***}	Survey; 30 km	1	20	20	2	18	0	0	0	20	
3.1.11	Introduce 2 boats with gears/facilities for water sport	Boat	2	2500	5000	0	5000	0	0	0	5000	
3.1.12	Assess for package tour linking Phewa with other lakes, and organize tour	Lumpsum	1	1000	1000	50	450	400	50	50	1000	
3.1.13	Continue organizing cultural festival such as Ropain Day (Asadh 15)	Festival	5	300	1500	300	300	300	300	300	1500	
3.1.14	Conduct Baseline information on socio-economic features in Kamalpokhari lake basin	Assessment study	1	1000	1000	1000	0	0	0	0	1000	
Output 3.2	Multi-year conservation agriculture is promoted											
3.2.1	Assist communities for assessment/development of Business Plan for multiyear crop and livestock in Machaurigau; Pandethole; Pokharithok; Simalchaur; and Baralthal with the provision of PES	Business plan	1	500	500	500	0	0	0	0	500	
3.2.2	Support people to implement business plan for organic coffee in 80 ha in all villages with provision of their selling to Phewa Lake Conservation Cooperative	Ha	80	30	2400	120	720	960	360	240	2400	

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
3.2.3	Support people implement business plan for bamboo; banana and other fruits in 70 ha in all VDCs in Gullies and abandoned land	Ha	70	30	2100	105	630	840	315	210	2100	
3.2.4	Promote private forestry in 20 ha of abandoned and fallow land	Ha	20	30	600	30	180	240	90	60	600	
3.2.5	Conduct assessment and prepare Business Plan for 1 NR based enterprise development in KP basin	Business plan	1	500	500	500	0	0	0	0	500	
3.2.6	Provide technical and financial support to groups for implementation of enterprise Business Plan	Lumpsum	1	3000	3000	60	1500	900	300	240	3000	
3.2.7	Assist users to brand their products of basin in markets through PLCC	Lumpsum	1	700	700	0	490	70	70	70	700	
3.2.8	Assist users to brand their products of basin in markets	HH	150	100	15000	750	4500	6000	2250	1500	15000	
3.2.9	Support 10 HHs to implement Business Plan for Poultry integrated to biomanure production and marketing	HH	300	100	30000	1500	9000	12000	4500	3000	30000	
3.2.10	Support 20 HHs to implement Business Plan for dairy integrated to biogas installation	HH	75	250	18750	937.5	5625	7500	2812.5	1875	18750	
Sub Total C					223470	10093.5	116867	66690	17678.5	12141	223470	
Outcome 4												0.52
Output 4.1	Environmental guidelines are enforced											
4.1.1	Develop and implement landuse plan for controlling indiscriminate plotting and construction	Plan	1	1500	1500	1200	75	75	75	75	1500	
4.1.2	Enforce environmental regulations in road and building construction	Lumpsum	1	500	800	160	160	160	160	160	800	
Sub Total D					2300	1360	235	235	235	235	2300	

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
Outcome 5												36.50
Output 5.1	Natural and anthropogenic vulnerable sites and their causes are identified											
5.1.1	Conduct vulnerability assessment at sub-basin level of Phewa	Assessment study	1	1000	1000	1000	0	0	0	0	1000	
Output 5.2	Mitigatory measures are implemented to reduce the vulnerability of the lake basin											
5.2.1	Prepare micro-basin plan of Bans Khola, and implement it (10 ha of bamboo & rattan in Galchi and basin)	Basin Plan	1	1500	1500	75	1425	0	0	0	1500	
5.2.2	Construct speed breaker cascade at 5 places in Bans Khola from Machaurigau to Baralthal before it discharge water into KP	Cascade + Plantation	5	2500	12500	250	6250	5000	625	375	12500	
5.2.3	Construction of silt trap device for Bans Khola at the base of Machaurigau	Silt trap	1	10000	10000	100	6000	3000	500	400	10000	
5.2.4	Plant multipurpose trees in private/public land in Baralthal, Machaurigau & Pandetole (70 ha)	Ha	70	40	2800	0	420	840	980	560	2800	
5.2.5	Bamboo and broomgrass plantation in Galchi from Bhanjyang (east) of Kamalpokhari	HH	50	30	1500	0	225	450	525	300	1500	
5.2.6	Construct 6 km x 1 m wide drain at 840 masl around Kamalpokhari in east, north and west and below Jayakot CF to trap monsoon wash with organic matter & agriculture run off and along east of Kauhkholaugau-Machaurigau link road	km	6	10000	60000	1200	42000	12000	3600	1200	60000	

No.	Output/Activities	Unit	Target	Amount NRS (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
5.2.7	Promote construction of safety tank facilities in 100 HHs of major settlements integrated to biogas facilities in Machaurigau; Pandethole; Pokharithok; Simalchaur; and Baralthal of Kamalpokhari basin area	Biogas plant	100	400	40000	400	28000	10000	1200	400	40000	
5.2.8	Incorporate '0' trash procedures (process, provision & penalties) in the constitutional provision of KPCC, and enforce strictly the principles in shoreline settlements at first (Kriyaputri Bhavan and Machaurigau), and then gradually extended at other areas	Lumpsum	1	20	20	20	0	0	0	0	20	
5.2.9	Install signpost at 25 places for '0 Trash' in vantage points of Kamalpokhari lake basin such as Machaurigau; Pandethole; Pokharithok; Simalchaur; Baralthal; Sitala Devi Mandir	Signpost	25	15	375	300	75	0	0	0	375	
5.2.10	Install trash collection center at 5 places each in Machaurigau; Pandethole; Pokharithok; Simalchaur; Baralthal; Sitala Devi Mandir; Bhadrakali Chowk; and Kauhkhologau, and set mechanism to ensure its disposal quite regularly	Thrash center	5	600	3000	2400	150	150	150	150	3000	
5.2.11	Install thrash collection center at 5 places along damside to Pame Bazar, and set mechanism to ensure its disposal quite regularly	Thrash center	5	600	3000	2400	150	150	150	150	3000	
5.2.12	Remove XXX tons of soil from uncertified and occupied land (8 ha) in east, west and north to restore core area of KP	Lumpsum	1	15000	15000	12000	3000	0	0	0	15000	

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
5.2.13	Develop a business plan of landowners with their increased role in alternative business from consensus to expand lake area with additional 2 ha of private land in east and north up to 820 masl	Plan	1	500	500	400	100	0	0	0	500	
5.2.14	Remove weeds from lake twice a year, and use weeds for manure for basin level plantation	Mechanism -1 + Times	2	200	400	80	80	80	80	80	400	
5.2.15	Construct dam from Kriyaputri Bhavan to foothill (north), and regulate all season water level at least 3 m in lake to ensure water spread in 10 ha with irrigation structure	Lumpsum	1	8000	8000	80	6400	800	400	320	8000	
5.2.16	Encourage extensive fishing of Tilapia following PES mechanism and discourage strictly any introduction of it	Lumpsum	1	1000	1000	200	200	200	200	200	1000	
Sub Total E					160595	20905	94475	32670	8410	4135	160595	
Outcome 6												2.17
Output 6.1	Output: Lake dependent vulnerable communities including women are empowered for economic sovereignty											
6.1.1	Assist women groups of Kamalpokhari to work under one umbrella structure	Network	1	100	100	50	50	0	0	0	100	
6.1.2	Assist umbrella women group to prepare their plan with focus on vulnerable groups, and implement it	Plan	1	3000	3000	1500	1500	0	0	0	3000	
6.1.3	Strengthen women and groups of Bishwakarma communities for their income activities	Lumpsum to group	1	3000	3000	1500	1500	0	0	0	3000	

No.	Output/Activities	Unit	Target	Amount NRS (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
6.1.4	Assist disadvantage group to prepare their plan and implement it for economic empowerment	Plan + Lumpsum	1	3000	3000	0	1500	1200	300	0	3000	
Output 6.2	Meaningful participation of women and vulnerable groups in lake governance											
6.2.1	Ensure representation of women and vulnerable groups in lake management and community institutions	Meeting	10	20	200	80	90	10	10	10	200	
6.2.2	Promote leadership role for women and vulnerable groups in the lake governance	Lumpsum	1	250	250	50	125	50	25	0	250	
Sub Total F					9550	3180	4765	1260	335	10	9550	
Outcome 7												4.91
Output 7.1	Output: Socioecological monitoring protocol is in place and operational											
7.1.1	Develop Long term social and ecological monitoring protocol for Kamalpokhari	Protocol	1	200	200	50	40	38	36	36	200	
7.1.2	Assess and monitor Land Use Land Change in the lake basin	Monitoring time	8	25	200	40	40	40	40	40	200	
7.1.3	Assess, prepare monitoring plan, and monitor the biodiversity status and ecological characters of lake	Plan-1 + Times	8	25	200	120	20	20	20	20	200	
7.1.4	Introduce lake health card to monitor water quality in quarterly basis at National Standards for irrigation, fishery and recreation	Station-1 + Times	10	200	2000	1840	40	40	40	40	2000	
Output 7.2	Prepare and disseminate knowledge products											
7.2.1	Develop and disseminate knowledge products on Kamalpokhari lake basin	Learning document	3	500	1500	0	375	375	375	375	1500	

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
7.2.2	Develop/strengthen community level network for knowledge sharing	Network	1	700	700	140	140	140	140	140	700	
7.2.3	Prepare and publish awareness materials on lakes & Ramsar provision for government personnel; students; (4 sets)**	Lumpsum	1	400	400	100	80	76	72	72	400	
Output 7.3	Capacity of Stakeholders strengthened											
7.3.1	Organize sensitization annual events for personnel of line agencies (7*3 days) to integrate lake issues in their planning	md	21	4	84	16.8	16.8	16.8	16.8	16.8	84	
7.3.2	Organize training for communities (25*3days) of Kamalpokhari lake conservation and Ramsar provision	md	75	4	300	60	60	60	60	60	300	
7.3.3	Organize training to village leaders (7*3 days) of Kamalpokhari basin for integrating issues of Phewa and Ramsar provision in their annual planning	md	21	4	84	16.8	16.8	16.8	16.8	16.8	84	
7.3.4	Organize sensitization event to urban communities (100*1 day) of Metropolis on Kamalpokhari lake & Ramsar	md	100	1	100	20	20	20	20	20	100	
7.3.5	Organize training for school teachers (15*3days) to incorporate lake and Ramsar provision in their extracurricular activities in each schools	md	45	4	180	36	36	36	36	36	180	
7.3.6	Conduct regular conservation programs at schools including events management such as World Wetlands Day; World Environment Day; World Biodiversity Day etc	Event	5	25	125	25	25	25	25	25	125	

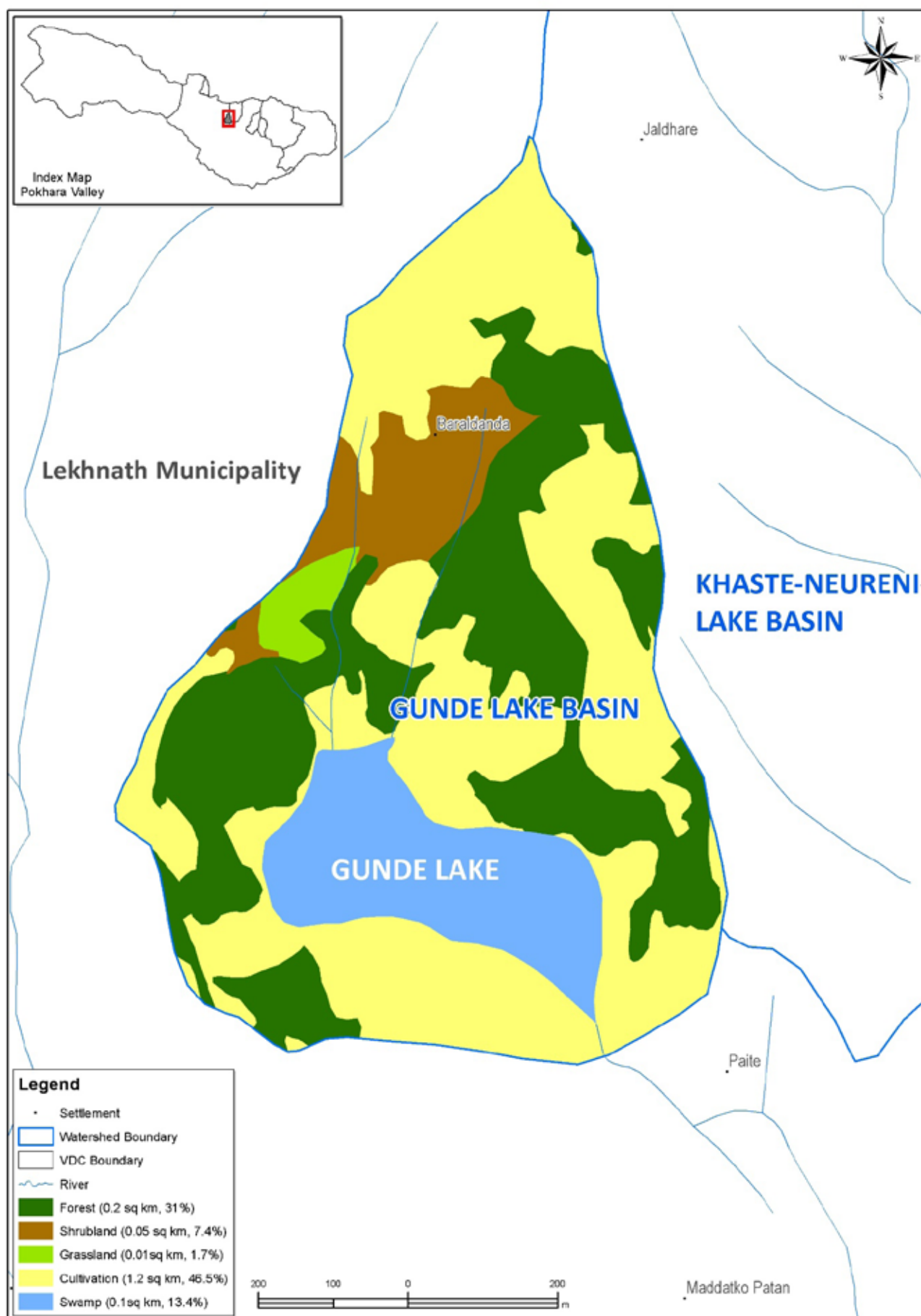
No.	Output/Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
7.3.7	Organize exposure visit for integrated lake basin management for government personnel (35); communities (60); village leaders (25) and teachers (50)	md (170*5)	850	12	10200	2040	2040	2040	2040	2040	10200	
7.3.8	Conduct awareness programs on biodiversity conservation, climate change (Local fair)	Fair	5	500	2500	500	500	500	500	500	2500	
7.3.9	Conduct capacity building trainings for EBA with a view of lake conservation integrated to the prosperity of communities	Training (10*3)	30	4	120	24	24	24	24	24	120	
7.3.10	Conduct training for scientific management of CFs (8) of Kamalpokhari lake basin	Training (8*3)	24	4	96	19.2	19.2	19.2	19.2	19.2	96	
7.3.11	Conduct capacity building trainings for business and entrepreneurship (25)	Training (25*7)	150	4	600	120	120	120	120	120	600	
7.3.12	Conduct capacity building trainings for hotel and guide (20)	Training (20*20)	400	5	2000	400	400	400	400	400	2000	
Sub Total G					21589	5567.8	4012.8	4006.8	4000.8	4000.8	21589	
Outcome 8												2.98
Output 8.1	Kamalpokhari Lake Conservation Cooperative (KPCC) is created and operationalized											
8.1.1	Assist communities to consolidate scattered many institutions for the establishment of Kamalpokhari Conservation Cooperative (KPCC) based on proven experience cooperative mechanism	Workshop	2	45	90	18	18	18	18	18	90	
8.1.2	Organize meeting and workshops to bring existing NGOs/CBOs in Kamal Pokhari (KP) lake basin for their collective inputs & actions under KPCC	Workshop	2	45	90	18	18	18	18	18	90	

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
Output 8.2	Sustainable financing mechanism is created and operationalized**											
8.2.1	Develop a plan for sustainable financing mechanism including resources from tourism businesses, government support, and international funding mechanisms	Workshop	2	30	60	60	0	0	0	0	60	
8.2.2	Conduct workshop to discuss and agree on concept note with government entities; tourism & hotel association; FNCCI; Chamber of Commerce; financial institution and trade/business communities; NGOs etc for their contribution keeping PES as incentives to all	Workshop	1	45	45	45	0	0	0	0	45	
8.2.3	Creation of Trust Fund with clearly defined proportion of contribution from the government and other sources regularly for Kamalpokhari lake	Annual input	5	2000	10000	2000	2000	2000	2000	2000	10000	
8.2.4	Support NGOs for proposal based funding for Kamalpokhari lake basin program and activities on climate resilient biodiversity and prosperity	Workshop	5	100	500	100	100	100	100	100	500	
8.2.5	Provide grant Rs. 1 million for initial 2 years administrative support to KPCC	Grant	1000	2	2000	1000	1000	0	0	0	2000	
Output 8.3	Multi-stakeholders institution is coordinated for the shared strengt***											
8.3.1	Conduct workshop to set functional mechanism for the synergy from sectoral intervention with protocol and action plan	Workshop	1	45	45	45	0	0	0	0	45	

No.	Output/Activities	Unit	Target	Amount NRS (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
8.3.2	Conduct coordination meeting for review progresses and prospects for shared resources and opportunities following protocol and implementation of action plan	Meeting	10	30	300	60	60	60	60	60	300	
Sub Total H					13130	3346	3196	2196	2196	2196	13130	
GRAND TOTAL					439944	47708	226656	108435	33642	23504	439944	
Yearly (%)						10.84	51.52	24.65	7.65	5.34	100	

*** Activity indicate complementing activity to other lake basin

C. ILBM PLAN OF GUNDE



10.3 Integrated Lake Basin Management Plan of Gunde

10.3.1 Log-frame of ILBM plan of Gunde

Re	Narratives	Indicators	Means of verification
1	Outcome: Empowered lake basin governance system for the LCPV contributes to efficient management with inter-sectoral coordination and meaningful public participation	Functioning institutions dedicated for Gunde lake basin management	Government gazettes, decrees, Annual Reports
	Outputs		
1.1	Ramsar Unit within Ward is formed and operationalized	Functioning Ramsar Unit	Government decrees
1.2	Gunde Conservation Cooperative (GCC) is created and operationalized	- Functioning GCC - Resources generated	Government decrees
1.3	Boundary (core and buffer area) of Gunde lake is clearly demarcated	Boundary of core and buffer area demarcated by 2017	Annual Progress Report
2	Outcome: Biodiversity and critical habitats are conserved and ecosystem services and processes enhanced in Gunde lake basin	Status of the biodiversity and critical habitats	District Reports
	Outputs		Study reports
2.1	Comprehensive assessment of biodiversity & critical habitats in Gunde lake basin is conducted	- Biodiversity assessment - Number of critical habitats conserved	
2.2	Forests and lake basin of Gunde lake are conserved	Number of ecosystem units conserved	Study reports, management plans
2.3	Valuation of ecosystem services of Gunde lake is conducted	Ecosystem value assessment	Study report
2.4	Native fish species, indigenous and traditional crop varieties and their wild relatives are conserved	- Number of native species conservation plan in practice - population status of native species	Management plan, progress reports
3	Outcome: Socio-economic prosperity of Gunde Lake Basin communities is enhanced	- Socio economic development indices - Number of functioning businesses created - Number of jobs created	Standard of Living Survey
	Outputs		
3.1	Lake based ecotourism is promoted	- Number of tourism related facilities/infrastructure created - Direct and indirect income generated through tourism	District Tourism report, Report of FNCCI, Living Standard Survey
3.2	Perennial crops and sustainable agriculture is promoted	Area of fields under perennial agriculture	Periodic Landuse landcover change assessment report DADO annual report
4	Outcome: Infrastructure		
	Outputs		
4.1	Environmental guidelines are enforced	Environmental guidelines enforced	Progress reports

Re	Narratives	Indicators	Means of verification
5	Outcome: Vulnerability of lake basin to climate change and disaster risk is reduced and lake basin environment improved		
	Outputs		
5.1	Natural and anthropogenic vulnerable sites and their causes are identified	• Number of vulnerable sites and causes identified	Multi-hazard risk assessment Study reports
5.2	Mitigatory measures are implemented	• Number of mitigatory measures undertaken • Area of lake restored • Decrease in the flow of waste and drain into the lake	Progress reports
6	Outcome: GESI mainstreamed at all levels and processes of lake basin management		
	Outputs		
6.1	Lake dependent vulnerable communities including women are empowered for economic sovereignty	• Number of vulnerable households supported • Increased income level of vulnerable households in comparison to other households	Progress reports Survey reports
6.2	Meaningful participation of women and vulnerable groups in lake governance enhanced	• Number of representatives of vulnerable group in managerial position in lake basin institutions	Progress reports
7	Outcome: Long-term socio-ecological monitoring, and knowledge management systems are established and functional		
	Outputs		
7.1	Long term social and ecological monitoring system of lake basin is established	• Implementation of Socio-ecological monitoring • Lake health card in practice	Periodic Assessment reports Progress Reports
7.2	Knowledge management and communication mechanism established	• Establishment of knowledge center • Number of knowledge products developed	Progress reports Knowledge products
7.3	Capacity of stakeholders strengthened	• Number of people trained	Progress reports Event reports
8	Outcome: Financial Sustainability		
	Outputs		
8.1	Sustainable administrative & financing mechanism for GCC is created and operational	• Functioning financing mechanism in place • Volume of fund generated and managed	Annual progress Report
8.2	Multi-stakeholders institution is coordinated for the shared strength	• Coordination protocol; Number of jointly operated activities • Joint resources generation	Annual Progress Report

10.3.2 Activities and implementation units for Gunde

Re	Narrative	Responsible Unit	
		Main	Ancillary
1	Outcome: Empowered lake basin governance system for the LCPV contributes to efficient management with inter-sectoral coordination and meaningful public participation		
1.1	Output: Ramsar Unit within Municipality is formed and operationalized		
1.1.1	Formulate special 'RAMSAR UNIT (R-Unit)' within Lekhnath Municipality and delegate authority for lake conservation program	DCC; NLCDC	POLEMC; PVTDC; DNPWC
1.2	Output: Gunde Lake Conservation Cooperative is created and operationalized		
1.2.1	Assist communities to consolidate scattered many institutions for the establishment of Gunde Conservation Cooperative (GCC) based on proven experience cooperative mechanism	DCC	POLEMC; NLCDC
1.2.2	Organize meeting/workshops to bring existing Ama Samuha; CFUGs; 2 lake committees; Youth Club; etc for their collective inputs and actions under GCC	DCC	POLEMC; NLCDC
1.3	Output: Boundary (core and buffer area) of Gunde lake is clearly demarcated		
1.3.1	Install reference pillars along shoreline of Gunde	DCC	MoALMC; PVTDC
1.3.2	Declare and enforce buffer area of lake in construction work (65 m) from reference pillars and regulate all intervention ensuring scenic lake view and '0' damage in water quality	DCC	MoALMC; PVTDC; POLEMC
1.3.3	Demarcate buffer zone of Gunde with clearly defined; garden area; agriculture; fish culture; recreation; CFs; and regulate construction of building and infrastructure activities	PVTDC; POLEMC	MoALMC; DCC
2	Outcome: Biodiversity and critical habitats are conserved and ecosystem services and processes enhanced in Gunde lake basin		
2.1	Output: Comprehensive assessment of biodiversity & critical habitats in Gunde lake basin is conducted		
2.1.1	Conduct comprehensive assessment of biodiversity and critical habitats in the lake basin	FO	GCC; IoF
2.2	Output: Forests and lake basin of Gunde lake are conserved		
2.2.1	Provide technical and financial support to CFs to implement plan for scientific management of CF	FO	POLEMC; GCC; CFUG
2.2.2	Provide technical and financial support for promotion of private forestry	FO	POLEMC; GCC
2.2.3	Assist CF users for the control of illegal hunting of wildlife in the forests of lake basin area	FO	GCC
2.2.4	Assist lake committee to enforce principles of illegal fishing in Gunde	FO; DFDO	GCC
2.3	Output: Valuation of ecosystem services of Gunde lake is conducted		
2.3.1	Conduct valuation of ecosystem services of lake	NLCDC	DoF; SCO; IoF
2.3.2	Initiate PES for conservation activities in the upstream area	SCO; FO	
2.4	Output: Native fish species, indigenous and traditional crop varieties and their wild relatives are conserved		

Re	Narrative	Responsible Unit	
		Main	Ancillary
2.4.1	Conduct and protect cultural practices and TK documentation related with biodiversity	MoFE	I/NGO
2.4.2	Identify TK practitioners and institutions, prepare their plan and implement plan	MoFE	I/NGO
2.4.3	Develop incentive mechanism for cultivation of native species of Jetho Budho & Pahelo rice	DAO; DLSO	GCC; I/NGO
3	Outcome: Socio-economic prosperity of Gunde Lake Basin communities is enhanced		
3.1	Output: Lake based ecotourism is promoted		
3.1.1	Assist communities to participate to KNCC to upgrade road condition for 2 lane structure from Budhi Bazar to Kharane Phant-Rakhidanda (6 km) with side drain; roadside plantation; rest places & parking sites	DCC; POLEMC	PVTDC; Road division
3.1.2	Construct stone paved foot trail around Gunde with rest place; plantation; garden (new trail in north; east and west); improve trail in existing dam site	POLEMC; NLCDC	DCC; FO; GCC
3.1.3	Assist communities to participate to KNCC to prepare an Integrated City Plan (building code; drain; electricity; telephone; security post; link road; electricity; roadside plantation; sanitation facilities; recreational site etc) of Bhudi Bazar and Maddan ko Patan (BMP) and Kharane Phant	PVTDC; POLEMC	DCC
3.1.4	Prepare building code for all villages and settlements of Gunde basin area, and implement it	PVTDC, POLEMC	DCC
3.1.5	Facilitate communities to access Investment Mechanism to implement Integrated City Plan BMP and Site Plan of Kharane Phant	PVTDC, POLEMC	DCC; Banks
3.1.6	Prepare a beautification Site Plan of Gunde in view of lake tourism, and implement it (gardening; children park; recreational facilities; rest houses etc)	NLCDC	PTC; GCC
3.1.7	Construct a visitor information center in Sotakomukh with modern facilities	NTB	PTC; HAN; TAN; GCC
3.1.8	Establish facilities for tea and coffee house with water and sanitation very close of Padhera Mool	GCC	Ama Samuha
3.1.9	Create a recreation park with garden and structural intervention, rest places etc in uphill at Kalimati Mool	POLEMC; NLCDC	DCC; PVTDC; GCC
3.1.10	Construct 2 picnic spots of 60 man capacity with shelter, cook house; water & sanitation facilities very close of Majhako Mool	NLCDC; GCC	POLEMC, CBO, User Group
3.1.11	Construct walking trail with wooden bridges and decorative structure around Gunde along silt trap drain with decorative plantation; garden; rest places etc in appropriate places	NLCDC; POLEMC	PVTDC; DCC; GCC
3.1.12	Construct stairway (2) from Kalimati and Gharikodanda linking to Kalikachowk-Kalikasthan road	DCC; NLCDC	PVTDC; GCC; POLEMC
3.1.13	Provide fishing facilities (hook) with payment procedure following PES code	GCC	FO
3.1.14	Introduce 5 boats with gears/facilities for water sport	NLCDC; NTB	POLEMC; GCC
3.1.15	Assess for package tour linking other lakes, and organize tour	TAN; HAN	NTB; GCC

Re	Narrative	Responsible Unit	
		Main	Ancillary
3.1.16	Continue organizing cultural festival such as Ropai Day (Asadh 15)	GCC	I/NGOs
3.1.17	Collaborate in assessment survey for ropeway connecting Phewa-KP-KN-Gunde to other lakes/gorges and vantage sites, and implement it	DCC; NTB	POLEMC; NTB; FNCCI; Private
3.1.18	Conduct Baseline information on socio-economic features in Gunde lake basin	NLCDC	GCC
3.2	Output: Perennial crop agriculture is promoted		
3.2.1	Assist communities for assessment/development of Business Plan for multiyear crop and livestock in Baraldanda; Kalimati; and Paite with the provision of PES	DAO; DLSO	POLEMC; GCC
3.2.2	Support people implement business plan for organic coffee in 100 ha in all villages with provision of their selling to Phewa Lake Conservation Cooperative	DAO	POLEMC; GCC
3.2.3	Support people implement business plan for bamboo; banana & other fruits in 100 ha in Gullies & abandoned land	SCO, FO	DAO; GCC; I/NGO
3.2.4	Improve canal from Sotakomukh (outlet of Gunde) to provide irrigation facilities 1.5 sq km in Kharne Phant and Arghaun Besi via Paiteko Nak to Neureni	DAO; DCC	POLEMC; GCC
3.2.5	Conduct assessment to promote private forestry in 50 ha of abandoned and fallow land, and implement recommendation from assessment	FO	GCC
3.2.6	Conduct assessment and prepare Business Plan for 1 NR based enterprise development in Gunde	Cottage Industry	FO; GCC; Private
3.2.7	Provide technical and financial support to groups for implementing Business Plan de including integrated commercial fishery	DFDO;	FO; GCC
3.2.8	Assist users to brand their products of Gunde in markets through GCC	Cottage Industry	FO; GCC; Private
3.2.9	Support 50 HHs to implement Business Plan for dairy integrated to biogas installation	DLSO	GCC
3.2.10	Support 15 HHs to implement Business Plan for Poultry integrated to biomanure production and marketing	DAO	GCC
4	Outcome: Infrastructure		
4.1	Output: Environmental guidelines are enforced		
4.1.1	Enforce environmental regulations in road and building construction	PVTDC	DCC
5	Outcome: Vulnerability of lake basin to climate change and disaster risk is reduced and lake basin environment improved		
5.1	Output: Natural and anthropogenic vulnerable sites and their causes are identified		
5.1.1	Conduct vulnerability assessment at sub-basin level of Gunde	DCC; SCO	FO; IoF
5.2	Output: Mitigatory measures are implemented to reduce the vulnerability of the lake basin		
5.2.1	Develop landuse plan and implement it for controlling indiscriminate plotting and construction in Maddatko Patan, and area immediate in south of lake	DCC	PVTDC

Re	Narrative	Responsible Unit	
		Main	Ancillary
5.2.2	Assist communities to plant bamboo and rattan in 3 Galchi in north east of lake i.e., Kalimati, Budha Ko Chautaro; Champ Ko Chaur	GCC	SCO; FO
5.2.3	Encourage communities to plant multipurpose trees (fruit; bamboo; broomgrass; rattan etc) in private/public land below Kalikachowk to Kalikasthan road in Kalimati; Baraldanda; Gharikodanda and south east of Paite (50 ha)	SCO; FO	GCC
5.2.4	Assist communities to construct 20 km drain along Bijayapur-Kalikasthan road, 3km drain along link road from the cross section of Soto to Baraldanda connecting to Bijayapur-Kalikasthan road; 1.5 km x 1 m wide drain along 760 masl in north and just below banana garden and along shore line south of Gunde	POLEMC, PVTDC	DCC; NLCDC; GCC
5.2.5	Promote construction of safety tank facilities in 75 HHs of Kalimati, Baralko Ban and Baraldanda	DCC; DAO	GCC; POLEMC
5.2.6	Incorporate 'O' trash procedures (process, provision & penalties) in the constitutional provision of GCC, and enforce strictly the principles in all settlements in Kalimati, Baralko Ban and Baraldanda and Salgahari	POLEMC, GCC	DCC
5.2.7	Install sign post at 5 places for 'O Trash' in vantage points of KN such as Kalika Chowk; Bhudhi Bazar; Kalimati, Baralko Ban and Baraldanda and Salgahari	POLEMC; NTB	DCC; HAN; TAN
5.2.8	Remove soil from uncertified and occupied land from south in Maddatkopatan and in north east foothill	POLEMC; NLCDC	DCC; GCC
5.2.9	Develop a business plan of landowner with their increased role in alternative business from consensus to expand Gunde by 10 ha from Gharikodanda to Sotakomukh	NLCDC	DCC; GCC
5.2.10	Encourage extensive fishing of Tilapia following PES mechanism and discourage strictly any introduction of it	GCC; DFDO	FO
5.2.11	Establish greenbelt of 1 m wide water hyacinth band and Kamal Phool around shoreline in Gunde	GCC; NLCDC	POLEMC
5.2.12	Remove weeds and rhizomatous structure from lake thrice a year, and use weeds for manure for basin level plantation	GCC; NLCDC	DCC
5.2.13	Improve existing earthen dam up to 3 m up just 5 m away from Gharikodanda to Sotakomukh with paved trail, garden trees and rest places	NLCDC	DCC; GCC
5.2.14	Install water regulator at Sotakomukh of Gunde with a provision to retain 3 m water level in dry period	NLCDC	DCC; GCC
5.2.15	Prepare plan for protection of existing Kalimati, Koiralakokuno and Majhmool, and implement it	SCO; NLCDC	DCC; GCC
5.2.16	Construct feeder canal from Bijayapur Irrigation system into Ghude via Gharikodanda Nak (400 m)	Irrigation; DCC	POLEMC; GCC
6	Outcome: GESI mainstreamed at all levels and processes of lake basin management		
6.1	Output: Women & vulnerable lake communities are supported for economic sovereignty		

Re	Narrative	Responsible Unit	
		Main	Ancillary
6.1.1	Assist women groups of Gunde to work under one umbrella structure for their solidarity and synergy	DWCO	GCC
6.1.2	Assist umbrella women group to prepare their plan with focus on vulnerable groups, and implement it	DWCO	POLEMC; GCC
6.1.3	Strengthen women and groups of disadvantage communities for their income activities	DWCO	POLEMC; GCC, CBO
6.1.4	Assist disadvantage communities (Dalit) of Upparjare; Maddatko Patan; and Chapakochaur to organize under groups, and prepare and implement their plan for economic empowerment	DWCO	GCC
6.2	Output: Meaningful participation of women and vulnerable groups in lake governance		
6.2.1	Ensure representation of women and vulnerable groups in lake management and community institutions	DWCO	GCC; NLCDC
6.2.2	Promote leadership role for women and vulnerable groups in the lake governance	GCC; DWCO	
7	Outcome: Long-term socio-ecological monitoring, and knowledge management systems are established and functional		
7.1	Output: Socio-ecological monitoring protocol is in place and operational		
7.1.1	Develop Long term social and ecological monitoring protocol for Gunde	NLCDC	DCC
7.1.2	Assess and monitor land use land change in the lake basin	DCC; SCO	VDCs
7.1.3	Assess, prepare monitoring plan, and monitor the biodiversity status and ecological characters of lake	NLCDC	FO; SCO; IoF; Li-BIRD
7.1.4	Introduce lake health card to monitor water quality in quarterly basis at National Standards for irrigation, fishery and recreation	NLCDC	FO; SCO; IoF; I/NGO
7.2	Output: Prepare and disseminate knowledge products		
7.2.1	Develop and disseminate knowledge products on Gunde lake basin	POLEMC	I/NGOs
7.2.2	Develop/strengthen community level network for knowledge sharing	POLEMC	DCC; VDCs; NGOs
7.2.3	Prepare and publish awareness materials on lakes & Ramsar provision for government personnel; students; communities and village leaders (4 sets)	POLEMC; NLCDC	DCC; DoF; DNPWC; I/NGOs
7.3	Outputs: Capacity of stakeholders strengthened		
7.3.1	Organize sensitization annual events for personnel of line agencies (5*3 days) to integrate lake issues in their planning	POLEMC; NLCDC	DCC; DoF; IUCN; WWF; I/NGOs
7.3.2	Organize training for communities (20*3days) of Gunde lake conservation and Ramsar provision	POLEMC; NLCDC	DCC; DoF; DNPWC; NGOs
7.3.3	Organize training to village leaders (5*3 days) of Gunde basin for integrating issues of Ramsar provision in their annual planning	POLEMC; NLCDC	DCC; DNPWC; I/NGOs
7.3.4	Organize sensitization event to urban communities 70*1 day) of Municipality on Gunde lake & Ramsar	POLEMC; NLCDC	DCC; DNPWC; I/NGOs
7.3.5	Organize training for school teachers (4*3days) to incorporate lake and Ramsar provision in their extracurricular activities in each schools	POLEMC; NLCDC	DCC; DNPWC; I/NGOs

Re	Narrative	Responsible Unit	
		Main	Ancillary
7.3.6	Conduct regular conservation programs at schools including events management such as World Wetlands Day; World Environment Day; World Biodiversity Day etc	POLEMC; NLCDC	DCC; DNPWC; I/NGOs
7.3.7	Organize exposure visit for integrated lake basin management for government personnel (5); communities (20); village leaders (5) and teachers (4)	POLEMC	DCC; NLCDC
7.3.8	Conduct awareness programs on biodiversity conservation, climate change (Local fair)	POLEMC	FO; NLCDC
7.3.9	Conduct capacity building trainings for EBA with a view of lake conservation integrated to the prosperity of communities	FO	IoF
7.3.10	Conduct training for scientific management of CFs (2) of Gunde lake basin	FO	GCC; NLCDC
7.3.11	Conduct capacity building trainings for business and entrepreneurship (10)	FO	GCC; NLCDC
7.3.12	Conduct capacity building trainings for hotel and guide (10)	NTB	DCC; POLEMC
8	Outcome: Financial Sustainability		
8.1	Output: Sustainable administrative & financing mechanism for GCC is created and operational		
8.1.1	Develop a plan for sustainable financing mechanism including resources from tourism businesses, government support, and international funding mechanisms for Gunde lake basin environment and prosperity	DCC; NLCDC	MoF; PLCC
8.1.2	Conduct workshop to discuss and agree on concept note with Lekhnath Municipality; government entities; tourism/hotel association; FNCCI; Chamber of Commerce; financial institution and trade/business communities; NGOs etc for their contribution in sustainable financial mechanism keeping PES as incentives to all	DCC	DCC; MP; MoF; PLCC
8.1.3	Create Trust Fund with clearly defined proportion of contribution from the government and other sources regularly for Gunde lake	DCC	GCC; MoF; NLCDC
8.1.4	Explore collaborative business fund from PPP for lake business and scale up such intervention	GCC	Private
8.1.5	Support NGOs for proposal based funding for Gunde lake basin program and activities on climate resilient biodiversity and prosperity	NLCDC	DCC; GCC
8.1.6	Provide grant Rs. 1 million for initial 2 years administrative support to GCC	MoF; NLCDC	DCC
8.2	Output: Multi-stakeholders institution is coordinated for the shared strength		
8.2.1	Conduct workshop to set functional mechanism for the synergy from sectoral intervention with protocol and action plan	GCC	DCC
8.2.2	Conduct coordination meeting for review progresses and prospects for shared resources and opportunities following protocol and implementation of action plan	GCC	DCC

10.3.3 Budget for Gunde

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
Outcome 1												1.06
Output 1.1	Ramsar Unit within Municipality is formed and operationalized**											
1.1.1	Formulate special 'RAMSAR UNIT (R-Unit)' within Pokhara Lekhnath Metropolitan City and delegate authority for lake conservation program	R-Unit, mm	26	150	3900	780	780	780	780	780	3900	
Output 1.2	Boundary (core and buffer area) of all lakes is clearly demarcated											
1.2.1	Install reference pillars in shoreline of Gunde	Pillars	45	25	1125	562.5	562.5	0	0	0	1125	
1.2.2	Declare and enforce buffer area of lake in construction work (65 m) from reference pillars and regulate all intervention ensuring scenic lake view and '0' damage in water quality	Meeting, monitoring	6	50	300	60	60	60	60	60	300	
1.2.3	Demarcate buffer zone of Gunde with clearly defined; garden area; agriculture; fish culture; recreation; CFs; and regulate construction of building and infrastructure activities	Demarcation Plan	1	150	150	150	0	0	0	0	150	
Sub Total A					5475	1552.5	1402.5	840	840	840	5475	
Outcome 2												2.21
Output 2.1	Comprehensive assessment of biodiversity & critical habitats in Gunde lake basin is conducted											
2.1.1	Conduct comprehensive assessment of biodiversity and critical habitats in the lake basin	Research	1	1500	1500	1500	0	0	0	0	1500	
Output 2.2	Forests and lake basin of Gunde lake are conserved											
2.2.1	Provide technical and financial support to CFs to implement plan for scientific management of CF	Capacity building	3	2000	6000	3000	1500	1500	0	0	6000	
2.2.2	Provide technical and financial support for promotion of private forestry	Ha	50	30	1500	300	600	450	75	75	1500	
2.2.3	Assist CF users for the control of illegal hunting of wildlife in the forests of lake basin area	Capacity building	1	30	30	12	7.5	4.5	3	3	30	
2.2.4	Assist lake committee to enforce principles of illegal fishing in Gunde	Capacity building	3	30	90	45	36	9	0	0	90	

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
Output 2.3	Valuation of ecosystem services of Gunde lake is conducted											
2.3.1	Conduct valuation of ecosystem services of lake	Valuation study	1	700	700	700	0	0	0	0	700	
2.3.2	Initiate PES for conservation activities in the upstream area	Workshop	2	50	100	50	50	0	0	0	100	
Output 2.4	Native fish species, indigenous and traditional crop varieties and their wild relatives are conserved											
2.4.1	Conduct and protect cultural practices and TK documentation related with biodiversity	Documentation	1	300	300	30	270	0	0	0	300	
2.4.2	Identify TK practitioners and institutions, prepare their plan and implement plan	Plan	1	500	500	0	500	0	0	0	500	
2.4.3	Develop incentive mechanism for cultivation of native species of Jetho Budho & Pahelo rice	Mechanism	1	700	700	0	280	140	140	140	700	
Sub Total B					11420	5637	3243.5	2103.5	218	218	11420	
Outcome 3												39.32
Output 3.1	Lake based ecotourism is promoted											
3.1.1	Assist communities to participate to KNCC to upgrade road condition for 2 lane structure from Budhi Bazar to Kharane Phant-Rakhidanda (6 km) with side drain; roadside plantation; rest places & parking sites	km	6	5000	30000	600	21000	6000	1500	900	30000	
	Construct stone paved foot trail around Gunde with rest place; plantation; garden (new trail in north; east and west); improve trail in existing dam site	Lumpsum	1	20000	20000	400	14000	4400	600	600	20000	
3.1.3	Assist communities to participate to KNCC to prepare an Integrated City Plan (building code; drain; electricity; telephone; security post; link road; electricity; roadside plantation; sanitation facilities; recreational site etc) of Bhudi Bazar and Maddan ko Patan (BMP) and Kharane Phant	Plan	2	3000	6000	3000	3000	0	0	0	6000	

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
3.1.4	Prepare building code for all villages and settlements of Gunde basin area, and implement it	Building code	1	500	500	500	0	0	0	0	500	
3.1.5	Facilitate communities to access Investment Mechanism to implement Integrated City Plan BMP and Site Plan of Kharane Phant	Mechanism	1	500	500	150	150	100	50	50	500	
3.1.6	Prepare a beautification Site Plan of Gunde in view of lake tourism, and implement it (gardening, children park; recreational facilities; rest houses etc)	Site plan + implementation	1	15000	15000	150	9000	4500	750	600	15000	
3.1.7	Construct a visitor information center in Sotakomukh with modern facilities	Visitor center	1	8000	8000	80	4000	3200	400	320	8000	
3.1.8	Establish facilities for tea and coffee house with water and sanitation very close of Padhera Mool	Lumpsum	1	2000	2000	100	1600	100	100	100	2000	
3.1.9	Create a recreation park with garden and structural intervention, rest places etc in uphill at Kalimati Mool	Plan + Structure	1	12500	12500	125	10000	1875	250	250	12500	
3.1.10	Construct 2 picnic spots of 60 men capacity with shelter, cook house; water & sanitation facilities very close of Majhako Mool	Picnic spot	2	15000	30000	150	24000	5100	600	150	30000	
3.1.11	Construct walking trail with wooden bridges and decorative structure around Gunde along silt trap drain with decorative plantation; garden; rest places etc in appropriate places	m	500	50	25000	500	13000	10000	750	750	25000	
3.1.12	Construct stairway (2) from Kalimati and Gharikodanda linking to Kalikachowk-Kalikasthan road	m	250	30	7500	150	3900	3000	225	225	7500	
3.1.13	Provide fishing facilities (hook) with payment procedure following PES code	Lumpsum	1	50	50	10	10	10	10	10	50	
3.1.14	Introduce 3 boats with gears/facilities for water sport	Boat	3	2500	7500	0	7500	0	0	0	7500	

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
3.1.15	Assess for package tour linking other lakes, and organize tour	Lumpsum	1	2500	2500	125	1125	1000	125	125	2500	
3.1.16	Continue organizing cultural festival such as Ropain Day (Asadh 15)	Festival	5	500	2500	500	500	500	500	500	2500	
3.1.17	Collaborate in assessment survey for ropeway connecting Phewa-KP-KN-Gunde to other lakes/gorges and vantage sites, and implement it**	Survey; 30 km	1	20	20	2	18	0	0	0	20	
3.1.18	Conduct baseline assessment of socio-economic features of Gunde lake basin area	Assessment study	1	2000	2000	2000	0	0	0	0	2000	
Output 3.2	Multi-year conservation agriculture is promoted											
3.2.1	Assist communities for assessment/development of Business Plan (BP) for multiyear crop and livestock in Baraldanda; Kalimati; and Paite with the provision of PES	Business plan	1	1500	1500	1500	0	0	0	0	1500	
3.2.2	Support people implement business plan for organic coffee in 100 ha in all villages with provision of their selling to Phewa Lake Conservation Cooperative	ha	300	30	9000	450	2700	3600	1350	900	9000	
3.2.3	Support people implement business plan for bamboo; banana and other fruits in 100 ha in Gullies and abandoned land	Ha	100	30	3000	150	900	1200	450	300	3000	
3.2.4	Improve canal from Sotakomukh (outlet of Gunde) to provide irrigation facilities 1.5 sq km in Kharn Phant and Arghaun Besi via Paiteko Nak to Neureni	KM	1.5	2500	3750	37.5	3000	562.5	75	75	3750	
3.2.5	Conduct assessment to promote private forestry in 50 ha of abandoned and fallow land, and implement recommendation from assessment	Ha	50	30	1500	75	450	600	225	150	1500	
3.2.6	Conduct assessment and prepare BP for 1 NR based enterprise development in Gunde	Business plan	1	500	500	500	0	0	0	0	500	

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
3.2.7	Provide technical and financial support to groups for implementing BP in Gunde including integrated commercial fishery	Lumpsum	1	3000	3000	60	1500	900	300	240	3000	
3.2.8	Assist users to brand their products of Gunde in markets through PLCC	Lumpsum	1	700	700	0	490	70	70	70	700	
3.2.9	Support 50 HHs to implement BP for diary integrated to biogas installation	HH	50	100	5000	250	1500	2000	750	500	5000	
3.2.10	Support 15 HHs to implement BP for Poultry integrated to biomanure production and marketing	HH	15	250	3750	75	1125	1500	675	375	3750	
Sub Total C					203270	11639.5	124468	50217.5	9755	7190	203270	
Outcome 4												0.15
Output 4.3	Environmental guidelines are enforced											
4.3.1	Enforce environmental regulations in road and building construction	Lumpsum	1	500	800	160	160	160	160	160	800	
Sub Total D					800	160	160	160	160	160	800	
Outcome 5												50.64
Output 5.1	Natural and anthropogenic vulnerable sites and their causes are identified											
5.1.1	Conduct vulnerability assessment at sub-basin level of Gunde	Assessment study	1	1000	1000	1000	0	0	0	0	1000	
Output 5.2	Mitigatory measures are implemented to reduce the vulnerability of the lake basin											
5.2.1	Develop landuse plan and implement it for controlling indiscriminate plotting and construction in Maddatko Patan, and area immediate in south of lake	Plan	1	2500	2500	2500	0	0	0	0	2500	
5.2.2	Assist communities to plant bamboo and rattan in 3 Galchi in north east of lake i.e., Kalimatji, Budha Ko Chautaro; Champ Ko Chaur	HH	30	30	900	0	135	270	315	180	900	

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
5.2.3	Encourage communities to plant multipurpose trees (fruit; bamboo; broom grass; rattan etc) in private/public land below Kalikachowk to Kalikasthan road in Kalimati; Baraldanda; Gharikodanda and south east of Paite (50 ha)	Ha	40	40	1600	0	240	480	560	320	1600	
5.2.4	Assist communities to construct 20 km drain along Bijayapur-Kalikasthan road, 3 km drain along link road from the cross section of Soto to Baraldanda connecting to Bijayapur-Kalikasthan road; 1.5 km x 1 m wide drain along 760 masl in north and just below banana garden and along shore line south of Gunde	km roadside drain	20	10000	200000	4000	140000	40000	12000	4000	200000	
5.2.5	Promote construction of safety tank facilities in 75 HHs of Kalimati, Baralko Ban and Baraldanda	Biogas plant	75	400	30000	300	21000	7500	900	300	30000	
5.2.6	Incorporate 'o' trash procedures (process, provision & penalties) in the constitutional provision of GCC, and enforce strictly the principles in all settlements in Kalimati, Baralko Ban and Baraldanda and Salgahari	Lumpsum	1	45	45	45	0	0	0	0	45	
5.2.7	Install sign post at 5 places for 'O Trash' in vantage points of KN such as Kalika Chowk; Bhudhi Bazar; Kalimati; Baralko Ban and Baraldanda and Salgahari	Signpost	5	15	75	60	15	0	0	0	75	
5.2.8	Remove xxx tons of soil from uncertified and occupied land (xxx ha) from south in Maddatkopatan and in north east foothill	Lumpsum	1	10000	10000	8000	2000	0	0	0	10000	
5.2.9	Develop a business plan of landowner with their increased role in alternative business from consensus to expand Gunde by 10 ha from Gharikodanda to Sotakomukh	Plan	1	500	500	400	100	0	0	0	500	

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
5.2.10	Encourage extensive fishing of Tilapia following PES mechanism and discourage strictly any introduction of it	Lumpsum	1	1000	1000	200	200	200	200	200	1000	
5.2.11	Establish greenbelt of 1 m wide water hyacinth band and Kamal Phool around shoreline in Gunde	km	2	500	1000	1000	0	0	0	0	1000	
5.2.12	Remove weeds and rhizomatous structure from lake thrice a year, and use weeds for manure for basin level plantation	Mechanism -1 + Times	15	300	4500	900	900	900	900	900	4500	
5.2.13	Improve existing earthen dam up to 3 m up just 5 m away from Gharikodanda to Sotakomuk with paved trail, garden trees and rest places	Dam	1	5000	5000	4000	500	250	150	100	5000	
5.2.14	Install water regulator at Sotakomukhof Gunde with a provision to retain 3 m water level in dry period	Regulator	1	500	500	500	0	0	0	0	500	
5.2.15	Prepare plan for protection of existing water coup in Kalimati, Koiralkokuno and Majhmool, and implement it	Plan + Implementation	1	2000	2000	1000	1000	0	0	0	2000	
5.2.16	Construct feeder canal from Bijayapur Irrigation system into Ghude via Gharikodanda Nak (400 m)	km	0.4	3000	1200	60	1080	60	0	0	1200	
Sub Total E					261820	23965	167170	49660	15025	6000	261820	
Outcome 6												0.61
Output 6.1	Output: Lake dependent vulnerable communities including women are empowered for economic sovereignty											
6.1.1	Assist women groups of Gunde to work under one umbrella structure for their solidarity and synergy	Network	1	50	50	25	25	0	0	0	50	
6.1.2	Assist umbrella women group to prepare their plan with focus on vulnerable groups, and implement it	Plan	1	150	150	75	75	0	0	0	150	

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
6.1.3	Strengthen women and groups of Bishwakarma communities for their income activities	Lumpsum to group	1	700	700	350	350	0	0	0	700	
6.1.4	Assist disadvantage communities (Dalit) of upperjare; Maddatko Patan; and Chapakochoaur to organize under groups, and prepare and implement their plan for economic empowerment	Plan + Lumpsum	1	1500	1500	1500	0	0	0	0	1500	
Output 6.2	Meaningful participation of women and vulnerable groups in lake governance											
6.2.1	Ensure representation of women and vulnerable groups in lake management and community institutions	Meeting	10	50	500	200	225	25	25	25	500	
6.2.2	Promote leadership role for women and vulnerable groups in the lake governance	Lumpsum	1	250	250	50	125	50	25	0	250	
Sub Total F					3150	2200	800	75	50	25	3150	
Outcome 7												
Output 7.1	Output: Socioecological monitoring protocol is in place and operational											
7.1.1	Develop Long term social and ecological monitoring protocol for Gunde	Protocol	1	150	150	37.5	30	28.5	27	27	150	
7.1.2	Assess and monitor Land Use Land Change in the lake basin	Monitoring time	8	30	240	48	48	48	48	48	240	
7.1.3	Assess, prepare monitoring plan, and monitor the biodiversity status and ecological characters of lake	Plan-1 + Times	8	50	400	240	40	40	40	40	400	
7.1.4	Introduce lake health card to monitor water quality in quarterly basis at National Standards for irrigation, fishery and recreation	Station-1 + Times	10	300	3000	2760	60	60	60	60	3000	
Output 7.2	Prepare and disseminate knowledge products											
7.2.1	Develop and disseminate knowledge products on Gunde lake basin	Learning document	3	500	1500	0	375	375	375	375	1500	
7.2.2	Develop/strengthen community level network for knowledge sharing	Network	1	700	700	140	140	140	140	140	700	

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
7.2.3	Prepare and publish awareness materials on lakes & Ramsar provision for government personnel; students; communities and village leaders (4 sets)**	Lumpsum	1	700	700	175	140	133	126	126	700	
Output 7.3	Capacity of Stakeholders strengthened											
7.3.1	Organize sensitization annual events for personnel of line agencies (5*3 days) to integrate lake issues in their planning	md	15	4	60	12	12	12	12	12	60	
7.3.2	Organize training for communities (20*3days) of Gunde lake conservation and Ramsar provision	md	60	4	240	48	48	48	48	48	240	
7.3.3	Organize training to village leaders (5*3 days) of Kamalpokhari basin for integrating issues of Phewa and Ramsar provision in their annual planning	md	15	4	60	12	12	12	12	12	60	
7.3.4	Organize sensitization event to urban communities (70*1 day) of Metropolis on Kamalpokhari lake & Ramsar	md	70	4	280	56	56	56	56	56	280	
7.3.5	Organize training for school teachers (4*3days) to incorporate lake and Ramsar provision in their extracurricular activities in each school	md	12	4	48	9.6	9.6	9.6	9.6	9.6	48	
7.3.6	Conduct regular conservation programs at schools including events management such as World Wetlands Day; World Environment Day; World Biodiversity Day etc	Event	5	25	125	25	25	25	25	25	125	
7.3.7	Organize exposure visit for integrated lake basin management for government personnel (5); communities (20); village leaders (5) and teachers (4)	md (34*5)	170	12	2040	408	408	408	408	408	2040	
7.3.8	Conduct awareness programs on biodiversity conservation, climate change (Local fair)	Fair	5	500	2500	500	500	500	500	500	2500	

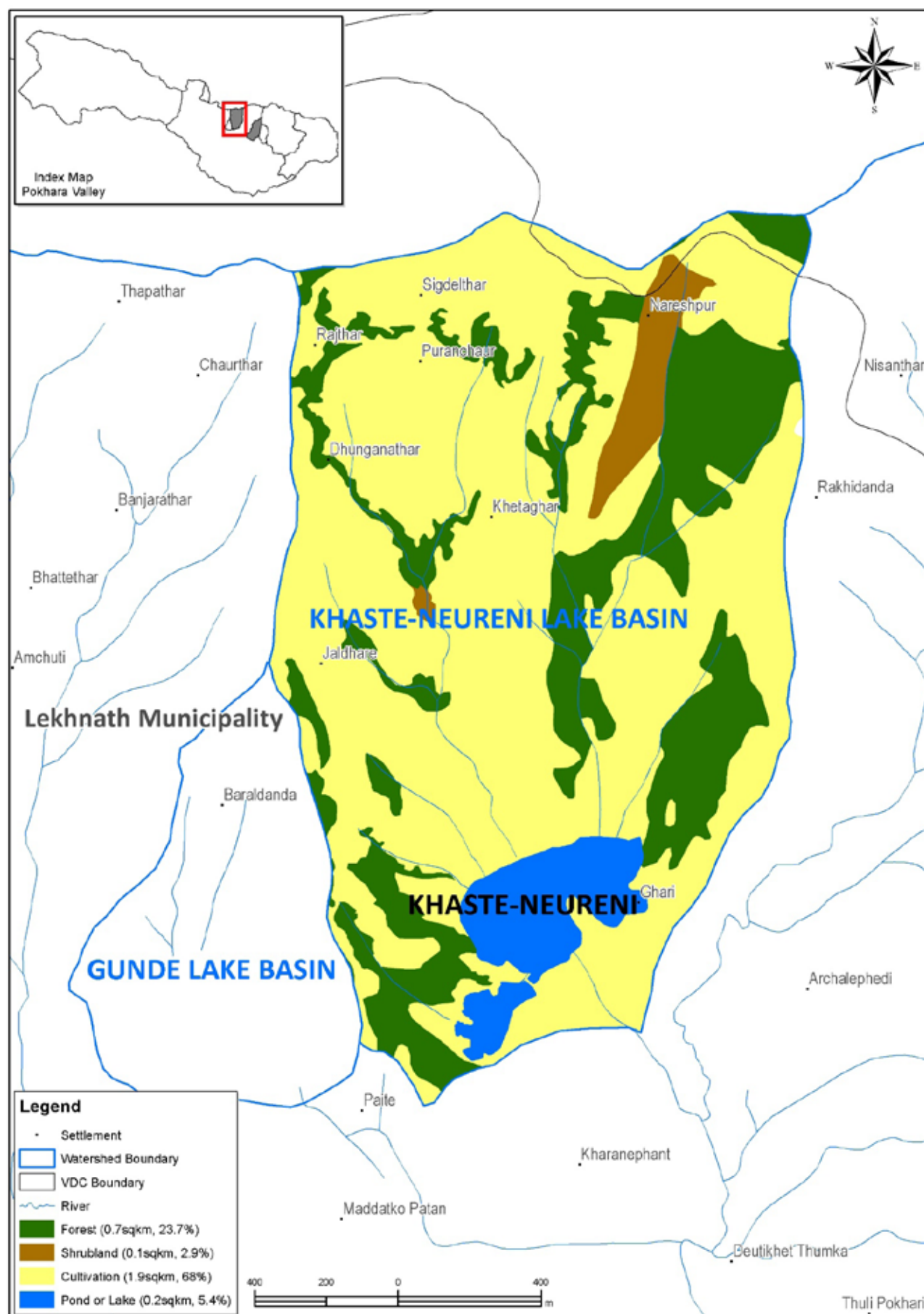
No.	Output/Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
7.3.9	Conduct capacity building trainings for EBA with a view of lake conservation integrated to the prosperity of communities	Training (10*3)	30	4	120	24	24	24	24	24	120	
7.3.10	Conduct training for scientific management of CFs (2) of Kamalpokhari lake basin	Training (2*3)	6	4	24	4.8	4.8	4.8	4.8	4.8	24	
7.3.11	Conduct capacity building trainings for business and entrepreneurship (10)	Training (10*7)	70	4	280	56	56	56	56	56	280	
7.3.12	Conduct capacity building trainings for hotel and guide (10)	Training (10*20)	400	5	2000	400	400	400	400	400	2000	
Sub Total G					14467	4955.9	2388.4	2379.9	2371.4	2371.4	14467	
Outcome 8											3.21	
Output 8.1	Gunde Lake Conservation Cooperative (GCC) is created and operationalized											
8.1.1	Assist communities to consolidate scattered many institutions for the establishment of Gunde Conservation Cooperative (GCC) based on proven experience cooperative mechanism	Workshop	2	45	90	18	18	18	18	18	90	
8.1.2	Organize meeting/workshops to bring existing Ama Samuha; CFUGs; 2 lake committees; Youth Club; etc for their collective inputs and actions under GCC	Workshop	2	45	90	18	18	18	18	18	90	
Output 8.2	Sustainable financing mechanism is created and operationalized**											
8.2.1	Develop a plan for sustainable financing mechanism including resources from tourism businesses, government support, and international funding mechanisms for Gunde lake basin environment and prosperity	Workshop	2	40	80	80	0	0	0	0	80	

** Activity indicate complementing other lake basin.

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
8.2.2	Conduct workshop to discuss and agree on concept note with Lekhnath Municipality; government entities; tourism/hotel association; FNCCI; Chamber of Commerce; financial institution and trade/business communities; NGOs etc for their contribution in sustainable financial mechanism keeping PES as incentives to all	Workshop	1	50	50	50	0	0	0	0	50	
8.2.3	Create Trust Fund with clearly defined proportion of contribution from the government and other sources regularly for Gunde lake	Annual input	5	2500	12500	2500	2500	2500	2500	2500	12500	
8.2.4	Explore collaborative business fund from PPP for lake business and scale up such intervention	Event	5	50	250	50	100	100	0	0	250	
8.2.5	Support NGOs for proposal based funding for Gunde lake basin program and activities on climate resilient biodiversity and prosperity	Workshop	5	200	1000	200	200	200	200	200	1000	
8.2.6	Provide grant Rs. 1 million for initial 2 years administrative support to GCC	Grant	1000	2	2000	1000	1000	0	0	0	2000	
Output 8.3	Multi-stakeholders institution is coordinated for the shared strength											
8.3.1	Conduct workshop to set functional mechanism for the synergy from sectoral intervention with protocol and action plan	Workshop	1	50	50	50	0	0	0	0	50	
8.3.2	Conduct coordination meeting for review progresses and prospects for shared resources and opportunities following protocol and implementation of action plan	Meeting	10	50	500	100	100	100	100	100	500	
Sub Total H					16610	4066	3936	2936	2836	2836	16610	
GRAND TOTAL					517012	54176	303568	108372	31255	19640	517012	
Yearly (%)						10.48	58.72	20.96	6.05	3.80	100	

*** Activity indicate complementing activity to other lake basin

D. ILBM PLAN OF KHASTE & NEURENI



10.4 Integrate Lake Basin Management Plan of Khaste-Neureni

10.4.1 Log frame for ILBM plan of Khaste-Neureni

Re	Narratives	Indicators	Means of verification
1	Outcome: Empowered lake basin governance system for the LCPV contributes to efficient management of Khaste-Neureni Lake, with inter-sectoral coordination and meaningful public participation	Functioning institutions dedicated for Khaste Neureni lake basin management	Government gazettes, decrees, Annual Reports
	Outputs		
1.1	Ramsar Unit within Municipality is formed and operationalized	Functioning Ramsar Unit	Government decrees
1.2	Boundary (core and buffer area) of Khaste Neureni lake is clearly demarcated	Boundary of core and buffer area demarcated by 2017	Annual Progress Report
2	Outcome: Biodiversity and critical habitats of Khaste Neureni lake basin are conserved and ecosystem services and processes enhanced	Status of the biodiversity and critical habitats	District Reports
	Outputs		Study reports
2.1	Comprehensive assessment of biodiversity & critical habitats in Khaste Neureni lake basin is conducted	Biodiversity assessment Number of critical habitats conserved	
2.2	Forests and lake basin of Khaste Neureni lake are conserved	Number of ecosystem units conserved	Study reports, management plans
2.3	Valuation of ecosystem services of Khaste Neureni lake is conducted	Ecosystem value assessment	Study report
2.4	Native fish species, indigenous and traditional crop varieties and their wild relatives are conserved	Number of native species conservation plan in practice population status of native species	Management plan, progress reports
3	Outcome: Socio-economic prosperity of lake basin communities is enhanced	Socio economic development indices Number of functioning businesses created Number of jobs created	Standard of Living Survey
	Outputs		
3.1	Lake based ecotourism is promoted	Number of tourism related facilities/ infrastructure created • Direct and indirect income generated through tourism	District Tourism report, Report of FNCCI, Living Standard Survey
3.2	Multi-year conservation agriculture is promoted	Area of field under multi-year farming Reduction in nutrient and sediment flow from the basin into the lake raised income through conservation farming	Periodic Landuse landcover change assessment report DADO annual report
4	Outcome: Infrastructure		
4.1	Environmental guidelines are enforced	Environmental guidelines enforced	Progress reports

Re	Narratives	Indicators	Means of verification
5	Outcome: Vulnerability of lake basin to climate change and disaster risk is reduced and lake basin environment improved		
	Outputs		
5.1	Natural and anthropogenic vulnerable sites and their causes are identified	Number of vulnerable sites and causes identified	Multi-hazard risk assessment Study reports
5.2	Mitigatory measures are implemented	Number of mitigatory measures undertaken Area of lake restored Decrease in the flow of waste and drain	Progress reports
6	Outcome: GESI mainstreamed at all levels and processes of lake basin management		
	Outputs		Progress reports Survey reports
6.1	Lake dependent vulnerable communities including women are empowered for economic sovereignty	Number of vulnerable households supported Increased income level of vulnerable HHs in comparison to other HHs	Progress reports
6.2	Meaningful participation of women and vulnerable groups in lake governance enhanced	Number of representatives of vulnerable group in managerial position in lake basin institutions	
7	Outcome: Long-term socio-ecological monitoring, and knowledge management systems are established and functional		
	Outputs		Periodic Assessment reports Progress Reports
7.1	Long term social and ecological monitoring system of lake basin is established	Implementation of Socio-ecological monitoring Lake health card in practice	Progress reports Knowledge products
7.2	Knowledge management and communication mechanism is established	Establishment of knowledge center Number of knowledge products developed	Progress reports Event reports
7.3	Capacity of stakeholders strengthened	Number of people trained	
8	Outcome: Sustainability		
	Outputs		
8.1	Khaste Neureni Lake Conservation Cooperative (KNCC) is created and operationalized	Functioning KNCC Resources generated	Government decrees
8.2	Sustainable administrative & financing mechanism for KNCC is created and operational	Functioning financing mechanism in place Volume of fund generated and managed	Annual progress Report
8.3	Multi-stakeholders institution is coordinated for the shared strength	Coordination protocol; Number of jointly operated activities; Joint resources generation	Annual Progress Report

10.4.2 Activities and Implementation Units for Khaste Neureni

Re	Narrative	Responsible Unit	
		Main	Ancillary
1	Outcome: Empowered lake basin governance system for the LCPV contributes to efficient management of Khaste-Neureni Lake, with inter-sectoral coordination and meaningful public participation		
1.1	Output: Ramsar Unit within Municipality is formed and operationalized		
1.1.1	Formulate special 'RAMSAR UNIT (R-Unit)' within Lekhnath Municipality and delegate authority for lake conservation program	DCC; NLCDC	POLEMC; PVTDC; DNPWC
1.2	Output: Boundary (core and buffer area) of Khaste Neureni lake is clearly demarcated		
1.2.1	Install reference pillars in shoreline of Khaste Neureni	DCC	MoAC; PVTDC; POLEMC
1.2.2	Declare and enforce buffer area of lake in construction work (65 m) from reference pillars and regulate all intervention ensuring scenic lake view and '0' damage in water quality	DCC	MoAC; PVTDC; POLEMC
1.2.3	Demarcate buffer zone of Khaste Neureni with clearly defined; garden area; agriculture; fish culture; recreation; CFs; and regulate construction of building and infrastructure activities	PVTDC	MoAC; DCC
2	Outcome: Biodiversity and critical habitats of Khaste Neureni lake basin are conserved and ecosystem services and processes enhanced		
2.1	Output: Comprehensive assessment of biodiversity & critical habitats in Khaste Neureni lake basin is conducted		
2.1.1	Conduct comprehensive assessment of biodiversity and critical habitats in lake basin	FO	KNCC; IoF
2.2	Output: Forests and lake basin of Khaste Neureni lake are conserved		
2.2.1	Prepare and implement management plan for biodiversity hotspot for KN with a provision of community managed NTFP garden and market plan	FO	KNCC; CFUG
2.2.2	Prepare and implement management plan to establish <i>in situ</i> Lotus garden in block with diverse species of Pokhara valley in Neureni in its extended area of 7 ha including information center	FO; NLCDC	I/NGO; CFUG
2.2.3	Review Operation Plan of CFs in view of lake management and scientific management of forests and biodiversity	FO	KNCC; CFUG
2.2.4	Provide technical and financial support for private forestry in adjoining of lake to prepare plan and implement it (100 ha)	FO	KNCC; CFUG
2.2.5	Assist communities to manage other private forests in basin in uphill basin area (25 ha)	FO	KNCC
2.2.6	Assist CF users for the control of illegal hunting of wildlife in the forests of lake basin area	FO	KNCC
2.2.7	Assist lake committee to enforce principles of illegal fishing in KN	FO; DFDO	KNCC
2.3	Output: Valuation of ecosystem services of Khaste Neureni lake is conducted		
2.3.1	Conduct valuation of ecosystem services of lake	NLCDC	DoF; SCO; IoF
2.3.2	Initiate PES for conservation activities in the upstream area	SCO; FO	IoF

Re	Narrative	Responsible Unit	
		Main	Ancillary
2.4	Output: Native fish species, indigenous and traditional crop varieties and their wild relatives are conserved		
2.4.1	Conduct and protect cultural practices and TK documentation related with biodiversity	MoFE	I/NGO
2.4.2	Identify TK practitioners and institutions, prepare their plan and implement plan	MoFE	I/NGO
2.4.3	Develop incentive mechanism for cultivation of native species of Jetho Budho & Pahelo rice	DAO; DLSO	KNCC; I/NGO
3	Outcome: Socio-economic prosperity of lake basin communities is enhanced		
3.1	Output: Lake based ecotourism is promoted		
3.1.1	Upgrade road condition for 2 lane structure from Budhi Bazar to Kharane Phant-Rakhidanda (6 km); Kharane Phant to Archale (5 km); Paiteko Nak to Neureni (300m) with side drain; roadside plantation; rest places & parking sites	DCC;	PVTDC; Road division
3.1.2	Prepare an Integrated City Plan (building code; drain; electricity; telephone; security post; link road; roadside plantation; sanitation facilities; recreational site and etc) Bhudi Bazar and Maddanko Patan; Kharane Phant	PVTDC	DCC; KNCC
3.1.3	Construct stone paved foot trail from Giroutari to Nareshpur; Tutung to Thum; Khamko to Jaldhare to increase access to KN (5.5 km)	NLCDC	DCC; KNCC
3.1.4	Construct <i>Krishi Sadak</i> from Mulhari-Lamachaur to Budhako Chautaro	Road division	DCC
3.1.5	Prepare building code for all villages and settlements of Khaste Neureni basin area, and implement it	PVTDC	DCC
3.1.6	Prepare mechanism for investment to implement Integrated City Plan of BMP and Site Plan of Kharane Phant	PVTDC	DCC; Banks
3.1.7	Conduct assessment for the promotion of Archale a tourism destination as birth place of Late Poet Lekhnath Poudel, and implement it	NTB; NLCDC	DCC; KNCC
3.1.8	Prepare a beautification Site Plan of Khaste Neureni in view of lake tourism, and implement it (gardening; children park; recreational facilities; rest houses etc)	NLCDC	NTB; KNCC
3.1.9	Construct a visitor information center with moderate facilities in Dihi (Neureni) with parking facilities	NTB	PTC; HAN; TAN; KNCC
3.1.10	Establish facilities for tea and coffee house with water/sanitation in an open space in Dihi in between Khaste & Neureni	KNCC	CBO, User Group
3.1.11	Construct facilities for picnic spot (2) in Katuje Mool with payment provision following PES	NLCDC; KNCC	CBO, POLEMC
3.1.12	Construct stairway from Ghari to Bhairabsthan; Khamko to Bairi Budhiko Chautaro; Katuje Mool to Baraldanda	NLCDC	DCC; KNCC
3.1.13	Provide fishing facilities (hook) with payment procedure following PES code	KNCC	FO
3.1.14	Introduce 5 boats with gears/facilities for water sport	NLCDC; NTB	KNCC
3.1.15	Assess for package tour linking other lakes, and organize tour	TAN; HAN	NTB; KNCC

Re	Narrative	Responsible Unit	
		Main	Ancillary
3.1.16	Continue organizing cultural festival such as Ropai Day (Asadh 15)	KNCC	I/NGO
3.1.17	Collaborate in assessment survey for ropeway connecting Phewa-KP-KN-Gunde-Khaste Neureni to other lakes/gorges and vantage sites, and implement it	DCC; NTB	POLEMC; NTB; FNCCI; Private
3.1.18	Conduct Baseline information on socio-economic features in Khaste Neureni lake basin	NLCDC	KNCC
3.2	Output: Multi-year conservation agriculture is promoted		
3.2.1	Assist communities for assessment/development of Business Plan (BP) for multiyear crop and livestock in Baraldanda; Jaldhare; Katunjeman; Khetaghar; Chaurthar; Dhunganathar; Puranchaur; Sigdelthar; Rajthar; Vareshpur; Rakhidanda; Archale; Ghari etc with the provision of PES	DAO; DLSO	KNCC
3.2.2	Support people implement business plan for organic coffee in 150 ha in all villages with provision of their selling to Phewa Lake Conservation Cooperative	DAO	KNCC
3.2.3	Support people implement business plan for bamboo; banana and other fruits in 200 ha in all Gullies and abandoned land	SCO, FO	DAO; KNCC; I/NGO
3.2.4	Conduct assessment to promote private forestry in 150 ha of abandoned and fallow land, and implement recommendation from assessment	FO	KNCC
3.2.5	Conduct assessment and prepare BP for 2 NR based enterprise development in KN	Cottage Industry	FO; KNCC; Private
3.2.6	Provide technical and financial support to groups for implementing BP in KN including integrated fishery development	DFDO	FO; KNCC
3.2.7	Assist users to brand their products of Khaste Neureni in markets through KNCC	Cottage Industry	FO; KNCC; Private
3.2.8	Support 70 HHs to implement BP for dairy integrated to biogas installation	DLSO	KNCC
3.2.9	Support 30 HHs to implement BP for Poultry integrated to biomanure production and marketing	DAO	KNCC
4	Outcome: Infrastructure		
4.1	Output: Environmental guidelines are enforced		
4.1.1	Develop and implement landuse plan for controlling indiscriminate plotting and construction	PVTDC	DCC
4.1.2	Enforce environmental regulations in road and building construction	DCC	PVTDC; KNCC
5	Outcome: Vulnerability of lake basin to climate change and disaster risk is reduced and lake basin environment improved		
5.1	Output: Natural and anthropogenic vulnerable sites and their causes are identified		
5.1.1	Conduct vulnerability assessment at sub-basin level of Khaste Neureni including assessment of rhizomatous body of wetlands	DCC; SCO	FO; IoF
5.2	Output: Mitigatory measures are implemented to reduce the vulnerability of the lake basin		
5.2.1	Develop landuse plan and implement it for controlling indiscriminate plotting and construction in Khaste Neureni	DCC	PVTDC

Re	Narrative	Responsible Unit	
		Main	Ancillary
5.2.2	Prepare micro-basin level plan (3) of Thulo Khola, Nuwara Khola and Rote Khola and implement these	SCO	DCC
5.2.3	Construct speed breaker cascade at 5 places in Thulo Khola; and 3 places each in Nuwara & 2 places Rote Khola before they discharge into lakes	SCO	KNCC
5.2.4	Construction of silt traps cascade in Nuwara (4), Rote (2) and Thulo Khola (5) at the foothill before they load silt into lake	SCO	DCC; NLCDC; KNCC
5.2.5	Encourage communities to plant multipurpose trees (fruit; bamboo; broomgrass; rattan etc) in private/public land in Baraldanda; Katuje Mool; Rakhidanda; Timilsinadanda; Kharagau; Jaldhare; Khetaghar; and all settlements area below Bijayapur-Kalikasthan road (75 ha)	SCO; FO	KNCC
5.2.6	Bamboo and broomgrass plantation in all Galchi such as Baraldanda; Sanikamki; Bhaitarne Budhachautro; Kushe Chautari; Phalchaur/Lamchaur; etc in KN (50 HH)	SCO; FO	KNCC
5.2.7	Construct 20 km drain along Bijayapur-Kalikasthan road; 3 km x 1 m wide drain around KN along north-east foothill at 783 masl with silt trap devices in every 500 m distance	PVTDC	DCC; NLCDC; KNCC
5.2.8	Promote construction of safety tank facilities in 90 HHs of major settlements integrated to biogas facilities in Baraldanda; Jaldhare; Khetaghar; Dhunganathar; Puranchaur; Nareshpur; Rakhidanda; Archale; Ghari etc	DCC; DAO	KNCC; POLEMC
5.2.9	Incorporate 'O' trash procedures (process, provision & penalties) in the constitutional provision of KNCC, and enforce strictly the principles in all settlements in hillside of Khaste Neureni and below Sigdelthar-Surke Maidan-Kalikasthan, and below Rakhidanda and Archale	POLEMC; KNCC	DCC
5.2.10	Install signposts at 40 places for 'O Trash' in vantage points of Khaste Neureni such as Kalika Chowk; Bhudhi Bazar; Kharene Phant; Maddatko Patan; Baraldanda; Jaldhare; Khetaghar; Dhunganathar; Puranchaur; Vareshpur; rakhidanda; Archale; Ghari etc	NTB	DCC; HAN; TAN
5.2.11	Install trash collection center at all settlements; and set mechanism to ensure its disposal quite regularly on 3 R principle	POLEMC	DCC; KNCC
5.2.12	Remove XXX tons of soil from uncertified and occupied land in north west at foothill & Tal Barahi temple site to restore core area of KN	NLCDC	DCC; KNCC
5.2.13	Develop a business plan of landowner with their increased role in alternative business from consensus to expand Neureni with additional 7 ha in north-east and 15 ha in Khaste in north-west	NLCDC	DCC; KNCC
5.2.14	Improve existing earthen dam up to 5 m from foothill of Paite just north of link road Maddatko Patan-Gaduwa Khola along west shoreline of Neureni to Khaste at Khamko Khet then connecting the north face of Ghari village with paved trail, garden trees and wooden rest places	NLCDC;	DCC; KNCC
5.2.15	Install water regulator at Gadua (outlet) of Khaste with a provision to increase 3 m water level up in dry period	NLCDC;	DCC; KNCC
5.2.16	Prepare plan for protection of Katuje and Dhungana Khamki Mool in KN, and implement it	NLCDC;	DCC; KNCC
5.2.17	Encourage extensive fishing of Tilapia following PES mechanism and discourage strictly any introduction of it	KNCC; DFDO	FO

Re	Narrative	Responsible Unit	
		Main	Ancillary
5.2.18	Establish greenbelt of 1 m wide water hyacinth band around shoreline in Khaste	KNCC; NLCDC	POLEMC
5.2.19	Remove rhizomatous weeds from boundary of core area thrice a year till core area expands up to 10 ha	KNCC; NLCDC	POLEMC
6	Outcome: GESI mainstreamed at all levels and processes of lake basin management		
6.1	Output: Lake dependent vulnerable lake communities including are supported for economic sovereignty		
6.1.1	Assist women groups of Khaste Neureni to work under one umbrella structure for their solidarity and synergy	DWCO	KNCC
6.1.2	Assist umbrella women group to prepare their plan with focus on vulnerable groups, & implement it	DWCO	KNCC
6.1.3	Support vulnerable women groups especially to implement plan for their entrepreneurial activities	DWCO	KNCC
6.1.4	Assist disadvantage communities (Dalit) to organize under groups, and prepare and implement their plan for economic empowerment	DWCO	KNCC
6.2	Output: Meaningful participation of women and vulnerable groups in lake governance		
6.2.1	Ensure representation of women and vulnerable groups in lake management and community institutions	DWCO	KNCC; NLCDC
6.2.2	Promote leadership role for women and vulnerable groups in the lake governance	KNCC; DWCO	
7	Outcome: Long-term socio-ecological monitoring, and knowledge management systems are established and functional		
7.1	Output: Socio-ecological monitoring protocol is in place and operational		
7.1.1	Develop Long term social and ecological monitoring protocol for Khaste Neureni	NLCDC	DCC; POLEMC
7.1.2	Assess and monitor Land Use Land Change in the lake basin	DCC; SCO	POLEMC
7.1.3	Assess, prepare monitoring plan, and monitor the biodiversity status and ecological characters of lake	NLCDC	FO; SCO; IoF; I/NGO
7.1.4	Introduce lake health card to monitor water quality in quarterly basis at National Standards for irrigation, fishery and recreation, and establish monitoring major sites (physical, chemical and biological properties)	NLCDC	FO; SCO; IoF; I/NGOs
7.2	Output: Prepare and disseminate knowledge products		
7.2.1	Develop and disseminate knowledge products on Khaste Neureni lake basin		I/NGOs
7.2.2	Develop/strengthen community level network for knowledge sharing		DCC; I/NGOs
7.2.3	Prepare and publish awareness materials on lakes & Ramsar provision for government personnel; students; communities and village leaders	NLCDC	DCC; DoF; DNPWC; I/NGOs
7.3	Output: Capacity of stakeholders strengthened		
7.3.1	Organize sensitization annual events for personnel of line agencies to integrate lake issues in their planning	NLCDC	DCC; DoF; I/NGOs

Re	Narrative	Responsible Unit	
		Main	Ancillary
7.3.2	Organize training for communities of Khaste Neureni lake conservation and Ramsar provision	NLCDC	DCC; DoF; DNPWC; I/NGOs
7.3.3	Organize training to village leaders of Khaste Neureni lake basin for integrating issues of Khaste Neureni and Ramsar provision in their annual planning	NLCDC	DCC; DNPWC; I/NGOs
7.3.4	Organize sensitization event to urban communities of Municipalities on Khaste Neureni lake and Ramsar provision	NLCDC	DCC; DNPWC; I/NGOs
7.3.5	Organize training for school teachers to incorporate lake and Ramsar provision in their extracurricular activities in each schools	NLCDC	DCC; DNPWC; I/NGOs
7.3.6	Conduct regular conservation programs at schools including events management such as World Wetlands Day; World Environment Day; World Biodiversity Day etc	NLCDC	DCC; DNPWC; I/NGOs
7.3.7	Organize exposure visit for integrated lake basin management for government personnel; communities; village leaders and teachers	POLEMC	DCC; NLCDC
7.3.8	Conduct awareness programs on biodiversity conservation, climate change	POLEMC	FO; NLCDC
7.3.9	Conduct capacity building trainings for EBA with a view of lake conservation integrated to the prosperity of communities	FO	IoF
7.3.10	Conduct training for scientific management of CFs of Khaste Neureni lake basin	FO	KNCC; NLCDC
7.3.11	Conduct capacity building trainings for business and enterprenuership	FO	KNCC; NLCDC
7.3.12	Conduct capacity building trainings for hotel and guide	NTB	DCC; POLEMC
8	Outcome: Financial Sustainability		
8.1	Output: Khaste Neureni Lake Conservation Cooperative is created and operationalized		
8.1.1	Assist communities to consolidate scattered many institutions for the establishment of Khaste Neureni Conservation Cooperative (KNCC) based on proven experience cooperative mechanism	DCC	MP; NLCDC
8.1.2	Organize meeting/workshops to bring existing Ama Samuha; CFUGs; 2 lake committee; Khaste Youth Club; Khaste Tal Barahi Mandir Samrakshan Samiti; Rakhi Chautari Youth Club; Rastriya Tal Barahai Mahila Samuha; Jana Jagriti Mahila Samuha; Paribartan Ka Lagi Yuba Aviyan etc for their collective inputs and actions under KNCC	DCC	MP; NLCDC
8.2	Output: Sustainable administrative & financing mechanism for KNCC is created and operational		
8.2.1	Develop a plan for sustainable financing mechanism including resources from tourism businesses, government support, and international funding mechanisms for Khaste Neureni lake basin environment and prosperity	DCC; NLCDC	MoF; PLCC
8.2.2	Organize meeting/workshops to bring existing Ama Samuha; CFUGs; 2 lake committee; Khaste Youth Club; Khaste Tal Barahi Mandir Samrakshan Samiti; Rakhi Chautari Youth Club; Rastriya Tal Barahai Mahila Samuha; Jana Jagriti Mahila Samuha; Paribartan Ka Lagi Yuba Aviyan etc for their collective inputs and actions under KNCC	DCC	DCC; CBO; MoF; PLCC

Re	Narrative	Responsible Unit	
		Main	Ancillary
8.2.3	Create Trust Fund with clearly defined proportion of contribution from the government and other sources regularly for Khaste Neureni lake	DCC	KNCC; MoF; NLCDC
8.2.4	Explore national and global networking for scale up intervention	KNCC	Private
8.2.5	Support NGOs for proposal based funding for Khaste Neureni lake basin program and activities on climate resilient biodiversity and prosperity	NLCDC	DCC; KNCC
8.2.6	Provide grant Rs. 1 million for initial 2 years administrative support to KNCC	MoF; NLCDC	DCC;
8.3	Output: Multi-stakeholders institution is coordinated for the shared strength		
8.3.1	Conduct workshop to set functional mechanism for the synergy from sectoral intervention with protocol & action plan	KNCC	DCC;
8.3.2	Conduct coordination meeting for review progresses and prospects for shared resources and opportunities following protocol and implementation of action plan	KNCC	DCC;

10.4.3 Budget for Khaste Neureni

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
Outcome 1												0.46
Output 1.1	Ramsar Unit within Municipality is formed and operationalized***											
1.1.1	Formulate special 'RAMSAR UNIT (R-Unit)' within Pokhara Lekhnath Metropolitan City and delegate authority for lake conservation program	R-Unit, mm	26	150	3900	780	780	780	780	780	3900	
Output 1.2	Boundary (core and buffer area) of all lakes is clearly demarcated											
1.2.1	Install reference pillars in shoreline of Khaste Neureni	Pillars	60	25	1500	750	750	0	0	0	1500	
1.2.2	Declare and enforce buffer area of lake in construction work (65 m) from reference pillars and regulate all intervention ensuring scenic lake view and '0' damage in water quality	Meeting, monitoring	6	100	600	120	120	120	120	120	600	
1.2.3	Demarcate buffer zone of Khaste Neureni with clearly defined; garden area; agriculture; fish culture; recreation; CFs; and regulate construction of building and infrastructure activities	Demarcation Plan	1	150	150	150	0	0	0	0	150	
Sub Total A	Conduct comprehensive assessment of biodiversity and critical habitats in the lake basin				6150	1800	1650	900	900	900	6150	
Outcome 2												2.22
Output 2.1	Comprehensive assessment of biodiversity & critical habitats in Khaste Neureni lake basin is conducted											
2.1.1	Conduct comprehensive assessment of biodiversity and critical habitats in the lake basin	Research	1	2000	2000	2000	0	0	0	0	2000	
Output 2.2	Forests and lake basin of Khaste Neureni lake are conserved											

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year						Total	%
				Rate	Total	1	2	3	4	5	Total		
2.2.1	Prepare and implement management plan for biodiversity hotspot for KN with a provision of community managed NTFP garden and market plan	Plan	1	1500	1500	1500	0	0	0	0	1500		
2.2.2	Prepare and implement management plan to establish <i>in situ</i> Lotus garden in block with diverse species of Pokhara valley in Neureni in its extended area of 7 ha including information center	Ha	7	2500	17500	875	8750	5250	1750	875	17500		
2.2.3	Review Operation Plan of CFs (9) in view of lake management and scientific management of forests and biodiversity	Review Plan	9	100	900	630	270	0	0	0	900		
2.2.4	Provide technical and financial support for private forestry in adjoining of lake to prepare plan and implement it (100 ha)	Ha	100	40	4000	800	1600	1200	200	200	4000		
2.2.5	Assist communities to manage other private forests in basin in uphill basin area (25)	Ha	25	30	750	0	375	375	0	0	750		
2.2.6	Assist CF users for the control of illegal hunting of wildlife in the forests of lake basin area	Capacity building	1	40	40	16	10	6	4	4	40		
2.2.7	Assist lake committee to enforce principles of illegal fishing in KN	Capacity building	3	40	120	60	48	12	0	0	120		
Output 2.3	Valuation of ecosystem services of Khaste Neureni lake is conducted												
2.3.1	Conduct valuation of ecosystem services of lake	Valuation study	1	700	700	700	0	0	0	0	700		
2.3.2	Initiate PES for conservation activities in the upstream area	Workshop	2	45	90	45	45	0	0	0	90		
Output 2.4	Native fish species, indigenous and traditional crop varieties and their wild relatives are conserved												

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year						Total	%
				Rate	Total	1	2	3	4	5	Total		
2.4.1	Conduct and protect cultural practices and TK documentation related with biodiversity	Documentation	1	500	500	50	450	0	0	0	500		
2.4.2	Identify TK practitioners and institutions, prepare their plan and implement plan	Plan	1	600	600	0	600	0	0	0	600		
2.4.3	Develop incentive mechanism for cultivation of native species of Jetho Budho & Pahelo rice	Mechanism	1	700	700	0	280	140	140	140	700		
Sub Total B					29400	6676	12428	6983	2094	1219	29400		
Outcome 3													50.70
Output 3.1	Lake based ecotourism is promoted												
3.1.1	Upgrade road condition for 2 lane structure from Budhi Bazar to Kharane Phant-Rakhidanda (6 km); Kharane Phant to Archale (5 km); Paiteko Nak to Neureni (300m) with side drain; roadside plantation; rest places & parking sites	Km	11.3	29000	327700	1638.5	229390	73732.5	16385	6554	327700		
3.1.2	Prepare an Integrated City Plan (building code; drain; electricity; telephone; security post; link road; roadside plantation; sanitation facilities; recreational site and etc) Bhudi Bazar and Maddanko Patan; Kharane Phant	Plan	1	3000	3000	1500	1500	0	0	0	3000		
3.1.3	Construct stone paved foot trail from Giroutari to Nareshpur; Tutung to Thum; Khamko to Jaldhare to increase access to KN (5.5 km)	Km	5.5	14000	77000	1540	53900	16940	2310	2310	77000		
3.1.4	Construct <i>Krishi Sadak</i> from Mulhari-Lamachaur to Budhako Chautaro	km	3.2	15000	48000	960	33600	10560	1440	1440	48000		

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year						Total	%
				Rate	Total	1	2	3	4	5	Total		
3.1.5	Prepare building code for all villages and settlements of Khaste Neureni basin area, and implement it	Building code	1	500	500	500	0	0	0	0	500		
3.1.6	Prepare mechanism for investment to implement Integrated City Plan of BMP and Site Plan of Kharane Phant	Mechanism	1	700	700	210	210	140	70	70	700		
3.1.7	Conduct assessment for the promotion of Archale a tourism destination as birth place of Late Poet Lekhnath Poudel, and implement it	Assessment + implement	1	15000	15000	1200	3000	9000	1500	300	15000		
3.1.8	Prepare a beautification Site Plan of Khaste Neureni in view of lake tourism, and implement it (gardening; children park; recreational facilities; rest houses etc)	Site plan + implementation	1	25000	25000	250	15000	7500	1250	1000	25000		
3.1.9	Construct a visitor information center with moderate facilities in Dihi (Neureni) with parking facilities	Visitor center	1	9000	9000	90	4500	3600	450	360	9000		
3.1.10	Establish facilities for tea and coffee house with water/sanitation in an open space in Dihi in between Khaste & Neureni	Lumpsum	1	2000	2000	100	1600	100	100	100	2000		
3.1.11	Construct facilities for picnic spot (2) in Katuje Mool with payment provision following PES	Picnic spot	2	10000	20000	100	16000	3400	400	100	20000		
3.1.12	Construct stairway from Ghari to Bhairabsthan; Khamko to Bairi Budhiko Chautaro; Katuje Mool to Baraldanda	km	5.2	15000	78000	780	40560	33540	2340	780	78000		
3.1.13	Provide fishing facilities (hook) with payment procedure following PES code	Lumpsum	1	75	75	15	15	15	15	15	75		
3.1.14	Introduce 5 boats with gears/facilities for water sport	Boat	5	2500	12500	0	12500	0	0	0	12500		

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year						Total	%
				Rate	Total	1	2	3	4	5	Total		
3.1.15	Assess for package tour linking other lakes, and organize tour	Lumpsum	1	2500	2500	125	1125	1000	125	125	2500		
3.1.16	Continue organizing cultural festival such as Ropai Day (Asadh 15)	Festival	5	500	2500	500	500	500	500	500	2500		
3.1.17	Complement in assessment survey for ropeway connecting Phewa-KP-i-KN-Gunde-Khaste Neureni to other lakes/gorges and vantage sites, and implement it ^{***}	Survey; 30 km	1	40	40	4	36	0	0	0	40		
3.1.18	Conduct Baseline information on socio-economic features in Khaste Neureni lake basin	Assessment study	1	2000	2000	2000	0	0	0	0	2000		
Output 3.2	Multi-year conservation agriculture is promoted												
3.2.1	Assist communities for assessment/development of Business Plan (BP) for multiyear crop and livestock in Baraldanda; Jaldhare; Katunjean; Khetaghar; Chaurthar; Dhunganathar; Puranchaur; Sigdelthar; Rajthar; Vareshpur; Rakhidanda; Archale; Ghari etc with the provision of PES	Business plan	1	2000	2000	2000	0	0	0	0	2000		
3.2.2	Support people implement business plan for organic coffee in 150 ha in all villages with provision of their selling to Phewa Lake Conservation Cooperative	ha	150	40	6000	300	1800	2400	900	600	6000		
3.2.3	Support people implement business plan for bamboo; banana and other fruits in 200 ha in all Gullies and abandoned land	Ha	200	40	8000	400	2400	3200	1200	800	8000		
3.2.4	Conduct assessment to promote private forestry in 150 ha of abandoned and fallow land, and implement recommendation from assessment	Ha	150	40	6000	300	1800	2400	900	600	6000		

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year						Total	%
				Rate	Total	1	2	3	4	5	Total		
3.2.5	Conduct assessment and prepare BP for 2 NR based enterprise development in KN	Business plan	2	700	1400	1400	0	0	0	0	1400		
3.2.6	Provide technical and financial support to groups for implementing BP in KN including integrated fishery development	Lumpsum	2	4000	8000	160	4000	2400	800	640	8000		
3.2.7	Assist users to brand their products of Khaste Neureni in markets through KNCC	Lumpsum	1	700	700	0	490	70	70	70	700		
3.2.8	Support 70 HHs to implement BP for diary integrated to biogas installation	HH	70	100	7000	350	2100	2800	1050	700	7000		
3.2.9	Support 30 HHs to implement BP for Poultry integrated to biomanure production and marketing	HH	30	250	7500	150	2250	3000	1350	750	7500		
Sub Total C					672115	16572.5	428276	176297.5	33155	17814	672115		
Outcome 4													0.21
Output 4.1	Environmental guidelines are enforced												
4.1.1	Develop and implement landuse plan for controlling indiscriminate plotting and construction	Plan	1	2000	2000	1600	100	100	100	100	2000		
4.1.2	Enforce environmental regulations in road and building construction	Lumpsum	1	500	800	160	160	160	160	160	800		
Sub Total D					2800	1760	260	260	260	260	2800		
Outcome 5													43.29
Output 5.1	Natural and anthropogenic vulnerable sites and their causes are identified												
5.1.1	Conduct vulnerability assessment at sub-basin level of Khaste Neureni	Assessment study	1	2000	2000	2000	0	0	0	0	2000		
Output 5.2	Mitigatory measures are implemented to reduce the vulnerability of the lake basin												

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year						Total	%
				Rate	Total	1	2	3	4	5	Total		
5.2.1	Develop landuse plan and implement it for controlling indiscriminate plotting and construction in Khaste Neureni	Plan	1	2500	2500	2500	0	0	0	0	2500		
5.2.2	Prepare micro-basin level plan (3) of Thulo Khola, Nuwara Khola and Rote Khola and implement these	Plan	3	2500	7500	375	7125	0	0	0	7500		
5.2.3	Construct speed breaker cascade at 5 places in Thulo Khola; and 3 places each in Nuwara & 2 places Rote Khola before they discharge into lakes	Cascade + Plantation	8	2000	16000	320	8000	6400	800	480	16000		
5.2.4	Construction of silt traps cascade in Nuwara (4), Rote (2) and Thulo Khola (5) at the foothill before they load silt into lake	Silt trap	11	6000	66000	660	26400	33000	3300	2640	66000		
5.2.5	Encourage communities to plant multipurpose trees (fruit; bamboo; broomgrass; rattan etc) in private/public land in Baraldanda; Katuje Mool; Rakidanda; Timilsinadanda; Kharagau; Jaldhare; Khetaghar; and all settlements area below Bijayapur-Kalikasthan road (75 ha)	Ha	75	40	3000	0	450	900	1050	600	3000		
5.2.6	Bamboo and broomgrass plantation in all Galchi such as Baraldanda; Sanikamki; Bhaitarne Budhachautro; Kushe Chautari; Phalchaur/Lamchaur; etc in KN (50)	HH	50	40	2000	0	300	600	700	400	2000		
5.2.7	Construct 20 km drain along Bijayapur-Kalikasthan road; 3 km x 1 m wide drain around KN along north-east foothill at 783 masl with silt trap devices in every 500 m distance	km roadside drain	20	20000	400000	8000	280000	80000	24000	8000	400000		

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year						Total	%
				Rate	Total	1	2	3	4	5	Total		
5.2.8	Promote construction of safety tank facilities in 90 HHs of major settlements integrated to biogas facilities in Baraldanda; Jaldhare; Khetaghar; Dhunganathar; Puranchaur; Nareshpur; rakhidanda; Archale; Ghari etc	Biogas plant	90	400	36000	360	25200	9000	1080	360	36000		
5.2.9	Incorporate 'O' trash procedures (process, provision & penalties) in the constitutional provision of KNCC, and enforce strictly the principles in all settlements in hillside of Khaste Neureni and below Sigdelthar-Surke Maidan-Kalikasthan, and below Rakhidanda and Archale	Lumpsum	1	45	45	45	0	0	0	0	45		
5.2.10	Install signposts at 40 places for 'O Trash' in vantage points of Khaste Neureni such as Kalika Chowk; Bhudhi Bazar; Kharene Phant; Maddatko Patan; Baraldanda; Jaldhare; Khetaghar; Dhunganathar; Puranchaur; Vareshpur; rakhidanda; Archale; Ghari etc	Signpost	40	15	600	480	120	0	0	0	600		
5.2.11	Install trash collection center at all settlements; and set mechanism to ensure its disposal quite regularly on 3 R principle	Thrash center	5	600	3000	2400	150	150	150	150	3000		
5.2.12	Remove XXX tons of soil from uncertified and occupied land in north west at foothill & Tal Barahi temple site to restore core area of KN	Lumpsum	1	20000	20000	16000	4000	0	0	0	20000		
5.2.13	Develop a business plan of landowner with their increased role in alternative business from consensus to expand Neureni with additional 7 ha in north-east and 15 ha in Khaste in north-west	Plan	1	700	700	560	140	0	0	0	700		

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year						Total	%
				Rate	Total	1	2	3	4	5	Total		
5.2.14	Improve existing earthen dam up to 5 m from foothill of Paite just north of link road Maddatko Patan-Gaduwa Khola along west shoreline of Neureni to Khaste at Khamko Khet then connecting the north face of Ghari village with paved trail, garden trees and wooden rest places	Dam	1	5000	5000	4000	500	250	150	100	5000		
5.2.15	Install water regulator at Gadua (outlet) of Khaste with a provision to increase 3 m water level up in dry period	Regulator	1	1000	1000	1000	0	0	0	0	1000		
5.2.16	Prepare plan for protection of Katuje and Dhungana Khamki Mool in KN, and implement it	Plan + Implementation	2	2000	4000	2000	2000	0	0	0	4000		
5.2.17	Encourage extensive fishing of Tilapia following PES mechanism and discourage strictly any introduction of it	Lumpsum	1	1000	1000	200	200	200	200	200	1000		
5.2.18	Establish greenbelt of 1 m wide water hyacinth band around shoreline in Khaste	km	1	500	500	500	0	0	0	0	500		
5.2.19	Remove rhizomatous weeds from boundary of core area thrice a year till core area expands up to 10 ha	Mechanism -1 + Times	10	300	3000	600	600	600	600	600	3000		
Sub Total E					573845	42000	355185	131100	32030	13530	573845		
Outcome 6													0.39
Output 6.1	Output: Lake dependent vulnerable communities including women are empowered for economic sovereignty												
6.1.1	Assist women groups of Khaste Neureni to work under one umbrella structure for their solidarity and synergy	Network	1	50	50	25	25	0	0	0	50		
6.1.2	Assist umbrella women group to prepare their plan with focus on vulnerable groups, & implement it	Plan	1	150	150	75	75	0	0	0	150		

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year						Total	%
				Rate	Total	1	2	3	4	5	Total		
6.1.3	Support vulnerable women groups especially to implement plan for their entrepreneurial activities	Lumpsum to group	1	2000	2000	1000	1000	0	0	0	2000		
6.1.4	Assist disadvantage communities (Dalit) to organize under groups, and prepare and implement their plan for economic empowerment	Plan + Lumpsum	1	2500	2500	2500	0	0	0	0	2500		
Output 6.2	Meaningful participation of women and vulnerable groups in lake governance												
6.2.1	Ensure representation of women and vulnerable groups in lake management and community institutions	Meeting	10	20	200	80	90	10	10	10	200		
6.2.2	Promote leadership role for women and vulnerable groups in the lake governance	Lumpsum	1	250	250	50	125	50	25	0	250		
Sub Total F					5150	3730	1315	60	35	10	5150		
Outcome 7													1.30
Output 7.1	Output: Socioecological monitoring protocol is in place and operational												
7.1.1	Develop Long term social and ecological monitoring protocol for Khaste Neureni	Protocol	1	150	150	37.5	30	28.5	27	27	150		
7.1.2	Assess and monitor Land Use Land Change in the lake basin	Monitoring time	8	12	96	19.2	19.2	19.2	19.2	19.2	96		
7.1.3	Assess, prepare monitoring plan, and monitor the biodiversity status and ecological characters of lake	Plan-1 + Times	8	20	160	96	16	16	16	16	160		
7.1.4	Introduce lake health card to monitor water quality in quarterly basis at National Standards for irrigation, fishery and recreation, and establish monitoring major sites (physical, chemical and biological properties)	Station-1 + Times	10	200	2000	1840	40	40	40	40	2000		

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
Output 7.2	Prepare and disseminate knowledge products											
7.2.1	Develop and disseminate knowledge products on Khaste Neureni lake basin	Learning document	3	700	2100	0	525	525	525	525	2100	
7.2.2	Develop/strengthen community level network for knowledge sharing	Network	1	700	700	140	140	140	140	140	700	
7.2.3	Prepare and publish awareness materials on lakes & Ramsar provision for government personnel; students; communities and village leaders (4 sets)**	Lumpsum	1	700	700	175	140	133	126	126	700	
Output 7.3	Capacity of Stakeholders strengthened											
7.3.1	Organize sensitization annual events for personnel of line agencies (10*3 days) to integrate lake issues in their planning	md	30	4	120	24	24	24	24	24	120	
7.3.2	Organize training for communities (50*3days) of Khaste Neureni lake conservation and Ramsar provision	md	150	4	600	120	120	120	120	120	600	
7.3.3	Organize training to village leaders (10*3 days) of Kamalpokhari basin for integrating issues of Phewa and Ramsar provision in their annual planning	md	30	4	120	24	24	24	24	24	120	
7.3.4	Organize sensitization event to urban communities (100*1 day) of Metropolis on Kamalpokhari lake & Ramsar	md	100	4	400	80	80	80	80	80	400	
7.3.5	Organize training for school teachers (10*3days) to incorporate lake and Ramsar provision in their extracurricular activities in each schools	md	30	4	120	24	24	24	24	24	120	

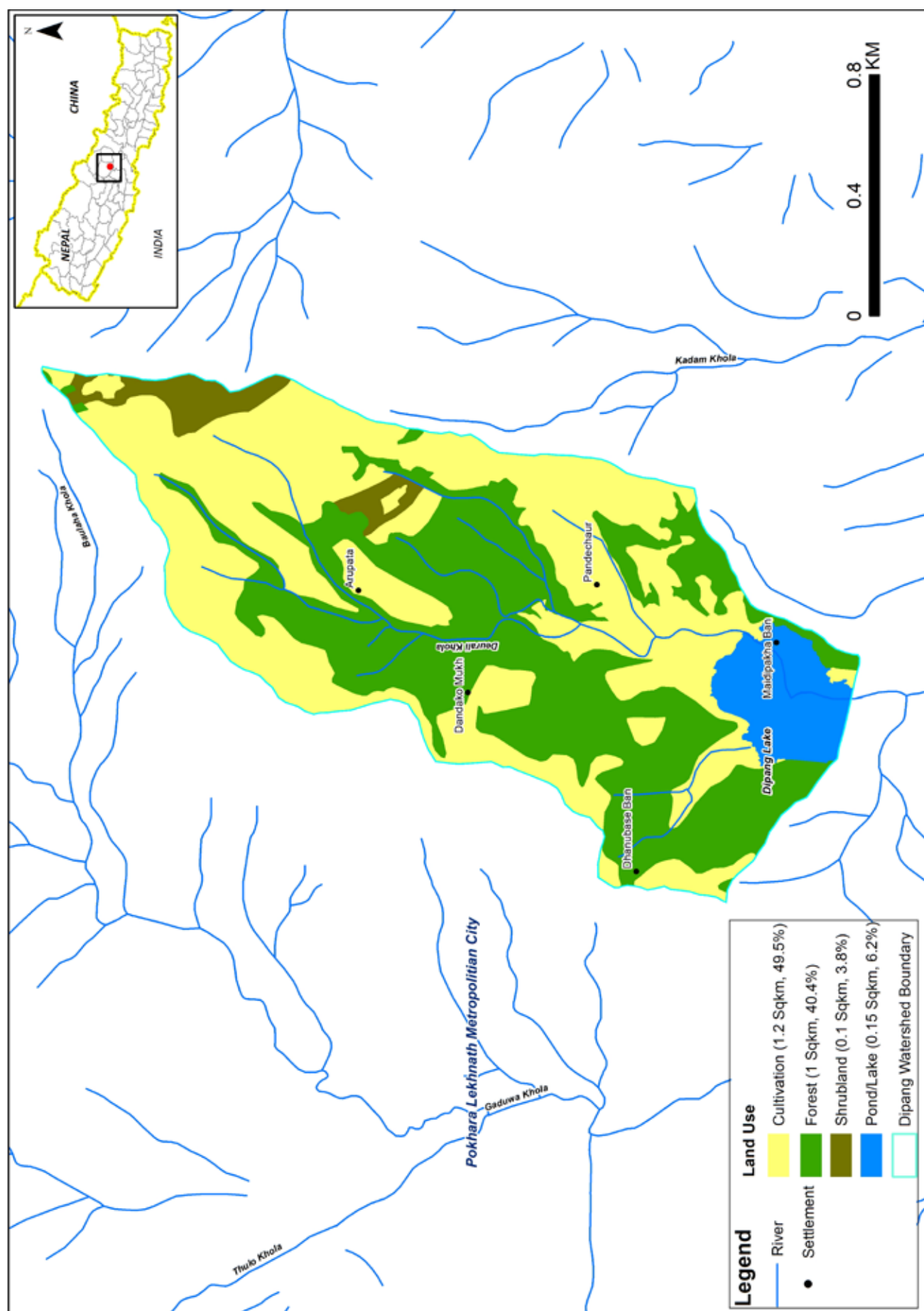
No.	Output/Activities	Unit	Target	Amount NRs (000)		Year						Total	%
				Rate	Total	1	2	3	4	5	Total		
7.3.6	Conduct regular conservation programs at schools including events management such as World Wetlands Day; World Environment Day; World Biodiversity Day etc	Event	5	25	125	25	25	25	25	25	125		
7.3.7	Organize exposure visit for integrated lake basin management for government personnel (5); communities (20); village leaders (5) and teachers (4)	md (34*5)	170	12	2040	408	408	408	408	408	2040		
7.3.8	Conduct awareness programs on biodiversity conservation, climate change (Local fair)	Fair	5	1000	5000	1000	1000	1000	1000	1000	5000		
7.3.9	Conduct capacity building trainings for EBA with a view of lake conservation integrated to the prosperity of communities	Training (15*3)	45	4	180	36	36	36	36	36	180		
7.3.10	Conduct training for scientific management of CFs (9) of Kamalpokhari lake basin	Training (9*3)	27	4	108	21.6	21.6	21.6	21.6	21.6	108		
7.3.11	Conduct capacity building trainings for business and entrepreneurship (20)	Training (20*7)	140	4	560	112	112	112	112	112	560		
7.3.12	Conduct capacity building trainings for hotel and guide (10)	Training (10*20)	400	5	2000	400	400	400	400	400	2000		
Sub Total G					17279	4582.3	3184.8	3176.3	3167.8	3167.8	17279		
Outcome 8													1.43
Output 8.1	Khaste Neureni Lake Conservation Cooperative (KNCC) is created and operationalized												
8.1.1	Assist communities to consolidate scattered many institutions for the establishment of Khaste Neureni Conservation Cooperative (KNCC) based on proven experience cooperative mechanism	Workshop	2	45	90	18	18	18	18	18	90		

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
8.1.2	Organize meeting/workshops to bring existing Ama Samuha; CFUGs; 2 lake committee; Khaste Youth Club; Khaste Tal Barahi Mandir Samrakshan Samiti; Rakhi Chautari Youth Club; Rastriya Tal Barahai Mahila Samuha; Jana Jagriti Mahila Samuha; Paribartan Ka Lagi Yuba Aviyan etc for their collective inputs and actions under KNCC	Workshop	2	45	90	18	18	18	18	18	90	
Output 8.2	Sustainable financing mechanism is created and operationalized***											
8.2.1	Develop a plan for sustainable financing mechanism including resources from tourism businesses, government support, and international funding mechanisms for Khaste Neureni lake basin environment and prosperity	Workshop	2	50	100	100	0	0	0	0	100	
8.2.2	Organize meeting/workshops to bring existing Ama Samuha; CFUGs; 2 lake committee; Khaste Youth Club; Khaste Tal Barahi Mandir Samrakshan Samiti; Rakhi Chautari Youth Club; Rastriya Tal Barahai Mahila Samuha; Jana Jagriti Mahila Samuha; Paribartan Ka Lagi Yuba Aviyan etc for their collective inputs and actions under KNCC	Workshop	1	50	50	50	0	0	0	0	50	
8.2.3	Create Trust Fund with clearly defined proportion of contribution from the government and other sources regularly for Khaste Neureni lake	Annual input	5	3000	15000	3000	3000	3000	3000	3000	15000	
8.2.4	Explore national and global networking for scale up intervention***	Event	5	50	250	50	100	100	0	0	250	

No.	Output/Activities	Unit	Amount NRs (000)		Year						Total	%
			Target	Rate	Total	1	2	3	4	5		
8.2.5	Support NGOs for proposal based funding for Khaste Neureni lake basin program and activities on climate resilient biodiversity and prosperity	Workshop	5	200	1000	200	200	200	200	200	1000	
8.2.6	Provide grant Rs. 1 million for initial 2 years administrative support to KNCC	Grant	1000	2	2000	1000	1000	0	0	0	2000	
Output 8.4	Multi-stakeholders institution is coordinated for the shared strength											
8.4.1	Conduct workshop to set functional mechanism for the synergy from sectoral intervention with protocol and action plan	Workshop	1	50	50	50	0	0	0	0	50	
8.4.2	Conduct coordination meeting for review progresses and prospects for shared resources and opportunities following protocol and implementation of action plan	Meeting	10	30	300	60	60	60	60	60	300	
Sub Total H					18930	4546	4396	3396	3296	3296	18930	
GRAND TOTAL					1325669	81667	806695	322173	74938	40197	1325669	
Yearly (%)						6.16	60.85	24.30	5.65	3.03	100	

*** Activity indicate complementing activity to other lake basin

E. ILBM PLAN OF DIPANG



10.5 Integrated Lake Basin Management Plan of Dipang

10.5.1 Log frame of ILBM plan of Dipang

Re	Narratives	Indicators	Means of verification
1	Outcome: Empowered lake basin governance system for the LCPV contributes to efficient management of Dipang Lake, with inter-sectoral coordination and meaningful public participation	Functioning institutions dedicated for Dipang lake basin management	Government gazettes, decrees, Annual Reports
	Outputs		
1.1	Ramsar Unit within Ward is formed and operationalized	Functioning Ramsar Unit	Government decrees
1.2	Boundary (core and buffer area) of Dipang lake is clearly demarcated	Boundary of core and buffer area demarcated	Annual Progress Report
2	Outcome: Biodiversity and critical habitats of Dipang lake basin are conserved and ecosystem services and processes enhanced	Status of the biodiversity and critical habitats	District Reports
	Outputs		Study reports
2.1	Comprehensive assessment of biodiversity & critical habitats in Dipang lake basin is conducted	Biodiversity assessment Number of critical habitats conserved	
2.2	Forests and lake basin of Dipang lake are conserved	Number of ecosystem units conserved	Study reports, management plans
2.3	Valuation of ecosystem services of Dipang lake is conducted	Ecosystem value assessment	Study report
2.4	Native fish species, indigenous and traditional crop varieties and their wild relatives are conserved	Number of native species conservation plan in practice population status of native species	Management plan, progress reports
3	Outcome: Socio-economic prosperity of Lake Basin communities is enhanced	Socio economic development indices Number of functioning businesses created Number of jobs created	Standard of Living Survey
	Outputs		
3.1	Lake based ecotourism is promoted	Number of tourism related facilities/infrastructure created Direct and indirect income generated through tourism	District Tourism report, Report of FNCCI, Living Standard Survey
3.2	Multi-year conservation agriculture is promoted	Area of field under multi-year farming Reduction in nutrient and sediment flow from the basin into the lake Raised income through conservation farming	Periodic Landuse landcover change assessment report DADO annual report
4	Outcome: Infrastructure		
4.3	Environmental guidelines are enforced	Environmental guidelines enforced	Progress reports

Re	Narratives	Indicators	Means of verification
5	Outcome: Vulnerability of lake basin to climate change and disaster risk is reduced and lake basin environment improved		
	Outputs		
5.1	Natural and anthropogenic vulnerable sites and their causes are identified	Number of vulnerable sites and causes identified	Multi-hazard risk assessment Study reports
5.2	Mitigatory measures are implemented to reduce the vulnerability of the lake basin	Number of mitigatory measures undertaken Area of lake restored Decrease in the flow of waste and drain	Progress reports
6	Outcome: Mainstreaming of GESI in all levels and processes of Lake Basin management		
	Outputs		
6.1	Lake dependent vulnerable communities including women are empowered for economic sovereignty	Number of vulnerable households supported Increased income level of vulnerable households in comparison to other households	Progress reports Survey reports
6.2	Meaningful participation of women and vulnerable groups in lake governance enhanced	Number of representatives of vulnerable group in managerial position in lake basin institutions	Progress reports
7	Outcome: Long-term socio-ecological monitoring, and knowledge management systems are established and functional		
	Outputs		
7.1	Long term social and ecological monitoring system of lake basin is established	Implementation of Socio-ecological monitoring Lake health card in practice	Periodic Assessment reports Progress Reports
7.2	Knowledge Management and Communication Center established	Establishment of knowledge center Number of knowledge products developed	Progress reports Knowledge products
7.3	Capacity of stakeholders strengthened	Number of people trained	Progress reports Event reports
8	Outcome: Financial Sustainability		
	Outputs		
8.2	Dipang Lake Conservation Cooperative (DLCC) is created and operationalized	Functioning DLCC Resources generated	Government decrees
8.3	Sustainable administrative & financing mechanism for DCC is created and operational	Functioning financing mechanism in place Volume of fund generated and managed	Annual progress Report
8.4	Multi-stakeholders institution is coordinated for the shared strength	Coordination protocol; Number of jointly operated activities Joint resources generation	Annual Progress Report

10.5.2 Activities and implementation units for Dipang

Re	Narrative	Responsible Unit	
		Main	Ancillary
1	Outcome: Empowered lake basin governance system for the LCPV contributes to efficient management of Dipang Lake, with inter-sectoral coordination and meaningful public participation		
1.1	Output: Ramsar Unit within Municipality is formed and operationalized		
1.1.1	Formulate special 'RAMSAR UNIT (R-Unit)' within Pokhara Lekhnath Metropolitan City and delegate authority for lake conservation program	DLCC; NLCDC	PVTDC; DNPWC
1.3	Output: Boundary (core and buffer area) of Dipang lake is clearly demarcated		
1.3.1	Install reference pillars in shoreline of Dipang	DLCC	MoAC; PVTDC
1.3.2	Declare and enforce buffer area of lake in construction work (65 m) from reference pillars and regulate all intervention ensuring scenic lake view and '0' damage in water quality	DLCC	MoAC; PVTDC;
1.3.3	Demarcate buffer zone of Dipang with clearly defined; garden area; agriculture; fish culture; recreation; CFs; and regulate construction of building and infrastructure activities	PVTDC	MoAC; DLCC
2	Outcome: Biodiversity and critical habitats of Dipang lake basin are conserved and ecosystem services and processes enhanced		
2.1	Output: Comprehensive assessment of biodiversity & critical habitats in Dipang lake basin is conducted		
2.1.1	Conduct comprehensive assessment of biodiversity and critical habitats in lake basin	FO	DLCC; IoF
2.2	Output: Forests and lake basin of Dipang lake are conserved		
2.2.1	Review Operation Plan of CFs (6) incorporating lake issues in view of lake management and scientific management of forests and biodiversity, and implement it plan	FO	DLCC; ACAP; CFs
2.2.2	Assist DCC for the establishment of community managed mini zoo focusing on reptile in Bhaltari Bhitte and Butterfly garden in Pakhuredanda	FO; DLCC	DLCC; ACAP; CFs
2.2.3	Provide technical and financial support to CFs to implement plan for scientific management of CF	FO	DCC; ACAP; CFs
2.2.4	Provide technical and financial support for private forestry in adjoining of lake to prepare plan and implement it (50ha)	FO	DCC; CFUG
2.2.5	Assist communities to manage other private forests in basin in uphill basin area (25 ha)	FO	DCC
2.2.6	Assist CF users for the control of illegal hunting of wildlife in the forests of lake basin area	FO	DLCC
2.2.7	Assist lake committee to enforce principles of illegal fishing in Dipang	FO; DFDO	DLCC
2.3	Output: Valuation of ecosystem services of Dipang lake is conducted		
2.3.1	Conduct valuation of ecosystem services of lake	NLCDC	DoF; SCO; IoF
2.3.2	Initiate PES for conservation activities in the upstream area	SCO; FO	IoF
2.4	Output: Native fish species, indigenous and traditional crop varieties and their wild relatives are conserved		

Re	Narrative	Responsible Unit	
		Main	Ancillary
2.4.1	Conduct and protect cultural practices and TK documentation related with biodiversity	MoFE	I/NGO
2.4.2	Identify TK practitioners and institutions, prepare their plan and implement plan	MoFE	I/NGO
2.4.3	Develop incentive mechanism for cultivation of native species of crops Jhetho budho, and other species.	DAO; DLSO	DLCC; I/NGO
3	Outcome: Socio-economic prosperity of Lake Basin communities is enhanced		
3.1	Output: Lake based ecotourism is promoted		
3.1.1	Upgrade road condition for 2 lane blacktop structure from Sisuwa Bazar-Parvati Tole-Pandechaur (4 km) with roadside plantation; rest places; parking venue; and side drain discharge to Deurali Khola	DLCC	PVTDC; Road division
3.1.2	Prepare an Integrated Village Plan (building code; drain; electricity; telephone; security post; link road; electricity; roadside plantation; sanitation facilities; recreational site etc) of Arupata, Pandechaur, Thapadanda and Belatari; Sahel Khet, Dipang Khet and Chhuchi area	PVTDC	DCC; DLCC
3.1.3	Prepare building code for all villages and settlements of Dipang basin area, and implement it	PVTDC	DLCC
3.1.4	Construct stone paved foot trail around Dipang with rest place; plantation; rattan bush garden (north; east & west) along 700 masl contour immediate to proposed slit trap drain	NLCDC	DCC; DLCC
3.1.5	Facilitate communities to access Investment Mechanism to implement Integrated Village Plan, Site Plan and building code in all settlements of Dipang	PVTDC	DCC; Banks
3.1.6	Prepare a beautification Site Plan of Dipang in view of lake tourism, and implement it (gardening; children park; recreational facilities; rest houses etc)	NLCDC	NTB; DLCC
3.1.7	Construct a visitor information center in Chhuchi with modern facilities	NTB	PTC; HAN; TAN; DCC
3.1.8	Establish facilities for tea and coffee house with water/sanitation in Bhujunge, Sani Khamki and Chhuchi.	DLCC	CBO, User Group
3.1.9	Construct 2 picnic spots of 60 man capacity with shelter, cook house; water & sanitation facilities in Kotre kuna and Sahelpakha	NLCDC; DCC	CBO, User Group
3.1.10	Construct walking trail with wooden bridges and decorative structure around Dipang along side silttrap drain with decorative plantation; garden; rest places etc	NLCDC	DCC; DLCC
3.1.11	Construct 10 floating village houses in with night stay facilities in Sahela Dhap, and floating honey moon cottage (10) in Kahure access from boat with provision of PES	HAN; DLCC	Private
3.1.12	Improve facilities in CFs and wetlands for birds watchers	DLCC; CF	FO; BCN; I/NGOs
3.1.13	Introduce 10 boats with gears/facilities for water sport	NLCDC; NTB	DCC
3.1.14	Assess for package tour linking other lakes, and organize tour	TAN; HAN	NTB; DLCC
3.1.15	Continue organizing cultural festival such as Ropai Day (Asadh 15)	DCC	POLEMC

Re	Narrative	Responsible Unit	
		Main	Ancillary
3.1.16	Collaborate in assessment survey for ropeway connecting Phewa-KP-KN-Gunde-Dipang to other lakes/gorges and vantage sites, and implement it	DCC; NTB	POLEMC; NTB; FNCCI; Private
3.1.17	Conduct Baseline information on socio-economic features in Dipang lake basin	NLCDC	DLCC
3.2	Output: Multi-year conservation agriculture is promoted		
3.2.1	Assist communities for assessment/development of Business Plan (BP) for multiyear crop and livestock in basin area of Dipang following the provision of PES	DAO; DLSO	DLCC
3.2.2	Support people implement business plan for organic coffee in 100 ha in all villages with provision of their selling to PLCC; bamboo, banana & other fruits in 80 ha in gullies and abandoned lands	DAO	DLCC
3.2.3	Conduct assessment to promote private forestry in 90 ha of abandoned and fallow land, and implement recommendation from assessment	FO	DLCC
3.2.4	Conduct assessment and prepare BP for 2 NR based enterprise development in Dipang	Cottage Industry	FO; DCC; Private
3.2.5	Provide technical and financial support to groups for implementing BP in Dipang including integrated commercial fishery	DFDO	FO; DLCC
3.2.6	Assist users to brand their products of Dipang in markets through DCC	Cottage Industry	FO; DLCC; Private
3.2.7	Support 80 HHs to implement BP for diary integrated to biogas installation	DLSO	DLCC
3.2.8	Support 30 HHs to implement BP for Poultry integrated to biomanure production and marketing	DAO	DLCC
4	Outcome: Infrastructure		
4.1	Output: Environmental guidelines are enforced		
4.1.1	Develop and implement landuse plan for controlling indiscriminate plotting and construction	DCC	PVTDC; KNCC
4.1.2	Enforce environmental regulations in road and building construction	DCC	PVTDC; KNCC
5	Outcome: Vulnerability of lake basin to climate change and disaster risk is reduced and lake basin environment improved		
5.1	Output: Natural and anthropogenic vulnerable sites and their causes are identified		
5.1.1	Conduct vulnerability assessment at sub-basin level of Dipang including assessment of rhizomatous body of wetlands	DCC; SCO	FO; IoF
5.2	Output: Mitigatory measures are implemented to reduce the vulnerability of the lake basin		
5.2.1	Develop landuse plan and implement it for controlling indiscriminate plotting and construction in Parvati Tole ways extended to the confluence of Deurali Khola; Sahela Khet; Khatre Ko Kuna; and Dipang Khet	DCC	PVTDC
5.2.2	Prepare micro-basin plans of Khatre Khola and its tributaries from Archale, Arupata and Dandako Mukh; Kusunde Khola and its tributaries from Kusunde, Pandechaur and Arupata; Kahur Khola and tributaries from Pakhuredanda and Dhanubase Ban and implement them	SCO	DLCC

Re	Narrative	Responsible Unit	
		Main	Ancillary
5.2.3	Construct speed breaker cascade in Baguwa Khola and its tributaries at 3 sites; Kusunde Khola at 3 sites; Kaure Khola in Sahela Pakha and Pakuredanda at 5 sites;	SCO	DLCC
5.2.4	Construct 3 silt trap devices for Khatre, Kahure and Kusunde Khola at foothill along 700 masl before they discharge into Dipang, and use silt for other productive purposes	SCO	DLCC; NLCDC; DCC
5.2.5	Assist communities to plant bamboo and rattan in Galchi in Sahela Pakha (4); Bhaltari (1); Khatre (3); Kahure (3); Kusunde (4) in 50 ha	SCO; FO	DLCC
5.2.6	Encourage communities to plant multipurpose trees (fruit; bamboo; broomgrass; rattan etc) in private/public land in Arupata (west); Bhaltri Bhitari; Pato; Khatre Kuna & Sahela Pakha (75 ha)	SCO; FO	DLCC
5.2.7	Construct the improvement of main trail from Kalikasthan to Lamswara (6 km) to ensure its drain discharge does not feed Dipang	DCC	VDCs
5.2.8	Construct 6 km x 1 m wide drain along 700 masl contour in north, east and west of Dipang with silt trap devices in every 500 m to collect surface water and agriculture runoff discharges to Deurali Khola safely	PVTDC	DCC; NLCDC; DLCC
5.2.9	Promote construction of safety tank facilities in 90 HHs of Kusunde; Arupata; Pandechaur; Sahela Pakha; and Chhuchi	DCC; DAO	DLCC
5.2.10	Incorporate '0' trash procedures (process, provision & penalties) in the constitutional provision of GCC, and enforce strictly the principles in all settlements of lake basin	POLEMC; DCC	DCC
5.2.11	Install signpost at 15 places for '0 Trash' in vantage points of Dipang such as entry point just at Deurali Pool, Chhuchi; Pandechaur; Arupate; Kusunde; Sahela Pakha etc	NTB	DCC; HAN; TAN
5.2.12	Install trash collection center at 5 major settlements; and set mechanism to ensure its disposal quite regularly on 3 R principle (Refuse, Reuse and Recycle)	VDC	DCC; DCC
5.2.13	Remove XXX tons of soil from uncertified and occupied land (10 ha) from the inlet of Khatre and from entire southwest of lake	POLEMC	DLCC; DCC
5.2.14	Develop a business plan of landowner with their increased role in alternative business from consensus to expand Dipang by 30 ha Sahela Dhap; Khatre; Kaure and Dipang Khet	NLCDC	DCC; DLCC
5.2.15	Shift existing earthen dam from Poultry Tudu straight to Panthkodanda (100 m south of existing dam site) gentle slope facing to lake with paved trail, garden trees and rest places (2 places)	NLCDC	PVTDC; DCC
5.2.16	Install water regulator in Deurali Khola (outlet) with a provision to retain 3 m water level in dry period, and regularize flow for biodiversity and irrigation	NLCDC	DCC
5.2.17	Prepare and implement plan for protection of existing 1 water source in Katre, 3 in Kahure; 4 in Dipang Khet, and implement it	DCC; CF	DCC
5.2.18	Encourage extensive fishing of Tilapia following PES mechanism and discourage strictly any introduction of it	DLCC; DFDO	FO
5.2.19	Establish greenbelt of 1 m wide water hyacinth band along existing earthen dam site, Dipang Khet and Khatre Khet (3 places with 500 m shoreline each)	DLCC; NLCDC	

Re	Narrative	Responsible Unit	
		Main	Ancillary
5.2.20	Remove weeds and rhizomatous structure (2 places) twice a year, and use weeds for manure for basin level plantation	DLCC; NLCDC	
6	Outcome: Mainstreaming of GESI in all levels and processes of Lake Basin management		
6.1	Output: Lake dependent vulnerable lake communities including women are supported for economic sovereignty		
6.1.1	Assist women groups of Dipang to work under one umbrella structure for their solidarity and synergy	DWCO	DLCC
6.1.2	Assist umbrella women group to prepare their plan with focus on vulnerable groups, and implement it	DWCO	DLCC
6.1.3	Support vulnerable women groups especially to implement plan for their entrepreneurial activities	DWCO	DLCC
6.1.4	Assist disadvantage communities (Dalit) of to organize under groups, and prepare and implement their plan for economic empowerment	DWCO	DLCC
6.2	Output: Meaningful participation of women and vulnerable groups in lake governance		
6.2.1	Ensure representation of women and vulnerable groups in lake management and community institutions	DWCO	DLCC; NLCDC
6.2.2	Promote leadership role for women and vulnerable groups in the lake governance	DLCC; DWCO	
7	Outcome: Long-term socio-ecological monitoring, and knowledge management systems are established and functiona		
7.1	Output: Socio-ecological monitoring protocol is in place and operational		
7.1.1	Develop Long term social and ecological monitoring protocol for Dipang	NLCDC	DCC; POLEMC
7.1.2	Assess and monitor Land Use Land Change in the lake basin	DCC; SCO	POLEMC
7.1.3	Assess, prepare monitoring plan, and monitor the biodiversity status and ecological characters of lake	NLCDC	FO; SCO; IoF; Li-BIRD
7.1.4	Introduce lake health card to monitor water quality in quarterly basis at National Standards for irrigation, fishery and recreation, and establish monitoring major sites (physical, chemical and biological properties)	NLCDC	FO; CO; IoF; I/NGO
7.2	Output: Prepare and disseminate knowledge products		
7.2.1	Develop and disseminate knowledge products on Dipang lake basin	POLEMC	I/NGOs
7.2.2	Develop/strengthen community level network for knowledge sharing	POLEMC	DCC; VDCs; I/NGOs
7.2.3	Prepare and publish awareness materials on lakes & Ramsar provision for government personnel; students; communities and village leaders (4 sets)	NLCDC	DCC; DoF; DNPWC; I/NGOs
7.3	Output: Capacity of stakeholders strengthened		
7.3.1	Organize sensitization annual events for personnel of line agencies (10*3 days) to integrate lake issues in their planning	NLCDC	DCC; DoF; IUCN; WWF; I/NGOs
7.3.2	Organize training for communities (40*3days) of Dipang lake conservation and Ramsar provision	NLCDC	DCC; DoF; DNPWC; I/NGOs

Re	Narrative	Responsible Unit	
		Main	Ancillary
7.3.3	Organize training to village leaders (10*3 days) of Dipang basin for integrating issues of lake and Ramsar provision in their annual planning	NLCDC	DCC; DNPWC; I/NGOs
7.3.4	Organize sensitization event to urban communities (70*1 day) of Municipality on Dipang lake & Ramsar	NLCDC	DCC; DNPWC; I/NGOs
7.3.5	Organize training for school teachers (10*3days) to incorporate lake and Ramsar provision in their extracurricular activities in each schools	NLCDC	DCC; DNPWC; I/NGOs
7.3.6	Conduct regular conservation programs at schools including events management such as World Wetlands Day; World Environment Day; World Biodiversity Day etc	NLCDC	DCC; DNPWC; I/NGOs
7.3.7	Organize exposure visit for integrated lake basin management for government personnel (5); communities (15); village leaders (5) and teachers (5)	POLEMC	DCC; NLCDC
7.3.8	Conduct awareness programs on biodiversity conservation, climate change (Local fair)	POLEMC	FO; NLCDC
7.3.9	Conduct capacity building trainings for EBA with a view of lake conservation integrated to the prosperity of communities	FO	IoF
7.3.10	Conduct training for scientific management of CFs (6) of Dipang lake basin	FO	DCC; NLCDC
7.3.11	Conduct capacity building trainings for business and entrepreneurship (15)	FO	DCC; NLCDC
7.3.12	Conduct capacity building trainings for hotel and guide (10)	NTB	DCC; POLEMC
8	Outcome: Financial Sustainability		
8.1	Output: Dipang Lake Conservation Cooperative is created and operationalized		
8.1.1	Assist communities to consolidate scattered many institutions for the establishment of Dipang Conservation Cooperative based on proven experience cooperative mechanism	DCC	MP; NLCDC
8.1.2	Organize meeting/workshops to bring existing Ama Samuha; Youth Club; Dipang Infrastructure & Construction Conservation Committee; Dipang Lake Agriculture Cooperative Institute; 4 CFs; Dipang Tal Tole Development Institute; Dipang Tal Mothers Group etc for their collective inputs and actions under DCC	DCC	MP; NLCDC
8.2	Output: Sustainable administrative & financing mechanism for DCC is created and operational		
8.2.1	Develop a plan for sustainable financing mechanism including resources from tourism businesses, government support, and international funding mechanisms for Dipang lake basin environment and prosperity	DCC; NLCDC	MoF; PLCC
8.2.2	Conduct workshop to discuss and agree on concept note with LM; government entities; tourism/hotel association; FNCCI; Chamber of Commerce; financial institution and trade/business communities; NGOs etc for their contribution in sustainable financial mechanism keeping PES as incentives to all	DCC	DCC; MP; MoF; PLCC
8.2.3	Create Trust Fund with clearly defined proportion of contribution from the government and other sources regularly for Dipang lake	DCC	DLCC; MoF; NLCDC
8.2.4	Explore national and global networking for scale up intervention	DLCC	Private

Re	Narrative	Responsible Unit	
		Main	Ancillary
8.2.5	Support NGOs for proposal based funding for Dipang lake basin program and activities on climate resilient biodiversity and prosperity	NLCDC	DCC; DLCC
8.2.6	Provide grant Rs. 1 million for initial 2 years administrative support to DCC	MoF; NLCDC	DCC
8.3	Output: Multi-stakeholders institution is coordinated for the shared strength		
8.3.1	Conduct workshop to set functional mechanism for the synergy from sectoral intervention with protocol & action plan	DLCC	DCC
8.3.2	Conduct coordination meeting for review progresses and prospects for shared resources and opportunities following protocol and implementation of action plan	DLCC	DCC

10.5.3 Budget for Dipang

No.	Output/Activities	Unit	Amount NRs (000)		Year					Total	%
			Target	Rate	Total	1	2	3	4	5	
Outcome 1											0.67
Output 1.1	Ramsar Unit within Municipality is formed and operationalized***										
1.1.1	Formulate special 'RAMSAR UNIT (R-Unit)' within Pokhara Lekhnath Metropolitan City and delegate authority for lake conservation program	R-Unit, mm	26	150	3900	780	780	780	780	780	3900
Output 1.2	Boundary (core and buffer area) of all lakes is clearly demarcated										
1.2.1	Install reference pillars in shoreline of Dipang	Pillars	50	25	1250	625	625	0	0	0	1250
1.2.2	Declare and enforce buffer area of lake in construction work (65 m) from reference pillars and regulate all intervention ensuring scenic lake view and 'o' damage in water quality	Meeting, monitoring	6	100	600	120	120	120	120	120	600
1.2.3	Demarcate buffer zone of Dipang with clearly defined; garden area; agriculture; fish culture; recreation; CFs; and regulate construction of building and infrastructure activities	Demarcation Plan	1	200	200	200	0	0	0	0	200
Sub Total A					5950	1725	1525	900	900	900	5950
Outcome 2											3.23
Output 2.1	Comprehensive assessment of biodiversity & critical habitats in Dipang lake basin is conducted										
2.1.1	Conduct comprehensive assessment of biodiversity and critical habitats in the lake basin	Research	1	2000	2000	2000	0	0	0	0	2000
Output 2.2	Forests and lake basin of Dipang lake are conserved										

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year						Total	%
				Rate	Total	1	2	3	4	5	Total		
2.2.1	Review Operation Plan of CFs (6) incorporating lake issues in view of lake management and scientific management of forests and biodiversity, and implement it plan	Review Plan	6	50	300	210	90	0	0	0	300		
2.2.2	Assist DCC for the establishment of community managed mini zoo focusing on reptile in Bhaltari Bhitleri and Butterfly garden in Pakhuredanda	Zoo	1	20000	20000	1000	16000	1000	1000	1000	20000		
2.2.3	Provide technical and financial support to CFs to implement plan for scientific management of CF	Capacity building	6	50	300	150	75	75	0	0	300		
2.2.4	Provide technical and financial support for private forestry in adjoining of lake to prepare plan and implement it (50ha)	Ha	50	40	2000	400	800	600	100	100	2000		
2.2.5	Assist communities to manage other private forests in basin in uphill basin area (25 ha)	Ha	25	40	1000	0	500	500	0	0	1000		
2.2.6	Assist CF users for the control of illegal hunting of wildlife in the forests of lake basin area	Capacity building	1	40	40	16	10	6	4	4	40		
2.2.7	Assist lake committee to enforce principles of illegal fishing in Dipang	Capacity building	3	100	300	150	120	30	0	0	300		
Output 2.3	Valuation of ecosystem services of Dipang lake is conducted												
2.3.1	Conduct valuation of ecosystem services of lake	Study	1	700	700	700	0	0	0	0	700		
2.3.2	Initiate PES for conservation activities in the upstream area	Workshop	2	45	90	45	45	0	0	0	90		
Output 2.4	Native fish species, indigenous and traditional crop varieties and their wild relatives are conserved												

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year						Total	%
				Rate	Total	1	2	3	4	5	Total		
2.4.1	Conduct and protect cultural practices and TK documentation related with biodiversity	Documentation	1	500	500	50	450	0	0	0	500		
2.4.2	Identify TK practitioners and institutions, prepare their plan and implement plan	Plan	1	600	600	0	600	0	0	0	600		
2.4.3	Develop incentive mechanism for cultivation of native species of crops Jhetho budho, and other species.	Mechanism	1	700	700	0	280	140	140	140	700		
Sub Total B					28530	4721	18970	2351	1244	1244	28530		
Outcome 3													48.85
Output 3.1	Lake based ecotourism is promoted												
3.1.1	Upgrade road condition for 2 lane blacktop structure from Sisuwa Bazar-Parvati Tole-Pandechar (4 km) with roadside plantation; rest places; parking venue; and side drain discharge to Deurali Khola	Km	4	60000	240000	1200	168000	54000	12000	4800	240000		
3.1.2	Prepare an Integrated Village Plan (building code; drain; electricity; telephone; security post; link road; electricity; roadside plantation; sanitation facilities; recreational site etc) of Arupata, Pandechar, Thapadanda and Belatari; Sahel Khet, Dipang Khet and Chhuchi area	Plan	1	4000	4000	2000	2000	0	0	0	4000		
3.1.3	Prepare building code for all villages and settlements of Dipang basin area, and implement it	Building code	1	700	700	700	0	0	0	0	700		
3.1.4	Construct stone paved foot trail around Dipang with rest place; plantation; rattan bush garden (north; east & west) along 700 masl contour immediate to proposed slit trap drain	Lumpsum	1	22500	22500	450	15750	4950	675	675	22500		

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year						
				Rate	Total	1	2	3	4	5	Total	%
3.1.5	Facilitate communities to access Investment Mechanism to implement Integrated Village Plan, Site Plan and building code in all settlements of Dipang	Mechanism	1	1000	1000	300	300	200	100	100	1000	
3.1.6	Prepare a beautification Site Plan of Dipang in view of lake tourism, and implement it (gardening; children park; recreational facilities; rest houses etc)	Site plan + implementation	1	25000	25000	250	15000	7500	1250	1000	25000	
3.1.7	Construct a visitor information center in Chhuchi with modern facilities	Visitor center	1	10000	10000	100	5000	4000	500	400	10000	
3.1.8	Establish facilities for tea and coffee house with water/sanitation in Bhujunge, Sani Khamki and Chhuchi.	Lumpsum	1	2000	2000	100	1600	100	100	100	2000	
3.1.9	Construct 2 picnic spots of 60 men capacity with shelter, cook house; water & sanitation facilities in Kotre kuna and Sahelpakha	Picnic spot	2	10000	20000	100	16000	3400	400	100	20000	
3.1.10	Construct walking trail with wooden bridges and decorative structure around Dipang along side silttrap drain with decorative plantation; garden; rest places etc	Wooden trail	1	15000	15000	150	7500	6000	750	600	15000	
3.1.11	Construct 10 floating village houses in with night stay facilities in Sahela Dhap, and floating honey moon cottage (10) in Kahure access from boat with provision of PES	Floating house	10	2500	25000	250	7500	16250	500	500	25000	
3.1.12	Improve facilities in CFs and wetlands for birds watchers	Lumpsum	1	2000	2000	100	1400	300	100	100	2000	
3.1.13	Introduce 10 boats with gears/facilities for water sport	Boat	5	2500	12500	0	12500	0	0	0	12500	
3.1.14	Assess for package tour linking other lakes, and organize tour	Lumpsum	1	2500	2500	125	1125	1000	125	125	2500	

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year						Total	%
				Rate	Total	1	2	3	4	5	Total		
3.1.15	Continue organizing cultural festival such as Ropai Day (Asadh 15)	Festival	5	500	2500	500	500	500	500	500	2500		
3.1.16	Complement in assessment survey for ropeway connecting Phewa-KP-KN-Gunde-Dipang to other lakes/gorges and vantage sites, and implement it**	Survey; 30 km	1	50	50	5	45	0	0	0	50		
3.1.17	Conduct Baseline information on socio-economic features in Dipang lake basin	Assessment	1	2500	2500	2500	0	0	0	0	2500		
Output 3.2	Multi-year conservation agriculture is promoted												
3.2.1	Assist communities for assessment/development of Business Plan (BP) for multiyear crop and livestock in basin area of Dipang following the provision of PES	Business plan	1	3000	3000	3000	0	0	0	0	3000		
3.2.2	Support people implement business plan for organic coffee in 100 ha in all villages with provision of their selling to PLC; bamboo, banana & other fruits in 80 ha in gullies and abandoned lands	Ha	180	40	7200	360	2160	2880	1080	720	7200		
3.2.3	Conduct assessment to promote private forestry in 90 ha of abandoned and fallow land, and implement recommendation from assessment	Ha	90	40	3600	180	1080	1440	540	360	3600		
3.2.4	Conduct assessment and prepare BP for 2 NR based enterprise development in Dipang	Business plan	2	1000	2000	2000	0	0	0	0	2000		
3.2.5	Provide technical and financial support to groups for implementing BP in Dipang including integrated commercial fishery	Lumpsum	2	6000	12000	240	6000	3600	1200	960	12000		
3.2.6	Assist users to brand their products of Dipang in markets through PLCC	Lumpsum	1	700	700	0	490	70	70	70	700		

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year						Total	%
				Rate	Total	1	2	3	4	5	Total		
3.2.7	Support 80 HHs to implement BP for diary integrated to biogas installation	HH	80	100	8000	400	2400	3200	1200	800	8000		
3.2.8	Support 30 HHs to implement BP for Poultry integrated to biomanure production and marketing	HH	30	250	7500	150	2250	3000	1350	750	7500		
Sub Total C					431250	15160	268600	112390	22440	12660	431250		
Outcome 4													0.32
Output 4.1	Environmental guidelines are enforced												
4.1.1	Develop and implement landuse plan for controlling indiscriminate plotting and construction	Plan	1	2000	2000	1600	100	100	100	100	2000		
4.1.2	Enforce environmental regulations in road and building construction	Lumpsum	1	500	800	160	160	160	160	160	800		
Sub Total D					2800	1760	260	260	260	260	2800		
Outcome 5	Natural and anthropogenic vulnerable sites and their causes are identified												41.41
Output 5.1	Natural and anthropogenic vulnerable sites and their causes are identified												
5.1.1	Conduct vulnerability assessment at sub-basin level of Dipang	Assessment	1	2000	2000	2000	0	0	0	0	2000		
Output 5.2	Mitigatory measures are implemented to reduce the vulnerability of the lake basin												
5.2.1	Develop landuse plan and implement it for controlling indiscriminate plotting and construction in Parvati Tole ways extended to the confluence of Deurali Khola; Sahela Khet; Khatre Ko Kuna;and Dipang Khet	Plan	1	2000	2000	2000	0	0	0	0	2000		

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
5.2.2	Prepare micro-basin plans of Khatre Khola and its tributaries from Archale, Arupata and Dandako Mukh; Kusunde Khola and its tributaries from Kusunde, Pandechaur and Arupata; Kahur Khola and tributaries from Pakhuredanda and Dhanubase Ban and implement them	Basin Plan	1	2000	2000	100	1900	0	0	0	2000	
5.2.3	Construct speed breaker cascade in Baguwa Khola and its tributaries at 3 sites; Kusunde Khola at 3 sites; Kaure Khola in Sahela Pakha and Pakuredanda at 5 sites;	Cascade + Plantation	3	2000	6000	120	3000	2400	300	180	6000	
5.2.4	Construct 3 silt trap devices for Khatre, Kahure and Kusunde Khola at foothill along 700 masl before they discharge into Dipang, and use silt for other productive purposes	Silt trap	3	10000	30000	300	12000	15000	1500	1200	30000	
5.2.5	Bamboo and broomgrass plantation in all Galchi such as Baraldanda; Sanikamki; Bhaitarne Budhachautro; Kushe Chautari; Phalchaur/Lamchaur; etc in KN (50)	HH	50	40	2000	0	300	600	700	400	2000	
5.2.6	Encourage communities to plant multipurpose trees (fruit; bamboo; broomgrass; rattan etc) in private/public land in Baraldanda; Katuje Mool; Rakhidanda; Timilsinadanda; Kharagau; Jaldhare; Khetaghar; and all settlements area below Bijayapur-Kalikasthan road (75 ha)	Ha	75	40	3000	0	450	900	1050	600	3000	
5.2.7	Construct the improvement of main trail from Kalikasthan to Lamswara (6 km) to ensure its drain discharge does not feed Dipang	Km	6	15000	90000	1800	63000	18000	5400	1800	90000	

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year						Total	%
				Rate	Total	1	2	3	4	5	Total		
5.2.8	Construct 6 km x 1 m wide drain along 700 masl contour in north, east and west of Dipang with silt trap devices in every 500 m to collect surface water and agriculture runoff discharges to Deurali Khola safely	km	6	25000	150000	3000	105000	30000	9000	3000	150000		
5.2.9	Promote construction of safety tank facilities in 90 HHs of Kusunde; Arupata; Pandechaur; Sahela Pakha; and Chhuchi	Biogas plant	90	400	36000	360	25200	9000	1080	360	36000		
5.2.10	Incorporate '0' trash procedures (process, provision & penalties) in the constitutional provision of GCC, and enforce strictly the principles in all settlements of lake basin	Lumpsum	1	50	50	50	0	0	0	0	50		
5.2.11	Install signpost at 15 places for '0 Trash' in vantage points of Dipang such as entry point just at Deurali Pool, Chhuchi; Pandechaur; Arupate; Kusunde; Sahela Pakha etc	Signpost	15	15	225	180	45	0	0	0	225		
5.2.12	Install trash collection center at 5 major settlements; and set mechanisms to ensure its disposal quite regularly on 3 R principle (refuse, reuse and recycle)	Thrash center	5	600	3000	2400	150	150	150	150	3000		
5.2.13	Remove XXX tons of soil from uncertified and occupied land (10 ha) from the inlet of Khatre and from entire southwest of lake	Lumpsum	1	20000	20000	16000	4000	0	0	0	20000		
5.2.14	Develop a business plan of landowner with their increased role in alternative business from consensus to expand Dipang by 30 ha Sahela Dhap; Khatre; Kaure and Dipang Khet	Plan	1	500	500	400	100	0	0	0	500		

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year						Total	%
				Rate	Total	1	2	3	4	5	Total		
5.2.15	Shift existing earthen dam from Poultry Tudu straight to Panthkodanda (100 m south of existing dam site) gentle slope facing to lake with paved trail, garden trees and rest places (2 places)	Dam	1	10000	10000	8000	1000	500	300	200	10000		
5.2.16	Install water regulator in Deaurali Khola (outlet) with a provision to retain 3 m water level in dry period, and regularize flow for biodiversity and irrigation	Regulator	1	2000	2000	2000	0	0	0	0	2000		
5.2.17	Prepare and implement plan for protection of existing 1 water source in Katre, 3 in Kahure; 4 in Dipang Khet, and implement it	Plan + Implementation	1	2000	2000	1000	1000	0	0	0	2000		
5.2.18	Encourage extensive fishing of Tilapia following PES mechanism and discourage strictly any introduction of it	Lumpsum	1	1000	1000	200	200	200	200	200	1000		
5.2.19	Establish greenbelt of 1 m wide water hyacinth band along existing earthen dam site, Dipang Khet and Khatre Khet (3 places with 500 m shoreline each)	Km	1.5	500	750	750	0	0	0	0	750		
5.2.20	Remove weeds and rhizomatous structure (2 places) twice a year, and use weeds for manure for basin level plantation	Mechanism -1 + Times	10	300	3000	600	600	600	600	600	3000		
Sub Total E					365525	41260	217945	77350	20280	8690	365525		
Outcome 6													1.29
Output 6.1	Output: Lake dependent vulnerable communities including women are empowered for economic sovereignty												
6.1.1	Assist women groups of Dipang to work under one umbrella structure for their solidarity and synergy	Network	1	100	100	50	50	0	0	0	100		

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year						Total	%
				Rate	Total	1	2	3	4	5			
6.1.2	Assist umbrella women group to prepare their plan with focus on vulnerable groups, & implement it	Plan	1	4000	4000	2000	2000	0	0	0		4000	
6.1.3	Support vulnerable women groups especially to implement plan for their entrepreneurial activities	Lumpsum to group	1	3000	3000	1500	1500	0	0	0		3000	
6.1.4	Assist disadvantage communities (Dalit) to organize under groups, and prepare and implement their plan for economic empowerment	Plan + Lumpsum	1	3000	3000	3000	0	0	0	0		3000	
Output 6.2	Meaningful participation of women and vulnerable groups in lake governance												
6.2.1	Ensure representation of women and vulnerable groups in lake management and community institutions	Meeting	10	100	1000	400	450	50	50	50		1000	
6.2.2	Promote leadership role for women and vulnerable groups in the lake governance	Lumpsum	1	250	250	50	125	50	25	0		250	
Sub Total F					11350	7000	4125	100	75	50		11350	
Outcome 7													2.04
Output 7.1	Output: Socioecological monitoring protocol is in place and operational												
7.1.1	Develop Long term social and ecological monitoring protocol for Dipang	Protocol	1	150	150	37.5	30	28.5	27	27		150	
7.1.2	Assess and monitor Land Use Land Change in the lake basin	Monitoring time	8	100	800	160	160	160	160	160		800	
7.1.3	Assess, prepare monitoring plan, and monitor the biodiversity status and ecological characters of lake	Plan-1 + Times	8	100	800	480	80	80	80	80		800	

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
7.1.4	Introduce lake health card to monitor water quality in quarterly basis at National Standards for irrigation, fishery and recreation, and establish monitoring major sites (physical, chemical and biological properties)	Station-1 + Times	10	200	2000	1840	40	40	40	40	2000	
Output 7.2	Prepare and disseminate knowledge products											
7.2.1	Develop and disseminate knowledge products on Dipang lake basin	Learning document	3	700	2100	0	525	525	525	525	2100	
7.2.2	Develop/strengthen community level network for knowledge sharing	Network	1	700	700	140	140	140	140	140	700	
7.2.3	Prepare and publish awareness materials on lakes & Ramsar provision for government personnel; students; communities and (4 sets)**	Lumpsum	1	700	700	175	140	133	126	126	700	
Output 7.3	Capacity of Stakeholders Stabilization											
7.3.1	Organize sensitization annual events for personnel of line agencies (10*3 days) to integrate lake issues in their planning	Md	30	4	120	24	24	24	24	24	120	
7.3.2	Organize training for communities (40*3days) of Dipang lake conservation and Ramsar provision	Md	120	4	480	96	96	96	96	96	480	
7.3.3	Organize training to village leaders (10*3 days) of Kamalpokhari basin for integrating issues of Phewa and Ramsar provision in their annual planning	Md	30	4	120	24	24	24	24	24	120	
7.3.4	Organize sensitization event to urban communities (70*1 day) of Metropolis on Kamalpokhari lake & Ramsar	Md	70	4	280	56	56	56	56	56	280	

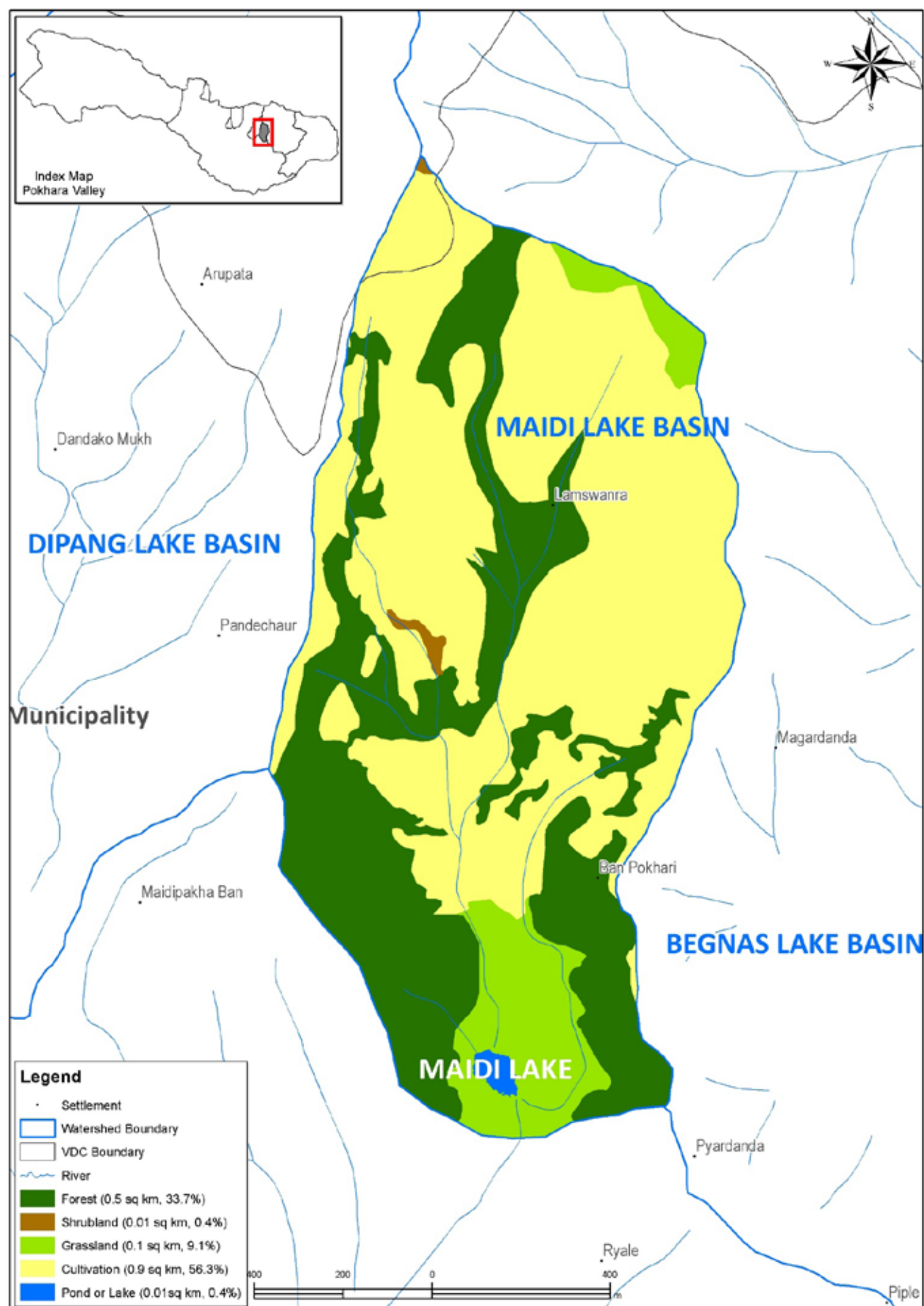
No.	Output/Activities	Unit	Target	Amount NRs (000)		Year						Total	%
				Rate	Total	1	2	3	4	5	Total		
7.3.5	Organize training for school teachers (10*3days) to incorporate lake and Ramsar provision in their extracurricular activities in each schools	Md	30	4	120	24	24	24	24	24	120		
7.3.6	Conduct regular conservation programs at schools including events management such as World Wetlands Day; World Environment Day; World Biodiversity Day etc	Event	5	25	125	25	25	25	25	25	125		
7.3.7	Organize exposure visit for integrated lake basin management for government personnel (5); communities (15); village leaders (5) and teachers (5)	md (30*5)	150	12	1800	360	360	360	360	360	1800		
7.3.8	Conduct awareness programs on biodiversity conservation, climate change (Local fair)	Fair	5	1000	5000	1000	1000	1000	1000	1000	5000		
7.3.9	Conduct capacity building trainings for EBA with a view of lake conservation integrated to the prosperity of communities	Training (15*3)	45	4	180	36	36	36	36	36	180		
7.3.10	Conduct training for scientific management of CFs (6) of Kamalpokhari lake basin	Training (9*3)	27	4	108	21.6	21.6	21.6	21.6	21.6	108		
7.3.11	Conduct capacity building trainings for business and entrepreneurship (15)	Training (15*7)	105	4	420	84	84	84	84	84	420		
7.3.12	Conduct capacity building trainings for hotel and guide (10)	Training (10*20)	400	5	2000	400	400	400	400	400	2000		
Sub Total G					18003	4983.1	3265.6	3257.1	3248.6	3248.6	18003		

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year						Total	%
				Rate	Total	1	2	3	4	5			
Outcome 8													2.20
Output 8.1	Dipang Lake Conservation Cooperative (DCC) is created and operationalized												
8.1.1	Assist communities to consolidate scattered many institutions for the establishment of Dipang Conservation Cooperative based on proven experience cooperative mechanism	Workshop	2	45	90	18	18	18	18	18		90	
8.1.2	Organize meeting/workshops to bring existing Ama Samuha; Youth Club; Dipang Infrastructure & Construction Conservation Committee; Dipang Lake Agriculture Cooperative Institute; 4 CFs; Dipang Tal Tole Development Institute; Dipang Tal Mothers Group etc	Workshop	2	45	90	18	18	18	18	18		90	
Output 8.2	Sustainable financing mechanism is created and operationalized***												
8.2.1	Develop a plan for sustainable financing mechanism including resources from tourism businesses, government support, and international funding mechanisms for Dipang lake basin environment and prosperity	Workshop	2	50	100	100	0	0	0	0		100	
8.2.2	Conduct workshop to discuss and agree on concept note with Pokhara Lekhnath Metropolitan City; government entities; tourism/hotel association; FNCCI; Chamber of Commerce; financial institution and trade/business communities; NGOs etc for their contribution keeping PES incentives to all	Workshop	1	50	50	50	0	0	0	0		50	

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year						Total	%
				Rate	Total	1	2	3	4	5			
8.2.3	Create Trust Fund with clearly defined proportion of contribution from the government and other sources regularly for Dipang lake	Annual input	5	3000	15000	3000	3000	3000	3000	3000		15000	
8.2.4	Explore national and global networking for scale up intervention	Event	5	100	500	100	200	200	0	0		500	
8.2.5	Support NGOs for proposal based funding for Dipang lake basin program and activities on climate resilient biodiversity and prosperity	Workshop	5	200	1000	200	200	200	200	200		1000	
8.2.6	Provide grant Rs. 1 million for initial 2 years administrative support to DCC	Grant	1000	2	2000	1000	1000	0	0	0		2000	
Output 8.3	Multi-stakeholders institution is coordinated for the shared strength												
8.3.1	Conduct workshop to set functional mechanism for the synergy from sectoral intervention with protocol and action plan	Workshop	1	50	50	50	0	0	0	0		50	
8.3.2	Conduct coordination meeting for review progresses and prospects for shared resources and opportunities following protocol and implementation of action plan	Meeting	10	50	500	100	100	100	100	100		500	
Sub Total H					19380	4636	4536	3536	3336	3336		19380	
GRAND TOTAL					882788	81245	519227	200144	51784	30389		882788	
Yearly (%)						9.20	58.82	22.67	5.87	3.44		100	

*** Activity indicate complementing activity to other lake basin

F. ILBM PLAN OF MAIDI



10.6 Integrated Lake Basin Management Plan of Maldi

10.6.1 Log frame for ILBM plan of Maldi

Re	Narratives	Indicators	Means of verification
1	Outcome: Empowered lake basin governance system for the LCPV contributes to efficient management of Maldi Lake, with inter-sectoral coordination and meaningful public participation	Functioning institutions dedicated for Maldi lake basin management	Government gazettes, decrees, Annual Reports
	Outputs		
1.1	Ramsar Unit within Municipality is formed and operationalized	Functioning Ramsar Unit	Government decrees
1.2	Boundary (of core and buffer area) of Maldi lake is clearly demarcated	Boundary of core and buffer area demarcated by 2017	Annual Progress Report
2	Outcome: Biodiversity and critical habitats of Maldi Lake Basin are conserved and ecosystem services and processes enhanced	Status of the biodiversity and critical habitats	District Reports
	Outputs		Study reports
2.1	Comprehensive assessment of biodiversity & critical habitats in Maldi lake basin is conducted	Biodiversity assessment Number of critical habitats conserved	
2.2	Forests and lake basin of Maldi lake are conserved	Number of ecosystem units conserved	Study reports, management plans
2.3	Valuation of ecosystem services of Maldi lake is conducted	Ecosystem value assessment	Study report
2.4	Native fish species, indigenous and traditional crop varieties and their wild relatives are conserved	Number of native species conservation plan in practice population status of native species	Management plan, progress reports
3	Outcome: Socio-economic prosperity of lake basin communities is enhanced	Socio economic development indices Number of functioning businesses created Number of jobs created	Standard of Living Survey
	Outputs		
3.1	Lake based ecotourism is promoted	Number of tourism related facilities/infrastructure created Addition of tourism related businesses Income generated through tourism Change in average duration of tourist stay	District Tourism report, Report of FNCCI, Living Standard Survey
3.2	Multi-year conservation agriculture is promoted	Area of field under multi-year farming Reduction in nutrient and sediment flow from the basin into the lake raised income through conservation farming	Periodic Landuse landcover change assessment report DADO annual report
4	outcome		

Re	Narratives	Indicators	Means of verification
4.3	Environmental guidelines are enforced	Environmental guidelines enforced	Progress reports
5	Outcome: Vulnerability of lake basin to climate change and disaster risk is reduced and lake basin environment improved		
	Outputs		
5.1	Natural and anthropogenic vulnerable sites and their causes are identified	Number of vulnerable sites and causes identified	Multi-hazard risk assessment Study reports
5.2	Mitigation measures are implemented	Number of mitigation measures undertaken Area of lake restored Decrease in the flow of waste and drain into the lake	Progress reports
6	Outcome: GESI mainstreamed at all levels and processes of lake basin management		
	Outputs		
6.1	Lake dependent vulnerable communities including women are empowered for economic sovereignty	Number of vulnerable households supported Increased income level of vulnerable households in comparison to other households	Progress reports Survey reports
6.2	Meaningful participation of women and vulnerable groups in lake governance enhanced	Number of representatives of vulnerable group in managerial position in lake basin institutions	Progress reports
7	Outcome: Long-term socio-ecological monitoring, and knowledge management systems are established and functional		
	Outputs		
7.1	Long term social and ecological monitoring system of lake basin is established	Implementation of Socio-ecological monitoring Lake health card in practice	Periodic Assessment reports Progress Reports
7.2	Knowledge Management and Communication Center established	Establishment of knowledge center Number of knowledge products developed	Progress reports Knowledge products
7.3	Capacity of stakeholders strengthened	Number of people trained	Progress reports Event reports
8	Outcome: Financial Sustainability		
	Outputs		
8.1	Maidi Conservation Cooperative (MCC) is created and operationalized	Functioning GCC Resources generated	Government decrees
8.2	Sustainable administrative & financing mechanism for MCC is created and operational	Functioning financing mechanism in place Volume of fund generated and managed	Annual progress Report
8.3	Multi-stakeholders institution is coordinated for the shared strength	Coordination protocol; Number of jointly operated activities Joint resources generation	Annual Progress Report

10.6.2 Activities and Implementation Units for Maidi

Re	Narrative	Responsible Unit	
		Main	Ancillary
1	Outcome: Empowered lake basin governance system for the LCPV contributes to efficient management of Dipang Lake, with inter-sectoral coordination and meaningful public participation		
1.1	Output: Ramsar Unit within Municipality is formed and operationalized		
1.1.1	Formulate special 'RAMSAR UNIT (R-Unit)' within Lekhnath Municipality and delegate authority for lake conservation program	DCC; NLDC	PVTDC; DNPWC
1.2	Output: Boundary (core and buffer area) of Maidi lake is clearly demarcated		
1.2.1	Install reference pillars in shoreline of Maidi	DCC	MoAPOLEMCC; PVTDC; POLEMC
1.2.2	Declare and enforce buffer area of lake in construction work (65 m) from reference pillars and regulate all intervention ensuring scenic lake view and '0' damage in water quality	DCC	MoAPOLEMCC; PVTDC; POLEMC
1.2.3	Demarcate buffer zone of Maidi with clearly defined; garden area; agriculture; fish culture; recreation; CFs; and regulate construction of building and infrastructure activities	PVTDC; POLEMC	MoAPOLEMCC; DCC
2	Outcome: Biodiversity and critical habitats of Dipang lake basin are conserved and ecosystem services and processes enhanced		
2.1	Output: Comprehensive assessment of biodiversity & critical habitats in Maidi lake basin is conducted		
2.1.1	Conduct comprehensive assessment of biodiversity in CFs, and prepare and implement management plan for biodiversity hotspot for Maidi in Maidiparakha, Saunnepani, Rayale, Thaddanda and Saunnepani Bareli focusing on bird watchers	FO	MCC; IoF
2.2	Output: Forests and lake basin of Maidi lake are conserved		
2.2.1	Review Operation Plan of CFs (11) incorporating lake issues in view of lake management and scientific management of forests and biodiversity, and implement it plan	FO	POLEMC; MCC; ACAP; CFs
2.2.2	Provide technical and financial support to CFs to implement plan for scientific management of CF	FO	POLEMC; MCC; ACAP; CFs
2.2.3	Provide technical and financial support for private forestry in adjoining of lake to prepare plan and implement it (50 ha)	FO	POLEMC; MCC; CFUG
2.2.4	Assist communities to manage other private forests in basin at the foothills of Lamswara; Banpokhari; Thmadanda (west) and Rayale areas (25 ha)	FO	POLEMC; MCC
2.2.5	Assist CF users for the control of illegal hunting of wildlife in the forests of lake basin area	FO	MCC
2.3	Output: Valuation of ecosystem services of Maidi lake is conducted		
2.3.1	Conduct valuation of ecosystem services of lake	NLDC	POLEMC; DoF; SCO; IoF
2.3.2	Initiate PES for conservation activities in the upstream area	SCO; FO	POLEMC; IoF
2.4	Output: Native fish species, indigenous and traditional crop varieties and their wild relatives are conserved		

Re	Narrative	Responsible Unit	
		Main	Ancillary
2.4.1	Conduct and protect cultural practices and TK documentation related with biodiversity	POLEMC, MoFE	I/NGO
2.4.2	Identify TK practitioners and institutions, prepare their plan and implement plan	POLEMC, MoFE	I/NGO
2.4.3	Develop incentive mechanism for cultivation of native species of crops Jhetho budho, and other species.	DAO; DLSO	POLEMC, I/NGO
3	Outcome: Socio-economic prosperity of Lake Basin communities is enhanced		
3.1	Output: Lake based ecotourism is promoted		
3.1.1	Upgrade existing road condition for 2 lane structure from Sisuwa-Dudamouk-Rayale-Lamswara (6 km) with side drain; roadside plantation; rest places & parking venues	DCC; POLEMC	PVTDC; Road division
3.1.2	Upgrade existing road condition for 2 lane structure from Naharchowk to Rayale Bazar (2 km) with side drain and roadside plantation	DCC; POLEMC	PVTDC; Road division
3.1.3	Prepare an Integrated Village Plan (building code; drain; electricity; telephone; security post; link road; roadside plantation; sanitation facilities; recreational site and etc) of Lamswara, Banpokhari, Rayale, Dudhkomukh and Thabdanda	PVTDC; POLEMC	DCC; MCC; VDCs
3.1.4	Prepare Site Plan of Maidi Phant to regulate infrastructure and building (building code; drain; electricity; telephone; security post; link road; roadside plantation; plantation blocks; sanitation facilities; recreational site and etc) in 1 sq km area with '0' impact on Maidi	PVTDC; POLEMC	DCC; MCC; VDCs
3.1.5	Prepare building code for all villages and settlements of Maidi basin area, and implement it	PVTDC; POLEMC	DCC
3.1.6	Construct stone paved foot trail around Maidi with rest place; plantation; rattan bush garden (north; east & west) along 700 masl contour immediate to proposed slit trap drain	NLCDC; POLEMC	DCC; MCC
3.1.7	Facilitate communities to access Investment Mechanism to implement Integrated Village Plan, Site Plan and building code in all settlements of Maidi	PVTDC; POLEMC	DCC; Banks;
3.1.8	Integrate Site Plan of Maidi Phant in view of wetlands tourism, and implement it (gardening; children park; recreational facilities; rest houses etc)	NLCDC; POLEMC	NTB; MCC
3.1.9	Construct a visitor information center with moderate and basic entrance facilities in Maidi Phant at foothill of Rayale	POLEMC, NTB	PTC; HAN; TAN; MCC
3.1.10	Establish facilities for tea and coffee house with water/sanitation associated with visitor center	MCC	User Group; CFs, CBOs
3.1.11	Construct 2 picnic spots each of 40 man capacity with shelter, cook house; water & sanitation facilities in Swarotari Khet and Maidipakha	NLCDC; MCC	POLEMC; User Group
3.1.12	Construct walking trail with wooden bridges and decorative structure around Maidi along side slit trap drain with decorative plantation; garden; rest places etc	NLCDC; POLEMC	DCC; MCC
3.1.13	Construct walking trail around Maidi align with side drain with decorative plantation; garden; rest places etc in appropriate places	NLCDC; POLEMC	DCC; MCC

Re	Narrative	Responsible Unit	
		Main	Ancillary
3.1.14	Construct interconnected network of wooden trail over wetlands to view wetlands characters	NLCDC; POLEMC	DCC; MCC
3.1.15	Create facilities for 30 minutes trekking trail from Maidi to Lamsware Devithan	DCC	MCC
3.1.16	Introduce 2 boats with gears/facilities for water sport in water hyacinth pathways and core area	NLCDC; NTB	POLEMC; MCC
3.1.17	Assess for package tour linking other lakes, and organize tour	TAN; HAN	NTB; MCC
3.1.18	Continue organizing cultural festival such as Ropai Day (Asadh 15)	MCC	CBO
3.1.19	Collaborate in assessment survey for ropeway connecting Phewa-KP-KN-Gude-Maidi to other lakes/gorges and vantage sites, and implement it**	DCC; NTB	POLEMC; POLEMC; NTB; FNCCI; Private
3.1.20	Conduct Baseline information on socio-economic features in Maidi lake basin	NLCDC	MCC
3.2	Output: Multi-year conservation agriculture is promoted		
3.2.1	Assist communities for assessment/development of Business Plan for multiyear crop and livestock in basin area of Maidi following the provision of PES	DAO; DLSO	MCC
3.2.2	Support people implement business plan for organic coffee in 100 ha in all villages with provision of their selling to Phewa Lake Conservation Cooperative	DAO	MCC
3.2.3	Support people implement business plan for bamboo; banana and other fruits in 80 ha in all Gullies and abandoned land	DAO	MCC
3.2.4	Conduct assessment to promote private forestry in 80 ha of abandoned and fallow land, and implement recommendation from assessment	FO	MCC
3.2.5	Conduct assessment and prepare Business Plan for 2 NR based enterprise development in Maidi	Cottage Industry	FO; MCC; Private
3.2.6	Conduct assessment for Dunatapri Cottage Industry, prepare plan and implement plan	Cottage Industry	FO; MCC; Private
3.2.7	Conduct assessment for introducing commercial fishery in Maidi and prepare plan	Cottage Industry	FO; MCC; Private
3.2.8	Provide technical and financial support to groups for implementing Business Plan in Maidi including integrated commercial fishery	DFDO	FO; MCC
3.2.9	Assist users to brand their products of Maidi in markets through MCC	Cottage Industry	FO; MCC; Private
3.2.10	Support 60 HHs to implement Business Plan for dairy integrated to biogas installation	DLSO	MCC
3.2.11	Support 35 HHs to implement Business Plan for Poultry integrated to biomanure production and marketing	DAO	MCC
4	Outcome: Infrastructure		
4.1	Output: Environmental guidelines are enforced		
4.1.1	Develop and implement landuse plan for controlling indiscriminate plotting and construction	POLEMC; PVTDC	DCC
4.1.2	Enforce environmental regulations in road and building construction	MCC; POLEMC	PVTDC; KNCC

Re	Narrative	Responsible Unit	
		Main	Ancillary
5	Outcome: Vulnerability of lake basin to climate change and disaster risk is reduced and lake basin environment improved		
5.1	Output: Natural and anthropogenic vulnerable sites and their causes are identified		
5.1.1	Conduct vulnerability assessment at sub-basin level of Maidi including assessment of rhizomatous body of wetlands	DCC; SCO	FO; IoF
5.2	Output: Mitigatory measures are implemented to reduce the vulnerability of the lake basin		
5.2.1	Develop landuse plan and implement it for controlling indiscriminate plotting and construction in Maidi	DCC; POLEMC	PVTDC
5.2.2	Prepare micro-basin level plan of Piple Khola; Bhudrung Khola; Baskot Khola; Raule Khola and Saunne Khola; and implement them	SCO	DCC
5.2.3	Construct speed breaker 10 cascade 2 each in Piple; Bhudrung; Baskot; Raule and Saunne Khola before they discharge into lakes	SCO	MCC
5.2.4	Construction of silt trap devices (5) one each in Piple Khola; Bhudrung; Baskot; Raule and Saunne Khola at gradient of 700 masl gradient before they load silt into lake, and use silt for other productive purposes	SCO	DCC; NLDC; MCC
5.2.5	Bamboo and broomgrass plantation in all Galchi and bank of Khola (Kadam; Piple; Baskot; Raule and Saunne) etc in Maidi	SCO; FO	MCC
5.2.6	Encourage communities to plant multipurpose trees (fruit; bamboo; broomgrass; rattan etc) in private/public land in Arupata (east); Lamswara (west); Banpokhari (west) and Rayale (100 ha)	SCO; FO	MCC
5.2.7	Bioengineering of Radhabheer (40 m x 50 m) in between Rayale and Banpokhari	SCO; FO	MCC
5.2.8	Construct 3 km drain along link road Arupata (east)-Lamswara-Banpokhari-Rayale-Dundakomukh; 5 km x 1m wide drain around Maidi along 728 masl at foothills of Maidipakha, Lamwara, Sannepani Bareli CF- Saunepani Rayale Thaddanda CF and in the south of reference pillars of Maidi	DCC; SCO	MCC; VDC
5.2.9	Promote construction of safety tank facilities in 300 HHs of major settlements integrated to biogas facilities in east of Arupata (east); Lamswara (west); Banpokhari (west); Rayale (west) and Dundakomuk (northeast); Thaddanda etc	DCC; DAO	MCC; POLEMC
5.2.10	Incorporate 'O' trash procedures (process, provision & penalties) in the constitutional provision of MCC and all CFs, and enforce strictly the principles in all settlements in hillside of Arupata; Lamswara; Banpokhari; Rayale and Dandakomuk; Thaddanda etc	POLEMC; VDC; MCC	DCC
5.2.11	Install signposts at 15 places for 'O Trash' in vantage points of Maidi such as Arupata; Lamswara; Banpokhari; Raule and Dandakomuk; Thaddanda etc	NTB	POLEMC; DCC; HAN; TAN
5.2.12	Install trash collection center at all settlements; and set mechanism to ensure its disposal quite regularly on 3 R principle in all settlements (refuse, reuse and recycle)	POLEMC; VDC	DCC; MCC
5.2.13	Remove XXX tons of soil and rhizomatous structure from immediate of core area to expand 15 ha	NLDC	DCC; POLEMC; MCC

Re	Narrative	Responsible Unit	
		Main	Ancillary
5.2.14	Develop a business plan of landowner with their increased role in alternative business from consensus to expand Maidi with additional 5 ha south and 5 ha in north of Maidi	NLCDC	DCC; POLEMC; MCC
5.2.15	Construct earthen dam up in south of Maidi to increase water level up to 0.5 m in dry period from existing level	NLCDC; POLEMC	PVTDC; MCC
5.2.16	Install water regulator at dam side (south) in Maidi Khola with a provision to increase 1 m water level up in dry period	MCC; CF	DCC
5.2.17	Prepare and implement plan for protection of water spring and coup such as Thulokuna, Sanokuna; Bastari Khet and Banpokhari Kuwa	SCO; FO	NLCDC; MCC
5.2.18	Encourage extensive fishing of Tilapia following PES mechanism and discourage strictly any introduction of it	MCC; DFDO	FO
5.2.19	Remove rhizomatous weeds from boundary of core area thrice a year till core area expands up to 10 ha	MCC; NLCDC	POLEMC
6	Outcome: GESI mainstreamed at all levels and processes of lake basin management		
6.1	Output: Lake dependent vulnerable communities including are empowered for economic sovereignty		
6.1.1	Assist women groups of Maidi to work under one umbrella structure for their solidarity and synergy	DWCO	MCC
6.1.2	Assist umbrella women group to prepare their plan with focus on vulnerable groups, and implement it	DWCO	MCC
6.1.3	Support vulnerable women groups especially to implement plan for their entrepreneurial activities	DWCO	MCC
6.1.4	Explore activities of economic empowerment for socially disadvantage groups (Dalit), and assist the group to implement their activities	DWCO	MCC
6.2	Output: Meaningful participation of women and vulnerable groups in lake governance		
6.2.1	Ensure representation of women and vulnerable groups in lake management and community institutions	DWCO	MCC; NLCDC
6.2.2	Promote leadership role for women and vulnerable groups in the lake governance	MCC; DWCO	POLEMC
7	Outcome: Long-term socio-ecological monitoring, and knowledge management systems are established and functiona		
7.1	Output: Socio-ecological monitoring protocol is in place and operational		
7.1.1	Develop Long term social and ecological monitoring protocol for Maidi	NLCDC	DCC; POLEMC
7.1.2	Assess and monitor Land Use Land Change in the lake basin	DCC; SCO	POLEMC
7.1.3	Assess, prepare monitoring plan, and monitor the biodiversity status and ecological characters of lake	NLCDC;	FO; SCO; IoF; I/NGO
7.1.4	Introduce lake health card to monitor water quality in quarterly basis at National Standards for irrigation, fishery and recreation, and establish monitoring major sites (physical, chemical and biological properties)	NLCDC;	POLEMC; FO; SCO; IoF; I/NGO
7.2	Output: Prepare and disseminate knowledge products		

Re	Narrative	Responsible Unit	
		Main	Ancillary
7.2.1	Develop and disseminate knowledge products on Maldi lake basin	POLEMC	I/NGOs
7.2.2	Develop/strengthen community level network for knowledge sharing	POLEMC	DCC; POLEMC; VDCs; I/NGOs
7.2.3	Prepare and publish awareness materials on lakes & Ramsar provision for government personnel; students; communities and village leaders (4 sets)	NLCDC	DCC; DoF; DNPWC; I/NGOs
7.3	Outputs: Capacity of stakeholders strengthened		
7.3.1	Organize sensitization annual events for personnel of line agencies (10*3 days) to integrate lake issues in their planning	NLCDC	DCC; DoF; I/NGOs
7.3.2	Organize training for communities (30*3days) of Maldi lake conservation and Ramsar provision	NLCDC	DCC; DoF; DNPWC; I/NGOs
7.3.3	Organize training to village leaders (10*3 days) of Maldi basin for integrating issues of Maldi and Ramsar provision in their annual planning	NLCDC	DCC; DNPWC; I/NGOs
7.3.4	Organize sensitization event to urban communities (40*1 day) of Municipality on Maldi lake & Ramsar	NLCDC	DCC; DNPWC; I/NGOs
7.3.5	Organize training for school teachers (10*3days) to incorporate lake and Ramsar provision in their extracurricular activities in each schools	NLCDC	DCC; DNPWC; I/NGOs
7.3.6	Conduct regular conservation programs at schools including events management such as World Wetlands Day; World Environment Day; World Biodiversity Day etc	NLCDC	DCC; DNPWC; I/NGOs
7.3.7	Organize exposure visit for integrated lake basin management for government personnel (4); communities (10); village leaders (5) and teachers (5)		DCC; NLCDC
7.3.8	Conduct awareness programs on biodiversity conservation, climate change (Local fair)		FO; NLCDC
7.3.9	Conduct capacity building trainings for EBA with a view of lake conservation integrated to the prosperity of communities	FO	IoF
7.3.10	Conduct training for scientific management of CFs (11) of Maldi lake basin	FO	MCC; NLCDC
7.3.11	Conduct capacity building trainings for business and entrepreneurship (10)	FO	MCC; NLCDC
7.3.12	Conduct capacity building trainings for hotel and guide (5)	NTB	DCC
8	Outcome: Financial Sustainability		
8.1	Output: Maldi Lake Conservation Cooperative is created and operationalized		
8.1.1	Assist communities to consolidate scattered many institutions for the establishment of Maldi Conservation Cooperative (MCC) based on proven experience cooperative mechanism	DCC	NLCDC
8.1.2	Organize meeting/workshops to bring existing Mother Groups; CFUGs; Maldi Lake Conservation Committee; Youth Club; Schools for their collective inputs and actions under MCC	DCC	NLCDC
8.2	Output: Sustainable administrative & financing mechanism for MCC is created and operational		
8.2.1	Develop a plan for sustainable financing mechanism including resources from tourism businesses, government support, and international funding mechanisms for Maldi lake basin environment and prosperity	DCC; NLCDC	MoF; PLCC

Re	Narrative	Responsible Unit	
		Main	Ancillary
8.2.2	Conduct workshop to discuss and agree on concept note with Lekhnath Municipality; government entities; tourism/hotel association; FNCCI; Chamber of Commerce; financial institution and trade/business communities; NGOs etc for their contribution in sustainable financial mechanism keeping PES as incentives to all	DCC	DCC; MoF; PLCC
8.2.3	Create Trust Fund with clearly defined proportion of contribution from the government and other sources regularly for Maidi lake	DCC	POLEMC; MCC; MoF; NLCDC
8.2.4	Explore national and global networking for scale up intervention	MCC	Private
8.2.5	Support NGOs for proposal based funding for Maidi lake basin program and activities on climate resilient biodiversity and prosperity	NLCDC	DCC; POLEMC; MCC
8.2.6	Provide grant Rs. 1 million for initial 2 years administrative support to MCC	MoF; NLCDC	DCC; POLEMC
8.3	Output: Multi-stakeholders institution is coordinated for the shared strength		
8.3.1	Conduct workshop to set functional mechanism for the synergy from sectoral intervention with protocol & action plan	MCC	DCC; POLEMC
8.3.2	Conduct coordination meeting for review progresses and prospects for shared resources and opportunities following protocol and implementation of action plan	MCC	DCC; POLEMC

10.6.3 Budget for Maldi

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
Outcome 1												
Output 1.1 Ramsar Unit within Municipality is formed and operationalized***												
1.1.1	Formulate special 'RAMSAR UNIT (R-Unit)' within Lekhnath Municipality and delegate authority for lake conservation program	R-Unit, mm	26	150	3900	780	780	780	780	780	3900	
Output 1.2 Boundary (core and buffer area) of all lakes is clearly demarcated												
1.2.1	Install reference pillars in shoreline of Maldi	Pillars	50	25	1250	625	625	0	0	0	1250	
1.2.2	Declare and enforce buffer area of lake in construction work (65 m) from reference pillars and regulate all intervention ensuring scenic lake view and 'o' damage in water quality	Meeting, monitoring	6	100	600	120	120	120	120	120	600	
1.2.3	Demarcate buffer zone of Maldi with clearly defined; garden area; agriculture; fish culture; recreation; CFs; and regulate construction of building and infrastructure activities	Demarcation Plan	1	200	200	200	0	0	0	0	200	
Sub Total A					5950	1725	1525	900	900	900	5950	
Outcome 2												
Output 2.1 Comprehensive assessment of biodiversity & critical habitats in Maldi lake basin is conducted												
2.1.1	Conduct comprehensive assessment of biodiversity in CFs, and prepare and implement management plan for biodiversity hotspot for Maldi in Maidiparakha, Saunnepani, Rayale, Thaddanda and Saunnepani Bareli focusing on bird watchers	Research	1	2000	2000	2000	0	0	0	0	2000	
Output 2.2 Forests and lake basin of Maldi lake are conserved												

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
2.2.1	Review Operation Plan of CFs (11) incorporating lake issues in view of lake management and scientific management of forests and biodiversity, and implement it plan	Review	11	50	550	385	165	0	0	0	550	
2.2.2	Provide technical and financial support to CFs to implement plan for scientific management of CF	Capacity building	6	50	300	150	75	75	0	0	300	
2.2.3	Provide technical and financial support for private forestry in adjoining of lake to prepare plan and implement it (50 ha)	Ha	50	40	2000	400	800	600	100	100	2000	
2.2.4	Assist communities to manage other private forests in basin at the foothill of Lamswara; Banpokhari; Thmadanda (west) and Rayale areas (25 ha)	Ha	25	40	1000	0	500	500	0	0	1000	
2.2.5	Assist CF users for the control of illegal hunting of wildlife in the forests of lake basin area	Capacity building	1	50	50	20	12.5	7.5	5	5	50	
Output 2.3	Valuation of ecosystem services of Mairi lake is conducted											
2.3.1	Conduct valuation of ecosystem services of lake	Study	1	1000	1000	1000	0	0	0	0	1000	
2.3.2	Initiate PES for conservation activities in the upstream area	Workshop	2	100	200	100	100	0	0	0	200	
Output 2.4	Native fish species, indigenous and traditional crop varieties and their wild relatives are conserved											
2.4.1	Conduct and protect cultural practices and TK documentation related with biodiversity	Documentation	1	500	500	50	450	0	0	0	500	
2.4.2	Identify TK practitioners and institutions, prepare their plan and implement plan	Plan	1	700	700	0	700	0	0	0	700	

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
2.4.3	Develop incentive mechanism for cultivation of native species of crops jhetho budho, and other species.	Mechanism	1	700	700	0	280	140	140	140	700	
Sub Total B					9000	4105	3082.5	1322.5	245	245	9000	
Outcome 3												63.64
Output 3.1	Lake based ecotourism is promoted											
3.1.1	Upgrade existing road condition for 2 lane structure from Sisuwa-Dudamouk-Rayale-Lamswara (6 km) with side drain; roadside plantation; rest places & parking venues	km	6	60000	360000	1800	252000	81000	18000	7200	360000	
3.1.2	Upgrade existing road condition for 2 lane structure from Naharchowk to Rayale Bazar (2 km) with side drain and roadside plantation	km	2	60000	120000	600	84000	27000	6000	2400	120000	
3.1.3	Prepare an Integrated Village Plan (building code; drain; electricity; telephone; security post; link road; roadside plantation; sanitation facilities; recreational site and etc) of Lamswara, Banpokhari, Rayale, Dudhkomukh and Thabdanda	Plan	1	4000	4000	2000	2000	0	0	0	4000	
3.1.4	Prepare Site Plan of Maidi Phant to regulate infrastructure and building (building code; drain; electricity; telephone; security post; link road; roadside plantation; plantation blocks; sanitation facilities; recreational site and etc) in 1 sq km area with '0' impact on Maidi	Plan	1	3000	3000	1500	1500	0	0	0	3000	
3.1.5	Prepare building code for all villages and settlements of Maidi basin area, and implement it	Building code	1	700	700	700	0	0	0	0	700	

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
3.1.6	Construct stone paved foot trail around Maidi with rest place; plantation; rattan bush garden (north; east & west) along 700 masl contour immediate to proposed slit trap drain	Lumpaum	1	15000	15000	300	10500	3300	450	450	15000	
3.1.7	Facilitate communities to access Investment Mechanism to implement Integrated Village Plan, Site Plan and building code in all settlements of Maidi	Mechanism	1	1000	1000	300	300	200	100	100	1000	
3.1.8	Integrate Site Plan of Maidi Phant in view of wetlands tourism, and implement it (gardening; children park; recreational facilities; rest houses etc)	Structure	1	10000	10000	200	7000	2200	300	300	10000	
3.1.9	Construct a visitor information center with moderate and basic entrance facilities in Maidi Phant at foothill of Rayale	Visitor center	1	8000	8000	80	4000	3200	400	320	8000	
3.1.10	Establish facilities for tea and coffee house with water/sanitation associated with visitor center	Lumpsum	1	2000	2000	100	1600	100	100	100	2000	
3.1.11	Construct 2 picnic spots each of 40 man capacity with shelter, cook house; water & sanitation facilities in Swarotari Khet and Maidipakha	Picnic spot	2	5000	10000	50	8000	1700	200	50	10000	
3.1.12	Construct walking trail with wooden bridges and decorative structure around Maidi along side silttrap drain with decorative plantation; garden; rest places etc	Wooden trail	1	15000	15000	150	7500	6000	750	600	15000	
3.1.13	Construct walking trail around Maidi align with side drain with decorative plantation; garden; rest places etc in appropriate places	Trail	1	9000	9000	90	4500	3600	450	360	9000	

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
3.1.14	Construct interconnected network of wooden trail over wetlands to view wetlands characters	Trail	1	20000	20000	200	10000	8000	1000	800	20000	
3.1.15	Create facilities for 30 minutes trekking trail from Maidi to Lamsware Devithan	Trail	1	5000	5000	250	4750	0	0	0	5000	
3.1.16	Introduce 2 boats with gears/facilities for water sport in water hyacinth pathways and core area	Boat	2	2500	5000	0	5000	0	0	0	5000	
3.1.17	Assess for package tour linking other lakes, and organize tour	Lumpsum	1	2500	2500	125	1125	1000	125	125	2500	
3.1.18	Continue organizing cultural festival such as Ropai Day (Asadh 15)	Festival	5	500	2500	500	500	500	500	500	2500	
3.1.19	Collaborate in assessment survey for ropeway connecting Phewa-KP-I-KN-Gude-Maidi to other lakes/gorges and vantage sites, and implement it**	Survey; 30 km	1	20	20	2	18	0	0	0	20	
3.1.20	Conduct Baseline information on socio-economic features in Maidi lake basin	Assessment	1	2000	2000	2000	0	0	0	0	2000	
Output 3.2	Multi-year conservation agriculture is promoted											
3.2.1	Assist communities for assessment/development of Business Plan for multiyear crop and livestock in basin area of Maidi following the provision of PES	Business plan	1	2000	2000	2000	0	0	0	0	2000	
3.2.2	Support people implement business plan for organic coffee in 100 ha in all villages with provision of their selling to Phewa Lake Conservation Cooperative	Ha	100	40	4000	200	1200	1600	600	400	4000	
3.2.3	Support people implement business plan for bamboo; banana and other fruits in 80 ha in all Gullies and abandoned land	Ha	80	40	3200	160	960	1280	480	320	3200	

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
3.2.4	Conduct assessment to promote private forestry in 80 ha of abandoned and fallow land, and implement recommendation from assessment	Ha	80	40	3200	160	960	1280	480	320	3200	
3.2.5	Conduct assessment and prepare Business Plan for 2 NR based enterprise development in Maidi	Business plan	2	500	1000	1000	0	0	0	0	1000	
3.2.6	Conduct assessment for Dunatapri Cottage Industry, prepare plan and implement plan	Assessment	1	500	500	500	0	0	0	0	500	
3.2.7	Conduct assessment for introducing commercial fishery in Maidi and prepare plan	Assessment	1	500	500	500	0	0	0	0	500	
3.2.8	Provide technical and financial support to groups for implementing Business Plan in Maidi including integrated commercial fishery	Lumpsum	1	5000	5000	2250	2500	250	0	0	5000	
3.2.9	Assist users to brand their products of Maidi in markets through MCC	Lumpsum	1	700	700	0	490	70	70	70	700	
3.2.10	Support 60 HHs to implement Business Plan for dairy integrated to biogas installation	HH	60	100	6000	300	1800	2400	900	600	6000	
3.2.11	Support 35 HHs to implement Business Plan for Poultry integrated to biomanure production and marketing	HH	35	250	8750	175	2625	3500	1575	875	8750	
Sub Total C					629570	18192	414828	148180	32480	15890	629570	
Outcome 4												0.28
Output 4.1	Environmental guidelines are enforced											
4.1.1	Develop and implement landuse plan for controlling indiscriminate plotting and construction	Plan	1	2000	2000	1600	100	100	100	100	2000	

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
4.1.2	Enforce environmental regulations in road and building construction	Lumsum	1	500	800	160	160	160	160	160	800	
Sub Total D					2800	1760	260	260	260	260	2800	
Outcome 5												30.71
Output 5.1	Natural and anthropogenic vulnerable sites and their causes are identified											
5.1.1	Conduct vulnerability assessment at sub-basin level of Maidi including assessment of rhizomatous body of wetlands	Assessment	1	1500	1500	1500	0	0	0	0	1500	
Output 5.2	Mitigatory measures are implemented to reduce the vulnerability of the lake basin											
5.2.1	Develop landuse plan and implement it for controlling indiscriminate plotting and construction in Maidi	Plan	1	1500	1500	1500	0	0	0	0	1500	
5.2.2	Prepare micro-basin level plan of Piple Khola; Bhudrung Khola; Baskot Khola; Raule Khola and Saunne Khola; and implement them	Basin Plan	5	5000	25000	1250	23750	0	0	0	25000	
5.2.3	Construct speed breaker 10 cascade 2 each in Piple; Bhudrung; Baskot; Raule and Saunne Khola before they discharge into lakes	Cascade + Plantation	10	2000	20000	400	10000	8000	1000	600	20000	
5.2.4	Construction of silt trap devices (5) one each in Piple Khola; Bhudrung; Baskot; Raule and Saunne Khola at gradient of 700 masl gradient before they load silt into lake, and use silt for other productive purposes	Silt trap	5	6000	30000	300	12000	15000	1500	1200	30000	
5.2.5	Bamboo and broomgrass plantation in all Galchi and bank of Khola (Kadam; Piple; Baskot; Raule and Saunne) etc in Maidi	HH	25	30	750	0	112.5	225	262.5	150	750	

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
5.2.6	Encourage communities to plant multipurpose trees (fruit; bamboo; broomgrass; rattan etc) in private/public land in Arupata (east); Lamswara (west); Banpokhari (west) and Rayale (90 ha)	Ha	90	40	3600	0	540	1080	1260	720	3600	
5.2.7	Bioengineering of Radhabheer (40 m x 50 m) in between Rayale and Banpokhari	Lumpsum	1	15000	15000	750	11250	3000	0	0	15000	
5.2.8	Construct 3 km drain along link road Arupata (east)-Lamswara-Banpokhari-Rayale-Dundakomukh; 5 km x 1m wide drain around Maidi along 728 masl at foothills of Maidipakha, Lamwara, Sannepani Bareli CF- Saunepani Rayale Thaddanda CF and in the south of reference pillars of Maidi	km roadside drain	8	15000	120000	2400	84000	24000	7200	2400	120000	
5.2.9	Promote construction of safety tank facilities in 100 HHs of major settlements integrated to biogas facilities in east of Arupata (east); Lamswara (west); Banpokhari (west); Rayale (west) and Dundakomuk (northeast); Thaddanda etc	Biogas plant	100	400	40000	400	28000	10000	1200	400	40000	
5.2.10	Incorporate '0' trash procedures (process, provision & penalties) in the constitutional provision of MCC and all CFs, and enforce strictly the principles in all settlements in hillside of Arupata; Lamswara; Banpokhari; Rayale and Dandakomuk; Thaddanda etc	Lumpsum	1	45	45	45	0	0	0	0	45	
5.2.11	Install signposts at 15 places for '0 Trash' in vantage points of Maidi such as Arupata; Lamswara; Banpokhari; Raule and Dandakomuk; Thaddanda etc	Signpost	15	15	225	180	45	0	0	0	225	

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
5.2.12	Install trash collection center at all settlements; and set mechanism to ensure its disposal quite regularly on 3 R principle in all settlements (refuse, reuse and recycle)	Thrash center	5	600	3000	2400	150	150	150	150	3000	
5.2.13	Remove XXX tons of soil and rhizomatous structure from immediate of core area to expand 15 ha	Lumpsum	1	20000	20000	16000	4000	0	0	0	20000	
5.2.14	Develop a business plan of landowner with their increased role in alternative business from consensus to expand Maiddi with additional 5 ha south and 5 ha in north of Maiddi	Plan	1	500	500	400	100	0	0	0	500	
5.2.15	Construct earthen dam up in south of Maiddi to increase water level up to 0.5 m in dry period from existing level	Dam	1	10000	10000	8000	1000	500	300	200	10000	
5.2.16	Install water regulator at dam side (south) in Maiddi Khola with a provision to increase 1 m water level up in dry period	Regulator	1	1000	1000	1000	0	0	0	0	1000	
5.2.17	Prepare and implement plan for protection of water spring and coup such as Thulokuna, Sanokuna; Bastari Khet and Banpokhari Kuwa	Plan + Implementation	4	2000	8000	4000	4000	0	0	0	8000	
5.2.18	Encourage extensive fishing of Tilapia following PES mechanism and discourage strictly any introduction of it	Lumpsum	1	700	700	140	140	140	140	140	700	
5.2.19	Remove rhizomatous weeds from boundary of core area twice a year till core area expands up to 10 ha	Mechanism -1 + Times	10	300	3000	600	600	600	600	600	3000	
Sub Total E					303820	41265	179687.5	62695	13612.5	6560	303820	

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
Outcome 6												0.57
Output 6.1	Output: Lake dependent vulnerable communities including women are empowered for economic sovereignty											
6.1.1	Assist women groups of Maidi to work under one umbrella structure for their solidarity and synergy	Network	1	50	50	25	25	0	0	0	50	
6.1.2	Assist umbrella women group to prepare their plan with focus on vulnerable groups, and implement it	Plan	1	150	150	75	75	0	0	0	150	
6.1.3	Support vulnerable women groups specially to implement plan for their entrepreneurial activities	Lumpsum to group	1	2500	2500	1250	1250	0	0	0	2500	
6.1.4	Explore activities of economic empowerment for socially disadvantage groups (Dalit), and assist the group to implement their activities	Plan + Lumpsum	1	2500	2500	2500	0	0	0	0	2500	
Output 6.2	Meaningful participation of women and vulnerable groups in lake governance											
6.2.1	Ensure representation of women and vulnerable groups in lake management and community institutions	Meeting	10	20	200	80	90	10	10	10	200	
6.2.2	Promote leadership role for women and vulnerable groups in the lake governance	Lumpsum	1	250	250	50	125	50	25	0	250	
Sub Total F					5650	3980	1565	60	35	10	5650	
Outcome 7												1.30
Output 7.1	Output: Socioecological monitoring protocol is in place and operational											
7.1.1	Develop Long term social and ecological monitoring protocol for Maidi	Protocol	1	150	150	37.5	30	28.5	27	27	150	
7.1.2	Assess and monitor Land Use Land Change in the lake basin	Monitoring time	8	12	96	19.2	19.2	19.2	19.2	19.2	96	

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
7.1.3	Assess, prepare monitoring plan, and monitor the biodiversity status and ecological characters of lake	Plan-1 + Times	8	20	160	96	16	16	16	16	160	
7.1.4	Introduce lake health card to monitor water quality in quarterly basis at National Standards for irrigation, fishery and recreation, and establish monitoring major sites (physical, chemical and biological properties)	Station-1 + Times	10	200	2000	1840	40	40	40	40	2000	
Output 7.2	Prepare and disseminate knowledge products											
7.2.1	Develop and disseminate knowledge products on Madi lake basin	Learning document	3	700	2100	0	525	525	525	525	2100	
7.2.2	Develop/strengthen community level network for knowledge sharing	Network	1	700	700	140	140	140	140	140	700	
7.2.3	Prepare and publish awareness materials on lakes & Ramsar provision for government personnel; students; communities and village leaders (4 sets)	Lumpsum	1	700	700	175	140	133	126	126	700	
Output 7.3	Capacity of Stakeholders strengthened											
7.3.1	Organize sensitization annual events for personnel of line agencies (10*3 days) to integrate lake issues in their planning	md	30	4	120	24	24	24	24	24	120	
7.3.2	Organize training for communities (30*3days) of Madi lake conservation and Ramsar provision	md	90	4	360	72	72	72	72	72	360	
7.3.3	Organize training to village leaders (10*3 days) of Kamalpokhari basin for integrating issues of Phewa and Ramsar provision in their annual planning	md	30	4	120	24	24	24	24	24	120	

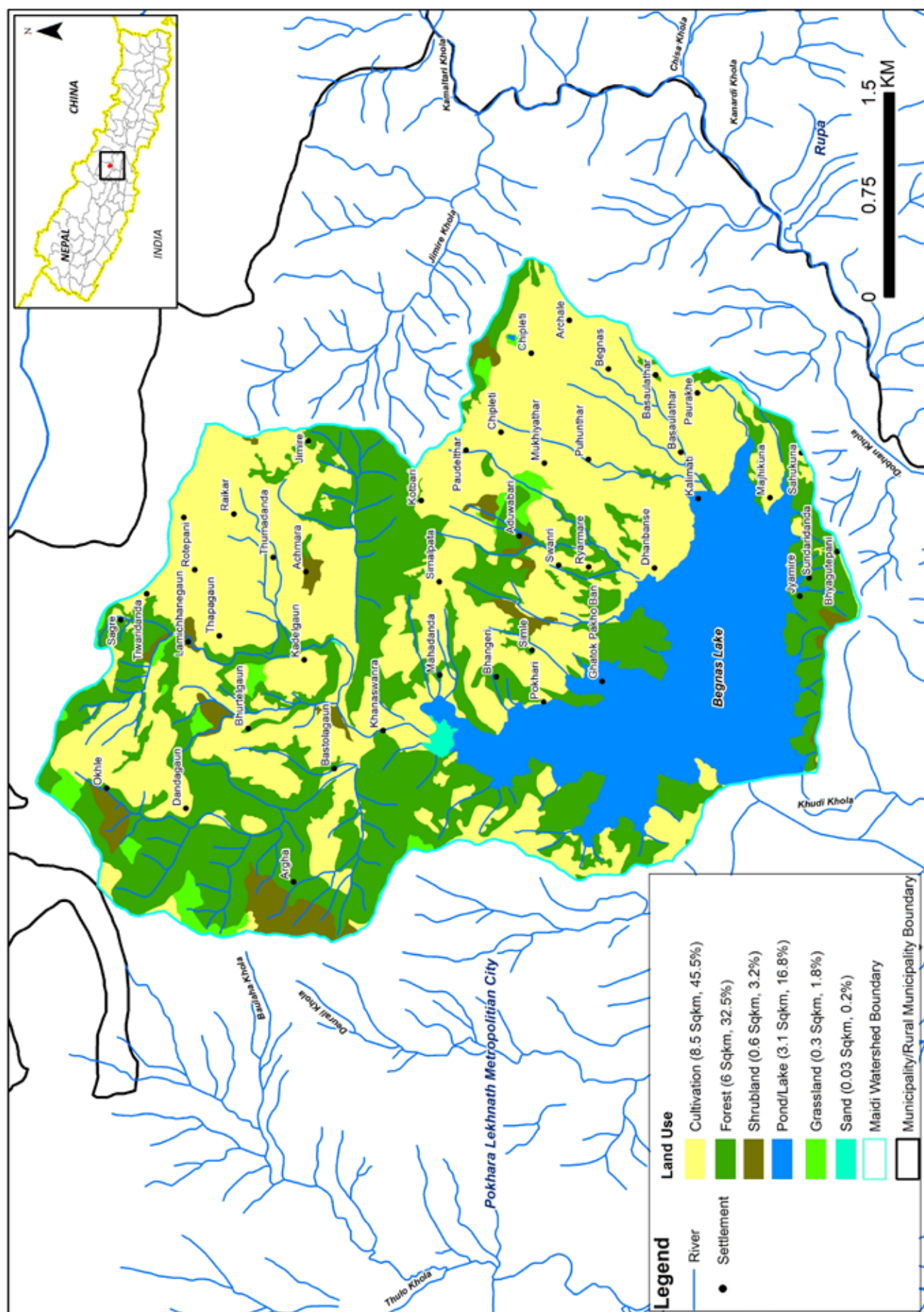
No.	Output/Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
7.3.4	Organize sensitization event to urban communities (40*1 day) of Metropolis on Kamalpokhari Lake & Ramsar	md	40	4	160	32	32	32	32	32	160	
7.3.5	Organize training for school teachers (10*3days) to incorporate lake and Ramsar provision in their extracurricular activities in each school	md	30	4	120	24	24	24	24	24	120	
7.3.6	Conduct regular conservation programs at schools including events management such as World Wetlands Day; World Environment Day; World Biodiversity Day etc	Event	5	25	125	25	25	25	25	25	125	
7.3.7	Organize exposure visit for integrated lake basin management for government personnel (4); communities (10); village leaders (5) and teachers (5)	md (24*5)	120	12	1440	288	288	288	288	288	1440	
7.3.8	Conduct awareness programs on biodiversity conservation, climate change (Local fair)	Fair	5	600	3000	600	600	600	600	600	3000	
7.3.9	Conduct capacity building trainings for EBA with a view of lake conservation integrated to the prosperity of communities	Training (10*3)	30	4	120	24	24	24	24	24	120	
7.3.10	Conduct training for scientific management of CFs (11) of Kamalpokhari lake basin	Training (11*3)	33	4	132	26.4	26.4	26.4	26.4	26.4	132	
7.3.11	Conduct capacity building trainings for business and entrepreneurship (10)	Training (10*7)	70	4	280	56	56	56	56	56	280	
7.3.12	Conduct capacity building trainings for hotel and guide (5)	Training (10*20)	200	5	1000	200	200	200	200	200	1000	
Sub Total G					12883	3703.1	2305.6	2297.1	2288.6	2288.6	12883	

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
Outcome 8												1.97
Output 8.1	Maidi Lake Conservation Cooperative (MCC) is created and operationalized											
8.1.1	Assist communities to consolidate scattered many institutions for the establishment of Maidi Conservation Cooperative (MCC) based on proven experience cooperative mechanism	Workshop	2	45	90	18	18	18	18	18	90	
8.1.2	Organize meeting/workshops to bring existing Ama Samuha; CFUGs; Maidi Lake Conservation Committee; Youth Club; Schools for their collective inputs and actions under MCC	Workshop	2	45	90	18	18	18	18	18	90	
Output 8.2	Sustainable financing mechanism created and operationalized ^{d**}											
8.2.1	Develop a plan for sustainable financing mechanism including resources from tourism businesses, government support, and international funding mechanisms for Maidi lake basin environment and prosperity	Workshop	2	100	200	200	0	0	0	0	200	
8.2.2	Conduct workshop to discuss and agree on concept note with Lekhnath Municipality; government entities; tourism/hotel association; FNCCI; Chamber of Commerce; financial institution and trade/business communities; NGOs etc for their contribution in sustainable financial mechanism keeping PES as incentives to all	Workshop	1	50	50	50	0	0	0	0	50	
8.2.3	Create Trust Fund with clearly defined proportion of contribution from the government and other sources regularly for Maidi lake	Annual input	5	3000	15000	3000	3000	3000	3000	3000	15000	

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
8.2.4	Explore national and global networking for scale up intervention	Event	5	100	500	100	200	200	0	0	500	
8.2.5	Support NGOs for proposal based funding for Maidi lake basin program and activities on climate resilient biodiversity and prosperity	Workshop	5	200	1000	200	200	200	200	200	1000	
8.2.6	Provide grant Rs. 1 million for initial 2 years administrative support to MCC	Grant	1000	2	2000	1000	1000	0	0	0	2000	
Output 8.3	Multi-stakeholders institution is coordinated for the shared strength											
8.3.1	Conduct workshop to set functional mechanism for the synergy from sectoral intervention with protocol and action plan	Workshop	1	100	100	100	0	0	0	0	100	
8.3.2	Conduct coordination meeting for review progresses and prospects for shared resources and opportunities following protocol and implementation of action plan	Meeting	10	50	500	100	100	100	100	100	500	
Sub Total H					19530	4786	4536	3536	3336	3336	19530	
GRAND TOTAL					989203	79516	607790	219251	53157	29490	989203	
Yearly (%)						8.04	61.44	22.16	5.37	2.98	100.00	

*** Activity indicate complementing activity to other lake basin

G. ILBM PLAN OF BEGNAS



10.7 Integrated Lake Basin Plan of Begnas

10.7.1 Log frame of Begnas

Re	Narratives	Indicators	Means of verification
1	Outcome: Empowered lake basin governance system for the LCPV contributes to efficient management of Begnas Lake, with inter-sectoral coordination and meaningful public participation	Functioning institution dedicated for Begnas lake basin management	Government gazettes, decrees, Annual Reports
	Outputs		
1.1	Ramsar Unit within Ward is formed and operationalized	Functioning Ramsar Unit	Government decrees
1.2	Boundary (core and buffer area) of Begnas lakes is clearly demarcated	Boundary of core and buffer area demarcated by 2017	Annual Progress Report
2	Outcome: Biodiversity and critical habitats of Begnas Lake Basin are conserved and ecosystem services and processes enhanced	Status of the biodiversity and critical habitats	District Reports
	Outputs		Study reports
2.1	Comprehensive assessment of biodiversity & critical habitats in Begnas lake basin is conducted	Biodiversity assessment Number of critical habitats conserved	
2.2	Forests and lake basin of Begnas lake are conserved	Number of ecosystem units conserved	Study reports, management plans
2.3	Valuation of ecosystem services of Begnas lake is conducted	Ecosystem value assessment	Study report
2.4	Native fish species, indigenous and traditional crop varieties and their wild relatives are conserved	Number of native species conservation plan in practice population status of native species	Management plan, progress reports
3	Outcome: Socio-economic prosperity of lake basin communities is enhanced	Socio economic development indices Number of functioning businesses created Number of jobs created	Standard of Living Survey
	Outputs		
3.1	Lake based ecotourism is promoted	Number of tourism related facilities/infrastructure created Addition of tourism related businesses Income generated through tourism Change in average duration of tourist stay	District Tourism report, Report of FNCCI, Living Standard Survey
3.2	Multi-year conservation agriculture is promoted	Area of field under multi-year farming Reduction in nutrient and sediment flow from the basin into the lake	Periodic Landuse landcover change assessment report DADO annual report
4	Outcome: Infrastructure		
	Outputs		
4.1	Environmental guidelines are enforced	Environmental guidelines enforced	Progress reports

Re	Narratives	Indicators	Means of verification
5	Outcome: Vulnerability of lake basin to climate change and disaster risk is reduced and lake basin environment improved		
	Outputs		
5.1	Natural and anthropogenic vulnerable sites and their causes are identified	Number of vulnerable sites and causes identified	Multi-hazard risk assessment Study reports
5.2	Mitigatory measures are implemented	Number of mitigatory measures undertaken Area of lake restored Decrease in the flow of waste and drain into the lake	Progress reports
6	Outcome: GESI mainstreamed at all levels and processes of lake basin management		
	Outputs		
6.1	Lake dependent vulnerable communities including women are empowered for economic sovereignty	Number of vulnerable households supported Increased income level of vulnerable households in comparison to other households	Progress reports Survey reports
6.2	Meaningful participation of women and vulnerable groups in lake governance enhanced	Number of representatives of vulnerable group in managerial position in lake basin institutions	Progress reports
7	Outcome: Long-term socio-ecological monitoring, and Knowledge Management Systems are established and functional		
	Outputs		
7.1	Long term social and ecological monitoring system of lake basin is established	Implementation of Socio-ecological monitoring Lake health card in practice	Periodic Assessment reports Progress Reports
7.2	Knowledge Management and Communication Center established	Establishment of knowledge center Number of knowledge products developed	Progress reports Knowledge products
7.3	Capacity of stakeholders strengthened	Number of people trained	Progress reports Event reports
8	Outcome: Financial Sustainability		
	Outputs		
8.1	Begnas Conservation Cooperative is created and operationalized	Functioning Begnas Lake Conservation Cooperative Resources generated	Government decrees
8.2	Sustainable administrative & financing mechanism for Begnas Lake Conservation Cooperative is created and operational	Functioning financing mechanism in place Volume of fund generated	Annual progress Report
8.3	Multi-stakeholders institution is coordinated for the shared strength	Coordination protocol; Number of jointly operated activities Joint resources generation	Annual Progress Report

10.7.2 Activities and implementation units for Begnas

Re	Narrative	Responsible Unit	
		Main	Ancillary
1	Outcome: Empowered lake basin governance system for the LCPV contributes to efficient management with inter-sectoral coordination and meaningful public participation for Kamalpokhari Lake management		
1.1	Output: Ramsar Unit within Municipality is formed and operationalized		
1.1.1	Formulate special 'RAMSAR UNIT (R-Unit)' within Pokhara Lekhnath Metropolitan City and delegate authority for lake conservation program	DCC; NLCDC	MP; PVTDC; DNPWC
1.2	Output: Boundary (core and buffer area) of Begnas lake is clearly demarcated		
1.2.1	Install reference pillars in shoreline of Begnas	DCC	MoAPOLEMCC; PVTDC; POLEMC
1.2.2	Declare and enforce buffer area of lake in construction work (65 m) from reference pillars and regulate all intervention ensuring scenic lake view and '0' damage in water quality	DCC	MoAPOLEMCC; PVTDC; POLEMC
1.2.3	Demarcate buffer zone of Begnas with clearly defined; garden area; agriculture; fish culture; recreation; CFs; and regulate construction of building and infrastructure activities	PVTDC; POLEMC	MoAPOLEMCC; DCC
2	Outcome: Biodiversity and critical habitats are conserved and ecosystem services and processes enhanced in Kamalpokhari lake basin		
2.1	Output: Comprehensive assessment of biodiversity & critical habitats in Begnas lake basin is conducted		
2.1.1	Conduct comprehensive assessment of biodiversity and critical habitats in lake basin	FO	BLCC; IoF
2.2	Output: Forests and lake basin of Begnas lake are conserved		
2.2.1	Review Operation Plan of CFs with a focus on Begnas conservation	FO	BLCC; ACAP; CFs
2.2.2	Prepare and implement management plans for rhododendron and Jangali Khukhura	FO	BLCC; ACAP; CFs
2.2.3	Organize workshop for CFUGs of Begnas lake basin to form join network of CFs (Begnas-Rupa CF Network), prepare and implement their plan of actions for scientific management of forests and biodiversity with a view of lake conservation	FO	BLCC; CFUG
2.2.4	Provide technical and financial support to CFs to implement plan for scientific management of CF	FO	BLCC
2.2.5	Provide technical and financial support for private forestry in adjoining of lake to prepare plan and implement it	FO	BLCC
2.2.6	Assist communities to manage religious forest and site in Baraha Chhetra	FO; DFDO	BLCC
2.2.7	Assist CF users for the control of illegal hunting of wildlife in the forests of lake basin area	FO	BLCC
2.3	Output: Valuation of ecosystem services of Begnas lake is conducted		
2.3.1	Conduct valuation of ecosystem services of lake	NLCDC	DoF; SCO; IoF
2.3.2	Initiate PES for conservation activities in the upstream area	SCO; FO	IoF
2.4	Output: Native fish species, indigenous and traditional crop varieties and their wild relatives are conserved		

Re	Narrative	Responsible Unit	
		Main	Ancillary
2.4.1	Develop and implement plan to conserve native fish species	MoFE	I/NGO
2.4.2	Conduct and protect cultural practices and TK documentation related with biodiversity	MoFE	I/NGO
2.4.3	Identify TK practitioners and institutions, prepare their plan and implement plan	DAO; DLSO	BLCC; I/NGO
2.4.4	Develop incentive mechanism for cultivation of native species of crops Jethobudho; Yekle; Anadhi; Kaguno etc		
3	Outcome: Socio-economic prosperity of Lake Basin communities is enhanced		
3.1	Output: Lake based ecotourism is promoted		
3.1.1	Upgrade road condition for 4 lane structure from Talchow to Begnas (Bauthar) (3.5 km) with side drain; roadside plantation; traffic junction; rest places and parking sites; and sign	POLEMC; DCC	PVTDC; Road division
3.1.2	Upgrade road condition for 2 lane structure from Begnas (bauthar) to Ramkot (13 km) with side drain; roadside plantation; traffic junction; rest places and parking sites; and sign	POLEMC; DCC	PVTDC; Road division
3.1.3	Upgrade existing road for blacktop structure from Bastolagau-Kotbari-Bhanjyang (approx 10 km) with side drain; roadside plantation; traffic junction; rest places and parking sites; and sign	POLEMC; DCC	PVTDC; Road division
3.1.4	Upgrade road for blacktop structure from Sundaredanda to Majhikuna (2 km) with side drain; roadside plantation; rest places and parking sites; and sign	POLEMC; DCC	PVTDC; Road division
3.1.5	Upgrade 7 lakes link road from Bhanjyan-Rayarmare-Syankhudi-Lamswara (approx 10 km) side drain; roadside plantation; traffic junction; rest places and parking sites; and sign	POLEMC; DCC	PVTDC; Road division
3.1.6	Upgrade existing road for blacktop structure from Syngkhudi-Bhurtegau-Raikar (approx 5 km) with side drain; roadside plantation; traffic junction; rest places and parking sites; and sign	POLEMC; DCC	PVTDC; Road division
3.1.7	Prepare an Integrated Site and Urban Development Plan (building code; drain; electricity; telephone; health post; security post; link road; electricity; roadside plantation; bank; sanitation facilities; market; recreational site) of Sundaredanda, Bauthar, and area from Sisuwa to Satmuhana area with diversion water pathways to reduce volume of water in rivers	PVTDC; POLEMC	DCC; BLCC; VDCs
3.1.8	Prepare building code for all VDCs in basin area of Begnas, and implement it	PVTDC; POLEMC	DCC
3.1.9	Facilitate communities to access Investment Mechanism to implement Integrated Village Plan, Site Plan and building code in all settlements of Begnas	PVTDC; POLEMC	DCC; Banks;
3.1.10	Prepare integrated Site Plan for Mandare Park in view of establishing multipurpose visitor information center with quality facilities/services	NTB	PTC; HAN; TAN; BLCC
3.1.11	Establish multipurpose visitor center in Mandare Park	POLEMC; NTB	PVTDC; DCC; BLCC
3.1.12	Improve facilities to enhance quality boat park in Mandare Park with protocol and introduce engine boat in Begnas	POLEMC	BLCC; Boat Association

Re	Narrative	Responsible Unit	
		Main	Ancillary
3.1.13	Prepare Integrated Tourism Plan of Khudikhola to increase water level by 3 m from outlet of Begnas to Satmuhane with improved embankment; greenery; gardening; tea/coffee house; boating facilities and water sport, and implement it	POLEMC; NTB	PVTDC; NLCDC
3.1.14	Establish recreation park including specific venue for children close to Pipledanda and Fishery Research Center just below dam	POLEMC; NLCDC	DCC; BLCC
3.1.15	Improve existing trail with staircase from Majhikuna to Sundaredanda to Phadi of Rupa (approx 1 km)	NLCDC; POLEMC	DCC; BLCC
3.1.16	Prepare Site Plan of Begnas Tal Bandre for organizing small hotels for improving structure; gardening; hygiene/sanitation and standard services, and implement it (also dialogue with DoI to shift existing shed)	PVTDC; POLEMC	DCC; BLCC
3.1.17	Construct motorable trail along 700 masl shoreline having decorative wooden bridges in Galchi and rattan bushes; rest houses; trail side	POLEMC; DCC	PVTDC; Road division
3.1.18	Construct 10 floating house with modern facilities and sideways greeneries and garden in Majhikuna to Libdi interconnected by wooden pathways ensuring 'O' damage to lake and scenic view	HAN; DCC	Private
3.1.19	Construct wooden trail with side garden and decorative trees in associated land structure from Majikuna to Libdi (approx. 4 km)	NLCDC; POLEMC	DCC; BLCC
3.1.20	Conduct assessment survey for ropeway encircling all lakes from Phewa-KP-Gunde-Dipang-KN-Maidi and Begnas to other lakes/gorges and vantage sites, and implement it	DCC; NTB	POLEMC; POLEMC; NTB; FNCCI; Private
3.1.21	Upgrade facilities in Sundare view tower for Biodiversity Information Center	POLEMC; DCC	I/NGO; BLCC
3.1.22	Introduce water sports with water balloon etc for recreation in Begnas	NLCDC; NTB	POLEMC; BLCC
3.1.23	Assess for package tour linking Begnas with other lakes, and organize tour	TAN; HAN	NTB; BLCC
3.1.24	Continue organizing cultural festival such as Ropai Day (Asadh 15)	BLCC	I/NGO
3.1.25	Conduct Baseline information on socio-economic features in Begnas lake basin	NLCDC	BLCC
3.2	Output: Multi-year conservation agriculture is promoted		
3.2.1	Assist communities for assessment/development of Business Plan for multiyear crop and livestock with the provision of PES	DAO; DLSO	BLCC
3.2.2	Support people implement business plan for organic coffee, banana, bamboo, citrus in 150 ha	DAO	BLCC
3.2.3	Promote private forestry in 90 ha of abandoned and fallow land	FO	BLCC
3.2.4	Conduct assessment and prepare Business Plan for at least one NR based enterprise development in each VDC	Cottage Industry	FO; BLCC; Private
3.2.5	Provide technical and financial support to groups for implementation of enterprise Business Plan in each potential wards	Cottage Industry	FO; BLCC; Private
3.2.6	Assist users to brand their products of Begnas in markets through BLCC	Cottage Industry	FO; BLCC; Private
3.2.7	Support 100 HHs to implement Business Plan for diary integrated to biogas installation	DLSO	BLCC
3.2.8	Support 75 HHs to implement Business Plan for Poultry integrated to biomanure production and marketing	DAO	BLCC

Re	Narrative	Responsible Unit	
		Main	Ancillary
4	Outcome: Infrastructure		
4.1	Output: Environmental guidelines are enforced		
4.1.1	Develop and implement landuse plan for controlling indiscriminate plotting and construction	POLEMC; PVTDC	DCC
4.1.2	Enforce environmental regulations in road and building construction	BLCC	PVTDC; BLCC
5	Outcome: Vulnerability of lake basin to climate change and disaster risk is reduced and lake basin environment improved		
5.1	Output: Natural and anthropogenic vulnerable sites and their causes are identified		
5.1.1	Conduct vulnerability assessment at sub-basin level of Begnas including assessment of rhizomatous body of wetlands	DCC; SCO	FO; IoF
5.2	Output: Mitigatory measures are implemented to reduce the vulnerability of the lake basin		
5.2.1	Develop and implement landuse plan for controlling indiscriminate plotting and construction	DCC; POLEMC	PVTDC
5.2.2	Prepare micro-basin level plans for Chandi; Dhandhunge; Dud Khola/ Baguwa and Kanrang Khola, Khahare Khola, Libdi	SCO	DCC
5.2.3	Construct speed breaker cascade in Chandi (10); Dhandhunge (6); Baguwa (4) and Kanrang Khola (12), Khahare khola (15), Libdi (Papsani Khola (20)	SCO	BLCC
5.2.4	Construct 4 silt trap devices one each in Chandi; Dhandhunge; Baguwa and Kanrang Khola separately before they make confluence in Syankhudi and discharge into lake with mechanism of removing silt & gravel in reclamation sites	SCO	DCC; NLCDG; BLCC
5.2.5	Plantation of bamboo; broomgrass; rattan and banana in Karka (Ardaha) Galchi, Thado Galchi (Bhurtelgau); Kndelgau Galchi; Achmara Galchi; and Okhle Galchi (30 ha), Bhangeri Pokhari, Simle Ghatko, Swari/Ryarmare; and Adwabari/Ryarmare; (10 ha) in Galchi of Lamswara (2); Banpokhari (2); Magardanda (1); Pyardanda (1)	SCO; FO	BLCC
5.2.6	Continue and scale up plantation in riverbank of Shynkhudi river	SCO	FO; BLCC
5.2.7	Construct 20 km x1.5 m wide drain to trap monsoon wash with organic matter & agriculture run off with silt-trap devices in every 500 m distance out of buffer zone around Begnas, and discharge it in Khudi Khola and other appropriate places	DCC; SCO	BLCC
5.2.8	Promote construction of safety tank facilities in 100 HHs of settlements such as Bastola Gaun; Magar Danda; Piple; Sundare Danda; Majhikuna; and all settlements down to Kotbari; Kuhidi; Majthan VDC etc integrated to biogas facilities	DCC; DAO	BLCC; POLEMC
5.2.9	Incorporate '0' trash procedures (process, provision & penalties) in the constitutional provision of BLCC, and enforce strictly the principles in shoreline settlements at first, and then gradually extended at other areas	POLEMC; BLCC	DCC
5.2.10	Install signposts at 75 places for '0 Trash' in vantage points of Begnas lake and basin area	NTB	POLEMC; DCC; HAN; TAN

Re	Narrative	Responsible Unit	
		Main	Ancillary
5.2.11	Install trash collection center at 5 places, and set mechanism to ensure its disposal quite regularly	POLEMC	DCC; BLCC
5.2.12	Remove XXX tons of soil from uncertified and occupied land (XXX ha) to restore lake area from Synkhudi area	NLCDC	DCC; POLEMC; BLCC
5.2.13	Review existing dam to in view tourism promotion and prosperity	NLCDC; POLEMC	PVTDC; BLCC
5.2.14	Assess and piloting for water hyacinth garden in Syngkhidi in view of addressing eutrophication as piloting		
5.2.15	Develop mechanism to regularly remove water hyacinth escaped out from the piloting site for manure	BLCC; CF	DCC
5.2.16	Encourage incentive mechanism for overharvesting of Tilapia	BLCC; DFDO	FO
6	Outcome: GESI mainstreamed at all levels and processes of lake basin management		
6.1	Output: Lake dependent vulnerable communities including women are empowered for economic sovereignty		
6.1.1	Strengthen cooperative of Jalahari for preparing Sustainable Fishery Plan (SFP)	DFDO; BLCC	
6.1.2	Assist Jalahari to implement their SFP for expanding fishery and regulating harvesting mechanism	DFDO; BLCC	
6.1.3	Assist cooperative of Jalahari for better housing of each HHS	DWCO	BLCC
6.1.4	Assist women groups of each VDC to form VDC level women's organization	DWCO	BLCC
6.1.5	Assist women's organization to build their plans with focus of vulnerable groups, and implement these plans	DWCO	BLCC
6.1.6	Strengthen associations of women and groups of vulnerable groups for their income activities	DWCO	BLCC
6.1.7	Assist disadvantage groups (Dalit) of Begnas basin to organize them under umbrella structure	DWCO	BLCC
6.1.8	Assist disadvantage group to prepare their plan and implement it for economic empowerment	DWCO	BLCC
6.1.9	Explore activities of economic empowerment for socially disadvantage groups (Dalit), and assist the group to implement their activities	DWCO	BLCC
6.2	Output: Meaningful participation of women and vulnerable groups in lake governance		
6.2.1	Ensure representation of women and vulnerable groups in lake management and community institutions	DWCO	BLCC; NLCDC
6.2.2	Promote leadership role for women and vulnerable groups in the lake governance	BLCC; DWCO	
7	Outcome: Long-term socio-ecological monitoring, and knowledge management systems are established and functional		
7.1	Output: Socio-ecological monitoring protocol is in place and operational		
7.1.1	Develop Long term social and ecological monitoring protocol for Begnas	NLCDC	DCC; POLEMC
7.1.2	Assess and monitor Land Use Land Change in the lake basin	DCC; SCO	POLEMC

Re	Narrative	Responsible Unit	
		Main	Ancillary
7.1.3	Assess, prepare monitoring plan, and monitor the biodiversity status and ecological characters of lake	NLCDC	FO; SCO; IoF; I/NGO
7.1.4	Introduce lake health card to monitor water quality in quarterly basis at National Standards for irrigation, fishery and recreation, and establish monitoring major sites (physical, chemical and biological properties)	NLCDC	POLEMC; FO; SCO; IoF; POLEMC, I/NGOs
7.2	Output: Prepare and disseminate knowledge products		
7.2.1	Develop and disseminate knowledge products on Begnas lake basin	POLEMC	I/NGOs
7.2.2	Develop/strengthen community level network for knowledge sharing	POLEMC	DCC; POLEMC; VDCs; I/NGOs
7.2.3	Prepare and publish awareness materials on lakes & Ramsar provision for government personnel; students; communities and village leaders (4 sets)	NLCDC	DCC; DoF; DNPWC; I/NGOs
7.2.4	Organize sensitization annual events for personnel of line agencies (15*3 days) to integrate lake issues in their planning	NLCDC	DCC; DoF; I/NGOs
7.2.5	Organize training for communities (75*3days) of Begnas lake conservation and Ramsar provision	NLCDC	DCC; DoF; DNPWC; I/NGOs
7.2.6	Organize training to village leaders (15*3 days) of Begnas basin for integrating issues of Begnas and Ramsar provision in their annual planning	NLCDC	DCC; DNPWC; I/NGOs
7.2.7	Organize sensitization event to urban communities (100*1 day) of Municipality on Begnas lake & Ramsar	NLCDC	DCC; DNPWC; I/NGOs
7.2.8	Organize training for school teachers (15*3days) to incorporate lake and Ramsar provision in their extracurricular activities in each schools	NLCDC	DCC; DNPWC; I/NGOs
7.2.9	Conduct regular conservation programs at schools including events management such as World Wetlands Day; World Environment Day; World Biodiversity Day etc	NLCDC	DCC; DNPWC; I/NGOs
7.2.10	Organize exposure visit for integrated lake basin management for government personnel (5); communities (10); village leaders (5) and teachers (5)	POLEMC	DCC; NLCDC
7.2.11	Conduct awareness programs on biodiversity conservation, climate change (Local fair)		FO; NLCDC
7.2.12	Conduct capacity building trainings for EBA with a view of lake conservation integrated to the prosperity of communities	FO	IoF
7.2.13	Conduct training for scientific management of CFs (32) of Begnas lake basin	FO	BLCC; NLCDC
7.2.14	Conduct capacity building trainings for business and entrepreneurship (20)	FO	BLCC; NLCDC
7.2.15	Conduct capacity building trainings for hotel and guide (15)	NTB	DCC; POLEMC
8	Outcome: Financial Sustainability		
8.1	Output: Begnas Lake Conservation Cooperative is created and operationalized		

Re	Narrative	Responsible Unit	
		Main	Ancillary
8.1.1	Assist communities to consolidate scattered institutions (such as women's groups, youth groups, existing cooperatives etc.) for the establishment of Begnas Lake Conservation Cooperative (BLCC)	DCC	NLCDC
8.1.2	Organize meetings and workshops to bring existing NGOs/CBOs in Begnas lake basin for their collective inputs and actions under	DCC	NLCDC
8.2	Output: Sustainable administrative & financing mechanism for BLCC is created and operational		
8.2.1	Develop a plan for sustainable financing mechanism including resources from tourism businesses, government support, and international funding mechanisms	DCC; NLCDC	MoF; PLCC
8.2.2	Conduct workshop to agree on financial mechanism with Pokhara Lekhnath Metropolitan City; government entities; tourism/hotel association; FNCCI; Chamber of Commerce; financial institution and trade/business communities; NGOs for their contribution in sustainable financial mechanism keeping PES as incentives to all	DCC	DCC; MoF; PLCC
8.2.3	Creation of Trust Fund with clearly defined proportion of contribution from the government and other sources regularly for Begnas lake	DCC	POLEMC; BLCC; MoF; NLCDC
8.2.4	Explore collaborative business fund from PPP for lake business and scale up such intervention	BLCC	Private
8.2.5	Explore national and global networking for scale up intervention	NLCDC	DCC; POLEMC; BLCC
8.2.6	Support NGOs for proposal based funding for Begnas lake basin program and activities on climate resilient biodiversity and prosperity		
8.2.7	Provide grant Rs 1 million for initial 2 years administrative support to BLCC		
8.3	Output: Multi-stakeholders institution is coordinated for the shared strength		
8.3.1	Conduct workshop to set functional mechanism for synergy from sectoral intervention with protocol and action plan	BLCC	DCC; POLEMC
8.3.2	Conduct coordination meeting for review progresses and prospects for shared resources and opportunities following protocol and implementation of action plan	BLCC	DCC; POLEMC

10.7.3 Budget for Begnas

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
Outcome 1												0.3
Output 1.1	Ramsar Unit within Municipality is formed and operationalized***											
1.1.1	Formulate special 'RAMSAR UNIT (R-Unit)' within Pokhara Lekhnath Metropolitan City and delegate authority for lake conservation program	R-Unit, mm	39	150	5850	1170	1170	1170	1170	1170	5850	
Output 1.2	Boundary (core and buffer area) of all lakes is clearly demarcated											
1.2.1	Install reference pillars in shoreline of Begnas	Pillars	70	25	1750	875	875	0	0	0	1750	
1.2.2	Declare and enforce buffer area of lake in construction work (65 m) from reference pillars and regulate all intervention ensuring scenic lake view and '0' damage in water quality	Meeting, monitoring	6	60	360	72	72	72	72	72	360	
1.2.3	Demarcate buffer zone of Begnas with clearly defined; garden area; agriculture; fish culture; recreation; CFs; and regulate construction of building and infrastructure activities	Demarcation Plan	1	400	400	400	0	0	0	0	400	
Sub Total A					8360	2517	2117	1242	1242	1242	8360	
Outcome 2												1.3
Output 2.1	Comprehensive assessment of biodiversity & critical habitats in Begnas lake basin is conducted											
2.1.1	Conduct comprehensive assessment of biodiversity and critical habitats in lake basin	Research	1	1500	1500	1500	0	0	0	0	1500	
Output 2.2	Forests and lake basin of Begnas lake are conserved											
2.2.1	Review Operation Plan of CFs (32) with a focus on Begnas conservation	Review	32	100	3200	2240	960	0	0	0	3200	

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
2.2.2	Prepare and implement management plans for rhododendron and Jangali Khukhura	Plan + Implementation	1	5000	5000	250	2000	2000	500	250	5000	
2.2.3	Organize workshop for CFUGs of Begnas lake basin to form joint network of CFs (Begnas-Rupa CF Network), prepare and implement their plan of actions for scientific management of forests and biodiversity with a view of lake conservation	Plan + Implementation	1	8000	8000	400	3200	3200	800	400	8000	
2.2.4	Provide technical and financial support to CFs to implement plan for scientific management of CF	Capacity building	32	30	960	480	240	240	0	0	960	
2.2.5	Provide technical and financial support for private forestry in adjoining of lake to prepare plan and implement it (100 ha)	Ha	200	30	6000	1200	2400	1800	300	300	6000	
2.2.6	Assist communities to manage religious forest and site in Baraha Chhetra	Lumpsum	1	5000	5000	2500	1250	1250	0	0	5000	
2.2.7	Assist CF users for the control of illegal hunting of wildlife in the forests of lake basin area	Capacity building	5	30	150	60	37.5	22.5	15	15	150	
2.2.8	Valuation of ecosystem services of Begnas lake is conducted											
2.2.9	Conduct valuation of ecosystem services of lake	Study	1	1000	1000	1000	0	0	0	0	1000	
2.2.10	Initiate PES for conservation activities in the upstream area	Workshop	2	60	120	60	60	0	0	0	120	
2.2.11	Native fish species, indigenous and traditional crop varieties and their wild relatives are conserved											
2.2.12	Develop and implement plan to conserve native fish species	Plan	1	3000	3000	1500	600	300	300	300	3000	

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
2.2.13	Conduct and protect cultural practices and TK documentation related with biodiversity	Documentation	1	700	700	70	630	0	0	0	700	
2.2.14	Identify TK practitioners and institutions, prepare their plan and implement plan	Plan + implement	1	2000	2000	600	600	400	200	200	2000	
2.2.15	Develop incentive mechanism for cultivation of native species of crops Jethobudho; Yekle; Anadhi; Kaguno etc	Lumpsum	1	1000	1000	200	200	200	200	200	1000	
Sub Total B					37630	12060	12177.5	9412.5	2315	1665	37630	
Outcome 3												78.0
Output 3.1	Lake based ecotourism is promoted											
3.1.1	Upgrade road condition for 4 lane structure from Talchow to Begnas (Bauthar) (3.5 km) with side drain; roadside plantation; traffic junction; rest places and parking sites; and sign	km	3.5	100000	350000	1750	245000	78750	17500	7000	350000	
3.1.2	Upgrade road condition for 2 lane structure from Begnas (Bauthar) to Ramkot (13 km) with side drain; roadside plantation; traffic junction; rest places and parking sites; and sign	km	13	60000	780000	3900	546000	175500	39000	15600	780000	
3.1.3	Upgrade existing road for blacktop structure from Bastolagau-Kotbari-Bhaniyang (approx 10 km) with side drain; roadside plantation; traffic junction; rest places and parking sites; and sign	km	10	20000	200000	1000	140000	45000	10000	4000	200000	
3.1.4	Upgrade road for blacktop structure from Sundaredanda to Majhikuna (2 km) with side drain; roadside plantation; rest places and parking sites; and sign	km	2	5000	10000	50	7000	2250	500	200	10000	

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
3.1.5	Upgrade 7 lakes link road from Bhanjyan-Rayarmare-Syankhudi-Lamswara (approx 10 km) side drain; roadside plantation; traffic junction; rest places and parking sites; and sign	km	10	30000	300000	1500	210000	67500	15000	6000	300000	
3.1.6	Upgrade existing road for blacktop structure from Syngkhudi-Bhurtegau-Raikar (approx 5 km) with side drain; roadside plantation; traffic junction; rest places and parking sites; and sign	km	5	20000	100000	500	70000	22500	5000	2000	100000	
3.1.7	Prepare an Integrated Site and Urban Development Plan (building code; drain; electricity; telephone; health post; security post; link road; electricity; roadside plantation; bank; sanitation facilities; market; recreational site) of Sundaredanda, Bauthar, and area from Sisui to Satmahan area with diversion water pathways to reduce volume of water in rivers	Plan	1	4000	4000	2000	2000	0	0	0	4000	
3.1.8	Prepare building code for all VDCs in basin area of Begnas, and implement it	Building code	1	700	700	700	0	0	0	0	700	
3.1.9	Facilitate communities to access Investment Mechanism to implement Integrated Village Plan, Site Plan and building code in all settlements of Begnas	Mechanism	1	700	700	210	210	140	70	70	700	
3.1.10	Prepare integrated Site Plan for Mandare Park in view of establishing multipurpose visitor information center with quality facilities/services	Plan	1	15000	15000	7500	7500	0	0	0	15000	

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
3.1.11	Establish multipurpose visitor center in Mandare Park	Visitor center	1	20000	20000	200	10000	8000	1000	800	20000	
3.1.12	Improve facilities to enhance quality boat park in Mandare Park with protocol and introduce engine boat in Begans	Boat park	2	10000	20000	600	8000	10000	1000	400	20000	
3.1.13	Prepare Integrated Touriam Plan of Khudikhola to increase water level by 3 m from outlet of Begnas to Satmuhane with improved embankment; greenery; gardening; tea/coffee house; boating facilities and water sport, and implement it	Plan	1	8000	8000	7200	800	0	0	0	8000	
3.1.14	Establish recreation park including specific venue for children close to Pipedanda and Fishery Research Center just below dam	Park	1	5000	5000	250	4500	250	0	0	5000	
3.1.15	Improve existing trail with staircase from Majhikuna to Sundaredanda to Phadi of Rupa (approx 1 km)	km	1	15000	15000	300	7800	6000	450	450	15000	
3.1.16	Prepare Site Plan of Begnas Tal Bandre for organizing small hotels for improving structure; gardening; hygiene/sanitation and standard services, and implement it (also dialogue with Dol to shift existing shed)	Plan + Implementation	1	10000	10000	8000	500	500	500	500	10000	
3.1.17	Construct motorable trail along 700 masl shoreline having decorative wooden bridges in Galchi and rattan bushes; rest houses; trail side	Lumpsum	1	25000	25000	125	20000	3125	1250	500	25000	

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
3.1.18	Construct 10 floating house with modern facilities and sideways greeneries and garden in Majhikuna to Libdi interconnected by wooden pathways ensuring 'O' damage to lake and scenic view	Floating house	10	3000	30000	300	9000	19500	600	600	30000	
3.1.19	Construct wooden trail with side garden and decorative trees in associated land structure from Majikuna to Libdi (approx. 4 km)	km	4	50000	200000	2000	100000	80000	10000	8000	200000	
3.1.20	Conduct assessment survey for ropeway encircling all lakes from Phea-KP-Gunde-dipang-KN-Maidi and Begnas to other lakes/gorges and vantage sites, and implement it	Survey; 30 km	1	20	20	2	18	0	0	0	20	
3.1.21	Upgrade facilities in Sundare view tower for Biodiversity Information Center	Lumpsum	1	15000	15000	750	12000	750	750	750	15000	
3.1.22	Introduce water sports with water balloon etc for recreation in Begnas	Sport balloon	5	500	2500	75	1000	1250	125	50	2500	
3.1.23	Assess for package tour linking Begnas with other lakes, and organize tour	Lumpsum	1	2500	2500	125	1125	1000	125	125	2500	
3.1.24	Continue organizing cultural festival such as Ropai Day (Asadh 15)	Festival	5	500	2500	500	500	500	500	500	2500	
3.1.25	Conduct Baseline information on socio-economic features in Begnas lake basin	Assessment	1	2000	2000	2000	0	0	0	0	2000	
Output 3.2	Multi-year conservation agriculture is promoted											
3.2.1	Assist communities for assessment/development of Business Plan for multiyear crop and livestock with the provision of PES	Business plan	1	2000	2000	2000	0	0	0	0	2000	

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
3.2.2	Support people implement business plan for organic coffee, banana, bamboo, citrus in 150 ha in all VDCs	Ha	150	30	4500	225	1350	1800	675	450	4500	
3.2.3	Promote private forestry in 90 ha of abandoned and fallow land	Ha	90	30	2700	135	810	1080	405	270	2700	
3.2.4	Conduct assessment and prepare BP for at least one NR based enterprise development in each potential wards	Business plan	3	700	2100	2100	0	0	0	0	2100	
3.2.5	Provide technical and financial support to groups for implementation of enterprise Business Plan in each potential wards	Lumpsum	3	6000	18000	8100	9000	900	0	0	18000	
3.2.6	Assist users to brand their products of Begnas in markets through BLCC	Lumpsum	1	700	700	0	490	70	70	70	700	
3.2.7	Support 100 HHs to implement Business Plan for dairy integrated to biogas installation	HH	100	100	10000	500	3000	4000	1500	1000	10000	
3.2.8	Support 75 HHs to implement Business Plan for Poultry integrated to biomanure production and marketing	HH	75	250	18750	375	5625	7500	3375	1875	18750	
Sub Total C					2176670	54972	1423228	537865	109395	51210	2176670	
Outcome 4												0.1
Output 4.1	Environmental guidelines are enforced											
4.1.1	Develop and implement landuse plan for controlling indiscriminate plotting and construction	Plan	1	2000	2000	1600	100	100	100	100	2000	
4.1.2	Enforce environmental regulations in road and building construction	Lumpsum	1	500	800	160	160	160	160	160	800	
Sub Total D					2800	1760	260	260	260	260	2800	
Outcome 5												17.7

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
Output 5.1	Natural and anthropogenic vulnerable sites and their causes are identified											
5.1.1	Conduct vulnerability assessment at sub-basin level of Begnas including assessment of rhizomatous body of wetlands	Assessment	1	1500	1500	1500	0	0	0	0	1500	
Output 5.2	Mitigatory measures are implemented to reduce the vulnerability of the lake basin											
5.2.1	Develop and implement landuse plan for controlling indiscriminate plotting and construction	Plan	1	2500	2500	2500	0	0	0	0	2500	
5.2.2	Prepare micro-basin level plans for Chandi; Dhandhunge; Dud Khola/Baguwa and Kanrang Khola, Khahare Khola, Libdi	Basin Plan	6	5000	30000	1500	28500	0	0	0	30000	
5.2.3	Construct speed breaker cascade in Chandi (10); Dhandhunge (6); Baguwa (4) and Kanrang Khola (12), Khahare khola (15), Libdi (Papsani Khola (20)	Cascade + Plantation	67	2400	160800	3216	80400	64320	8040	4824	160800	
5.2.4	Construct 4 silt trap devices one each in Chandi; Dhandhunge; Baguwa and Kanrang Khola separately before they make confluence in Syankhudi and discharge into lake with mechanism of removing silt & gravel in reclamation sites	Silt trap	4	7000	28000	280	11200	14000	1400	1120	28000	
5.2.5	Plantation of bamboo; broomgrass; rattan and banana in Karka (Ardaha) Galchi, Thado Galchi (Bhurtelgau); Kndelgau Galchi; Achmara Galchi; and Okhle Galchi (30 ha), Bhangeri Pokhari, Simle Ghatko, Swari/Ryarmare; and Adwabari/Ryarmare; (10 ha) in Galchi of Lamswara (2); Banpokhari (2); Magardanda (1); Pyardanda (1)	HH	46	30	1380	0	207	414	483	276	1380	
5.2.6	Continue and scale up plantation by LIBIRD in riverbank of Shynkhudi river	Lumpsum	1	3000	3000	900	900	600	300	300	3000	

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
5.2.7	Construct 20 km x1.5 m wide drain to trap monsoon wash with organic matter & agriculture run off with silt-trap devices in every 500-m distance out of buffer zone around Begnas	km roadside drain	20	10000	200000	4000	140000	40000	12000	4000	200000	
5.2.8	Promote construction of safety tank facilities in 100 HHs of settlements such as Bastola Gaun; Magar Danda; Piple; Sundare Danda; Majhikuna; and all settlements down to Kotbari; Kuhidi; Majthan etc integrated to biogas facilities	Biogas plant	100	400	40000	400	28000	10000	1200	400	40000	
5.2.9	Incorporate '0' trash procedures (process, provision & penalties) in the constitutional provision of BLCC, and enforce strictly the principles in shoreline settlements at first, and then gradually extended at other areas	Lumpsum	1	45	45	45	0	0	0	0	45	
5.2.10	Install signposts at 75 places for '0 Trash' in vantage points of Begnas lake and basin area	Signpost	75	15	1125	900	225	0	0	0	1125	
5.2.11	Install trash collection center at 5 places, and set mechanism to ensure its disposal quite regularly	Trash center	5	1000	5000	4000	250	250	250	250	5000	
5.2.12	Remove soil from uncertified and occupied land to restore lake area from Synkhudi area	Lumpsum	1	8000	8000	6400	1600	0	0	0	8000	
5.2.13	Review existing dam to in view tourism promotion and prosperity	Dam	1	10000	10000	8000	1000	500	300	200	10000	
5.2.14	Assess and piloting for water hyacinth garden in Syngkhidi in view of addressing eutrophication as piloting											

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
5.2.15	Develop mechanism to regularly remove water hyacinth escaped out from the piloting site for manure	Mechanism -1 + Times	5	300	1500	300	300	300	300	300	1500	
5.2.16	Encourage incentive mechanism for overharvesting of Tilapia	Lumpsum	1	1000	1000	200	200	200	200	200	1000	
Sub Total E					493850	34141	292782	130584	24473	11870	493850	
Outcome 6												1.0
Output 6.1	Output: Lake dependent vulnerable communities including women are empowered for economic sovereignty											
6.1.1	Strengthen cooperative of Jalahari for preparing Sustainable Fishery Plan (SFP)	Plan	1	700	700	700	0	0	0	0	700	
6.1.2	Assist Jalahari to implement their SFP for expanding fishery and regulating harvesting mechanism	Support; Time	2	700	1400	280	700	140	140	140	1400	
6.1.3	Assist cooperative of Jalahari for better housing of each HHs (20)	HH	20	700	14000	2800	2800	2800	2800	2800	14000	
6.1.4	Assist women groups of each Ward to form Ward level women's organization	Network	3	80	240	120	120	0	0	0	240	
6.1.5	Assist women's organization to build their plans with focus of vulnerable groups, and implement these plans	Plan	1	300	300	150	150	0	0	0	300	
6.1.6	Strengthen associations of women and groups of vulnerable groups for their income activities	Lumpsum to group	1	3000	3000	1500	1500	0	0	0	3000	
6.1.7	Assist disadvantage groups (Dalit) of Begnas basin to organize them under umbrella structure	Lumpsum	1	200	200	100	100	0	0	0	200	
6.1.8	Assist disadvantage group to prepare their plan and implement it for economic empowerment	Lumpsum	1	3000	3000	1500	1500	0	0	0	3000	

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
6.1.9	Explore activities of economic empowerment for socially disadvantaged groups (Dalit), and assist the group to.....	Plan + Lumpsum	1	3000	3000	3000	0	0	0	0	3000	
Output 6.2	Meaningful participation of women and vulnerable groups in lake governance											
6.2.1	Ensure representation of women and vulnerable groups in lake management and community institutions	Meeting	10	100	1000	400	450	50	50	50	1000	
6.2.2	Promote leadership role for women and vulnerable groups in the lake governance	Lumpsum	1	500	500	100	250	100	50	0	500	
Sub Total F					27340	10650	7570	3090	3040	2990	27340	
Outcome 7												0.9
Output 7.1	Output: Socioecological monitoring protocol is in place and operational											
7.1.1	Develop Long term social and ecological monitoring protocol for Begnas	Protocol	1	400	400	100	80	76	72	72	400	
7.1.2	Assess and monitor Land Use Land Change in the lake basin	Monitoring time	8	50	400	80	80	80	80	80	400	
7.1.3	Assess, prepare monitoring plan, and monitor the biodiversity status and ecological characters of lake	Plan-1 + Times	8	50	400	240	40	40	40	40	400	
7.1.4	Introduce lake health card to monitor water quality in quarterly basis at National Standards for irrigation, fishery and recreation, and establish monitoring major sites (physical, chemical and biological properties)	Station-1 + Times	10	1000	10000	9200	200	200	200	200	10000	
Output 7.2	Prepare and disseminate knowledge products											
7.2.1	Develop and disseminate knowledge products on Begnas lake basin	Document	3	700	2100	0	525	525	525	525	2100	

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
7.2.2	Develop/strengthen community level network for knowledge sharing	Network	1	1000	1000	200	200	200	200	200	1000	
7.2.3	Prepare and publish awareness materials on lakes & Ramsar provision for government personnel; students; communities and village leaders (4 sets)**	Lumpsum	1	700	700	175	140	133	126	126	700	
Output 7.3	Capacity of Stakeholders strengthened											
7.3.1	Organize sensitization annual events for personnel of line agencies (15*3 days) to integrate lake issues in their planning	md	45	4	180	36	36	36	36	36	180	
7.3.2	Organize training for communities (75*3days) of Begnas lake conservation and Ramsar provision	md	225	4	900	180	180	180	180	180	900	
7.3.3	Organize training to village leaders (15*3 days) of Kamalpokhari basin for integrating issues of Phewa and Ramsar provision in their annual planning	md	45	4	180	36	36	36	36	36	180	
7.3.4	Organize sensitization event to urban communities (100*1 day) of Metropolis on Kamalpokhari lake & Ramsar	md	100	4	400	80	80	80	80	80	400	
7.3.5	Organize training for school teachers (15*3days) to incorporate lake and Ramsar provision in their extracurricular activities in each school	md	45	4	180	36	36	36	36	36	180	
7.3.6	Conduct regular conservation programs at schools including events management such as World Wetlands Day; World Environment Day; World Biodiversity Day etc	Event	5	50	250	50	50	50	50	50	250	

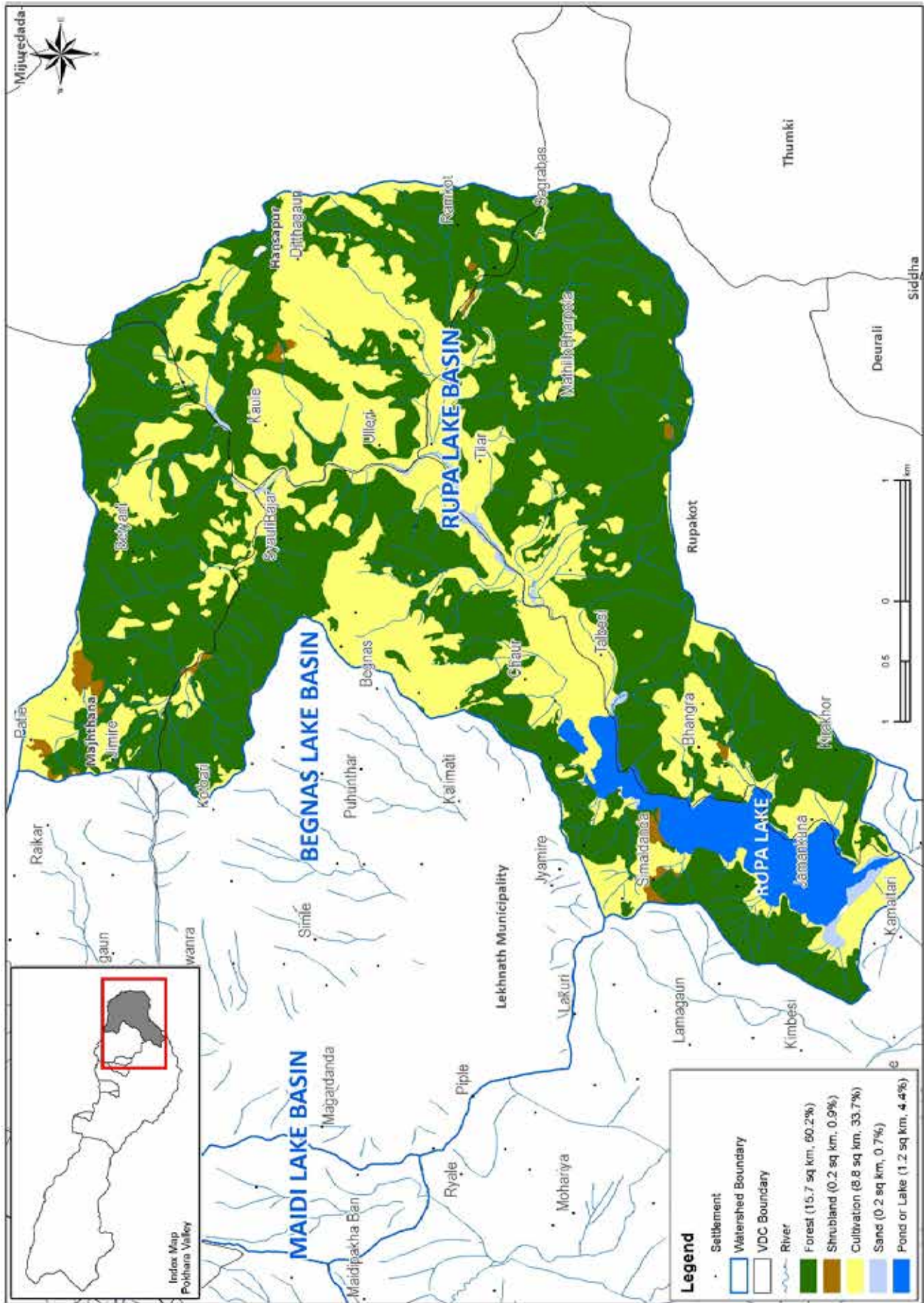
No.	Output/Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
7.3.7	Organize exposure visit for integrated lake basin management for government personnel (5); communities (10); village leaders (5) and teachers (5)	md (25*5)	125	12	1500	300	300	300	300	300	1500	
7.3.8	Conduct awareness programs on biodiversity conservation, climate change (Local fair)	Fair	5	1000	5000	1000	1000	1000	1000	1000	5000	
7.3.9	Conduct capacity building trainings for EBA with a view of lake conservation integrated to the prosperity of communities	Training (20*3)	60	4	240	48	48	48	48	48	240	
7.3.10	Conduct training for scientific management of CFs (32) of Kamalpokhari lake basin	Training (32*3)	66	4	264	52.8	52.8	52.8	52.8	52.8	264	
7.3.11	Conduct capacity building trainings for business and entrepreneurship (20)	Training (20*7)	140	4	560	112	112	112	112	112	560	
7.3.12	Conduct capacity building trainings for hotel and guide (15)	Training (15*20)	300	5	1500	300	300	300	300	300	1500	
Sub Total G					26154	12225.8	3495.8	3484.8	3473.8	3473.8	26154	
Outcome 8												0.7
Output 8.1	Begnas Lake Conservation Cooperative (BLCC) is created and operationalized											
8.1.1	Assist communities to consolidate scattered institutions (such as women’s groups, youth groups, existing cooperatives etc.) for the establishment of BLCC	Workshop	2	45	90	18	18	18	18	18	90	
8.1.2	Organize meetings and workshops to bring existing NGOs/CBOs in Begnas lake basin for their collective inputs and actions under	Workshop	2	45	90	18	18	18	18	18	90	
Output 8.2	Sustainable financing mechanism is created and operationalized***											

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
8.2.1	Develop a plan for sustainable financing mechanism including resources from tourism businesses, government support, and international funding mechanisms	Workshop	3	30	90	90	0	0	0	0	90	
8.2.2	Conduct workshop to agree on financial mechanism with Lekhnath Municipality; government entities; tourism/hotel association; FNCCI; Chamber of Commerce; financial institution and trade/business communities; NGOs for their contribution in sustainable financial mechanism	Workshop	2	45	90	90	0	0	0	0	90	
8.2.3	Creation of Trust Fund with clearly defined proportion of contribution from the government and other sources regularly for Begnas lake	Annual input	5	3000	15000	3000	3000	3000	3000	3000	15000	
8.2.4	Explore collaborative business fund from PPP for lake business and scale up such intervention	Event	5	30	150	30	60	60	0	0	150	
8.2.5	Explore national and global networking for scale up intervention	Event	5	30	150	30	60	60	0	0	150	
8.2.6	Support NGOs for proposal based funding for Begnas lake basin program and activities on climate resilient biodiversity and prosperity	Workshop	5	300	1500	300	300	300	300	300	1500	
8.2.7	Provide grant Rs 1 million for initial 2 years administrative support to BLCC	Grant	1000	2	2000	1000	1000	0	0	0	2000	
Output 8.3	Multi-stakeholders institution is coordinated for the shared strength											
8.3.1	Conduct workshop to set functional mechanism for the synergy from sectoral intervention with protocol and action plan	Workshop	1	45	45	45	0	0	0	0	45	

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
8.3.2	Conduct coordination meeting for review progresses and prospects for shared resources and opportunities following protocol and implementation of action plan	Meeting	10	30	300	60	60	60	60	60	300	
Sub Total H					19505	4681	4516	3516	3396	3396	19505	
GRAND TOTAL					2792309	133007	1746146	689454	147595	76107	2792309	
Yearly (%)						5	63	25	5	3	100	

*** Activity indicate complementing activity to other lake basin

H. ILBM PLAN OF RUPA



10.8 Integrate Lake Basin Plan of Rupa

10.8.1 Logframe of IBM plan of Rupa

Re	Narratives	Indicators	Means of verification
1	Outcome: Empowered lake basin governance system for the LCPV contributes to efficient management of Rupa Lake, with inter-sectoral coordination and meaningful public participation	Functioning institutions dedicated for Rupa lake basin management	Government gazettes, decrees, Annual Reports
	Outputs		
1.1	Ramsar Unit within Municipality is formed and operationalized	Functioning Ramsar Unit	Government decrees
1.2	Boundary (core and buffer area) of Rupa lake is clearly demarcated	Boundary of core/buffer area demarcated by 2017	Annual Progress Report
2	Outcome: Biodiversity and critical habitats of Rupa Lake Basin are conserved and ecosystem services and processes enhanced	Status of the biodiversity and critical habitats	District Reports
	Outputs		Study reports
2.1	Comprehensive assessment of biodiversity & critical habitats in Rupa lake basin is conducted	Biodiversity assessment Number of critical habitats conserved	
2.2	Forests and lake basin of Rupa lake are conserved	Number of ecosystem units conserved	Study reports, management plans
2.3	Valuation of ecosystem services of Rupa lake is conducted	Ecosystem value assessment	Study report
2.4	Native fish species, indigenous and traditional crop varieties and their wild relatives are conserved	Number of native species conservation plan in practice population status of native species	Management plan, progress reports
3	Outcome: Socio-economic prosperity of lake basin communities is enhanced	Socio economic development indices Number of functioning businesses created Number of jobs created	Standard of Living Survey
	Outputs		
3.1	Lake based ecotourism is promoted	Number of tourism related facilities/infrastructure created Addition of tourism related businesses Income generated through tourism Change in average duration of tourist stay	District Tourism report, Report of FNCCI, Living Standard Survey
3.2	Multi-year conservation agriculture is promoted	Area of field under multi-year farming Reduction in nutrient and sediment flow from the basin into the lake raised income through conservation farming	Periodic Landuse landcover change assessment report DADO annual report
4	Outcome: Infrastructure		

Re	Narratives	Indicators	Means of verification
4.1	Environmental guidelines are enforced	Environmental guidelines enforced	Progress reports
5	Outcome: Vulnerability of lake basin to climate change and disaster risk is reduced and lake basin environment improved		
	Outputs		
5.1	Natural and anthropogenic vulnerable sites and their causes are identified	Number of vulnerable sites and causes identified	Multi-hazard risk assessment Study reports
5.2	Mitigatory measures are implemented	Number of mitigatory measures undertaken Area of lake restored Decrease in the flow of waste and drain into the lake	Progress reports
6	Outcome: GESI mainstreamed at all levels and processes of lake basin management		
	Outputs		
6.1	Lake dependent vulnerable communities including women are empowered for economic sovereignty	Number of vulnerable households supported Increased income level of vulnerable households in comparison to other households	Progress reports Survey reports
6.2	Meaningful participation of women and vulnerable groups in lake governance enhanced	Number of representatives of vulnerable group in managerial position in lake basin institutions	Progress reports
7	Outcome: Long-term socio-ecological monitoring, and Knowledge Management Systems are established and functional		
	Outputs		
7.1	Long term social and ecological monitoring system of lake basin is established	Implementation of Socio-ecological monitoring Lake health card in practice	Periodic Assessment reports Progress Reports
7.2	Knowledge Management and Communication Center established	Establishment of knowledge center Number of knowledge products developed	Progress reports Knowledge products
7.3	Capacity of stakeholders strengthened	Number of people trained	Progress reports Event reports
8	Outcome: Financial Sustainability		
	Outputs		
8.1	Rupa Lake Restoration and Fishery Cooperative (RLRFC) fully takes responsibility of Rupa lake conservation and development for prosperity	Functioning RLRFC Resources generated	Government decrees
8.2	Sustainable administrative & financing mechanism for RLRFC is created and operational	Functioning financing mechanism in place Volume of fund generated and managed	Annual progress Report
8.3	Multi-stakeholders institution is coordinated for the shared strength	Coordination protocol; Number of jointly operated activities Joint resources generation	Annual Progress Report

10.8.2 Activities and Implementation Units for Rupa

Re	Narrative	Responsible Unit	
		Main	Ancillary
1	Outcome: Empowered lake basin governance system for the LCPV contributes to efficient management of Rupa Lake, with inter-sectoral coordination and meaningful public participation		
1.1	Output: Ramsar Unit within Municipality is formed and operationalized		
1.1.1	Formulate special 'RAMSAR UNIT (R-Unit)' within Pokhara Lekhnath Metropolitan City and delegate authority for lake conservation program	DCC; NLCDC	PVTDC; DNPWC
1.2	Boundary (core and buffer area) of Rupa lake is clearly demarcated		
1.2.1	Install reference pillars in shoreline of Rupa	DCC; POLEM, RRM	MoALMC; PVTDC
1.2.2	Demarcate buffer zone of Rupa for urban structure; garden and museum; religious and cultural site; fish culture; recreation and conservation of Sahar fish; forests; wetlands; and regulate activities	DCC; POLEM, RRM	MoALMC; PVTDC
1.2.3	Declare and enforce buffer area provision in any construction work (65m) from reference pillars and regulate all interventions ensuring scenic view and '0' damage in water quality	PVTDC; POLEM, RRM	MoALMC; DCC
2	Outcome: Biodiversity and critical habitats of Rupa Lake Basin are conserved and ecosystem services and processes enhanced		
2.1	Output: Comprehensive assessment of biodiversity & critical habitats in Rupa lake basin is conducted		
2.1.1	Conduct comprehensive assessment of biodiversity and critical habitats in lake basin	FO	RLRFC; IoF
2.2	Output: Forests and lake basin of Rupa lake are conserved		
2.2.1	Assist RLRFC to bring CFs (24) of its basin under network to consolidate their forests activities towards lake conservation and prosperity	FO	RLRFC; CFUG
2.2.2	Build technical capacity of CF Networks and member CFs for scientific management of forests and biodiversity, also provide financial support	FO	RLRFC
2.2.3	Review Operation Plan of CFs with a focus on Rupa conservation	FO	RLRFC; CFs
2.2.4	Conduct comprehensive assessment of biodiversity in CFs, and prepare and implement management plan for biodiversity hotspot for Rupa	FO; RLRFC	RLRFC; ACAP; CFs
2.2.5	Assist to strengthen capacity of Bio resource Conservation Movement (Jaibik Shrot) for technical capacity for the nursery production of coffee; graft; bamboo cuttings etc	FO	I/NGOs
2.2.6	Assist CF users for the control of illegal hunting of wildlife in the forests of lake basin area	FO	RLRFC
2.3	Output: Valuation of ecosystem services of Rupa lake is conducted		
2.3.1	Conduct valuation of ecosystem services of lake	NLCDC	DoF; SCO; IoF
2.3.2	Initiate PES for conservation activities in the upstream area	SCO; FO	IoF
2.4	Output: Native fish species, indigenous and traditional crop varieties and their wild relatives are conserved		
2.4.1	Develop and implement plan to conserve native fish species	DFDO	I/NGO
2.4.2	Conduct and protect cultural practices and TK documentation related with biodiversity	DAO; DLSO	RLRFC; Li-BIRD

Re	Narrative	Responsible Unit	
		Main	Ancillary
2.4.3	Identify TK practitioners and institutions, prepare their plan and implement plan	DAO; DLSO	RLRFC; I/NGO
2.4.4	Develop incentive mechanism for cultivation of native species of crops Jhedobudho, Pahele Dhan and Kaguni etc.	DAO; DLSO	RLRFC; I/NGO
2.4.5	Prepare and implement management plans for Otter and Shahar fish	DFDO	RLRFC; I/NGO
3	Outcome: Socio-economic prosperity of Lake Basin communities is enhanced		
3.1	Output: Lake based ecotourism is promoted		
3.1.1	Upgrade road condition for 2 lane structure from Sisuwa to Kamalbazar (5 km) with side drain; roadside plantation; traffic junction; rest places and parking sites	LM; DCC	PVTDC; Road division
3.1.2	Construct blacktop road from Kamalbazar to Chisapani (4 km) with side drain; roadside plantation; traffic junction; rest places and parking sites	LM; DCC	PVTDC; Road division
3.1.3	Complement to the initiative to link road of 7 lakes section from Kamalbazar to Talbesi (5 km) with side drain, roadside plantation; traffic junction; rest places and parking sites	POLEM, RRM; DCC	PVTDC; Road division
3.1.4	Construct motarable bridge at Kharbarituda connecting Bhimsendanda to Sisteni Phant	POLEM, RRM; DCC	PVTDC; Road division
3.1.5	Prepare an Integrated Urban Development Site Plan (building code; drain; electricity; telephone; health post; security post; link road; electricity; roadside plantation; bank; sanitation facilities; market; recreational site) of Sisteni Malbung Phant (POLEMC), Kamalbazar,	PVTDC; POLEM, RRM	DCC; RLRFC
3.1.6	Prepare building code for all VDCs in basin area of Rupa, and implement it	PVTDC; POLEM, RRM	DCC
3.1.7	Facilitate communities to access Investment Mechanism to implement Integrated Village Plan, Site Plan and building code in all settlements of Rupa	PVTDC; POLEM, RRM	DCC; Banks
3.1.8	Establish a multipurpose visitor information center with quality facilities and services in Subedighat. Ensure that center holds aquarium	POLEM, RRM; NTB	PVTDC; DCC; RLRFC
3.1.9	Construct decorative bridge in Sanghretunda for increased access to visitors and villagers	POLEM, RRM	RLRFC; Boat Association
3.1.10	Implement the plan of the Zoo in Chainpur-Pachbhaiya	POLEM, RRM; NLCDC	DCC; PVTDC; I/NGOs
3.1.11	Prepare beautification plan of Rupa lake from Jamunkuna to Bhangarakuna (water amusement and fountain; rest places; mini-restaurant; children park etc) and implement it	POLEM, RRM; NLCDC	DCC; RLRFC
3.1.12	Establish residential conference facilities (25 man capacity) in Subedighat	NLCDC; POLEM, RRM	DCC; RLRFC
3.1.13	Construct wooden trail in wetlands and shoreline (2 km)	POLEM, RRM; DCC	PVTDC; Road division
3.1.14	Construct 25 floating house with modern conference facilities in wetlands of Bhakunda Bagar accessible from boat with provision of PES	HAN; DCC	Private
3.1.15	Construct floating house (10) with residence; hygiene and sanitation facilities accessible from boat and wooden trail	HAN; DCC	Private

Re	Narrative	Responsible Unit	
		Main	Ancillary
3.1.16	Implement survey report for foot trail around Rupa lake (9 km) with rest houses; rest places; sign; biodiversity tags; bushes and gardens etc	NLCDC; POLEM, RRM	DCC; RLRFC
3.1.17	Complement assessment survey for ropeway encircling all lakes from Phewa-KP-Gunde-Dipang-KN-Maidi and Rupa to other lakes/gorges and vantage sites, and implement it	DCC; NTB	POLEMC; LM; NTB; FNCCI; Private
3.1.18	Complement to upgrade facilities in Sundare view tower for Biodiversity Information Center	POLEM, RRM; DCC	RLRFC, I/NGO
3.1.19	Introduce boating services (10 boats) with boat park and other facilities	NLCDC; NTB	POLEM, RRM, RLRFC
3.1.20	Assess for package tour linking Rupa with other lakes, and organize tour	TAN; HAN	NTB; RLRFC
3.1.21	Continue organizing cultural festival such as Ropai Day (Asadh 15)	RLRFC	I/NGO
3.1.22	Conduct Baseline information on socio-economic features in Rupa lake basin	NLCDC	RLRFC
3.2	Output: Multi-year conservation agriculture is promoted		
3.2.1	Assist communities for assessment/development of Business Plan for multiyear crop and livestock with the provision of PES	DAO; DLSO	RLRFC
3.2.2	Support people to implement business plan for organic coffee in 100 ha in Hanspur- 6-9; Rupakot-1 & 3; Lekhnath 10-11	DAO	RLRFC
3.2.3	Support people implement business plan for bamboo, banana and other fruits in 50 ha in in Gullies and abandoned land in Rupa lake basin		
3.2.4	Promote private forestry in 100 ha of abandoned and fallow land	FO	RLRFC
3.2.5	Conduct assessment and prepare Business Plan for at four NR based enterprise development	Cottage Industry	FO; RLRFC; Private
3.2.6	Provide technical and financial support to groups for implementation of enterprise Business Plan in each potential wards	Cottage Industry	FO; RLRFC; Private
3.2.7	Assist users to brand their products of basin in markets	Cottage Industry	FO; RLRFC; Private
3.2.8	Support 100 HHs to implement Business Plan for diary integrated to biogas installation	DLSO	RLRFC
3.2.9	Support 50 HHs to implement Business Plan for Poultry integrated to biomanure production and marketing	DAO	RLRFC
3.2.10	Support 100 HHs to implement BP for bee keeping	DAO; Kisan to Kisan	RLRFC, I/NGO
3.2.11	Support to 100 HHs for goat rearing	DAO	RLRFC
4	Outcome: Infrastructure		
4.1	Output: Environmental guidelines are enforced		
4.1.1	Develop and implement landuse plan for controlling indiscriminate plotting and construction	POLEM, RRM; PVTDC	DCC
4.1.2	Enforce environmental regulations in road and building construction	RLRFC; POLEM, RRM	PVTDC
5	Outcome: Vulnerability of lake basin to climate change and disaster risk is reduced and lake basin environment improved		
5.1	Output: Natural and anthropogenic vulnerable sites and their causes are identified		

Re	Narrative	Responsible Unit	
		Main	Ancillary
5.1.1	Conduct vulnerability assessment at sub-basin level of Rupa including assessment of rhizomatous body of wetlands	DCC; SCO	FO; IoF
5.2	Output: Mitigatory measures are implemented to reduce the vulnerability of the lake basin		
5.2.1	Develop and implement landuse plan for controlling indiscriminate plotting and construction	DCC; POLEM, RRM	PVTDC
5.2.2	Prepare micro-basin plan (7) of Dovan; Chisa; Sanophadi; Dholphadi; Bhangara; Kuraundi; Kalaundi Khola, and implement it	SCO	DCC
5.2.3	Construct speed breaker cascade in Dovan (15); Chisa (4); Sanophadi (2); Thulophadi (3); Bhangara (3); Kuraundi (4); and Kalaundi Khola (3) at 34 sites	SCO	RLRFC
5.2.4	Construction of 5 silt trap devices each in Dovan at Dipakokholso; Chisa at Khutruke Khola Dovan; Thulophadi at Dhulopdikuna; Bhangara at Bhangarakuna; Kuraundi at Batukeko Kula; and Kalaundi Khola at Damphe Puchhar with provision of removing silt & gravel in reclamation sites	SCO	DCC; NLCDC; RLRFC
5.2.5	Scale up capacity of silt trap device in Bhangara in Bhangarakuna and Sanophadi in Sanophadikuna with provision of removing silt & gravel in reclamation sites	SCO	DCC; NLCDC; RLRFC
5.2.6	Redesign, and construct landslide control bioengineering for Bandre, Majthana-4; Rumato Hansapur-8	SCO	DCC; NLCDC; RLRFC
5.2.7	Collaborate with the initiative of LiBIRD to bioengineering control of Achmaro landslide, Hansapur-9	SCO	POLEM, RRM, RLRFC, I/NGO
5.2.8	Plantation of bamboo, broomgrass & rattan plantation (50 ha) in 37 Galchi in Dovan Khola (15); Chisa Khola (5); Kalaundi Khola (3); Sanophadi Khola (5); Tholophadi Khola (3); Bhangara Khola (5); & Jamunkuna (1)	SCO; FO	RLRFC
5.2.9	Plantation of bamboo, broomgrass; coffee and fruit in private and abandoned land (250 ha) ensuring no loss of plantation due to grazing	SCO; FO	RLRFC
5.2.10	Continue and scale up plantation by LiBIRD in riverbank of Shynkhudi river	SCO	FO; RLRFC
5.2.11	Bioengineering of landslide and river bank stabilization in Kanjare and Khahare Khola in Bhakunde Bagar. XXX ha of bamboo, broomgrass, and ratan plantation	SCO; FO	RLRFC
5.2.12	Construct 3 km X km x1.5 m wide drain to trap monsoon wash with organic matter & agriculture run off with silt-trap devices in every 500 m distance from Talbesi to Lipiyani, and discharge it in Dovan Khola before silt trap device	DCC; SCO	RLRFC
5.2.13	Construct 4 km x 1.5 wide roadside drain from Kaure to Ramkot; 2 km x 1.5 wide roadside drain from Kaure to Sagrabas to Mohoriya; Construct 2 km x 1.5 wide roadside drain from Talbesi to Kholabesi ; 2 km x 1.5 wide roadside drain from Khola Chheu (Kamal Bazar) to Talbesi with silt-trap devices in every 500 m distance, and discharge it in respective streams before silt trap device	DCC; SCO	RLRFC

Re	Narrative	Responsible Unit	
		Main	Ancillary
5.2.14	Promote construction of safety tank facilities in XXX HHs of settlements such as Bastola Gaun; Magar Danda; Piple; Sundare Danda; Majhikuna; and all settlements down to Kotbari; Kuhidi; Majthan etc integrated to biogas facilities	DCC; DAO	RLRFC; POLEM, RRM
5.2.15	Incorporate 'O' trash procedures (process, provision & penalties) in the constitutional provision of RLRFC, and enforce strictly the principles in shoreline settlements at first, and then gradually extended at other areas	POLEM, RRM, RLRFC	DCC
5.2.16	Installation of signpost at 100 places for 'O Trash' in vantage points of Rupa lake and basin area	NTB	DCC; HAN; TAN, POLEM, RRM
5.2.17	Install trash collection centers at 6 places in different locations and regularly dispose	POLEM, RRM	DCC; RLRFC
5.2.18	Remove XXX tons of soil from uncertified and occupied land (XXX ha) to restore lake area from Kholako Muhan	NLCDC	DCC; POLEM, RRM; RLRFC
5.2.19	Construct earthen dam from Subedighat to Sisteni Katartunda with regulator to increase water level of Rupa by 5 m from the the current capacity	NLCDC; POLEM, RRM	PVTDC; RLRFC
5.2.20	Assess and piloting for water hyacinth garden in Subedighat (5 ha), Talbesi Muhan (2 ha) and Chatterepang (5 ha) in a view of generating income from manure	NLCDC; POLEM, RRM	PVTDC; RLRFC
5.2.21	Develop mechanism to regularly remove water hyacinth escaped out from the piloting site for manure	RLRFC; CF; NLCDC	DCC
5.2.22	Scale up greenbelt of water hyacinth along 2 m wide along shoreline	RLRFC; CF	DCC
5.2.23	Encourage incentive mechanism for overharvesting of Tilapia	RLRFC; DFDO	FO
6	Outcome: GESI mainstreamed at all levels and processes of lake basin management		
6.1	Output: Lake dependent vulnerable communities including women are empowered for economic sovereignty		
6.1.1	Strengthen cooperative of Jalahari for preparing Sustainable Fishery Plan (SFP)	DFDO; RLRFC	
6.1.2	Assist Jalahari to implement their SFP for expanding fishery and regulating harvesting mechanism	DFDO; RLRFC	
6.1.3	Assist cooperative of Jalahari for better housing of each HHs	DWCO	RLRFC
6.1.4	Assist women groups of ward to form ward level women's organization	DWCO	RLRFC
6.1.5	Assist women's organization to build their plans with focus of vulnerable groups, and implement these plans	DWCO	RLRFC
6.1.6	Strengthen associations of women and groups of vulnerable groups for their income activities	DWCO	RLRFC
6.1.7	Assist disadvantage groups (Dalit) of Rupa basin to organize them under umbrella structure	DWCO	RLRFC
6.1.8	Assist disadvantage group to prepare their plan and implement it for economic empowerment	DWCO	RLRFC
6.1.9	Explore activities of economic empowerment for socially disadvantage groups (Dalit), and assist the group to implement their activities	DWCO	RLRFC
6.2	Output: Meaningful participation of women and vulnerable groups in lake governance		

Re	Narrative	Responsible Unit	
		Main	Ancillary
6.2.1	Ensure representation of women and vulnerable groups in lake management and community institutions	DWCO	RLRFC; NLCDC
6.2.2	Promote leadership role for women and vulnerable groups in the lake governance	RLRFC; DWCO	
7	Outcome: Long-term socio-ecological monitoring, and Knowledge Management Systems are established and functional		
7.1	Output: Socio-ecological monitoring protocol is in place and operational		
7.1.1	Develop Long term social and ecological monitoring protocol for Rupa	NLCDC	POLEM, RRM; DCC; LM
7.1.2	Assess and monitor Land Use Land Change in the lake basin	DCC; SCO	POLEM, RRM; VDCs
7.1.3	Assess, prepare monitoring plan, and monitor the biodiversity status and ecological characters of lake	NLCDC;	FO; SCO; IoF; I/NGO
7.1.4	Introduce lake health card to monitor water quality in quaterly basis at National Standards for irrigation, fishery and recreation, and establish monitoring major sites (physical, chemical and biological properties)	NLCDC;	POLEM, RRM; FO; SCO; IoF; I/NGO
7.2	Output: Prepare and disseminate knowledge products		
7.2.1	Develop and disseminate knowledge products on Rupa lake basin	POLEM, RRM	I/NGOs
7.2.2	Develop/strengthen community level network for knowledge sharing	POLEM, RRM	DCC; I/NGOs
7.2.3	Prepare and publish awareness materials on lakes & Ramsar provision for government personnel; students; communities and village leaders	NLCDC	DCC; DoF; DNPWC; NGOs
7.3	Output: Capacity of stakeholders strengthened		
7.3.1	Organize sensitization annual events for personnel of line agencies to integrate lake issues in their planning	NLCDC	DCC; DoF; IUCN; WWF; NGOs
7.3.2	Organize training for communities of Rupa lake conservation and Ramsar provision	NLCDC	DCC; DoF; DNPWC; NGOs
7.3.3	Organize training to village leaders of Rupa lake basin for integrating issues of Rupa and Ramsar provision in their annual planning	NLCDC	DCC; DNPWC; NGOs
7.3.4	Organize sensitization event to urban communities of Municipality on Rupa lake and Ramsar provision	NLCDC	DCC; DNPWC; NGOs
7.3.5	Organize training for school teachers to incorporate lake and Ramsar provision in their extracurricular activities in each schools	NLCDC	DCC; DNPWC; I/NGOs
7.3.6	Conduct regular conservation programs at schools including events management such as World Wetlands Day; World Environment Day; World Biodiversity Day etc	NLCDC	DCC; DNPWC; I/NGOs
7.3.7	Organize exposure visit for integrated lake basin management for government personnel; communities; village leaders and teachers	POLEM, RRM	DCC; NLCDC
7.3.8	Conduct awareness programs on biodiversity conservation, climate change	POLEM, RRM	FO; NLCDC
7.3.9	Conduct capacity building trainings for EBA with a view of lake conservation integrated to the prosperity of communities	FO	IoF
7.3.10	Conduct training for scientific management of CFs of Rupa lake basin	FO	RLRFC; NLCDC
7.3.11	Conduct capacity building trainings for business and entrepreneurship	FO	RLRFC; NLCDC

Re	Narrative	Responsible Unit	
		Main	Ancillary
7.3.12	Conduct capacity building trainings for hotel and guide	NTB	DCC; POLEM, RRM
8	Outcomes: Financial Sustainability		
8.1	Output: Rupa Lake Restoration and Fishery Cooperative fully takes responsibility of Rupa lake conservation and development for prosperity		
8.1.1	Assist RLRFC to involve other institutions in its board and diversify cooperative business in addition to lake conservation	DCC	MP; NLCDC
8.1.2	Organize meeting/workshops to bring existing community organizations for their collective inputs and actions under RLRFC	DCC	MP; NLCDC
8.2	Output: Sustainable administrative & financing mechanism for RLRFC is created and operational		
8.2.1	Develop a plan for sustainable financing mechanism including resources from tourism businesses, government support, and international funding mechanisms	DCC; NLCDC	MoF; PLCC
8.2.2	Conduct workshop to agree on financial mechanism with Lekhnath Municipality; government entities; tourism/hotel association; FNCCI; Chamber of Commerce; financial institution and trade/business communities; NGOs for their contribution in sustainable financial mechanism keeping PES as incentives to all	DCC	DCC; MoF; PLCC
8.2.3	Creation of Trust Fund with clearly defined proportion of contribution from the government and other sources regularly for Rupa lake	DCC	POLEM, RRM; RLRFC; MoF; NLCDC
8.2.4	Explore collaborative business fund from PPP for lake business and scale up such intervention	RLRFC	Private
8.2.5	Explore national and global networking for scale up intervention	NLCDC	DCC; POLEM, RRM; RLRFC
8.2.6	Support NGOs for proposal based funding for Rupa lake basin program and activities on climate resilient biodiversity and prosperity		
8.2.7	Provide grant Rs. 1 million for initial 2 years administrative support to RLRFC		
8.3	Output: Multi-stakeholders institution is coordinated for the shared strength		
8.3.1	Conduct workshop to set functional mechanism for synergy from sectoral intervention with protocol and action plan	RLRFC	DCC; POLEM, RRM
8.3.2	Conduct coordination meeting for review progresses and prospects for shared resources and opportunities following protocol and implementation of action plan	RLRFC	DCC; POLEM, RRM

10.8.3 Budget for Rupa

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
Outcome 1												0.5
Output 1.1	Ramsar Unit within Municipality is formed and operationalized ^{10.8.3}											
1.1.1	Formulate special 'RAMSAR UNIT (R-Unit)' within Pokhara Lekhnath Metropolitan City and delegate authority for lake conservation program	R-Unit, mm	39	150	5850	1170	1170	1170	1170	1170	5850	
Output 1.2	Boundary (core and buffer area) of all lakes is clearly demarcated											
1.2.1	Install reference pillars in shoreline of Rupa	Pillars	60	25	1500	750	750	0	0	0	1500	
1.2.2	Demarcate buffer zone of Rupa for urban structure; garden and museum; religious and cultural site; fish culture; recreation and conservation of Sahar fish; forests; wetlands; and regulate activities	Meeting, monitoring	6	60	360	72	72	72	72	72	360	
1.2.3	Declare and enforce buffer area provision in any construction work (65m) from reference pillars and regulate all interventions ensuring scenic view and 'o' damage in water quality	Demarcation Plan	1	400	400	400	0	0	0	0	400	
Sub Total A					8110	2392	1992	1242	1242	1242	8110	
Outcome 2												2.0
Output 2.1	Comprehensive assessment of biodiversity & critical habitats in Rupa lake basin is conducted											
2.1.1	Conduct comprehensive assessment of biodiversity and critical habitats in lake basin	Research	1	2000	2000	2000	0	0	0	0	2000	
Output 2.2	Forests and lake basin of Rupa lake are conserved											
2.2.1	Assist RLRFC to bring CFs (24) of its basin under network to consolidate their forests activities towards lake conservation and prosperity	Network	1	300	300	60	60	60	60	60	300	

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
2.2.2	Build technical capacity of CF Networks and member CFs for scientific management of forests and biodiversity, also provide financial support	Lumpsum	1	1500	1500	1500	0	0	0	0	1500	
2.2.3	Review Operation Plan of CFs (24) with a focus on Rupa conservation	Review	24	100	2400	1200	1200	0	0	0	2400	
2.2.4	Conduct comprehensive assessment of biodiversity in CFs, and prepare and implement management plan for biodiversity hotspot for Rupa	Assessment	1	3000	3000	150	2850	0	0	0	3000	
2.2.5	Assist to strengthen capacity of Bioresource Conservation Movement (Jaibik Shrot) for technical capacity for the nursery production of coffee; graft; bamboo cuttings etc	Lumpsum	1	8000	8000	1600	1600	1600	1600	1600	8000	
2.2.6	Assist CF users for the control of illegal hunting of wildlife in the forests of lake basin area	Capacity building	7	30	210	10.5	84	84	21	10.5	210	
Output 2.3	Valuation of ecosystem services of Rupa lake is conducted											
2.3.1	Conduct valuation of ecosystem services of lake	Study	1	1000	1000	50	950	0	0	0	1000	
2.3.2	Initiate PES for conservation activities in the upstream area	Workshop	2	700	700	140	140	140	140	140	700	
Output 2.4	Native fish species, indigenous and traditional crop varieties and their wild relatives are conserved											
2.4.1	Develop and implement plan to conserve native fish species	Plan+Implement	1	5000	5000	2500	1000	500	500	500	5000	
2.4.2	Conduct and protect cultural practices and TK documentation related with biodiversity	Plan	1	700	700	70	630	0	0	0	700	

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
2.4.3	Identify TK practitioners and institutions, prepare their plan and implement plan	Plan + Implement	1	4000	4000	1200	1200	800	400	400	4000	
2.4.4	Develop incentive mechanism for cultivation of native species of crops Jethobudho; Yekle; Anadhi; Kaguno etc	Lumpsum	1	1000	1000	200	200	200	200	200	1000	
2.4.5	Prepare and implement management plans for Otter and Shahar fish	Lumpsum	1	6000	6000	1200	1200	1800	900	900	6000	
Sub Total B					35810	11880.5	11114	5184	3821	3810.5	35810	
Outcome 3												67.1
Output 3.1	Lake based ecotourism is promoted											
3.1.1	Upgrade road condition for 2 lane structure from Sisuwa to Kamalbazar (5 km) with side drain; roadside plantation; traffic junction; rest places and parking sites	km	5	40000	200000	1000	140000	45000	10000	4000	200000	
3.1.2	Construct blacktop road from Kamalbazar to Chisapani (4 km) with side drain; roadside plantation; traffic junction; rest places and parking sites	km	4	50000	200000	1000	140000	45000	10000	4000	200000	
3.1.3	Complement to the initiative to link road of 7 lakes section from Kamalbazar to Talbesi (5 km) with side drain, roadside plantation; traffic junction; rest places and parking sites	km	5	42000	210000	1050	147000	47250	10500	4200	210000	
3.1.4	Construct motarable bridge at Kharbarituda connecting Bhimsendanda to Sisteni Phant	Bridge	1	7500	7500	37.5	5250	1687.5	375	150	7500	

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
3.1.5	Prepare an Integrated Urban Development Site Plan (building code; drain; electricity; telephone; health post; security post; link road; electricity; roadside plantation; bank; sanitation facilities; market; recreational site) of Sisteni Malbung Phant (POLEMC), Kamalbazar,	Plan	1	4000	4000	2000	2000	0	0	0	4000	
3.1.6	Prepare building code for all VDCs in basin area of Rupa, and implement it	Building code	1	1000	1000	1000	0	0	0	0	1000	
3.1.7	Facilitate communities to access Investment Mechanism to implement Integrated Village Plan, Site Plan and building code in all settlements of Rupa	Mechanism	1	700	700	210	210	140	70	70	700	
3.1.8	Establish a multipurpose visitor information center with quality facilities and services in Subedighat. Ensure that center holds aquarium	Visitor center	1	20000	20000	200	10000	8000	1000	800	20000	
3.1.9	Construct decorative bridge in Sanghretunda for increased access to visitors and villagers	Bridge	1	15000	15000	150	7500	6000	750	600	15000	
3.1.10	Implement the plan of National Zoo in Chainpur-Pachbhaya	Zoo	1	100000	100000	1000	50000	40000	5000	4000	100000	
3.1.11	Prepare beautification plan of Rupa lake from Jamunkuna to Bhagarakuna (water amusement and fountain; rest places; mini-restaurant; children park etc) and implement it	Site plan + implementation	1	25000	25000	250	15000	7500	1250	1000	25000	
3.1.12	Establish residential conference facilities (25-man capacity) in Subedighat	Lumpsum	1	17500	17500	175	10500	5250	875	700	17500	

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
3.1.13	Construct wooden trail in wetlands and shoreline (2 km)	km	2	5000	10000	100	5000	4000	500	400	10000	
3.1.14	Construct 25 floating house with modern conference facilities in wetlands of Bhakunda Bagar accessible from boat with provision of PES	Floating house	25	3000	75000	750	22500	48750	1500	1500	75000	
3.1.15	Construct floating house (10) with residence; hygiene and sanitation facilities accessible from boat and wooden trail	Floating house	10	3500	35000	350	10500	22750	700	700	35000	
3.1.16	Implement survey report for foot trail around Rupa lake (9 km) with rest houses; rest places; sign; biodiversity tags; bushes and gardens etc	km	9	20000	180000	900	126000	40500	9000	3600	180000	
3.1.17	Complement assessment survey for ropeway encircling all lakes from Phewa-KP-Gunde-Dipang-KN-Maidi-Begnas and Rupa to other lakes/gorges and vantage sites, and implement it	Survey; 30 km	1	20	20	2	18	0	0	0	20	
3.1.18	Complement to upgrade facilities in Sundare view tower for Biodiversity Information Center	Lumpsum	1	200	200	100	100	0	0	0	200	
3.1.19	Introduce boating services (10 boats) with boat park and other facilities	Boat	10	2500	25000	2500	22500	0	0	0	25000	
3.1.20	Assess for package tour linking Rupa with other lakes, and organize tour	Lumpsum	1	2500	2500	125	1125	1000	125	125	2500	
3.1.21	Continue organizing cultural festival such as Ropai Day (Asadh 15)	Festival	5	500	2500	500	500	500	500	500	2500	
3.1.22	Conduct Baseline information on socio-economic features in Rupa lake basin	Assessment	1	2000	2000	2000	0	0	0	0	2000	

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
Output 3.2	Multi-year conservation agriculture is promoted											
3.2.1	Assist communities for assessment/development of Business Plan for multiyear crop and livestock with the provision of PES	Business plan	1	2000	2000	2000	0	0	0	0	2000	
3.2.2	Support people to implement business plan for organic coffee in 100 ha in Hanspur- 6-9; Rupakot-1 & 3; Lekhnath 10-11	Ha	100	30	3000	150	900	1200	450	300	3000	
3.2.3	Support people implement business plan for bamboo, banana and other fruits in 50 ha in Gullies and abandoned land in Rupa lake basin	Ha	50	40	2000	100	600	800	300	200	2000	
3.2.4	Promote private forestry in 100 ha of abandoned and fallow land	Ha	100	30	3000	150	900	1200	450	300	3000	
3.2.5	Conduct assessment and prepare for at least four NR based enterprise development	Business plan	1	700	700	700	0	0	0	0	700	
3.2.6	Provide technical and financial support to groups for implementation of enterprise in each potential year	Lumpsum	3	6000	18000	8100	9000	900	0	0	18000	
3.2.7	Assist users to brand their products of basin in markets	Lumpsum	1	700	700	0	490	70	70	70	700	
3.2.8	Support 100 HHs to implement BP for diary integrated to biogas installation	HH	100	100	10000	500	3000	4000	1500	1000	10000	
3.2.9	Support 50 HHs to implement for Poultry integrated to biomanure production and marketing	HH	50	250	12500	250	3750	5000	2250	1250	12500	
3.2.10	Support 100 HHs to implement for bee keeping	HH	100	50	5000	100	1500	2000	900	500	5000	

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
3.2.11	Support to 100 HHs for goat rearing	HH	100	50	5000	100	1500	2000	900	500	5000	
Sub Total C					1194820	27549.5	737343	340497.5	58965	30465	1194820	
Outcome 4												0.2
Output 4.3	Environmental guidelines are enforced											
4.3.1	Develop and implement landuse plan for controlling indiscriminate plotting and construction	Plan	1	2000	2000	1600	100	100	100	100	2000	
4.3.2	Enforce environmental regulations in road and building construction	Lumpsum	1	500	800	160	160	160	160	160	800	
Sub Total D				2500	2800	1760	260	260	260	260	2800	
Outcome 5												26.0
Output 5.1	Natural and anthropogenic vulnerable sites and their causes are identified											
5.1.1	Conduct vulnerability assessment at sub-basin level of Rupa including assessment of rhizomatous body of wetlands	Assessment	1	2000	2000	2000	0	0	0	0	2000	
Output 5.2	Mitigatory measures are implemented to reduce the vulnerability of the lake basin											
5.2.1	Develop and implement landuse plan for controlling indiscriminate plotting and construction	Plan	1	8000	8000	8000	0	0	0	0	8000	
5.2.2	Prepare micro-basin plan (7) of Dovan; Chisa; Sanophadi; Dholphadi; Bhagara; Kuraundi; Kalaundi Khola, and implement it	Basin Plan	7	5000	35000	1750	33250	0	0	0	35000	
5.2.3	Construct speed breaker cascade in Dovan (15); Chisa (4); Sanophadi (2); Thulophadi (3); Bhagara (3); Kuraundi (4); and Kalaundi Khola (3) at 34 sites	Cascade + Plantation	34	2400	81600	1632	40800	32640	4080	2448	81600	

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
5.2.4	Construction of 5 silt trap devices each in Dovan at Dipakokholso; Chisa at Khutruke Khola Dovan; Thulophadi at Dhulopdikuna; Bhagara at Bhangarakuna; Kuraundi at Batuoke Kula; and Kalaundi Khola at Damphe Puchhar with provision of removing silt & gravel in reclamation sites	Silt trap	5	7000	35000	350	14000	17500	1750	1400	35000	
5.2.5	Scale up capacity of silt trap device in Bhagara in Bhangarakuna and Sanophadi in Sanophadikuna with provision of removing silt & gravel in reclamation sites	Silt trap	2	7000	14000	140	5600	7000	700	560	14000	
5.2.6	Redesign, and construct landslide control bioengineering for Bandre, Majthana-4; Rumato Hansapur-8	Lumpsum	1	12000	12000	120	4800	6000	600	480	12000	
5.2.7	Complement to the initiative of LiBIRD to bioengineering control of Achmaro landslide, Hansapur-9	Lumpsum	1	1500	1500	15	450	1035	0	0	1500	
5.2.8	Plantation of bamboo, broomgrass & rattan plantation (50 ha) in 37 Galchi in Dovan Khola (15); Chisa Khola (5); Kalaundi Khola (3); Sanophadi Khola (5); Tholophadi Khola (3); Bhagara Khola (5); and Jamunkuna (1)	HH	50	30	1500	0	225	450	525	300	1500	
5.2.9	Plantation of bamboo, broomgrass; coffee and fruit in private and abandoned land (250 ha) ensuring no loss of plantation due to grazing	HH	250	30	7500	0	1125	2250	2625	1500	7500	
5.2.10	Continue and scale up plantation by LiBIRD in riverbank of Shynkhudi river	Lumpsum	1	2000	2000	600	600	400	200	200	2000	

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
5.2.11	Bioengineering of landslide and river bank stabilization in Kanjare and Khahare Khola in Bhakunde Bagar. XXX ha of bamboo, broomgrass, and ratan plantation	Lumpsum	1	10000	10000	3000	3000	2000	1000	1000	10000	
5.2.12	Construct 3 km X km x1.5 m wide drain to trap monsoon wash with organic matter & agriculture run off with silt-trap devices in every 500 m distance from Talbesi to Lipiyani, and discharge it in Dovan Khola before silt trap device	km roadside drain	3	2500	7500	150	5250	1500	450	150	7500	
5.2.13	Construct 4 km x 1.5 wide roadside drain from Kaure to Ramkot; 2 km x 1.5 wide roadside drain from Kaure to Sagrabas to Mohoriya; Construct 2 km x 1.5 wide roadside drain from Talbesi to Kholabesi ; 2 km x 1.5 wide roadside drain from Khola Chheu (Kamal Bazar) to Talbesi with silt-trap devices in every 500 m distance, and discharge it in respective streams before silt trap device	km roadside drain	10	2500	25000	500	17500	5000	1500	500	25000	
5.2.14	Promote construction of safety tank facilities in 100 HHs of settlements such as Bastola Gaun; Magar Danda; Piple; Sundare Danda; Majhikuna; and all settlements down to Kotbari; Kuhidi; Majithan etc integrated to biogas facilities	Biogas plant	100	400	40000	400	28000	10000	1200	400	40000	
5.2.15	Incorporate '0' trash procedures (process, provision & penalties) in the constitutional provision of RLRF, and enforce strictly the principles in shoreline settlements at first, and then gradually extended at other areas	Lumpsum	1	60	60	60	0	0	0	0	60	

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
5.2.16	Installation of signpost at 100 places for 'O Trash' in vantage points of Rupa lake and basin area	Signpost	100	15	1500	1200	300	0	0	0	1500	
5.2.17	Install trash collection centers at 6 places in different locations and regularly dispose	Thrash center	6	1000	6000	4800	300	300	300	300	6000	
5.2.18	Remove XXX tons of soil from uncertified and occupied land (XXX ha) to restore lake area from Kholako Muhan	Lumpsum	1	20000	20000	16000	4000	0	0	0	20000	
5.2.19	Construct earthen dam from Subedighat to Sisteni Kataritunda with regulator to increase water level of Rupa by 5 m from the current capacity	Dam	1	150000	150000	120000	15000	7500	4500	3000	150000	
5.2.20	Assess and piloting for water hyacinth garden in Subedighat (5 ha), Talbesi Muhan (2 ha) and Chatterepang (5 ha) in a view of generating income from manure	Ha	12	75	900	180	180	180	180	180	900	
5.2.21	Develop mechanism to regularly remove water hyacinth escaped out from the piloting site for manure	Mechanism -1 + Times	5	300	1500	300	300	300	300	300	1500	
5.2.22	Scale up greenbelt of water hyacinth along 2 m wide along shoreline	Lumpsum	1	500	500	100	100	100	100	100	500	
5.2.23	Encourage incentive mechanism for overharvesting of Tilapia	Lumpsum	1	1000	1000	200	200	200	200	200	1000	
Sub Total E					464060	161497	174980	94355	20210	13018	464060	
Outcome 6												1.3
Output 6.1	Output: Lake dependent vulnerable communities including women are empowered for economic sovereignty											
6.1.1	Strengthen cooperative of Jalahari for preparing Sustainable Fishery Plan (SFP)	Plan	1	700	700	700	0	0	0	0	700	

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
6.1.2	Assist Jalahari to implement their SFP for expanding fishery and regulating harvesting mechanism	Support; Time	2	700	1400	140	700	280	140	140	1400	
6.1.3	Assist cooperative of Jalahari for better housing of each HHs (15)	HH	15	700	10500	2100	2100	2100	2100	2100	10500	
6.1.4	Assist women groups of each ward to form ward level women’s organization	Network	3	80	240	120	120	0	0	0	240	
6.1.5	Assist women’s organization to build their plans with focus of vulnerable groups, and implement these plans	Plan	1	300	300	150	150	0	0	0	300	
6.1.6	Strengthen associations of women and groups of vulnerable groups for their income activities	Lumpsum to group	1	3000	3000	1500	1500	0	0	0	3000	
6.1.7	Assist disadvantage groups (Dalit) of Rupa basin to organize them under umbrella structure	Lumpsum	1	200	200	100	100	0	0	0	200	
6.1.8	Assist disadvantage group to prepare their plan and implement it for economic empowerment	Lumpsum	1	3000	3000	1500	1500	0	0	0	3000	
6.1.9	Explore activities of economic empowerment for socially disadvantage groups (Dalit), and assist the group to implement their activities	Plan + Lumpsum	1	3000	3000	3000	0	0	0	0	3000	
Output 6.2	Meaningful participation of women and vulnerable groups in lake governance											
6.2.1	Ensure representation of women and vulnerable groups in lake management and community institutions	Meeting	10	100	1000	400	450	50	50	50	1000	
6.2.2	Promote leadership role for women and vulnerable groups in the lake governance	Lumpsum	1	500	500	100	250	100	50	0	500	

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
Sub Total F					23840	9810	6870	2530	2340	2290	23840	
Outcome 7												1.5
Output 7.1	Output: Socio-ecological monitoring protocol is in place and operational											
7.1.1	Develop Long term social and ecological monitoring protocol for Rupa	Protocol	1	400	400	100	80	76	72	72	400	
7.1.2	Assess and monitor Land Use Land Change in the lake basin	Monitoring time	8	50	400	80	80	80	80	80	400	
7.1.3	Assess, prepare monitoring plan, and monitor the biodiversity status and ecological characters of lake	Plan-1 + Times	8	50	400	240	40	40	40	40	400	
7.1.4	Introduce lake health card to monitor water quality in quarterly basis at National Standards for irrigation, fishery and recreation, and establish monitoring major sites (physical, chemical and biological properties)	Station-1 + Times	10	1000	10000	9200	200	200	200	200	10000	
Output 7.2	Prepare and disseminate knowledge products											
7.2.1	Develop and disseminate knowledge products on Rupa lake basin	Document	3	700	2100	0	525	525	525	525	2100	
7.2.2	Develop/strengthen community level network for knowledge sharing	Network	1	1000	1000	200	200	200	200	200	1000	
7.2.3	Prepare and publish awareness materials on lakes & Ramsar provision for government personnel; students; communities and village leaders (4 sets) ^{***}	Lumpsum	1	700	700	175	140	133	126	126	700	
Output 7.3	Capacity of Stakeholders strengthened											
7.3.1	Organize sensitization annual events for personnel of line agencies (15*3 days) to integrate lake issues in their planning	Md	45	4	180	36	36	36	36	36	180	

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
7.3.2	Organize training for communities (80*3days) of Rupa lake conservation and Ramsar provision	Md	240	4	960	192	192	192	192	192	960	
7.3.3	Organize training to village leaders (20*3 days) of Kamalpokhari basin for integrating issues of Phewa and Ramsar provision in their annual planning	Md	60	4	240	48	48	48	48	48	240	
7.3.4	Organize sensitization event to urban communities (150*1 day) of Metropolis on Kamalpokhari lake & Ramsar	Md	150	4	600	120	120	120	120	120	600	
7.3.5	Organize training for school teachers (20*3days) to incorporate lake and Ramsar provision in their extracurricular activities in each schools	Md	60	4	240	48	48	48	48	48	240	
7.3.6	Conduct regular conservation programs at schools including events management such as World Wetlands Day; World Environment Day; World Biodiversity Day etc	Event	5	75	375	75	75	75	75	75	375	
7.3.7	Organize exposure visit for integrated lake basin management for government personnel (5); communities (10); village leaders (5) and teachers (5)	md (25*5)	125	12	1500	300	300	300	300	300	1500	
7.3.8	Conduct awareness programs on biodiversity conservation, climate change (Local fair)	Fair	5	1000	5000	1000	1000	1000	1000	1000	5000	
7.3.9	Conduct capacity building trainings for EBA with a view of lake conservation integrated to the prosperity of communities	Training (20*3)	60	4	240	48	48	48	48	48	240	

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
7.3.10	Conduct training for scientific management of CFs (24) of Kamalpokhari lake basin	Training (24*3)	72	4	288	57.6	57.6	57.6	57.6	57.6	288	
7.3.11	Conduct capacity building trainings for business and entrepreneurship (30)	Training (30*7)	210	4	840	168	168	168	168	168	840	
7.3.12	Conduct capacity building trainings for hotel and guide (15)	Training (15*20)	300	5	1500	300	300	300	300	300	1500	
Sub Total G					26963	12387.6	3657.6	3646.6	3635.6	3635.6	26963	
Outcome 8												1.4
Output 8.1	Rupa Lake Restoration & Fishery Cooperative (RLRFC) fully takes responsibility of Rupa lake conservation and development for prosperity											
8.1.1	Assist RLRFC to involve other institutions in its board and diversify cooperative business in addition to lake conservation	Workshop	3	6	18	3.6	3.6	3.6	3.6	3.6	18	
8.1.2	Organize meeting/workshops to bring existing community organizations for their collective inputs and actions under RLRFC	Workshop	2	45	90	18	18	18	18	18	90	
Output 8.2	Sustainable financing mechanism created and operationalized ^{3**}											
8.2.1	Develop a plan for sustainable financing mechanism including resources from tourism businesses, government support, and international funding mechanisms	Workshop	3	30	90	90	0	0	0	0	90	
8.2.2	Conduct workshop to agree on financial mechanism with Lekhnath Municipality; government entities; tourism/hotel association; FNCCI; Chamber of Commerce; financial institution and trade/business communities; NGOs for their contribution in sustainable financial mechanism keeping PES as incentives to all	Workshop	2	45	90	90	0	0	0	0	90	

No.	Output/Activities	Unit	Target	Amount NRs (000)		Year					Total	%
				Rate	Total	1	2	3	4	5		
8.2.3	Creation of Trust Fund with clearly defined proportion of contribution from the government and other sources regularly for Rupa lake	Annual input	5	4000	20000	4000	4000	4000	4000	4000	20000	
8.2.4	Explore collaborative business fund from PPP for lake business and scale up such intervention	Event	5	30	150	30	60	60	0	0	150	
8.2.5	Explore national and global networking for scale up intervention	Event	5	50	250	50	100	100	0	0	250	
8.2.6	Support NGOs for proposal based funding for Rupa lake basin program and activities on climate resilient biodiversity and prosperity	Workshop	5	500	2500	500	500	500	500	500	2500	
8.2.7	Provide grant Rs. 1 million for initial 2 years administrative support to RLRF	Grant	1000	2	2000	1000	1000	0	0	0	2000	
Output 8.3	Multi-stakeholders institution is coordinated for the shared strength											
8.3.1	Conduct workshop to set functional mechanism for the synergy from sectoral intervention with protocol and action plan	Workshop	2	45	90	18	18	18	18	18	90	
8.3.2	Conduct coordination meeting for review progresses and prospects for shared resources and opportunities following protocol and implementation of action plan	Meeting	10	30	300	60	60	60	60	60	300	
Sub Total H					25578	5859.6	5759.6	4759.6	4599.6	4599.6	25578	
GRAND TOTAL					1781981	233136	941976	452475	95073	59321	1781981	
Yearly (%)						13	53	25	5	3	100	

*** Activity indicate complementing activity to other lake basin

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Annexes

Annex 1: Forest plant Species of LCPV

SN	Nepali Name	English Name	Latin Name	Life form	Family	Taxonomy	IUCN	CITES	GoN
1	Asuro		<i>Justicia adhatoda</i>	Shrub	Acanthaceae	Dicot			
2	Kibbu		<i>Strobilanthus</i> sp.	Shrub	Acanthaceae	Dicot			
3	Ketuki		<i>Agave Americana</i>	Shrub	Agavaceae	Monocot			
4	Baman Patti		<i>Alangium chinense</i>	Shrub	Alangiaceae	Dicot			
5	Datiwan		<i>Achyranthes bidentata</i>	Herb	Amaranthaceae	Dicot			
6	Sahasra jari		<i>Celosia argentea</i>	Herb	Amaranthaceae	Dicot			
7	Hade lasun		<i>Crinum amoenum</i>	Herb	Amaryllidaceae	Monocot			
8	Aanp		<i>Magnifera indica</i>	Tree	Anacardiaceae	Dicot			
9	Amaro		<i>Spondias pinnata</i>		Anacardiaceae	Dicot			
10	Bhakimlo		<i>Rhus javanica</i> L.	Tree	Anacardiaceae	Dicot			
11	Lapsi		<i>Choerospondias axillaris</i>	Tree	Anacardiaceae	Dicot			
12	Pandel		<i>Carissa carandas</i>	Shrub	Apocynaceae	Dicot			
13	Madhesi khirro		<i>Holarrhena pubescens</i>	Shrub	Apocynaceae	Dicot			
14	Mauro		<i>Rauvolfia serpentina</i>	Shrub	Apocynaceae	Dicot		II	P
15	Dudhe lahara		<i>Trachelospermum lucidum</i>		Apocynaceae	Dicot			
16	Bojho		<i>Acorus calamus</i>	Herb	Araceae	Monocot			
17	Banko		<i>Arisaema tortuosum</i> (Wall.) Schott	Herb	Araceae	Monocot			
18	Money plant		<i>Epipremnum</i> sp.	Climber	Araceae	Monocot			
19	Pipalpate	Ivy Climber	<i>Hedera nepalensis</i> K.Koch	Climber	Araliaceae	Dicot			
20	Euphorbiaceae		<i>Antidesma acidum</i>	Herb	Archal	Dicot			
21	Kancherno		<i>Leptadenia reticulata</i> (Retz.) Wight & Arn.	Herb	Asclepiadaceae	Dicot			
22	Thulo paite		<i>Oxystelma esculentum</i> (L. f.) Sm.	Shrub	Asclepiadaceae	Dicot			
23	Sikari laharo		<i>Periploca calophylla</i>	Climber	Asclepiadaceae	Dicot			
24	Unyu 3		<i>Asplenium dalhousiae</i>	Fern	Aspleniaceae	Pteridophyte			
25	Gandhe	Goat weed	<i>Ageratum conyzoides</i> L.	Herb	Asteraceae	Dicot			
26	Jhulo		<i>Anaphalis margaritacea</i>	Herb	Asteraceae	Dicot			
27	Teetepati	Indian worm	<i>Artemisia indica</i> Willd.	Shrub	Asteraceae	Dicot			
28	Banmara		<i>Eupatorium adenophorum</i>	Herb	Asteraceae	Dicot			
29			<i>Inula cappa</i> (Buch.-Ham. ex D. Don) DC.	Shrub	Asteraceae	Dicot			
30			<i>Lingularia fischeri</i>	Herb	Asteraceae	Dicot			
31	Makarkanje		<i>Begonia picta</i>	Herb	Begoniaceae	Dicot			

SN	Nepali Name	English Name	Latin Name	Life form	Family	Taxonomy	IUCN	CITES	GoN
32	Chutro	Barberry/ Nepal barberry	<i>Berberis aristata</i> DC.	Shrub	Berberidaceae	Dicot			
33	Utis		<i>Alnus nepalensis</i> D.Don	Tree	Betulaceae	Dicot			
34	Saur		<i>Betula alnoides</i> Buch.- Ham.ex D.Don	Tree	Betulaceae	Dicot			
35	Charinagre	Cats claw	<i>Macfadyena unguis- cati</i> (L.) A. H. Gentry	Herb	Bignoniaceae	Dicot			
36	Totelo		<i>Oroxylum indicum</i>	Tree	Bignoniaceae	Dicot			
37	Simal		<i>Bombax ceiba</i>	Tree	Bombaceae	Dicot			P
38	Dabdabe		<i>Garuga pinnata</i>	Tree	Burseraceae	Dicot			
39	Siple kaan		<i>Crateva unilocularis</i>	Shrub	Capparaceae	Dicot			
40	Abijalo		<i>Drymaria diandra</i>	Herb	Caryophyllaceae	Monocot			
41	Zingiberaceae		<i>Amomum subulatum</i>	Herb	Charchereko laharo	Dicot			
42	Apocynaceae		<i>Alstonia scholaris</i>	Tree	Chatyun	Dicot			
43			<i>Terminalia bellirica</i>	Tree	Combretaceae	Barro			
44			<i>Terminalia chebula</i>	Tree	Combretaceae	Harro			
45	Damaura		<i>Artemisia absinthum</i> L.		Compositae	Dicot			
46	Kuro		<i>Bidens pilosa</i>	Herb	Compositae	Dicot			
47	Chimke jhar		<i>Centipeda minima</i>	Herb	Compositae	Dicot			
48	Bhringraj		<i>Eclipta prostrata</i>	Herb	Compositae	Dicot			
49	Sakhar jari		<i>Elephantopus scaber</i>	Herb	Compositae	Dicot			
50	Marati		<i>Spilanthes paniculata</i>		Compositae	Dicot			
51	Akasbeli		<i>Cuscuta reflexa</i>	Climber	Convolvulaceae	Dicot			
52	Besharam		<i>Ipomoea carnea</i>	Shrub	Convolvulaceae	Dicot			
53			<i>Bryophyllum pinnatum</i>		Crassulaceae	Dicot			
54	Golkakri	Ivy gourd/ Kavai fruit	<i>Coccinia grandis</i> (L.) Viogt.	Herb	Cucurbitaceae	Dicot			
55	Mayur Pankhi		<i>Thuja orientalis</i>	Tree	Cupresaceae	Dicot			
56	Chhatre	Tree fern	<i>Cyathea spinulosa</i> Wall. ex Hook.	Fern	Cyathaceae	Pteridophyte			
57	Mothe jhar		<i>Cyperus compressus</i> L.	Herb	Cyperaceae	Monocot			
58	Nagarmothe		<i>Cyperus rotundus</i> L.	Herb	Cyperaceae	Monocot			
59			<i>Theropogon</i> sp.	Herb	Cyperaceae	Monocot			
60	Rakchan		<i>Daphniphyllum himalense</i> (Benth.) Muell.-Arg.	Tree	Daphniphyllaceae	Dicot			
61	Pani amala	Sword fern	<i>Nephrolepis cordifolia</i> (L.) Presl.	Fern	Davalliaceae	Pteridophyte			
62	Jagalte bhyankur		<i>Dioscorea nepalensis</i>	Climber	Dioscoraceae	Monocot			
63	Bantarul		<i>Dioscorea pantaphilla</i>	Climber	Dioscoraceae	Monocot			
64	Tarul		<i>Dioscorea alata</i>	Climber	Dioscoreaceae	Monocot			
65	Bantarul	Air potato/ Potato yam	<i>Dioscorea bulbifera</i> L.	Herb	Dioscoreaceae	Monocot			
66	Sal		<i>Shorea robusta</i>	Tree	Dipterocarpaceae	Dicot			P

SN	Nepali Name	English Name	Latin Name	Life form	Family	Taxonomy	IUCN	CITES	GoN
67	Unyu 1	Fern	Aspidium sp.	Fern	Dryopteridaceae	Pteridophyte			
68	Neuro		Dryopteris cochleata	Fern	Dryopteridaceae	Pteridophyte			
69	Unyu (fern)		Dryoptries spp	Fern	Dryopteridaceae	Pteridophyte			
70	Murilo		Elaeagnus parvifolia	Shrub	Elaeaganaceae	Dicot			
71	Ankhe jhar	Horse tail	<i>Equisetum diffusum</i> D.Don	Fern	Equisetaceae	Pteridophyte			
72	Kurkure jhar		<i>Equisetum debile</i>	Fern	Equisetaceae	Pteridophyte			
73	Kaligedi		<i>Gaultheria fragrantissima</i>	Shrub	Ericaceae	Dicot			
74	Angeri		<i>Lyonia ovalifolia</i>	Tree	Ericaceae	Dicot			
75	Thaune angeri		<i>Pieris formosa</i>	Shrub	Ericaceae	Dicot			
76	Gurans		<i>Rhododendron ciliatum</i>	Tree	Ericaceae	Dicot			
77	Dudhejhar		<i>Euphorbia hirta</i>	Herb	Euphorbiaceae	Dicot			
78	Sajibani		<i>Jatropha curcas</i>	Shrub	Euphorbiaceae	Dicot			
79	Mallato		<i>Macaranga denticulata</i>	Tree	Euphorbiaceae	Dicot			
80	Amala		<i>Phyllanthus emblica</i> L.	Tree	Euphorbiaceae	Dicot			
81	Paite		<i>Phyllanthus parviflora</i>	Shrub	Euphorbiaceae	Dicot			
82	Adir		<i>Ricinus communis</i>	Shrub	Euphorbiaceae	Dicot			
83	Khirro		<i>Sapium insigne</i>	Tree	Euphorbiaceae	Dicot			
84	Katus		<i>Castanopsis indica</i>	Tree	Fagaceae	Dicot			
85	Musure katus		<i>Castanopsis tribuloides</i> (Sm.) A.DC.	Tree	Fagaceae	Dicot			
86	Baanjh		<i>Quercus lanata</i> Sm	Tree	Fagaceae	Dicot			
87	Phalat		<i>Quercus lineata</i> Blume	Tree	Fagaceae	Dicot			
88	Darekanda		<i>Xylosma controversum</i> Clos.		Flacortiaceae	Dicot			
89			<i>Gentiana</i> sp.	Herb	Gentianaceae	Dicot			
90	Chiraito		<i>Swertia chirayita</i> (Roxb. ex Fleming) Karsten	Herb	Gentianaceae	Dicot			
91	Tite		<i>Swertia nervosa</i> (G.Don) C.B. Clarke	Herb	Gentianaceae	Dicot			
92	Unyu 2		<i>Dicranopteris linearis</i>	Fern	Gleicheniaceae	Pteridophyte			
93	Hade unyu	Fern	<i>Dicranopteris linearis</i> (Burm.) Underw.	Fern	Gleicheniaceae	Pteridophyte			
94	Hade Unyu		<i>Gleichenia gigantea</i>	Fern	Gleicheniaceae	Pteridophyte			
95	Khari banso		<i>Arundina</i> sp.	Herb	Gramineae	Monocot			
96	Banso	Feathery bamboo	<i>Bambusa vulgaris</i> Schrad.	Herb	Gramineae	Monocot			
97	Kaans		<i>Chionachne koenigii</i>	Herb	Gramineae	Monocot			
98	Kuro	Love thorn	<i>Chrysopogon aciculatus</i> (Retz.) Trin.	Herb	Gramineae	Monocot			
99	Birkamle		<i>Coix lachryma-jobi</i>	Herb	Gramineae	Monocot			
100	Pirre ghans		<i>Cymbopogon citratus</i>	Herb	Gramineae	Monocot			
101	Dubo		<i>Cynodon dactylon</i>	Herb	Gramineae	Monocot			
102	Bans		<i>Dendrocalmus strictus</i>	Bamboo	Gramineae	Monocot			
103	Chittre banso		<i>Digitaria ciliaris</i> (Retz.) Koeler	Herb	Gramineae	Monocot			

SN	Nepali Name	English Name	Latin Name	Life form	Family	Taxonomy	IUCN	CITES	GoN
104	Phurke	Himalayan Bamboo	<i>Drepanostachyum falcatum</i> (Nees) Keng f.	Shrub	Gramineae	Monocot			
105	Nigalo		<i>Drepanostachyum intermedium</i> (Munro) Keng.f.	Herb	Gramineae	Monocot			
106	Siru		<i>Imperata cylindrica</i> (L.) Beauvois	Herb	Gramineae	Monocot			
107	Kans		<i>Saccharum spontaneum</i>	Herb	Gramineae	Monocot			
108			<i>Ribes</i> sp.	Shrub	Grossulariaceae	Dicot			
109	Basule		<i>Dichroa febrifuga</i> Lour.	Shrub	Hydrangeaceae	Dicot			
110	Mauwa		<i>Engelhardia spicata</i> Lsch. ex Bl.	Tree	Juglandaceae	Dicot			
111	Sano silaam		<i>Elsholtzia fruticosa</i>	Shrub	Labiatae	Dicot			
112	Babari		<i>Geniosporum</i> sp.	Herb	Labiatae	Dicot			
113			<i>Leucas lanata</i> Benth.	Herb	Labiatae	Dicot			
114	Bhusune		<i>Leucosceptrum canum</i> Sm	Shrub	Labiatae	Dicot			
115	Ban tulasi		<i>Ocimum gratissimum</i>	Herb	Labiatae	Dicot			
116	Tulasi		<i>Ocimum sanctum</i>	Herb	Labiatae	Dicot			
117	Golaincho		<i>Premna antegrifolia</i>	Tree	Labiatae	Dicot			
118	Gindari		<i>Premna barbata</i>	Tree	Labiatae	Dicot			
119	Shilam		<i>Craniotome furcata</i>	Herb	Labiatae	Dicot			
120	Pyauli		<i>Mentha arvensis</i>	Herb	Labiatae	Dicot			
121	Pudina		<i>Mentha spicata</i>	Herb	Labiatae	Dicot			
122	Rudhilo		<i>Pogostemon benghalensis</i>	Herb	Labiatae	Dicot			
123	Goflo		<i>Holboellia latifolia</i>	Climber	Lardizabalaceae	Dicot			
124	Kapoor		<i>Cinnamomum camphora</i>	Tree	Lauraceae	Dicot			
125	Dalchini		<i>Cinnamomum tamala</i>	Tree	Lauraceae	Dicot			
126	Siltimur		<i>Litsea cubeba</i>	Tree	Lauraceae	Dicot			
127	Raatpaate		<i>Litsea monocephala</i> (Roxb.) Pers.	Tree	Lauraceae	Dicot			
128	Kaulo		<i>Persea odoratissima</i> (Nees) Kosterm.	Tree	Lauraceae	Dicot			
129			<i>Acacia intsia</i>	Shrub	Leguminosae	Dicot			
130	Siris		<i>Albizia julibrissin</i> Durazz.	Tree	Leguminosae	Dicot			
131	Tanki		<i>Bauhinia purpurea</i> L.	Tree	Leguminosae	Dicot			
132	Palans		<i>Butea monosperma</i>	Tree	Leguminosae	Dicot			
133	Ultekanda		<i>Caesalpinia decapetala</i> (Roth) Alston	Shrub	Leguminosae	Dicot			
134	Gahate	Calope	<i>Calopogonium mucunoides</i> Desv.	Herb	Leguminosae	Dicot			
135	Rajbriksha		<i>Cassia fistula</i>	Tree	Leguminosae	Dicot			
136			<i>Cassia sophora</i>	Shrub	Leguminosae	Dicot			
137	Sissoo		<i>Dalbergia sisso</i>	Tree	Leguminosae	Dicot			
138	Bakhre ghaans	Pink bauhinia	<i>Desmodium multiflorum</i> DC.	Shrub	Leguminosae	Dicot			
139	Thulo paate 2		<i>Desmodium</i> sp.	Shrub	Leguminosae	Dicot			

SN	Nepali Name	English Name	Latin Name	Life form	Family	Taxonomy	IUCN	CITES	GoN
140			<i>Mimosa pudica</i>	Herb	Leguminosae	Dicot			
141	Ghiukumari		<i>Aloe vera</i>	Herb	Liliaceae	Monocot			
142	Kurilo	Wild asparagus	<i>Asparagus racemosus</i> Willd.	Herb	Liliaceae	Monocot			
143	Kukurdaino		<i>Smilax ovalifolia</i> Roxb. ex D. Don	Climber	Liliaceae	Monocot			
144	Pyauli		<i>Reinwardtia indica</i> Dumort.	Herb	Linaceae	Dicot			
145	Eklebir	Lobelia	<i>Lobelia pyramidalis</i> Wall.	Herb	Lobeliaceae	Dicot			
146	Phulteso		<i>Buddleja asiatica</i> Lour.	Shrub	Loganiaceae	Dicot			
147	Liso		<i>Helixanthera parasitica</i> Lour.	Shrub	Loranthaceae	Dicot			
148	Pati		<i>Viscum album</i>		Loranthaceae	Dicot			
149	Amaranthaceae		<i>Amaranthus viridis</i>	Herb	Lunde kanda	Dicot			
150	Nagbeli 2		<i>Lycopodium japonicum</i>	Fern	Lycopodiaceae	Pteridophyte			
151	Nagbeli 1	Lycopodium/ Club moss	<i>Lycopodium phlegmaria</i>	Fern	Lycopodiaceae	Pteridophyte			
152			<i>Lagerstroemia indica</i>	Tree	Lythraceae	Dicot			
153	Budho dhairo		<i>Woodfordia fruticosa</i>		Lythraceae	Dicot			
154	Lek chaanp		<i>Magnolia campbelli</i> Hook.f. & Thoms.	Tree	Magnoliaceae	Dicot			
155	Titekatha		<i>Michelia cathcartii</i> Hook.f. & T.	Tree	Magnoliaceae	Dicot			
156	Ban kapas		<i>Hibiscus</i> sp.	Shrub	Malvaceae	Dicot			
157			<i>Malva</i> sp.	Herb	Malvaceae	Dicot			
158	Ban Kapas		<i>Thespesia lampas</i>	Shrub	Malvaceae	Dicot			
159	Angeri/chulesi	Indian rhododendron	<i>Melastoma melabathricum</i> L	Shrub	Melastomaceae	Dicot			
160	Kalo angeri		<i>Osbeckia nepalensis</i> Buch. Ham. Ex D. Don	Herb	Melastomaceae	Dicot			
161			<i>Azadirachta indica</i>	Tree	Meliaceae	Dicot			
162	Neem		<i>Melia azederach</i>	Tree	Meliaceae	Dicot			
163			<i>Rhus chinensis</i>	Tree	Meliaceae	Dicot			
164	Tooni		<i>Toona ciliata</i> M. Roem.	Tree	Meliaceae	Dicot			
165	Baramase phul		<i>Trichillia connaroides</i>		Meliaceae	Dicot			
166	Batulpate	False pareira	<i>Cissampelos pareira</i> L.	Herb	Menispermaceae	Dicot			
167			<i>Stephania glandulifera</i>	Climber	Menispermaceae	Dicot			
168	Githo		<i>Tinospora sinensis</i> (Lour.) Merr.	Climber	Menispermaceae	Dicot			
169			<i>Artocarpus lakoocha</i>	Tree	Moraceae	Dicot			
170	Pakhuri		<i>Ficus glaberrima</i>	Tree	Moraceae	Dicot			
171	Bedulo		<i>Ficus lacor</i>	Tree	Moraceae	Dicot			
172	Dudhilo		<i>Ficus neriifolia</i> Sm.	Tree	Moraceae	Dicot			
173	Pakhuri		<i>Ficus reliogisa</i>	Tree	Moraceae	Dicot			
174	Badahar		<i>Ficus subincia</i>	Tree	Moraceae	Dicot			
175	Damaru	Dogwood	<i>Maclura cochinchinensis</i> (Lour.) Corner	Shrub	Moraceae	Dicot			

SN	Nepali Name	English Name	Latin Name	Life form	Family	Taxonomy	IUCN	CITES	GoN
176	Kimbu		<i>Morus alba</i>	Shrub	Moraceae	Dicot			
177	Bedulo		<i>Streblus asper</i> Lour	Tree	Moraceae	Dicot			
178	Kim kafal		<i>Morus serrata</i>	Shrub	Moraceae	Dicot			
179	Kaphal		<i>Myrica esculanta</i>	Tree	Myricaceae	Dicot			
180	Bilaune		<i>Maesa chisia</i>	Shrub	Myrsinaceae	Dicot			
181	Bakle		<i>Myrsine capitellata</i> Wall	Tree	Myrsinaceae	Dicot			
182	Kalikath		<i>Myrsine semiserrata</i> Wall.	Tree	Myrsinaceae	Dicot			
183	Gulaf Jamun		<i>Cleistocalyx operculatus</i>	Tree	Myrtaceae	Dicot			
184	Amba		<i>Psidium guajava</i>	Tree	Myrtaceae	Dicot			
185	Jamun		<i>Syzygium cumini</i>	Tree	Myrtaceae	Dicot			
186	Gulaf Jamun		<i>Syzygium jambos</i>	Tree	Myrtaceae	Dicot			
187	Lankasani		<i>Mirabilis jalapa</i>	Herb	Nyctaginaceae	Dicot			
188	Keri		<i>Ligustrum indicum</i> (Lour.) Merr.	Shrub	Oleaceae	Dicot			
189	Parijat		<i>Nyctanthes arbortristis</i>	Tree	Oleaceae	Dicot			
190	Sungava 1		<i>Bulbophyllum careyanum</i>	Orchid	Orchidaceae	Monocot		II	
191	Sungava 2		<i>Bulbophyllum striatum</i>	Orchid	Orchidaceae	Monocot		II	
192	Sungava 3		<i>Coelogyne cristata</i>	Orchid	Orchidaceae	Monocot		II	
193	Sungava 4		<i>Coelogyne fuscescens</i>	Orchid	Orchidaceae	Monocot		II	
194	Sungava 5		<i>Coelogyne nitida</i>	Orchid	Orchidaceae	Monocot		II	
195	Sungava 6		<i>Coelogyne prolifera</i>	Orchid	Orchidaceae	Monocot		II	
196	Sungava 7		<i>Cymbidium elegans</i>	Orchid	Orchidaceae	Monocot		II	
197	Sungava 8		<i>Cymbidium erythraeum</i>	Orchid	Orchidaceae	Monocot		II	
198	Sungava 9		<i>Cymbidium iridioides</i>	Orchid	Orchidaceae	Monocot		II	
199	Sunakhari		<i>Dendrobium densiflorum</i>	Orchid	Orchidaceae	Monocot		II	
200	Sungava 10		<i>Dendrobium eriflorum</i>	Orchid	Orchidaceae	Monocot		II	
201	Sungava 11		<i>Dendrobium heterocarpum</i>	Orchid	Orchidaceae	Monocot		II	
202	Sungava 12		<i>Eria apertifolia</i>	Orchid	Orchidaceae	Monocot		II	
203	Sungava 13		<i>Eria bipuncata</i>	Orchid	Orchidaceae	Monocot		II	
204	Sungava 14		<i>Eria spicata</i>	Orchid	Orchidaceae	Monocot		II	
205	Sungave 30	Butterfly orchid	<i>Eulophia spectabilis</i>	Orchid	Orchidaceae	Monocot		II	
206	Sungava 15		<i>Gastrochilus bigibbus</i>	Orchid	Orchidaceae	Monocot		II	
207	Sungava 16		<i>Goodyera repens</i>	Orchid	Orchidaceae	Monocot		II	
208	Sungava 17		<i>Liparis nervosa</i>	Orchid	Orchidaceae	Monocot		II	
209	Sungava 18		<i>Malaxis acuminata</i>	Orchid	Orchidaceae	Monocot		II	
210	Sungava 19		<i>Malaxis latifolia</i>	Orchid	Orchidaceae	Monocot		II	
211	Sungava 20		<i>Malaxis purpurea</i>	Orchid	Orchidaceae	Monocot		II	
212	Sungava 21		<i>Oberonia falcata</i>	Orchid	Orchidaceae	Monocot		II	
213	Sungava 22		<i>Otochilus albus</i>	Orchid	Orchidaceae	Monocot		II	
214	Sungava 23		<i>Otochilus lancilabius</i>	Orchid	Orchidaceae	Monocot		II	
215	Sungava 29		<i>Peristylus affinis</i>	Orchid	Orchidaceae	Monocot		II	
216	Sungava 24		<i>Pholidota articulata</i>	Orchid	Orchidaceae	Monocot		II	
217	Sungava 25		<i>Pholidota pallida</i>	Orchid	Orchidaceae	Monocot		II	
218	Sungava 26		<i>Rhynchostylis retusa</i>	Orchid	Orchidaceae	Monocot		II	

SN	Nepali Name	English Name	Latin Name	Life form	Family	Taxonomy	IUCN	CITES	GoN
219	Sunakhari		<i>Smitinandia micrantha</i>	Orchid	Orchidaceae	Monocot		II	
220	Sungava 27		<i>Spiranthes spiralis</i>	Orchid	Orchidaceae	Monocot		II	
221	Sungava 28		<i>Sunipia bicolor</i>	Orchid	Orchidaceae	Monocot		II	
222			<i>Oxalis</i> sp.	Herb	Oxalidaceae	Dicot			
223	Thirju		<i>Pandanus nepalensis</i>	Tree	Pandanaceae	Monocot			
224	Tarika		<i>Dicentra scandens</i>		Papaveraceae				
225	Jogi lahara		<i>Ceratopteris</i> sp	Climber	Parkeriaceae	Dicot			
226	Dhupi		<i>Picea smithiana</i> (Wall.) Boiss	Tree	Pinaceae	Dicot			
227			<i>Piper longum</i>	Climber	Piperaceae	Dicot			
228	Thotne	Vegetable smart weed	<i>Aconogonum molle</i> (D. Don) Hara	Herb	Polygonaceae	Dicot			
229			<i>Polygonum</i> sp.	Herb	Polygonaceae	Dicot			
230			<i>Rumex dentatus</i>	Herb	Polygonaceae	Dicot			
231	Kamaru		<i>Drynaria mollis</i>	Fern	Polypodiaceae	Pteridophyte			
232	Bans pate		<i>Eichhornia crassipes</i>	Herb	Pontederiaceae	Dicot			
233	Dankernu		<i>Cheilanthes tenuifolia</i>	Herb	Pteridaceae	Fern			
234	Jaluko		<i>Pityrogramma calomelanos</i>	Herb	Pteridaceae	Dicot			
235	Bish	Aconite	<i>Aconitum ferox</i> Wall. ex Seringe	Herb	Ranunculaceae	Dicot			
236			<i>Clematis</i> sp.	Climber	Ranunculaceae	Dicot			
237	Kali sinki		<i>Zizyphus jujuba</i>		Rhamnaceae	Dicot			
238			<i>Crotonaster</i> sp.	Shrub	Rosaceae	Dicot			
239	Aiselu		<i>Fragaria nubicola</i>	Herb	Rosaceae	Dicot			
240	Bajradanti		<i>Potentilla fulgens</i>	Herb	Rosaceae	Dicot			
241	Dhatelo		<i>Prinsepia utilis</i> Royle	Shrub	Rosaceae	Dicot			
242	Painyau		<i>Prunus cerosoides</i>	Tree	Rosaceae	Dicot			
243			<i>Rubus ellipticus</i> Sm.	Shrub	Rosaceae	Dicot			
244	Lute jhar		<i>Galium hirtiflorum</i> Req. ex DC.	Herb	Rubiaceae	Dicot			
245			<i>Hedyotis corymbosa</i>		Rubiaceae	Dicot			
246	Boke phul		<i>Mussaenda macrophylla</i>	Tree	Rubiaceae	Dicot			
247	Dhobini		<i>Mussaenda</i> sp.	Shrub	Rubiaceae	Dicot			
248	Ghorikath		<i>Randia tetrasperma</i> (Roxb.) Benth. & Hook.	Shrub	Rubiaceae	Dicot			
249	Majitho		<i>Rubia manjith</i> Roxb. ex Fleming	Herb	Rubiaceae	Dicot			
250	Tilko		<i>Wendlandia coriacea</i>	Tree	Rubiaceae	Dicot			
251	Bel		<i>Aegle marmelos</i>	Tree	Rutaceae	Dicot			
252			<i>Citrus medica</i>	Tree	Rutaceae	Dicot			
253	Bimiro		<i>Zanthoxylum armatum</i>		Rutaceae	Dicot			
254	Bakalpate		<i>Viburnum continifolium</i> D. Don	Shrub	Sambucaceae	Dicot			
255	Ghudakhari		<i>Viburnum erubescens</i> Wall. Ex DC.		Sambucaceae	Dicot			

SN	Nepali Name	English Name	Latin Name	Life form	Family	Taxonomy	IUCN	CITES	GoN
256	Mallo		<i>Viburnum mullaha</i> Buch.-Ham.ex D.Don.		Sambucaceae	Dicot			
257	Nundhiki		<i>Osyris wightiana</i>	Shrub	Santalaceae	Dicot			
258			<i>Astilbe rivularis</i>	Herb	Saxifragaceae	Dicot			
259	Nash jhar		<i>Hemiphragma heterophyllum</i> Wall.	Herb	Scrophulariaceae	Dicot			
260	Tiju		<i>Picrasma javanica</i>	Tree	Simaroubaceae	Dicot			
261	Dhaturo		<i>Datura metal</i>	Shrub	Solanaceae	Dicot			
262	Kanchopat		<i>Nicotiana tabacum</i>	Herb	Solanaceae	Dicot			
263	Tiju		<i>Solanum anguivi</i>	Shrub	Solanaceae	Dicot			
264	Binhi		<i>Solanum erianthum</i>	Shrub	Solanaceae	Dicot			
265	Kantakari	Indian salmon	<i>Solanum surattense</i> Burm.f.	Herb	Solanaceae	Dicot			
266			<i>Symplocos ramosissima</i> Wall ex. G. Don	Tree	Symplocaceae	Dicot			
267	Hibuwa		<i>Camellia kissi</i>	Shrub	Theaceae	Dicot			
268	Thulo paate 1		<i>Eurya acuminata</i> DC.	Shrub	Theaceae	Dicot			
269	Chilaune		<i>Schima wallichii</i>	Tree	Theaceae	Dicot			
270			<i>Edgeworthia gardneri</i>	Shrub	Thymelaeaceae	Dicot			
271	Lokta	Nepali paper plant	<i>Daphne papyracea</i> Wall. Ex Steud.	Shrub	Thymeliaceae	Dicot			
272	Areli		<i>Trapa biospinosa</i>		Trapaceae	Dicot			
273	Ghodtapre	Water pennywort	<i>Centella asiatica</i> (L.) Urban.	Herb	Umbelliferae	Dicot			
274	Ghodtapre		<i>Hydrocotyle nepalensis</i>	Herb	Umbelliferae	Dicot			
275	Allo	Himalayan nettle	<i>Girardinia diversifolia</i> (Link) Friis	Herb	Urticaceae	Dicot			
276	Hade		<i>Pilea</i> sp.	Shrub	Urticaceae	Dicot			
277	Kamle	Artillary plant	<i>Pilea symmeria</i> Wedd.	Herb	Urticaceae	Dicot			
278	Sisno		<i>Urtica dioica</i> L.	Herb	Urticaceae	Dicot			
279	Daichamle		<i>Callicapra macrophyla</i>	Shrub	Verbenaceae	Dicot			
280	Dahi chamle		<i>Vitex negundo</i>	Herb	Verbenaceae	Dicot			
281	Ghatte phul	Pansy	<i>Viola</i> sp.	Herb	Violaceae	Dicot			
282	Simali		<i>Cissus adnata</i>	Climber	Vitaceae	Dicot			
283			<i>Costus speciosus</i>	Herb	Zingiberaceae	Monocot			
284	Betlauri		<i>Curcuma caesia</i>	Herb	Zingiberaceae	Monocot			
285			<i>Curcuma</i> sp.	Herb	Zingiberaceae	Monocot			
286	Gaikhure		<i>Tribulus terrestris</i>		Zygophyllaceae	Dicot			

Annex 2: Aquatic plants of LCPV

S.N	Scientific name	Common name	Family Name	Remarks
Sub-merged				
1.	Callitriche stagnalis	Pond water-starwort	Callitrichaceae	
2.	Ceratophyllum demersum	Hornwort	Ceratophyllaceae	
3.	Nitella mucronata		Characeae	
4.	Chara aspera		Charophytaceae	
5.	Blyxa auberti	Roundfruit blyxa	Hydrocharitaceae	
6.	Hydrilla verticillata	Waterhyme	Hydrocharitaceae	
7.	Vallisneria spiralis	Eelgrass	Hydrocharitaceae	
8.	Utricularia australis	Bladderwort	Lentibulariaceae	
9.	Utricularia gibba	Humped bladderwort	Lentibulariaceae	
10.	Najas gramineae		Najadaceae	
11.	Potamogeton octandrus		Potamogetonaceae	
12.	Potamogeton bertcholdi		Potamogetonaceae	
13.	Potamogeton nodosus	Longleaf pondweed	Potamogetonaceae	
14.	Potamogeton pectinatus	Sago pondweed	Potamogetonaceae	
15.	Potamogeton crispus		Potamogetonaceae	
16.	Limnophila sessilis		Scrophulariaceae	
Free floating				
17.	Azolla imbricate	Azolla	Azollaceae	
18.	Hygroryza aristata		Graminae	
19.	Lemna minor	Common Duckweed	Lemnaceae	
20.	Spirodela polyrhiza	Greater Duckweed	Lemnaceae	
Rooted floating				
21.	Ludwigia adscendens	Water primrose	Onagraceae	
22.	Nelumbo nucifera	Lotus	Nelumbonaceae	Jundice treatment
23.	Nymphoides indicum	Water snowflake	Gentianaceae	
24.	Trapa bispinosa	Singara nut	Trapaceae	Fruits edible.
25.	Trapa quadrispinosa	Water Chestnut	Trapaceae	Fruits edible.
26.	Caldesia imbricata			
Emergent				
27.	Alternanthera adscendens			
28.	Hydrocotyle sibthorpioides	Marshpennywort		
29.	Nasturtium officinale	Watercresses		
30.	Eleocharis atropurpurea	Spikerush		
31.	Schoenoplectus mucronatus	ricefield bulrush		
32.	Cyperus flabelliformis			

S.N	Scientific name	Common name	Family Name	Remarks
33.	Cyperus diffuses			
34.	Cyperus esculentus	Yellow nut grass		
35.	Eleocharis atropurpurea	Purple spikerush		
36.	Eleocharis dulcis	Chinese Water chestnut		
37.	Eleocharis congesta			
38.	Isolepis setacea			
39.	Equisetum sps	Horsetail		
40.	Eriocaulon cinereum	Pipewort		
41.	Rotata rotundifolia			
42.	Ceratopteris thalictroides	Indian fern		
43.	Oryza rufipogon	Wild rice		
44.	Echinochloa crusgalli	Barn Yard Grass		
45.	Echinochloa colona	Shama millet		
46.	Panicum repens	Torpedo grass		
47.	Phragmites karka			
48.	Persicaria lanigerum			
49.	Persicaria lapathifolia	Pale smart weed		
50.	Monocharia vaginalis	Monocharia		
51.	Phyla nodiflora	Frog Fruit		
52.	Leerisa hexondra			
53.	Paspalum distictum			
54.	Alishma plantago-aquatica			
55.	Butomopsis latifolia			
56.	Floschopa scandens			
57.	Persicata barabata			
58.	Persicata hydropiper			
59.	Schoenaplectus littoris			
60.	Schoenaplectus juncoides			

Annex 3: Mammals' diversity in LCPV

S.N	Order	Family	Scientific name	Common Name	Local Name	Remarks	IUCN	CITES	GoN
1	Carnivora	Canidae	Canis aureus	Golden jackal	Shyal	Interview, Oli 1996	LC		
2	Carnivora	Felidae	Felis bengalensis	Leopard cat	Chari Bagh	Interview, Oli 1996			
3	Carnivora	Felidae	Felis chaus	Jungle cat	Jungali Biralo	Interview, Oli 1996	LC	II	
4	Carnivora	Herpestidae	Herpestes edwardsii	Common grey mongoose	Niaurimusa	Interview, Oli 1996	LC		
5	Carnivora	Herpestidae	Herpetes urva	Crab eating mongoose	Kanthe Niauri musa	Interview, Oli 1996			
6	Carnivora	Mustelidae	Lutra lutra	European Otter	Ott	Bhandari, 2007	NT	I	
7	Carnivora	Mustelidae	Martes flavigula	Yellow-throated marten	Malasapro	Interview, Oli 1996	LC		
8	Carnivora	Felidae	Neofelis nebulosa	Clouded leopard	Dhwase Chituwa	Interview, Oli 1996	VU	I	P
9	Carnivora	Felidae	Panthera pardus	Common leopard	Chituwa	Interview, Oli 1996	VU	I	
10	Carnivora	Viverridae	Poguma larvata	Masked palm civet	Neer biralo	Oli 1996			
11	Carnivora	Urdidae	Ursus thibetanus	Himalayan black bear	Bhalu	Oli 1996	VU	I	
12	Carnivora	Viverridae	Viverra zibetha	Large Indian civet	Neer Biralo	Oli 1996	LC		
13	Carnivora	Canidae	Vulpes bengalensis	Bengal fox	Fyauro	Interview, Oli 1996	LC		
14	Carnivora	Herpestidae	Herpetes javanicus	Small Indian mongoose	Byaso (Ramkutta)	Interview			
15	Cetartiodactyla	Cervidae	Muntiacus vaginalis	Barking deer	Ratuwa	Interview, Oli 1996	LC		
16	Chiroptera	Pteropodae	Cynopterus sphinx	greater short-nosed fruit bat	Chamero	Oli 1996	LC		
17	Chiroptera	Vespertilionidae	Pipistrellus coramandra	Coromandel Pipistrelle	Chamera	Oli 1996			
18	Chiroptera	Pteropodae	Pteropus giganteus	Indian flying fox	Chamero	Oli 1996	LC		
19	Chiroptera	Rhinolophidae	Rhinolopus luctus	Woolly Horseshoe Bat	Sano chamero	Oli 1996			
20	Chiroptera	Pteropodae	Rousettus leschenaultia	Leschenault's Rousette	Chamero	Oli 1996			
21	Eulipotyphla	Soricidae	Suncus murinus	House shrew	Chuchundro	Oli 1996			
22	Lagomorpha	Leporidae	Lepus nigricollis	Black-naped hare	Kharayo	Interview, Oli 1996			
23	Pholidata	Manidae	Manis crassicaudata	Indian pangolin	Salak	Interview, Oli 1996	EN	II	P
24	Primate	Cercopithecidae	Macaca mulata	Rhesus macaque	Bandar	Direct observation		II	
25	Primate	Cercopithecidae	Semnopithecus schistaceus	Langur	Kalo langur	Interview, Oli 1996	LC	I	
26	Rodentia	Sciuridae	Callosciurus pygerythrus	Hoary-bellied Squirrel	Lokharke	Oli 1996	LC		
27	Rodentia	Sciuridae	Funambulus pennantii	Five-striped Palm Squirrel	Lokharke	Direct observation	LC		
28	Rodentia	Muridae	Golunda ellioti	Bush Rat	--	Interview, Oli 1996	LC		
29	Rodentia	Hystricidae	Hystrix indica	Indian crested porcupine	Dumsi	Interview, Oli 1996	LC		
30	Rodentia	Muridae	Mus booduga	little Indian field mouse	Musa	Interview, Oli 1996	LC		
31	Rodentia	Muridae	Rattus rattus	black rat	Musa	Interview, Oli 1996	LC		
32	Rodentia	Muridae	Tatera indica	Indian Gerbil	Musa	Interview, Oli 1996	LC		

Annex 4: Birds' diversity in LCPV

S.N	Order	Family	Scientific name	Common Name	IUCN	CITES	GoN
1	ANSERIFORMES	Anatidae	<i>Anas acuta</i>	Northern Pintail	LC		
2		Anatidae	<i>Anas crecca</i>	Common teal	LC		
3	APODIFORMES	Apodidae	<i>Apus affinis</i>	House swift	LC		
4		Ardeidae	<i>Ardeola grayii</i>	Indian Pond heron	LC		
5		Ardeidae	<i>Butorides striatus</i>	Little Green Egret			
6		Ardeidae	<i>Ciconia nigra</i>	Black stork	LC		
7	CAPRIMULGIFORMES	Caprimulgidae	<i>Caprimulgus indicus</i>	Grey Nightjar	LC		
8	CHARADRIIFORMES	Jacaniidae	<i>Metopidius indicus</i>	Bronze-winged Jacana	LC		
9		Rostratulidae	<i>Rostratula bengalensis</i>	Painted Snipe			
10		Scolopacidae	<i>Calidris temminckii</i>	Temminck's stint	LC		
11		Scolopacidae	<i>Gallinago gallinago</i>	Common Snipe	LC		
12		Scolopacidae	<i>Tringa ochropus</i>	Green Sandpiper	LC		
13	COLUMBIFORMES	Columbidae	<i>Columba livia</i>	Bluerock pigeon	LC		
14		Columbidae	<i>Columba rupentris</i>	Hill Pigeon			
15		Columbidae	<i>Streptopelia chinensis</i>	Spotted dove			
16		Columbidae	<i>Streptopelia orientalis</i>	Oriental Turtle-dove	LC		
17		Columbidae	<i>Streptopelia decaocto</i>	Eurasian collared-dove	LC		
18		Columbidae	<i>Treron phoenicoptera</i>	Yellow-footed Green Pigeon	LC		
19	CORACIFORMES	Ciconiidae	<i>Megaceryle lugubris</i>	Crested Kingfisher	LC		
20		Coraciidae	<i>Coracias benghalensis</i>	Indian roller	LC		
21		Dacelonidae	<i>Halcyon smyrmensis</i>	Whitethroated kingfisher			
22		Meropidae	<i>Nyctornis athertoni</i>	Blue bearded bee-eater	LC		
23		Cuculidae	<i>Clamator coromandus</i>	Chestnut winged cuckoo	LC		
24		Cuculidae	<i>Cuculus canorus</i>	Common cuckoo	LC		
25		Cuculidae	<i>Cuculus micropterus</i>	Indian cuckoo	LC		
26		Cuculidae	<i>Eudynamys scolopacea</i>	Asian Koel	LC		
27		Cuculidae	<i>Phaenicophaeus tristis</i>	Green-billed Malkoha	LC		
28	FALCONIFORMES	Accipitridae	<i>Accipiter badius</i>	Shikra	LC	II	
29		Accipitridae	<i>Accipiter virgatus</i>	Besra	LC	II	
30		Accipitridae	<i>Aquila nipalensis</i>	Steppe eagle	EN	II	
31		Accipitridae	<i>Gyps indicus</i>	Indian griffon	CR	II	
32		Accipitridae	<i>Gyps bengalensis</i>	Whiterumped vulture	CR	II	
33		Accipitridae	<i>Gyps fulvus</i>	Eurasian griffon	LC	II	
34		Accipitridae	<i>Haliaeetus albicilla</i>	White-tailed Eagle	LC		
35		Accipitridae	<i>Milvus migrans</i>	Black kite	LC	II	
36		Accipitridae	<i>Neophron percnopterus</i>	Egyptian vulture	EN	II	
37		Accipitridae	<i>Pandion haliaetus</i>	Osprey	LC	II	
38		Accipitridae	<i>Sarcogyps calvus</i>	Red Headed Vulture	CR	II	

S.N	Order	Family	Scientific name	Common Name	IUCN	CITES	GoN
39		Accipitridae	<i>Spilornis cheela</i>	Crested Serpent Eagle	LC	II	
40		Accipitridae	<i>Spizaetus nipalensis</i>	Mountain Hawk Eagle		II	
41		Alcedimidae	<i>Alcedo atthis</i>	Common Kingfisher	LC		
42		Falconidae	<i>Falco tinnunculus</i>	Common kestrel	LC		
43		Falconidae	<i>Microhierax caerulescens</i>	Collared falconet	LC		
44	GALLIFORMES	Phasianidae	<i>Gallus gallus</i>	Redjungle fowl	LC		
45		Phasianidae	<i>Lophurus leucomelanos</i>	Kalij Pheasant			
46		Rallidae	<i>Amaurornis akool</i>	Brown crane	LC		
47		Rallidae	<i>Gallicrex cinerea</i>	Water cock	LC		
48		Rallidae	<i>Porzana fusca</i>	Ruddy-breasted crane	LC		
49	PASSERIFORMES	Corvidae	<i>Aegithina tiphia</i>	Common lora	LC		
50		Corvidae	<i>Cissa chinensis</i>	Common Greenmagpie	LC		
51		Corvidae	<i>Coracina melaschistos</i>	Blackwingedcuckoo-shrike	LC		
52		Corvidae	<i>Corvus macrorhynchos</i>	Largebilledcrow	LC		
53		Corvidae	<i>Corvus splendens</i>	House crow	LC		
54		Corvidae	<i>Dendrocitta formosae</i>	Himalayan treepie	LC		
55		Corvidae	<i>Dendrocitta vagabunda</i>	Rufuos tree pie	LC		
56		Corvidae	<i>Dicrurus aeneus</i>	Little bronze drongo	LC		
57		Corvidae	<i>Dicrurus hottentottus</i>	Hair crested drongo	LC		
58		Corvidae	<i>Dicrurus leucophaeus</i>	Ashy drongo	LC		
59		Corvidae	<i>Dicrurus macrocercus</i>	Black drongo	LC		
60		Corvidae	<i>Oriolus chinensis</i>	Black napped oriole	LC		
61		Corvidae	<i>Oriolus traillii</i>	Maroon-oriole	LC		
62		Corvidae	<i>Oriolus oriolus</i>	Golden-oriole			
63		Corvidae	<i>Pericrocotus speciosus</i>	Scarlet minivet			
64		Corvidae	<i>Rhipidura hypoxantha</i>	Yellow-beplid fantail	LC		
65		Corvidae	<i>Urocissa erythrorhyncha</i>	Blue magpie	LC		
66		Fringillidae	<i>Melophus lathimi</i>	Crested bunting			
67		Hirundinidae	<i>Delichon nipalensis</i>	Nepal house martin	LC		
68		Hirundinidae	<i>Hirundo daurica</i>	Redrumped swallow	LC		
69		Hirundinidae	<i>Hirundo rustica</i>	Barn swallow	LC		
70		Hirundinidae	<i>Riparia riparia</i>	Sand martin	LC		
71		Laniidae	<i>Lanius schach</i>	Long-tailed shrike	LC		
72		Muscicapidae	<i>Copsychus saularis</i>	Oriental Magpie Robin	LC		
73		Muscicapidae	<i>Culicicapa ceylonensis</i>	Grey-headed Canary-flycatcher	LC		
74		Muscicapidae	<i>Empidonax albigularis</i>	White-throated flycatcher	LC		
75		Muscicapidae	<i>Enicurus immaculatus</i>	Black-backed forktail	LC		
76		Muscicapidae	<i>Enicurus maculatus</i>	Spotted forktail	LC		

S.N	Order	Family	Scientific name	Common Name	IUCN	CITES	GoN
77		Muscicapidae	<i>Ficedula strophciata</i>	Rufous-gorgetted flycatcher	LC		
78		Muscicapidae	<i>Niltava macrigrigoriae</i>	Smal Niltava			
79		Muscicapidae	<i>Niltava sundara</i>	Rufous bellied niltava	LC		
80		Muscicapidae	<i>Saxicola caprata</i>	Pied bush chat	LC		
81		Muscicapidae	<i>Saxicola leucura</i>	Whitetailed bushchat	LC		
82		Muscicapidae	<i>Saxicola torquata</i>	Common Stone chat	LC		
83		Muscicapidae	<i>Saxicoloides fulicata</i>	Indian robin	LC		
84		Nectariniidae	<i>Aethopyga siparaja</i>	Crimson sunbird	LC		
85		Nectariniidae	<i>Dicaeum agile</i>	Thick-billed flowerpecker			
86		Nectariniidae	<i>Dicaeum concolor</i>	Plain-colored flowerpecker			
87		Nectariniidae	<i>Nectarina asiatica</i>	Purple sunbird			
88		Paridae	<i>Parus major</i>	Grey tit	LC		
89		Paridae	<i>Parus xanthogenys</i>	Himalayan black-lored tit	LC		
90		Passeridae	<i>Anthus hodgsoni</i>	Olive backed tree-pipit	LC		
91		Passeridae	<i>Anthus rufulus</i>	Paddy field pipit	LC		
92		Passeridae	<i>Lonchura malacca</i>	Black headed munia	LC		
93		Passeridae	<i>Lonchura punctulata</i>	Scaly breasted munia	LC		
94		Passeridae	<i>Lonchura striata</i>	White-rumped munia	LC		
95		Passeridae	<i>Motacilla alba</i>	White wagtail	LC		
96		Passeridae	<i>Motacilla cinera</i>	Grey wagtail			
97		Passeridae	<i>Motacilla citreola</i>	Citrine wagtail	LC		
98		Passeridae	<i>Motacilla maderaspatensis</i>	White-browedwagtail			
99		Passeridae	<i>Passer domesticus</i>	House sparrow	LC		
100		Passeridae	<i>Passer montanus</i>	Eurasian tree sparrow	LC		
101		Passeridae	<i>Ploceus philippinus</i>	Baya weaver			
102		Pycnonotidae	<i>Pycnonotus flaviventris</i>	Blackcrested bulbul			
103		Pycnonotidae	<i>Pycnontu cafer</i>	Red-vented bulbul			
104		Pycnonotidae	<i>Pycnontus leucogenys</i>	Himalayan bulbul			
105		Sittidae	<i>Sitta castanea</i>	Chestnut-bellied nuthatch	LC		
106		Sittidae	<i>Sitta frontalis</i>	Velvet frontednuthatch	LC		
107		Sittidae	<i>Tichdroma muraria</i>	Wall Creeper	LC		
108		Strigidae	<i>Acridotheres fuscus</i>	Jungle myna	LC		
109		Strigidae	<i>Acridotheres tristis</i>	Common myna	LC		
110		Strigidae	<i>Glaucidium cuculoides</i>	Asian Barretowlet	LC		
111		Strigidae	<i>Sturnus pagodarum</i>	Brahminy myna	LC		
112		Sturnidae	<i>Saroglossa spiloptera</i>	Spot-winged Starling	LC		
113		Sturnidae	<i>Sturnus malabaricus</i>	Chestnut-tailed Starling	LC		

S.N	Order	Family	Scientific name	Common Name	IUCN	CITES	GoN
114		Sturnidae	<i>Sturnus vulgaris</i>	Common Starling	LC		
115		Sylviidae	<i>Abroscopus superciliosus</i>	Yellowbellied warbler	LC		
116		Sylviidae	<i>Garrulax leucolophus</i>	White-crested Laughingthrush	LC		
117		Sylviidae	<i>Garrulax pectoralis</i>	Large neck-laced laughing thrush	LC		
118		Sylviidae	<i>Orthotomus sutorius</i>	Common Tailorbird	LC		
119		Sylviidae	<i>Pellorneum ruficeps</i>	Puff-throated Babbler	LC		
120		Sylviidae	<i>Phylloscopus collybita</i>	Common chiffchaff	LC		
121		Sylviidae	<i>Pomatorhinus erythrogenys</i>	Rusty-cheeked Scimitar-babbler	LC		
122		Sylviidae	<i>Pomatorhinus schisticeps</i>	White-browed Scimitar-babbler	LC		
123		Sylviidae	<i>Stachyris pyrrhops</i>	Black-chinnedbabbler	LC		
124		Sylviidae	<i>Turdoides nipalensis</i>	Spiny babbler	LC		
125		Sylviidae	<i>Turdoides striatus</i>	Jungle babbler	LC		
126		Sylviidae	<i>Yuhina zantholeuca</i>	White-bellied yuhina	LC		
127		Zosteropidae	<i>Zosterops palpebrosus</i>	Oriental White-eye	LC		
128	PICIFORMES	Megalaimidae	<i>Megalaima asiatica</i>	Blue throated barbet			
129		Megalaimidae	<i>Megalaima haemacephala</i>	Coppersmith barbet	LC		
130		Megalaimidae	<i>Megalaima virens</i>	Great barbet	LC		
131		Megalaimidae	<i>Vanellus indicus</i>	Red-wattled Lapwing	LC		
132		Picidae	<i>Chrysocolaptes lucidus</i>	buff-spotted flameback	LC		
133		Picidae	<i>Dendrocopos macei</i>	Fulvous-breasted Woodpecker	LC		
134		Picidae	<i>Picus canus</i>	Grey headed woodpecker	LC		
135		Picidae	<i>Picus chlorolophus</i>	Lesser yellownape	LC		
136		Picidae	<i>Picus flavinucha</i>	Greater yellownape	LC		
137	PODICIPEDIFORMES	Phalacrocoracidae	<i>Podiceps nigricollis</i>	Blacknecked Grebe	LC		
138	PSITTACIFORMES	Psittacidae	<i>Psittacula alexandri</i>	Red-breasted parakeet	NT	II	
139		Psittacidae	<i>Psittacula himalayana</i>	Slaty-headed parakeet	LC	II	
140		Psittacidae	<i>Psittacula krameri</i>	Roseringed parakeet	LC		
	EN - Endangered	CR - Critically Endangered	NT - Near Threatened				

Annex 5: Wetland birds in LCPV

Order/family	Common name	Scientific name	IUCN	Phewa	Rupa
Podicipedidae	1. Great Crested Grebe	<i>Podiceps cristatus</i>		√	√
	2. Little Grebe	<i>Tachybaptus ruficollis</i>		√	√
Anhingidae	3. Darter	<i>Anhinga melanogaster</i>	NT	√	
Phalacrocoracidae	4. Great Cormorant	<i>Phalacrocorax carbo</i>		√	√
	5. Little Cormorant	<i>Phalacrocorax niger</i>		√	
Ardeidae	6. Cattle Egret	<i>Bubulcus ibis</i>		√	√
	7. Great Egret	<i>Casmerodius albus</i>		√	√
	8. Indian Pond Heron	<i>Ardoila Grayii</i>		√	√
	9. Intermediate Egret	<i>Mesophoyx intermedia</i>		√	√
	10. Little Egret	<i>Egretta garzetta</i>		√	√
	11. Grey Heron	<i>Ardea cinerea</i>			√
Anatidae	12. Little Heron	<i>Butorides striatus</i>			√
	13. Baer's Pochard	<i>Aythya baeri</i>	CR	√	
	14. Bar-headed Goose	<i>Anser indicus</i>		√	
	15. Comb Duck	<i>Sarkidiornis clangula</i>		√	
	16. Common Golden Eye	<i>Bucephala clangula</i>		√	
	17. Common Pochard	<i>Aythya ferina</i>		√	√
	18. Common Shelduck	<i>Tadorna tadorna</i>		√	
	19. Common teal	<i>Anas crecca</i>		√	√
	20. Cotton Pygmy-goose	<i>Nettapus coromandelianus</i>		√	
	21. Eurasian Wigeon	<i>Anas penelope</i>		√	√
	22. Falcatted duck	<i>Anas falcata</i>	NT	√	
	23. Ferruginous Pochard	<i>Aythya nyroca</i>	NT	√	√
	24. Gadwall	<i>Anas strepera</i>		√	√
	25. Garganey	<i>Anas querquedula</i>		√	
	26. Mallard	<i>Anas platyrhynchos</i>		√	√
	27. Northern Pintail	<i>Anas acuta</i>		√	√
	28. Northern Shoveler	<i>Anas clypeata</i>		√	√
	29. Red-crested Pochard	<i>Rhodonessa rufina</i>		√	√
	30. Ruddy shelduck	<i>Tadorna ferruginea</i>		√	
	31. Tufted Duck	<i>Aythya fuligula</i>		√	
Dendrocygnidae	32. Lesser whistling Duck	<i>Dendrocygna javanica</i>		√	√
Rallidae	33. Common Coot	<i>Fulica atra</i>		√	√
	34. Common Moorhen	<i>Gallinula chloropus</i>		√	√
	35. Purple Swampphen	<i>Porphyrio porphyrio</i>		√	√
	36. White-breasted Waterhen	<i>Amaurornis poenicurus</i>			√
Jacaniidae	37. Bronzed-winged Jacana	<i>Metopidius indicus</i>		√	√

Order/family	Common name	Scientific name	IUCN	Phewa	Rupa
	38. Pheasant-tailed Jacana	<i>Hydrophasianus chirurgus</i>			√
Charadriidae	39. Little Ringed Plover	<i>Charadrius dubius</i>		√	
	40. Red-wattled Lapwing	<i>Vanellus indicus</i>		√	√
Alcedinidae	41. Common Kingfisher	<i>Alcedo atthis</i>		√	√
Cerylidae	42. Pied Kingfisher	<i>Ceryle rudis</i>			√
Dacelonidae	43. White-throated Kingfisher	<i>Halcyon smyrnensis</i>		√	√
Ciconiidae	44. Wolly-necked Stork	<i>Ciconia episcopus</i>			√
Muscicapidae	45. Plumbeous Water Redstart	<i>Rhyacornis fuliginosus</i>			√
Passeridae	46. White wagtail	<i>Motacila alba</i>		√	√
	47. White-browed Wagtail	<i>Motacila maderaspatensis</i>		√	√
	48. Citrine Wagtail	<i>Motacilla citreola</i>			√
	49. Grey Wagtail	<i>Motacilla cinerea</i>			√
Rostratulidae	50. Greated Painted Snipe	<i>Rostratula benghalensis</i>		√	
Scolopacidae	51. Common Sandpiper	<i>Actitis hypoleucos</i>		√	
	52. Marsh Sandpiper	<i>Tringa stagnatilis</i>		√	
	Note:				
	CR - Critically Endangered				
	NT - Near Threatned				

Annex 6: Fishes in LCPV

SN	Biological Name	Local/Common Name	IUCN	CITES	GoN	Alien
1	<i>Acrossochelys hexagonolepis</i>	Katle				
2	<i>Barbus spp</i>	Shera Bhitte				
3	<i>Barillus barna</i>	Phageta				
4	<i>Carra annadelei</i>	Buduna				
5	<i>Hypothalamoichys molitrix</i>	Silver carp				√
6	<i>Puntia puntaias</i>	Jhinge				
7	<i>Puntias sarona</i>	Kande				
8	<i>Tor patutora</i>	Sahar				
9	<i>Xentodon cancilla</i>	Chhuchhe bam				
10	<i>Anguilla sp</i>	Raj baam				
11	<i>Aristichytis nobilis</i>	Bighead carp				√
12	<i>Barillus bengalensis</i>	Chiplephageta				
13	<i>Barillus vagra</i>	Lamophageta				
14	<i>Catla catla</i>	Bhakur				
15	<i>Chagunius chagunio</i>	Rewa				
16	<i>Channa gachuwa</i>	Bhoti				
17	<i>Cirrhina mrigala</i>	Naini				
18	<i>Ctenophargdon idella</i>	Grass carp				√
19	<i>Cyprinis carpio</i>	Common carp				√
20	<i>Labeo rahu</i>	Rahu				
21	<i>Puntias chillinoides</i>	Karange				
22	<i>Puntias sarana</i>	Kande				
23	<i>Tor tor</i>	Mahaseer	NT			
24	<i>Barilus varna</i>	Bagphageta				
25	<i>Puntius ticto</i>	Bhitte				
26	<i>Oreochromis niloticus</i>	Tilapia				√
27	<i>Clarias gairiepinus</i>	African Cat Fish				√

Annex 7: Amphibians in LCPV

SN	Order	Family	Scientific Name	English Name	IUCN	CITES	GoN
1	Anura	Bufo	<i>Bufo andersoni</i>	Toad			
2	Anura	Bufo	<i>Duttaphrynus melanostictus</i>	Khasere bhyaguto			
3	Anura	Bufo	<i>Duttaphrynus stomaticus</i>	Marbled toad			
4	Anura	Microhylidae	<i>Microhyla oranata</i>	Oranare rice frog			
5	Anura	Ranidae	<i>Amolops marmoratus</i>	Meghayala stream frog			
6	Anura	Ranidae	<i>Euphlyctis cyanophlyctis</i>	Skittering frog			
7	Anura	Ranidae	<i>Hoplobatrachus tigerinus</i>	Indian bull frog		II	
8	Anura	Ranidae	<i>Nanorana blanfordii</i>	Blanford's paa frog			
9	Anura	Ranidae	<i>Rana limnochoris</i>	Frog			
10	Anura	Ranidae	<i>Rana pipens</i>	Leopard Frog			
11	Anura	Ranidae	<i>Rana swami</i>	Frog			

Annex 8: Reptiles in LCPV

SN	Order	Family	Scientific name	Common Name	Remarks	IUCN	CITES	GoN
1	Squamata	Agamidae	<i>Agma tuberculata</i>	Agma	Oli, 1996			
2	Squamata	Agamidae	<i>Calotes versicolor</i>	Common Garden lizard	Field Survey, 2008			
3	Squamata	Agamidae	<i>Lygosoma indicum</i>	Common shink	Oli, 1996			
4	Squamata	Agamidae	<i>Mabuya carniata</i>	Hill shink	Oli, 1996			
5	Squamata	Gekkonidae	<i>Hemidactylus brooki</i>	Brook's/Spotted house gecko	Field Survey, 2008			
6	Squamata	Gekkonidae	<i>Hemidactylus flaviviridis</i>	Yellow-bellied wall gecko	Field Survey, 2008			
7	Squamata	Scincidae	<i>Asymblepharus sikimensis</i>	Sikkim skink	Baral, 2008			
8	Squamata	Scincidae	<i>Mabuya carinata</i>	Bhahiminy skink	Baral, 2008			
9	Squamata	Varanidae	<i>Varanus begalensis</i>	Bengal monitor	Baral, 2008		I	
10	Testudines	Bataguridae	<i>Melanochelys tricarinata</i>	Tricarinate hill turtle	Field Survey, 2008		I	
11	Squamata	Typhlopidae	<i>Rhamphotyphlops braminus</i>	Common blind snake	Field Survey, 2008			
12	Squamata	Colubridae	<i>Amphisesma platyceps</i>	Mountain Keelback	Oli, 1996			
13	Squamata	Colubridae	<i>Amphisesma stolatum</i>	Buff-striped keelback	Field Survey, 2008			
14	Squamata	Colubridae	<i>Boiga trigonata trigonata</i>	Common cat snake	Baral, 2008			
15	Squamata	Colubridae	<i>Oligodon arnensis</i>	Banded kukri snake	Baral, 2008			
16	Squamata	Colubridae	<i>Ptyas mucosa mucosa</i>	Asiatic rat snake	Baral, 2008		II	
17	Squamata	Colubridae	<i>Pseudoxenodon macropus</i>	St. keelback	Oli, 1996			
18	Squamata	Colubridae	<i>Pytas mucosus</i>	Indian Rat snake	Oli, 1996			
19	Squamata	Colubridae	<i>Trichischum tenuiceps</i>	Rat snake	Oli, 1996			
20	Squamata	Colubridae	<i>Xenochrophis sanctijohannis</i>	St. John's keelbackwater snake	Field Survey, 2008			
21	Squamata	Viperiade	<i>Trimerserus alborostris</i>	Green pit viper	Baral, 2008			
22	Squamata	Viperiade	<i>Trimerserus monticola</i>	Chinese Mountainpitviper	Oli, 1996			
23	Squamata	Viperiade	<i>Trimerserus stejnegeri</i>	Chinese tree viper	Oli, 1996			
24	Squamata	Elapidae	<i>Ophiophagus hannah</i>	King Cobra		VU	II	
			VU - Vulnerable					

Annex 9: Agrobiodiversity in LCPV

SN	Nepali Name	Vernacular Name	English Name	Latin Name	Life form	Family	Taxonomy
1	Aalu	Aalu	Potato	<i>Solanum tuberosum</i> L.	Herb	Solanaceae	Dicot
2	Aduwa	Aduwa	Ginger	<i>Zingiber officinale</i> Rosc.	Herb	Zingiberaceae	Monocot
3	Ajambhari		Life plant	<i>Kalanchoe pinnata</i> Pers.	Herb	Crassulaceae	Dicot
4	Akabare khorsani			<i>Capsicum annuum</i> L.	Herb	Solanaceae	Dicot
5	Alainchi	Alainchi	Nepal Cardamom	<i>Amomum aromaticum</i> Roxb.	Herb	Zingiberaceae	Monocot
6	Amba	Belauti	Guava	<i>Psidium guajava</i> L.	Tree	Myrtaceae	Dicot
7	Amriso	Amriso	Broom grass/Bouquet grass	<i>Thysanolaena maxima</i> (Roxb.) O. Kuntze	Herb	Gramineae	Monocot
8	Ankhi timur				Tree		Dicot
9	Baans	Malbans	Bamboo	<i>Dendrocalamus strictus</i> (Roxb.) Nees	Herb	Gramineae	Monocot
10	Badahar	Badahar	Monkey's jack	<i>Artocarpus lakoocha</i>	Tree	Moraceae	Dicot
11	Bakulla	Bakula	Faba beans/ Broad beans/ Horse bean	<i>Vicia faba</i> L.	Herb	Leguminosae	Dicot
12	Ban dhaniya				Herb	Apiaceae	Dicot
13	Banda	Banda gobhi	Cabbage	<i>Brassica oleracea</i> L. var. <i>capitata</i> L.	Herb	Brassicaceae	Dicot
14	Bar	Bar	Banyan Tree	<i>Ficus benghalensis</i> L.	Tree	Moraceae	Dicot
15	Baramase phool		Paper flower	<i>Baugainvillea glabra</i>	Shrub	Nyctagenaceae	Dicot
16	Bedulo	Bedulo		<i>Streblus asper</i> Lour	Tree	Moraceae	Dicot
17	Besar	Besar	Turmeric	<i>Curcuma longa</i>	Herb	Zingiberaceae	Monocot
18	Bhanta	Bhanta	Brinjal	<i>Solanum melongena</i> L.	Herb	Solanaceae	Dicot
19	Bhuikatahar	Bhui katahar	Pineapple	<i>Ananas comosus</i> (L.) Merr.	Herb	Bromeliaceae	Dicot
20	Calycarpa			<i>Calycarpa</i> sp	Tree	Verbenaceae	Dicot
21	Chamsur		Garden cress	<i>Lepidium sativum</i> L.	Herb	Brassicaceae	Dicot
22	Chhatre	Chhatre unyu/ Rukh unyu	Tree fern	<i>Cyathea spinulosa</i> Wall. ex Hook.	Fern	Plagiogyriaceae	Pteridophyte
23	Chiya	Chiya	Tea	<i>Camellia sinensis</i> (L.) Kuntze	Shrub	Theaceae	Dicot

SN	Nepali Name	Vernacular Name	English Name	Latin Name	Life form	Family	Taxonomy
24	Chuletro	Chuletro		<i>Brassaiopsis hainla</i> (Buch.-Ham. ex D. Don) Seem.	Tree	Araliaceae	Dicot
25	Coffee	Kaphi	Coffee	<i>Coffea arabica</i> L.	Shrub	Rubiaceae	Dicot
26	Dhaniya	Dhaniya	Coriander	<i>Coriandrum sativum</i> L.	Herb	Apiaceae	Dicot
27	Dudhilo	Dudhilo		<i>Ficus neriifolia</i> Sm.	Tree	Moraceae	Dicot
28	Eklebir	Eklebir	Lobelia	<i>Lobelia pyramidalis</i> Wall.	Herb	Lobeliaceae	Dicot
29	Gajar	Gajar	Carrot	<i>Daucus carota</i> L. var. <i>sativa</i> DC.	Herb	Apiaceae	Dicot
30	Ghiu kumari	Ghiu kumari	Indian aloe	<i>Aloe vera</i> (L.) Burm.f.	Herb	Liliaceae	Monocot
31	Golbheda	Tamatar	Tomato	<i>Lycopersicum esculentum</i> Mill.	Herb	Solanaceae	Dicot
32	Ground apple		Ground apple	<i>Smallanthus</i> sp.	Herb	Asteraceae	Dicot
33	Guyeli	Goli	Oleaster	<i>Elaeagnus infundibularis</i> Momiyama	Tree	Elaeagnaceae	Dicot
34	Iskus	Iskul	Chayote/ Christophine	<i>Sechium edule</i> (Jacq.) Sw.	Herb	Cucurbitaceae	Dicot
35	Japani haluwabed			<i>Diospyros</i> sp.	Herb	Ebenaceae	Dicot
36	Jatropha/Sajiwan	Sajjon	Bellyache bush	<i>Jatropha gossypifolia</i> L.	Shrub	Euphorbiaceae	Dicot
37	Juware dhaan		Rice	<i>Oryza sativa</i>	Herb	Gramineae	Monocot
38	Kagati	Kagati	Lime	<i>Citrus aurantifolia</i> (Christ.) Swingle	Tree	Rutaceae	Dicot
39	Kalki phool	Kalki phul	Bottle brush	<i>Callistemon citrinus</i> (Curtis) Skeels	Tree	Myrtaceae	Dicot
40	Kauli	Phulgobhi	Cauliflower	<i>Brassica oleracea</i> L. var. <i>botrytis</i> L.	Herb	Brassicaceae	Dicot
41	Kera	Kera	Banana	<i>Musa paradisica</i> L.	Herb	Musaceae	Monocot
42	Kerau	Kerau	Garden Pea	<i>Pisium sativum</i> L.	Herb	Leguminosae	Dicot
43	Khanyu	Khanyu	Nepal fodder fig	<i>Ficus semicordata</i> Buch.-Ham ex Sm.	Tree	Moraceae	Dicot
44	Khirro	Khirro	Tallow tree	<i>Sapium insigne</i> (Royle) Benth. Ex Hook.f.	Tree	Euphorbiaceae	Dicot
45	Khorsani	Khursani	Capsicum Chilli	<i>Capsicum annuum</i> L.	Herb	Solanaceae	Dicot
46	Khorsani phool	Khorsani phul	Blood flower	<i>Asclepias curassavica</i> L.	Herb	Asclepiadaceae	Dicot
47	Kodo	Kodo	Finger Millet/ Bird's foot millet	<i>Eleusine coracana</i> (L.) Gaerth.	Herb	Gramineae	Monocot

SN	Nepali Name	Vernacular Name	English Name	Latin Name	Life form	Family	Taxonomy
48	Kurilo	Kurilo	Wild asparagus	<i>Asparagus racemosus</i> Willd.	Shrub	Liliaceae	Monocot
49	Kutmero	Kutmero		<i>Litsea monopetala</i> (Roxb.) Pers.	Tree	Lauraceae	Dicot
50	Lakuri	Lakure	Ash	<i>Fraxinus floribunda</i> Wall.	Tree	Oleaceae	Dicot
51	Lalupate	Lalupate	Poinsettia	<i>Euphorbia pulcherima</i> Willd. Ex Kletsch	Shrub	Euphorbiaceae	Dicot
52	Lapsi	Lapsi	Nepalese hog plum	<i>Choerospondias axillaris</i> (Roxb.) B.L. Brutt.& A.W. Hill.	Tree	Anacardiaceae	Dicot
53	Lasun	Lasun	Garlic	<i>Allium sativum</i> L.	Herb	Amaryllidaceae	Monocot
54	Maganpure dhaan	Dhan	Paddy plant/ Rice	<i>Oryza sativa</i> L.	Herb	Gramineae	Monocot
55	Manakamana makai	Makai	Maize	<i>Zea mays</i> L.	Herb	Gramineae	Monocot
56	Mewa	Mewa	Papaya	<i>Carica papaya</i> L.	Herb	Caricaceae	Dicot
57	Mula	Mula	Radish	<i>Raphanus sativus</i> L.	Herb	Brassicaceae	Dicot
58	Nilo gandhe	Nilo gandhe		<i>Ageratum houstonianum</i> Mill.	Herb	Asteraceae	Dicot
59	Nimaro	Nibharo		<i>Ficus roxburghii</i> Wall. ex Miq.	Tree	Moraceae	Dicot
60	Paiyu	Paiyu		<i>Betula alnoides</i> Buch.-Ham.ex D.Don	Tree	Betulaceae	Dicot
61	Pakhuri	Pakhuri		<i>Ficus glaberrima</i> Blume	Tree	Moraceae	Dicot
62	Pindalu	Pindalu	Co-co Yam	<i>Colocasia antiquorum</i>	Herb	Araceae	Monocot
63	Pipal	Pipal	Pipal tree/ Bodh tree	<i>Ficus religiosa</i> L.	Tree	Moraceae	Dicot
64	Pyaj	Pyaj	Onion	<i>Allium cepa</i> L.	Herb	Amaryllidaceae	Monocot
65	Raayo	Rayo	Indian mustard	<i>Brassica juncea</i> (L.) Czern.	Herb	Brassicaceae	Dicot
66	Ramtoriya	Ram toriya	Okra/Lady's finger	<i>Abelmoschus esculentus</i> (L.) Moench.	Herb	Malvaceae	Dicot
67	Rato makai	Rato makai		<i>Zea mays</i> L.	Herb	Gramineae	Monocot
68	Sakharkhanda	Sakharkhanda	Sweet potato	<i>Ipomoea batatas</i> (L.) Lam	Herb	Convolvulaceae	Dicot
69	Sayapatri phool	Sayapatri phool	Marigold	<i>Tagetes erecta</i> L.	Herb	Asteraceae	Dicot
70	Seto makai	Seto makai	White maize	<i>Zea mays</i> L.	Herb	Gramineae	Monocot
71	Simal	Simal	Silk cotton tree	<i>Bombax ceiba</i> L.	Tree	Bombacaceae	Dicot

SN	Nepali Name	Vernacular Name	English Name	Latin Name	Life form	Family	Taxonomy
72	Siude	Siude		Euphorbia sp	Herb	Euphorbiaceae	Dicot
73	Strawberry	Strawberry	Bhui ainselu	<i>Fragaria nubicola</i> Lindl. Ex Lacaita	Herb	Rosaceae	Dicot
74	Sugandhawal	Sugandhawal	Indian valerian	<i>Valeriana jatamansii</i> Jones	Herb	Valerianaceae	Dicot
75	Suntala	Suntala	Orange	Citrus aurantium L.	Tree	Rutaceae	Dicot
76	Tanki	Tanki	Pink baubinia	<i>Bauhinia purpurea</i> L.	Tree	Leguminosae	Dicot
77	Tarul	Tarul	Yam	<i>Dioscorea sagittata</i> Royle	Herb	Dioscoreaceae	Monocot
78	Tite	Tite		<i>Swertia nervosa</i> (G.Don) C.B. Clarke	Herb	Gentianaceae	Dicot
79	Tori	Tori	Mustard	<i>Brassica rapa</i> L.	Herb	Brassicaceae	Dicot
80	Tyamatar		Tree tomato	<i>Cyphomandra betacea</i> (Cav.) Sendt	Shrub	Solanaceae	Dicot
81	Ukhu	Ukhu	Sugarcane	<i>Saccharum officinarum</i> L.	Herb	Gramineae	Monocot
82	Uwa/Karoo	Uva	Barley	<i>Hordeum vulgare</i> L.	Herb	Gramineae	Monocot

Annex 10: NTFPs in LCPV

SN	Nepali Name	Vernacular Name	English Name	Latin Name	Ecosystem	Part(s) used	Use category
1	Allo	Allo sisnu	Himalayan nettle	<i>Girardinia diversifolia</i> (Link) Friis	Forest	Stem	Fibre/Food
2	Amala		Emblic myrobalan	<i>Phyllanthus emblica</i> L.	Forest	Fruit	Food/Medicine
3	Amba	Belauti	Guava	<i>Psidium guajava</i> L.	Agriculture	Fruit	Food
4	Badahar	Badahar	Monkey's jack	<i>Artocarpus lakoocha</i>	Agriculture	Fruit/Leaf	Food/Fodder
5	Bajradanti			<i>Potentilla fulgens</i>	Forest	Entire plant	Medicine
6	Bakhre ghaans	Bakhre ghans	Pink bauhinia	<i>Desmodium multiflorum</i> DC.	Forest	Leaf	Fodder
7	Banko	Banko		<i>Arisaema tortuosum</i> (Wall.) Schott	Forest	Tuber	Food
8	Banmara	Banmara		<i>Eupatorium adenophorum</i>	Forest	Leaf	Medicine
9	Banso	Bansi bans	Feathery bamboo	<i>Bambusa vulgaris</i> Schrad.	Forest	Stem	Fire wood/Construction material
10	Bantarul	Ban tarul	Air potato/ Potato yam	<i>Dioscorea bulbifera</i> L.	Forest	Tuber	Food
11	Bar	Bar	Banyan Tree	<i>Ficus benghalensis</i> L.	Agriculture	Entire plant	Religious value
12	Batulpate	Batule pate/ Gudurganu	False pareira	<i>Gissampelos pareira</i> L.	Forest	Root	Medicine
13	Bedulo			<i>Streblus asper</i> Lour	Forest/Agriculture	Leaf	Fodder
14	Bish		Aconite	<i>Aconitum ferox</i> Wall. ex Seringe	Forest	Entire plant	Poison
15	Calycarpa			<i>Calycarpa</i> sp	Agriculture	Leaf	Fodder
16	Chhatre	Chhatre unyu/Rukh unyu	Tree fern	<i>Cyathea spinulosa</i> Wall. ex Hook.	Forest/Agriculture	Tender part, Inflorescence/Entire plant	Food/Ornamental value
17	Chiraito	Chiraito		<i>Swertia chirayita</i> (Roxb. ex Fleming) Karsten	Forest	Entire plant	Medicine
18	Chittre banso	Chittre banso		<i>Digitaria ciliaris</i> (Retz.) Koeler	Forest	Above ground parts	Fodder
19	Chuletro	Chuletro		<i>Brassaiopsis hainla</i> (Buch.-Ham. ex D. Don) Seem.	Agriculture	Leaf	Fodder
20	Chutro	Chutro	Barberry/ Nepal barberry	<i>Berberis aristata</i> DC.	Forest	Fruit/Entire plant	Food/Medicine
21				<i>Clematis</i> sp.	Forest	Leaf	Medicine
22				<i>Crotoneaster</i> sp.	Forest	Leaf	Fodder
23	Dubiya	Gaaitihaare		<i>Inula cappa</i> (Buch.-Ham. ex D. Don) DC.	Forest	Above ground parts	Fodder
24	Dudhilo	Dudhilo		<i>Ficus nerifolia</i> Sm.	Forest/Agriculture	Leaf	Fodder
25	Eklebir	Eklebir	Lobelia	<i>Lobelia pyramidalis</i> Wall.	Forest/Agriculture	Entire plant	Medicine

SN	Nepali Name	Vernacular Name	English Name	Latin Name	Ecosystem	Part(s) used	Use category
26	Ghodtapre	Ghodtapre	Water pennywort	<i>Centella asiatica</i> (L.) Urban.	Forest	Entire plant	Medicine
27	Gurans	Gurans	Rhododendron, Rose tree, Rosy bay	<i>Rhododendron anthopogo</i> D. Don	Forest	Flower	Food/Medicine
28	Guyeli	Goli	Oleaster	<i>Elaeagnus infundibularis</i> Momiyama	Agriculture	Leaf	Fodder
29	Jamun	Jamun	Black plum, Indian black berry	<i>Syzygium cumini</i> (L.) Skeels	Forest	Fruit	Food
30	Jhilke sollar		Fern		Forest	Above ground parts	Forage
31	Jhulo	Jhulo		<i>Anaphalis margaritacea</i>	Forest	Entire plant	Fire catcher
32	Kafal	Khaphal	Box myrtle, Bay-berry	<i>Myrica esculenta</i>	Forest	Fruit	Food
33	Kagati	Kagati	Lime	<i>Citrus aurantifolia</i> (Christ.) Swingle	Agriculture	Fruit	Food
34	Kalki phool	Kalki phul	Bottle brush	<i>Callistemon citrinus</i> (Curtis) Skeels	Agriculture	Flower	Ornamental value
35	Kancherno			<i>Leptadenia reticulata</i> (Retz.) Wight & Arn.	Forest	Entire plant	Medicine
36	Kantakari		Indian salmon	<i>Solanum surattense</i> Burm.f.	Forest	Fruit	Medicine/Leech repellent
37	Katus	Dhale/Dhalne Katus	Nepal or Indian Chestnut	<i>Castanopsis indica</i> (Roxb.) Miq.	Forest	Fruit	Food
38	Khanyu	Khanyu	Nepal fodder fig	<i>Ficus semicordata</i> Buch.-Ham ex Sm.	Agriculture	Leaf	Fodder
39	Khari banso			<i>Arundina</i> sp.	Forest	Above ground parts	Fodder
40	Khirro	Khirro	Tallow tree	<i>Sapium insignne</i> (Royle) Benth.ex Hook.f.	Forest/ Agriculture	Leaf/Timber	Fodder/Handicraft (Madal/Theki making)
41	Kukurdaino	Kukur daino		<i>Smilax ovalifolia</i> Roxb. ex D. Don	Forest	Fruit/Root	Medicine
42	Kurilo		Wild asparagus	<i>Asparagus racemosus</i> Willd.	Forest/ Agriculture	Root/Tender shoot	Medicine/Food
43	Kuro	kuro ghans	Love thorn	<i>Chrysopogon aciculatus</i> (Retz.) Trin.	Forest	Above ground parts	Fodder
44	Kutmero	Kutmero		<i>Litsea monopetala</i> (Roxb.) Pers.	Agriculture	Leaf	Fodder
45	Lakuri	Lakure	Ash	<i>Fraxinus floribunda</i> Wall.	Agriculture	Leaf	Fodder
46	Lapsi	Lapsi	Nepalese hog plum	<i>Choerospondias axillaris</i> (Roxb.) B.L. Brutt. & A.W. Hill.	Forest/ Agriculture	Fruit	Food
47				<i>Leucas lanata</i> Benth.	Forest	Above ground parts	Medicine

SN	Nepali Name	Vernacular Name	English Name	Latin Name	Ecosystem	Part(s) used	Use category
48	Lokta		Nepali paper plant	<i>Daphne papyracea</i> Wall. Ex Steud.	Forest	Bark	Fibre
49	Majitho	Majitho		<i>Rubia manjith</i> Roxb. ex Fleming	Forest	Above ground parts	Dye, Medicine
50	Money plant			<i>Epipremnum</i> sp.	Forest	Entire plant	Ornamental value
51	Mothe jhar	Mothe jhar		<i>Cyperus compressus</i> L.	Forest	Tuber	Medicine
52	Nagarmothe	Nagarmothe		<i>Cyperus rotundus</i> L.	Forest	Tuber	Medicine
53	Nagbeli 1		Lycopodium/ Club moss	<i>Lycopodium phlegmaria</i>	Forest	Entire plant	Medicine
54	Nagbeli 2			<i>Lycopodium japonicum</i>	Forest	Inflorescence	Medicine
55	Nigalo	Nigalo		<i>Drepanostachyum intermedium</i> (Munro) Keng.f.	Forest	Stem/Tender shoot	Basket making/Food
56	Nimar	Nibhar		<i>Ficus roxburghii</i> Wall. ex Miq.	Agriculture	Leaf	Fodder
57	Paite			<i>Phyllanthus parviflora</i>	Forest	Leaf	Fodder
58	Paiyu	Paiyu		<i>Betula alnoides</i> Buch.-Ham.ex D.Don	Forest/ Agriculture	Leaf	Fodder
59	Pakhuri	Pakhuri		<i>Ficus glaberrima</i> Blume	Forest/ Agriculture	Leaf	Fodder
60	Pani amala	Pani amala	Sword fern	<i>Nephrolepis cordifolia</i> (L.) Presl.	Forest	Tuber	Food
61	Phulteso	Phulteso		<i>Buddleia asiatica</i> Lour.	Forest	Leaf	Fodder
62	Pipal	Pipal	Pipal tree/ Bodh tree	<i>Ficus religiosa</i> L.	Agriculture	Entire plant	Religious value
63				<i>Rubus ellipticus</i> Sm.	Forest	Fruit	Food
64	Sani phal				Forest	Fruit	Food
65	Simal	Simal	Silk cotton tree	<i>Bombax ceiba</i> L.	Agriculture	Flower/Fruit	Food/Fibre
66	Sisno			<i>Urtica dioica</i> L.	Forest	Tender shoots	Food
67	Sungava 1			<i>Bulbophyllum careyanum</i>	Forest	Entire plant	Ornamental value
68	Sungava 10			<i>Dendrobium eriflorum</i>	Forest	Entire plant	Ornamental value
69	Sungava 11			<i>Dendrobium heterocarpum</i>	Forest	Entire plant	Ornamental value
70	Sungava 12			<i>Eria apertifolia</i>	Forest	Entire plant	Ornamental value
71	Sungava 13			<i>Eria bipuncata</i>	Forest	Entire plant	Ornamental value
72	Sungava 14			<i>Eria spicata</i>	Forest	Entire plant	Ornamental value
73	Sungava 15			<i>Gastrochilus bigibbus</i>	Forest	Entire plant	Ornamental value
74	Sungava 16			<i>Goodyera repens</i>	Forest	Entire plant	Ornamental value
75	Sungava 17			<i>Liparis nervosa</i>	Forest	Entire plant	Ornamental value
76	Sungava 18			<i>Malaxis acuminata</i>	Forest	Entire plant	Ornamental value

SN	Nepali Name	Vernacular Name	English Name	Latin Name	Ecosystem	Part(s) used	Use category
77	Sungava 19			<i>Malaxis latifolia</i>	Forest	Entire plant	Ornamental value
78	Sungava 2			<i>Bulbophyllum striatum</i>	Forest	Entire plant	Ornamental value
79	Sungava 20			<i>Malaxis purpurea</i>	Forest	Entire plant	Ornamental value
80	Sungava 21			<i>Oberonia falcata</i>	Forest	Entire plant	Ornamental value
81	Sungava 22			<i>Otochilus albus</i>	Forest	Entire plant	Ornamental value
82	Sungava 23			<i>Otochilus lancilabius</i>	Forest	Entire plant	Ornamental value
83	Sungava 24			<i>Pholidota articulata</i>	Forest	Entire plant	Ornamental value
84	Sungava 25			<i>Pholidota pallida</i>	Forest	Entire plant	Ornamental value
85	Sungava 26			<i>Rhynchosstylis retusa</i>	Forest	Entire plant	Ornamental value
86	Sungava 27			<i>Spiranthes spiralis</i>	Forest	Entire plant	Ornamental value
87	Sungava 28			<i>Sunipia bicolor</i>	Forest	Entire plant	Ornamental value
88	Sungava 29			<i>Peristylus affinis</i>	Forest	Entire plant	Ornamental value
89	Sungava 30			<i>Coelogyne cristata</i>	Forest	Entire plant	Ornamental value
90	Sungava 31			<i>Coelogyne fuscescens</i>	Forest	Entire plant	Ornamental value
91	Sungava 32			<i>Coelogyne nitida</i>	Forest	Entire plant	Ornamental value
92	Sungava 33			<i>Coelogyne prolifera</i>	Forest	Entire plant	Ornamental value
93	Sungava 34			<i>Cymbidium elegans</i>	Forest	Entire plant	Ornamental value
94	Sungava 35			<i>Cymbidium erythraeum</i>	Forest	Entire plant	Ornamental value
95	Sungava 36			<i>Cymbidium iridioides</i>	Forest	Entire plant	Ornamental value
96	Sungava 37		Butterfly orchid	<i>Eulophia spectabilis</i>	Forest	Entire plant	Ornamental value
97	Suntala	Suntala	Orange	<i>Citrus aurantium</i> L.	Agriculture	Fruit	Food
98	Tanki	Tanki	Pink bauhinia	<i>Bauhinia purpurea</i> L.	Forest/Agriculture	Leaf	Fodder
99	Tarico	Tarika	Screw pine	<i>Pandanus odoratissima</i> Roxb.	Forest	Cone/Leaf	Food/Insecticide
100	Teetepati	Teetepati	Indian worm	<i>Artemisia indica</i> Willd.	Forest	Leaf	Medicine
101	Tejpat	Tejpat	Cinnamomum Indian cassia	<i>Cinnamomum tamala</i> (Buch.-Ham) Ness & Eberm.	Forest	Leaf	Condiment
102	Thulo paate 2			<i>Desmodium</i> sp.	Forest	Leaf	Fodder
103	Thulo paite			<i>Oxystelma esculentum</i> L. f.) Sm.	Forest	Leaf	Fodder
104	Tite	Tite		<i>Swerfita nervosa</i> (G.Don) C.B. Clarke	Forest/ Agriculture	Entire plant	Medicine
105	Unyu 1		Fern	<i>Aspidium</i> sp.	Forest	Tender part	Food
106	Utis	Utis	Alder	<i>Alnus nepalensis</i> D.Don	Forest	Bark	Tanning

Annex 11: Class diversity of fauna in LCPV

Class	Order	Family	Sps.
Mammal	Carnivora	Canidae	2
		Urdidae	1
		Felidae	4
		Herpestidae	3
		Mustelidae	2
		Viverridae	2
	Cetartiodactyla	Cervidae	1
	Chiroptera	Pteropodae	3
		Rhinolophidae	1
		Vespertilionidae	1
	Eulipotyphla	Soricidae	1
	Lagomorpha	Leporidae	1
	Pholidata	Manidae	1
	Primate	Cercopithecidae	2
	Rodentia	Hystriidae	1
		Sciuridae	2
		Muridae	4
	Total		32
Reptiles	Squamata	Agamidae	4
		Gekkonidae	2
		Scincidae	2
		Varanidae	1
		Typhlopidae	1
		Colubridae	9
		Viperiade	3
		Elapidae	1
	Testudines	Bataguridae	1
	Total		24
Amphibians	Anura	Bufonidae	3
		Microhylidae	1
		Ranidae	7
Total			11

Class	Order		Family	Sps.
Avifauna	Galliformes	1	Phasianidae	2
	Anseriformes	2	Anatidae	2
	Podicipediformes	3	Phalacrocoracidae	1
	Falconiformes	4	Accipitridae	13
		5	Alcedimidae	1
		6	Falconidae	2
	Gruiformes	7	Rallidae	3
	Charadriiformes	8	Jacanidae	1
	Columbiformes	9	Columbidae	6
	Psittaciformes	10	Psittacidae	3
	Passeriformes	11	Pycnonotidae	3
		12	Corvidae	17
		13	Fringillidae	1
		14	Hirundinidae	4
		15	Laniidae	1
		16	Muscicapidae	12
		17	Nectariniidae	4
		18	Paridae	2
		19	Passeridae	12
		20	Sittidae	3
		21	Strigidae	4
		22	Sturnidae	3
		23	Sylviidae	12
		24	Zosterpidae	1
	Charadriiformes	25	Rostratulidae	1
		26	Scolopacidae	3
	Cuculiformes	27	Cuculidae	5
	Caprimulgiformes	28	Caprimulgidae	1
	Apodiformes	29	Apodidae	1
		30	Ardeidae	3
	Coraciiformes	31	Coraciidae	1
		32	Dacelonidae	1
		33	Meropidae	1
		34	Ciconiidae	1
	Piciformes	35	Megalaimidae	4
		36	Picidae	5
	Total			140

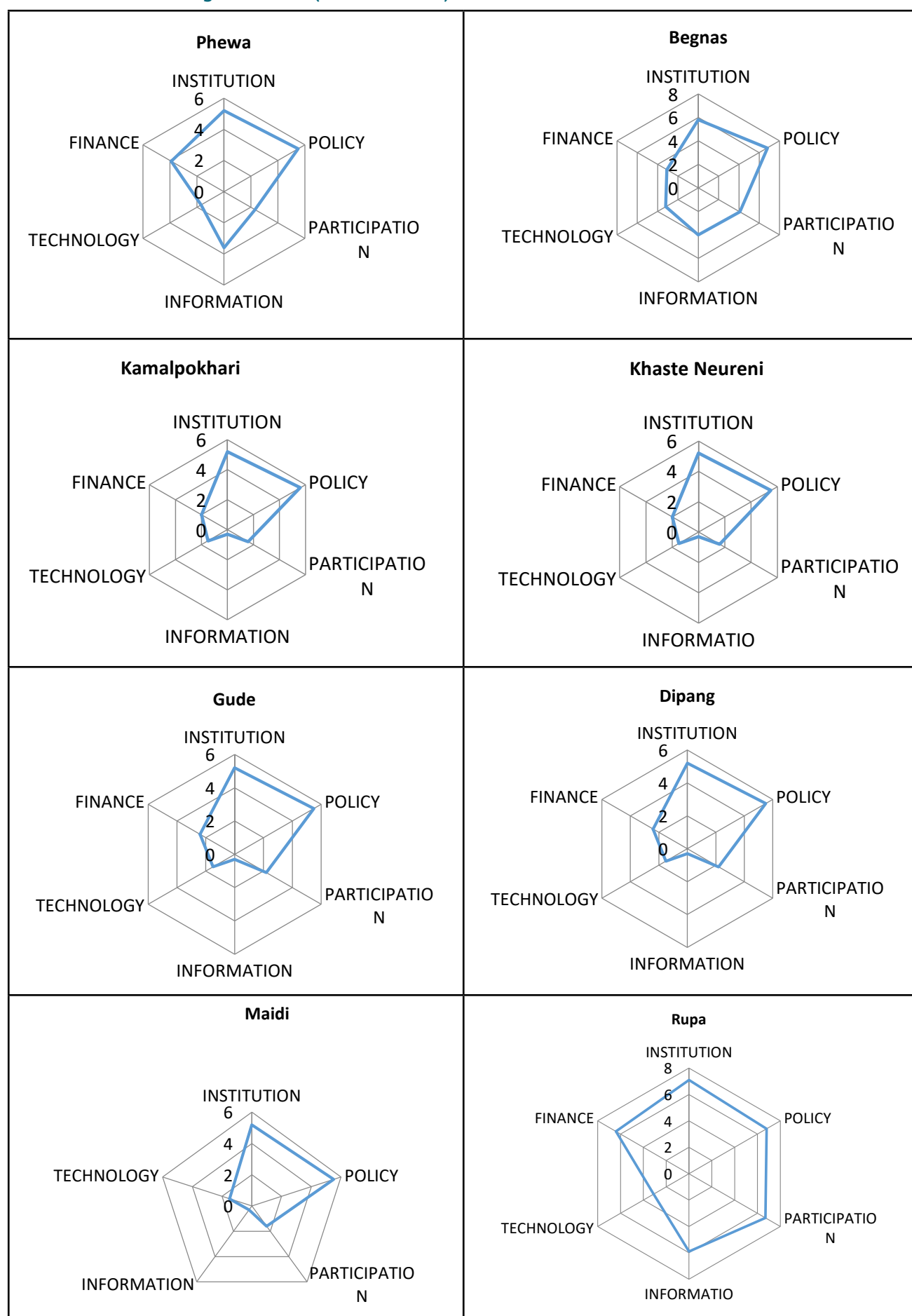
Annex 12: Land use change in each lake basin area of LCPV

Lake Basin	Built up area (sq km)				Cultivation				Forest			
	1996	%	2016	%	1996	%	2016	%	1996	%	2016	%
Phewa	0.03	0.02	6.20	5.20	62.00	52.69	48.58	40.67	45.57	38.15	49.19	41.19
Kamalpokhari					0.85	83.40	1.03	76.07	0.15	14.60	0.21	15.23
Khaste					2.10	78.00	1.87	69.55	0.42	15.60	0.60	22.51
Neureni					0.10	57.30	0.08	44.54	0.06	34.10	0.07	40.84
Gunde					0.41	67.70	0.28	46.53	0.12	18.70	0.19	30.96
Dipang					1.38	57.40	1.19	49.55	0.89	37.00	0.97	40.45
Maidi					1.13	70.70	0.90	56.29	0.46	28.60	0.54	33.74
Begnas					9.53	51.30	8.46	45.49	5.30	28.50	6.04	32.47
Rupa					10.54	40.50	8.78	33.74	13.90	53.40	15.65	60.16
Total	0.03		6.20		88.04		71.17		66.86		73.47	
	Pond or lake				River/Streams				Sand			
	1996	%	2016	%	1996	%	2016	%	1996	%	2016	%
Phewa	4.52	3.78	4.42	3.70	0.73	0.61	0.09	0.08	1.58	1.32	4.21	3.53
Kamalpokhari			0.01	0.94	0.00				0.00			
Khaste	0.10	3.50	0.13	4.82	0.00				0.00			
Neureni	0.02	8.80	0.03	14.62	0.00				0.00			
Gunde			0.08	13.40	0.00				0.00			
Dipang	0.06	2.40	0.15	6.20	0.00				0.00	0.00		
Maidi	0.01	0.60	0.01	0.44	0.00				0.00			
Begnas	3.23	17.30	3.13	16.85	0.00				0.00		0.04	0.2
Rupa	1.07	4.10	1.15	4.43	5.40	0.20			0.37	1.40	0.19	0.74
Total	8.99		9.11		6.13		0.09		1.95		4.45	
	Grassland				Shrub land				Swamp			
	1996	%	2016	%	1996	%	2016	%	1996	%	2016	%
Phewa	1.15	0.96	1.68	1.41	1.67	1.39	4.93	4.12	1.27	1.06	0.14	0.12
Kamalpokhari	0.00	0.00	0.01	0.68	0.00	0.00	0.10	7.08	0.02	2.00		
Khaste	0.00	0.00	0.001	0.04	0.08	2.90	0.08	3.08	0.00			
Neureni					0.00				0.00			
Gunde	0.00	0.00	0.01	1.74	0.00	0.00	0.05	7.36	0.08	13.60		
Dipang	0.01	0.20	0.001	0.04	0.07	2.90	0.09	3.76	0.00			
Maidi	0.00	0.00	0.15	9.14	0.00	0.10	0.01	0.38	0.00			
Begnas	0.16	0.90	0.33	1.75	0.32	1.70	0.59	3.18	0.00	0.00	0.01	0.03
Rupa	0.00	0.00	0.01	0.03	0.07	0.30	0.23	0.89	0.00	0.00	0.003	0.01
Total	1.32		2.18		2.21		6.07		1.37		0.15	

Annex 13: Socio-economic features in LCPV in former administrative structure

VDC/Municipality	2011 Census					Decline in sex ratio	Avg. annual growth	% increase in hh numbers	Poverty percentage	Absentee Population			
	Total HH	Total popIn	Male	Female	Sex ratio					HH	total	male	female
Dhikurpokhari	1880	7318	3288	4030	81.59	4.61	-0.94	11.44	7.01	738	907	845	62
Kaskikot	1508	5892	2591	3301	78.49	12.90	-0.99	20.16	5.61	576	747	703	44
Pokhara sub metropolitan city	68236	255465	126238	129227	97.69	5.98	6.34	82.91	1.29	18163	27653	21540	6113
Bhadauretamagi	875	3257	1466	1791	81.85	7.71	-1.50	14.83	9.21	417	585	528	57
Sarangkot	2080	8354	3899	4455	87.52	1.61	2.63	47.73	5.61	600	772	690	82
Kalika	1026	3880	1745	2135	81.73	11.44	-2.16	-1.63	6.24	335	470	411	59
Chapakot	680	2637	1151	1486	77.46	5.28	-1.44	6.58	9.21	340	435	406	29
Kahun	574	2378	1119	1259	88.88	3.38	0.76	19.33	5.35	177	211	196	15
Pumdibhumdi	1837	7391	3358	4033	83.26	8.55	-0.70	17.16	5.39	679	879	809	70
Majhthana	833	2993	1254	1739	72.11	6.23	-1.81	-4.14	6.24	341	457	415	42
Lekhnath municipality	14937	58816	26865	31951	84.08	4.71	4.22	59.55	3.42	5605	7534	6579	955
Hamsapur	963	3635	1581	2054	76.97	3.29	-2.33	-3.22	6.06	353	512	456	56
Rupakot	728	2958	1277	1681	75.97	2.85	-1.87	-6.79	7.25	335	486	443	43
Nirmalpokhari	1088	4027	1753	2274	77.09	6.56	-1.48	2.54	5.39	479	608	584	24
Bharatpokhari	2468	9806	4353	5453	79.83	6.18	-0.31	13.63	5.96	1034	1431	1302	129
Total	99713	378807	181938	196869	92.42	4.21	4.14	62.43		30172	43687	35907	7780

Annex 14: Lake basin governance (6 ILBM Pillars) of each lake in LCPV





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