



Ramsar Information Sheet

Published on 1 February 2016

Nepal

Lake Cluster of Pokhara Valley



Designation date	2 February 2016
Site number	2257
Coordinates	28°12'20"N 83°59'05"E
Area	26 106,00 ha

Color codes

Fields back-shaded in light blue relate to data and information required only for RIS updates.

Note that some fields concerning aspects of Part 3, the Ecological Character Description of the RIS (tinted in purple), are not expected to be completed as part of a standard RIS, but are included for completeness so as to provide the requested consistency between the RIS and the format of a ' full ' Ecological Character Description, as adopted in Resolution X.15 (2008). If a Contracting Party does have information available that is relevant to these fields (for example from a national format Ecological Character Description) it may, if it wishes to, include information in these additional fields.

1 - Summary

Summary (This field is limited to 2500 characters)

Pokhara is one of the most beautiful cities of Nepal and it is an attractive destination for foreign tourists. There are nine beautiful lakes in Pokhara valley with each lake having its own significance in terms of biodiversity, ecosystem services and livelihood functions for local communities. Thousands of people are dependent on these lakes for tourism business, wetland resources, irrigation and fishery: irrigation (Phewa lake, Begnas lake); electricity (Phewa lake); recreation (Phewa, Begnas, Rupa); commercial fish farming (Phewa lake, Begnas lake, Rupa lake); and maintaining balance in local hydrology and ecology (Gunde, Khaste-Neurani, Maldi, Kamal Pokhari, Dipang). High diversity of wetland birds are recorded in Phewa and Rupa lakes. The name 'Pokhara' itself is derived from the Nepali vernacular word for 'pond'.

A recent economical valuation study of Phewa lake showed that it provides good and services equal to >US \$ 279,616 a year (CSUWN, 2010). A community cooperative called Rupa Lake Restoration and Fishery Cooperative, organized by over 600 households, earns > US \$ 56,074 a year from fishery alone. Lake-based tourism in Pokhara in 2006 fetched US \$ 6 billion (Pokharel, 2008).

2 - Data & location

2.1 - Formal data

2.1.1 - Name and address of the compiler of this RIS

Name 1) Dr. Maheshwar Dhakal; 2) Ms. Samridhi Kharel; 3) Ms. Sony Baral; 4) Mr. Pushpa Raj Dhimi; 5) Mr. Shailendra Pokharel

Institution/agency Department of National Parks and Wildlife Conservation (1), District Development Committee Office of Kaski and IUCN Nepal (2,3,4), National Lake Conservation Development Committee (5)

Postal address (This field is limited to 254 characters)

P.O. Box 860
Babar Mahal, Kathmandu
Nepal
Tel: 977 4227926

E-mail maheshwar.dhakal@gmail.com

Phone 9779851142405

Fax 97714227675

2.1.2 - Period of collection of data and information used to compile the RIS

From year 2010

To year 2015

2.1.3 - Name of the Ramsar Site

Official name (in English, French or Spanish) Lake Cluster of Pokhara Valley

2.2 - Site location

2.2.1 - Defining the Site boundaries

b) Digital map/image

<1 file(s) uploaded>

Boundaries description (optional) (This field is limited to 2500 characters)

The Lake Cluster of Pokhara Valley includes nine lakes and their catchment areas. The major lakes are Phewa, Begnas, and Rupa and there are another six small to medium size associated lakes. The total area includes forests, cultivated lands and settlements in the upstream and water bodies in the downstream.

2.2.2 - General location

a) In which large administrative region does the site lie?

Gandaki Zone

b) What is the nearest town or population centre?

Pokhara Sub-Metropolitan City (Population 255,465)

2.2.3 - For wetlands on national boundaries only

a) Does the wetland extend onto the territory of one or more other countries? Yes No

b) Is the site adjacent to another designated Ramsar Site on the territory of another Contracting Party? Yes No

2.2.4 - Area of the Site

Official area, in hectares (ha): 26106

Area, in hectares (ha) as calculated from GIS boundaries 26111.32

2.2.5 - Biogeography

Biogeographic regions

Regionalisation scheme(s)	Biogeographic region
WWF Terrestrial Ecoregions	Himalayan subtropical broadleaf forests

[Other biogeographic regionalisation scheme](#) (This field is limited to 2500 characters)

The Lake Cluster of Pokhara Valley is located in the mid-hill of Nepal. Pokhara city is 200 km (west) away from the capital, Kathmandu. The valley is rich for sub-tropical sal (*Shorea robusta*) forests in the southern parts, riverian forests along the Seti river and temperate forests of *Shima wallichii* and *Castanopsis* in the northern and western slope. Community based forest management popularly called Community Forestry in Nepal is managed by the local communities. These forests are the main source of water to all lakes in one side and sources of firewood, fodder and timber for local communities on the other. The Pokhara Valley is located in the lap of Annapurna range with three out of the ten highest mountains in the world (Dhaulagiri, Annapurna First and Manaslu) being within about 15 km linear distance from the valley.

3 - Why is the Site important?

3.1 - Ramsar Criteria and their justification

Criterion 1: Representative, rare or unique natural or near-natural wetland types

Hydrological services provided (This field is limited to 3000 characters)

This Site plays a significant role in groundwater recharge, flood control and sediment trapping. As Pokhara is an area of Nepal with the highest rainfall, Pokhara Valley in general and the individual lakes in particular serve an important role in the hydrological cycle of the region.

Other ecosystem services provided (This field is limited to 3000 characters)

This Site is important also because it provides fish to the local people of Pokhara and Lekhanath municipalities, drinking water for both humans and livestock, water for irrigation and agriculture, as well as hydropower. This Site also holds important recreational, as well as spiritual and inspirational values.

Other reasons (This field is limited to 3000 characters)

The lake areas are filled by large volume of layered clastic deposits of gravel, silt and clay of Quaternary age, brought from the Annapurna Mountain probably by a series of catastrophic debris flow (Yamanaka et al., 1982). Due to presence of easily soluble calcareous materials (25-65%, by volume) in the clastic sediments, splendid river terraces and deep gorges are carved by the Seti River and its tributaries. Karst structures like sub-surface flow channels, solution cavities, sinkholes, pinnacles, solution chimneys etc are widely distributed both at the surface and underground. The clasts are mainly represented by gneiss; granite; quartzite and schist (Gautum et al., 2000).

Lakes are spread in the flat valley bottom that has unique landscape of Karst limestone plates sharply cut at many places into deep gorges by many perennial rivers and dry river beds which physically appeared like arid areas; though Pokhara is an area with the highest rainfall. Extreme beauty and visual variety is observable with typical green mountains with sub-tropical to temperate vegetation lavished with snow-clad mountain ranges of the Annapurna and Dhaulagiri at the background in the extreme north.

Criterion 2 : Rare species and threatened ecological communities

Criterion 3 : Biological diversity

Justification (This field is limited to 3000 characters)

The Site is important for contributing to the maintenance of biodiversity of the biogeographic region. Phewa lake harbors 104 birds species including 14 migratory ones, 34 mammals, 16 fish, 4 exotic fish, 14 reptile and 6 amphibian species (IUCN, 1995a). Similarly, in Rupa, species of 2 toads and 4 frogs, 14 reptiles, 104 birds including 14 migratory birds, and 34 mammals are found. Biodiversity of Rupa lake also includes 22 native and 7 exotic fish species (Oli, 1997). The rare marsh wild rice *Oryza rufipogon* is found in most of the wetlands at the Site but is not found in similar wetlands in other parts of









Nepal. The European otter (*Lutra lutra*; Nepali name: Kalo Ott) is found in Rupa and Begnas and smooth-coated otter (*Lutrogale perspicillata*; Nepali name: Khairo Ott) occurs along a few rivers such as Vijayapur Khola of Pokhara valley (Bhandari Jyoti and Subedi Nabin, (2006). There are 33 individuals of otters observed in the area during the last 12-15 years (Bhandari Jyoti and Subedi Nabin, (2008). Smooth-coated otter is in CITES Appendix I and categorized as Vulnerable in IUCN Red List. Population of the otter is declining all over the world including Nepal.

Criterion 7 : Significant and representative fish

Justification (This field is limited to 3000 characters)

The indigenous fish species Tor tor, Tor putitora, Acrossocheilus hexagonolepis, Changunius changunio, are found in the wetlands at the Site and their populations are declining. These species are found in other regions but these are the rare species of Nepal. Therefore, their conservation at the Site is important.























3.2 - Plant species whose presence relates to the international importance of the site

Scientific name	Common name	Criterion 2	Criterion 3	Criterion 4	IUCN Red List	CITES Appendix I	Other status	Justification
 <i>Ceratophyllum demersum</i>	Hornwort	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	 LC	<input type="checkbox"/>		Monogeneric plant
 <i>Oryza rufipogon</i>	Wild Rice	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	 LC	<input type="checkbox"/>		This Site is very important for producing wild rice.
 <i>Trapa natans</i>	Water Chestnut	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	 LC	<input type="checkbox"/>		
 <i>Typha angustifolia</i>	Lesser Bulrush	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	 LC	<input type="checkbox"/>		



























(This field is limited to 2500 characters)

Other plant species that contribute to biodiversity of the Site:
 Brachycorythis obcordata (The Reverse Heart-Shaped Brachycorythis)
 Bulbophyllum plyrhiza (Orchid)
 Liparis plantaginea (The Plantago-Like Liparis)
 Rhynchosytilis retusa (Fox tail orchid)

3.3 - Animal species whose presence relates to the international importance of the site

Phylum	Scientific name	Common name	Species qualifies under criterion				Species contributes under criterion				Pop. Size	Period of pop. Est.	% occurrence	IUCN Red List	CITES Appendix I	CMS Appendix I	Other Status	Justification
			2	4	6	9	3	5	7	8								
CHORDATA / AVES	 <i>Aquila nipalensis</i>	Steppe Eagle	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				EN 	<input type="checkbox"/>	<input type="checkbox"/>		
CHORDATA / AVES	 <i>Aythya baeri</i>	Baer's Pochard	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				CR 	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
CHORDATA / AVES	 <i>Aythya ferina</i>	Common Pochard	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				VU 	<input type="checkbox"/>	<input type="checkbox"/>		
CHORDATA / AVES	 <i>Aythya nyroca</i>	Ferruginous Duck	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				NT 	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Nationally Vulnerable	
CHORDATA / ACTINOPTERYGII	 <i>Chagunius chagunio</i>	Chaguni	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC 	<input type="checkbox"/>	<input type="checkbox"/>		
CHORDATA / AVES	 <i>Ciconia episcopus</i>	Woolly-necked Stork	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				VU 	<input type="checkbox"/>	<input type="checkbox"/>		
CHORDATA / AVES	 <i>Gyps bengalensis</i>	White-rumped Vulture	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				CR 	<input type="checkbox"/>	<input type="checkbox"/>		
CHORDATA / AVES	 <i>Gyps indicus</i>	Indian Vulture	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				CR 	<input type="checkbox"/>	<input type="checkbox"/>		
CHORDATA / MAMMALIA	 <i>Lutra lutra</i>	European Otter	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				NT 	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
CHORDATA / MAMMALIA	 <i>Lutrogale perspicillata</i>	Smooth-coated Otter	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				VU 	<input type="checkbox"/>	<input type="checkbox"/>		
CHORDATA / MAMMALIA	 <i>Macaca mulatta</i>	Rhesus Macaque; Rhesus Monkey	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC 	<input type="checkbox"/>	<input type="checkbox"/>	Nationally Vulnerable	

RIS for Site no. 2257, Lake Cluster of Pokhara Valley, Nepal

Phylum	Scientific name	Common name	Species qualifies under criterion				Species contributes under criterion				Pop. Size	Period of pop. Est.	% occurrence	IUCN Red List	CITES Appendix I	CMS Appendix I	Other Status	Justification
			2	4	6	9	3	5	7	8								
CHORDATA / MAMMALIA	 <i>Manis crassicaudata</i>	Indian Pangolin	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>		
CHORDATA / REPTILIA	 <i>Melanochelys tricarinata</i>	Tricarinate hill turtle	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					<input checked="" type="checkbox"/>	<input type="checkbox"/>		
CHORDATA / MAMMALIA	 <i>Neofelis nebulosa</i>	Clouded Leopard	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					<input checked="" type="checkbox"/>	<input type="checkbox"/>		
CHORDATA / ACTINOPTERYGII	 <i>Neolissochilus hexagonolepis</i>	Katle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>		
CHORDATA / AVES	 <i>Neophron percnopterus</i>	Egyptian Vulture	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					<input type="checkbox"/>	<input checked="" type="checkbox"/>		
CHORDATA / MAMMALIA	 <i>Panthera pardus</i>	Leopard	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					<input checked="" type="checkbox"/>	<input type="checkbox"/>		
CHORDATA / AVES	 <i>Psittacula alexandri</i>	Red-breasted Parakeet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>		
CHORDATA / AVES	 <i>Sarcogyps calvus</i>	Red-headed Vulture	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>		
CHORDATA / AVES	 <i>Sarkidiornis melanotos</i>	Comb Duck; Knob-billed Duck	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>	Nationally Endangered	
CHORDATA / ACTINOPTERYGII	 <i>Tor putitora</i>	Putitor Mahseer	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>		
CHORDATA / ACTINOPTERYGII	 <i>Tor tor</i>	Mahseer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>		
CHORDATA / MAMMALIA	 <i>Viverra zibetha</i>	Large Indian Civet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>		
CHORDATA / MAMMALIA	 <i>Vulpes bengalensis</i>	Bengal Fox	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>	Nationally Vulnerable	

(This field is limited to 2500 characters)

3.4 - Ecological communities whose presence relates to the international importance of the site

<no data available>

4 - What is the Site like? (Ecological character description)

4.1 - Ecological character

(This field is limited to 2500 characters)

Sub-tropical and lower temperate forests are one of the important ecological components of the Site.

Phewa: Subtropical forest is found in the western side (Raniban) and has the mixture of both deciduous and evergreen species. The forest is dominated with chilaune (*Schima wallichii*) and katus (*Castanopsis indica*). Biodiversity richness accounts for seven vegetation types in catchments area (IUCN, 1995) plus 39 aquatic macrophytes with 23 hydrophytes and 16 helophytes (Shrestha and Janauer, 2001). Chire pine and quercus are dominant in the temperate forest.

Begnas: Vegetation in the catchment area is of tropical and subtropical types, the tropical type represented by hill sal forest (*Shorea robusta*). Some planted trees of *Dalbergia sissoo* and *Leucana leucocephala* are found along the dam-site (Bhandare) in the west of lake. The subtropical type is common on three sides of catchment areas except west. The southern part is dominated by *Castanopsis indica* and *Schima wallichii* forest; east side is by *Schima wallichii* and *Castanopsis indica* forest. Privately owned rainfed farming lands are seen throughout the catchment, more commonly on the north-east slopes. Invasion of water hyacinth (*Eichhornia crassipes*) is quite visible.

Rupa: Sal (*Shorea robusta*) forest is dominant in some portion of Sundare Danda (north) and Rupakot (east), while subtropical type of forest dominant with katus (*Castanopsis indica*) and chilaune (*Schima wallichii*) is observed in Sundare Danda and Pachbhैया Danda. Privately owned agricultural lands are seen mainly in the southern and eastern parts of the lake. Paddy cultivation is more extensive along the adjacent lands to the inlet and outlet portions of the lake. Marsh land is more extensive in south west corner as well as along the inlet and outlet portions.

430 species of vascular plants are reported from in and around the Begnas and Rupa lakes (Oli, 1996). All aforesaid types are common in other 6 smaller lakes.

4.2 - What wetland type(s) are in the site?

Inland wetlands

Wetland types (code and name)	Local name	Ranking of extent (1: greatest - 4: least)	Area (ha) of wetland type	Justification of Criterion 1
O: Permanent freshwater lakes		1		Unique
Tp: Permanent freshwater marshes/ pools		2		Unique
Zk(b): Karst and other subterranean hydrological systems		3		Unique

4.3 - Biological components

4.3.1 - Plant species

Other noteworthy plant species

Scientific name	Common name	Position in range / endemism / other
<i>Achyranthes aspera</i>		
<i>Agave americana</i>	Agave	
<i>Aloe vera</i>	True Aloe	
<i>Alstonia scholaris</i>	White Cheesewood	
<i>Amaranthus viridis</i>	Calalu	
<i>Amomum subulatum</i>	Black cardamom	
<i>Apostasia wallichii</i>		
<i>Artemisia vulgaris</i>	Mugwort	
<i>Artocarpus lacucha</i>	monkey fruit	
<i>Asparagus racemosus</i>	Satavar	
<i>Azadirachta indica</i>	Neem	
<i>Bidens pilosa</i>	Beggar ' s Ticks	
<i>Blyxa aubertii</i>	Roundfruit blyxa	
<i>Bombax ceiba</i>		

Cotton tree



Scientific name	Common name	Position in range / endemism / other
<i>Callitriche stagnalis</i>	Pond water-starwort	
<i>Castanopsis indica</i>	Indian Chestnut	
<i>Celosia argentea</i>	Plumed cockscomb	
<i>Centella asiatica</i>	Centella	
<i>Centipeda minima</i>	Spreading Sneeze Weed	
<i>Ceratopteris thalictroides</i>	Indian fern	
<i>Cheilanthes tenuifolia</i>	Narrow-leaved lip Fern	
<i>Cinnamomum camphora</i>	Camphor	
<i>Curcuma caesia</i>	Black turmeric	
<i>Cuscuta reflexa</i>	Dodder	
<i>Cymbidium iridioides</i>	Iris-like Cymbidium	
<i>Cyperus esculentus</i>	Yellow nut grass	
<i>Dalbergia sissoo</i>	sissoo	
<i>Dendrobium densiflorum</i>	Densely flowered Dendrobium	
<i>Dendrobium fimbriatum</i>	Fringed-lipped Dendrobium	Endemism
<i>Dioscorea deltoidea</i>	Deltoid yam	

Scientific name	Common name	Position in range / endemism / other
<i>Dryopteris cochleata</i>	Neuro	
<i>Echinochloa colona</i>	Shama millet	
<i>Eleocharis atropurpurea</i>	Spikerush	
<i>Eleocharis congesta</i>	Spikerush	
<i>Eleocharis dulcis</i>	Chinese Water chestnut	
<i>Eriocaulon cinereum</i>	Pipewort	
<i>Ficus concinna</i>	Grey fig	
<i>Garuga pinnata</i>	Garuga	
<i>Hydrilla verticillata</i>	Waterthyme	
<i>Hydrocotyle sibthorpioides</i>	Marshpennywort	
<i>Ipomoea carnea</i>	Pink morning glory	
<i>Isolepis setacea</i>	Bristleleaf bulrush	
<i>Juglans regia</i>	Walnut	
<i>Lemna minor</i>	Common Duckweed	
<i>Liparis plantaginea</i>	Orchid	
<i>Ludwigia adscendens</i>	Water primrose	

Scientific name	Common name	Position in range / endemism / other
<i>Magnolia champaca</i>	Champak	
<i>Mentha arvensis</i>	Corn mint	
<i>Morus alba</i>	White mulberry	
<i>Nasturtium officinale</i>	Watercresses	
<i>Nelumbo nucifera</i>	sacred lotus	
<i>Nymphoides indica indica</i>	Water snowflake	
<i>Oberonia nepalensis</i>		Endemism
<i>Ocimum tenuiflorum</i>	Ocimum sanctum	
<i>Oroxylum indicum</i>	Midnight Horror	
<i>Pandanus furcatus</i>	Screw palm	
<i>Panicum repens</i>	Torpedo grass	
<i>Papilionanthe teres</i>	The Terete Leaf Papilionanthe	
<i>Persicaria lapathifolia</i>	Pale smart weed	
<i>Phragmites karka</i>	Reed Chamorro	
<i>Phyllanthus nodiflora</i>	Frog Fruit	
<i>Piper longum</i>	Long pepper	

Scientific name	Common name	Position in range / endemism / other
<i>Pityrogramma calomelanos</i>	Dixie silverback fern	
<i>Potamogeton nodosus</i>	Longleaf pondweed	
<i>Rubus ellipticus</i>	Golden Himalayan raspberry	
<i>Schima wallichii</i>	Schima	
<i>Schoenoplectus pungens pungens</i>	Ricefield bulrush	
<i>Shorea robusta</i>	Sal tree	
<i>Spirodela polyrhiza</i>	Greater Duckweed	
<i>Spondias pinnata</i>	Spanish plums	
<i>Tinospora cordifolia</i>	European mistletoe	
<i>Tinospora sinensis</i>		
<i>Trapa bicornis bispinosa</i>	Singara nut	
<i>Utricularia australis</i>	Bladderwort	
<i>Utricularia gibba</i>	Humped bladderwort	
<i>Vallisneria spiralis</i>	Eelgrass	
<i>Zanthoxylum armatum</i>	Toothache tree	

Invasive alien plant species

Scientific name	Common name	Impacts
<i>Eichhornia crassipes</i>	Waterhyacinth	Actually (major impacts)

4.3.2 - Animal species

Other noteworthy animal species

Phylum	Scientific name	Common name	Pop. size	Period of pop. est.	% occurrence	Position in range /endemism/other
CHORDATA/AVES	<i>Anas crecca</i>	Eurasian Teal;Green-winged Teal				
CHORDATA/AVES	<i>Anas falcata</i>	Falcated Duck;Falcated Teal				
CHORDATA/AVES	<i>Anhinga melanogaster</i>	Darter;Oriental Darter				
CHORDATA/MAMMALIA	<i>Canis aureus</i>	Golden Jackal				
CHORDATA/MAMMALIA	<i>Cynopterus sphinx</i>	Greater Short-nosed Fruit Bat;greater short-nosed fruit bat				
CHORDATA/MAMMALIA	<i>Felis chaus</i>	Jungle Cat				
CHORDATA/MAMMALIA	<i>Herpestes edwardsi</i>	Indian Gray Mongoose				
CHORDATA/MAMMALIA	<i>Hystrix indica</i>	Indian Crested Porcupine				
CHORDATA/AVES	<i>Milvus migrans</i>	Black Kite				

4.4 - Physical components

4.4.1 - Climate

Climatic region	Subregion
C: Moist Mid-Latitude climate with mild winters	Cwa: Humid subtropical (Mild with dry winter, hot summer)

4.4.2 - Geomorphic setting

a) Minimum elevation above sea level (in metres)

a) Maximum elevation above sea level (in metres)

Middle part of river basin

Please name the river basin or basins. If the site lies in a sub-basin, please also name the larger river basin. For a coastal/marine site, please name the sea or ocean.
(This field is limited to 1000 characters)

Gandaki (also known as Narayani) river system, the second largest river system of Nepal, which covers 21.7% of the country.

4.4.3 - Soil

Mineral

Organic

Are soil types subject to change as a result of changing hydrological conditions (e.g., increased salinity or acidification)? Yes No

Please provide further information on the soil (optional) (This field is limited to 1000 characters)

This Site is dominated by Luvisol, one of the 30 soil groups in the classification system of the Food and Agriculture Organization (FAO). The mixed mineralogy, high nutrient content, and good drainage of these soils make them suitable for a wide range of agriculture, from grains to orchards to vineyards.

Luvisols are technically characterized by a surface accumulation of humus overlying an extensively leached layer that is nearly devoid of clay and iron-bearing minerals. Below the latter lies a layer of mixed clay accumulation that has high levels of available nutrient ions comprising calcium, magnesium, sodium, or potassium.

4.4.4 - Water regime

Water permanence

Presence?
Usually permanent water present

Source of water that maintains character of the site

Presence?	Predominant water source
Water inputs from surface water	<input checked="" type="checkbox"/>

Water destination

Presence?
Feeds groundwater
To downstream catchment

Stability of water regime

Presence?
Water levels largely stable

Please add any comments on the water regime and its determinants (if relevant). Use this box to explain sites with complex hydrology: (This field is limited to 1000 characters)

The lakes are important for evapotranspiration in Pokhara valley making the area with the highest rainfall (Lumle) in Nepal. The records showed that around 4000 mm rainfall is precipitated annually (CBS, 2014). The run-off water is deposited to the lakes and Seti river. The watershed conservation measures need to focus on reducing run-off-velocity that would enhance the infiltration.

4.4.5 - Sediment regime

Significant erosion of sediments occurs on the site

Significant accretion or deposition of sediments occurs on the site

(ECD) Light - reaching wetland	2.6 m.
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(ECD) Water temperature	16.5-30.0 degree Centigrade
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4.4.6 - Water pH

Circumneutral (pH: 5.5-7.4)

4.4.7 - Water salinity

Hyperhaline/Hypersaline (>40 g/l)

Please provide further information on salinity (optional): (This field is limited to 1000 characters)

An intensive study on water quality and salinity is yet to be carried out. The local authority is planning to carry out water

quality test with local universities and research Institutes.

4.4.8 - Dissolved or suspended nutrients in water

Eutrophic

Mesotrophic

Oligotrophic

Please provide further information on dissolved or suspended nutrients (optional): (This field is limited to 1000 characters)

On the basis of chlorophyll a content (Forsberg and Ryding, 1980, cited in Rai 2000) the lake Phewa is meso- eutrophic; Begans is oligo-mesotrophic and Rupa is eutrophic. However, oligotrophic characteristics are reported to occur mostly during rainy season (June-July), mesotrophic characteristics after rainy season (September- March), and eutrophic characteristics before rainy season (April-May/June) (Rai 2000).

4.4.9 - Features of the surrounding area which may affect the Site

Please describe whether, and if so how, the landscape and ecological characteristics in the area surrounding the Ramsar Site differ from the site itself: i) broadly similar ii) significantly different

Surrounding area has greater urbanisation or development

Surrounding area has higher human population density

Surrounding area has more intensive agricultural use

Please describe other ways in which the surrounding area is different: (This field is limited to 1000 characters)

The Pokhara Valley Lake Cluster are located at the Pokhara sub- metropolitan city and Leknath Municipality . Once the site is declared as Ramsarsite the DDC will form a Lake management committee and implement the wetland management activities on annual basis. The management authority will develop a site specific management plan and address the negative consequences as produced from urbanization, population density and intensive agriculture.

4.5 - Ecosystem services

4.5.1 - Ecosystem services/benefits

Provisioning Services

Ecosystem service	Examples	Importance/Extent/Significance
Food for humans	Sustenance for humans (e.g., fish, molluscs, grains)	Medium
Fresh water	Drinking water for humans and/or livestock	High
Fresh water	Water for irrigated agriculture	High
Fresh water	Water for energy production (hydro-electricity)	Medium

Regulating Services

Ecosystem service	Examples	Importance/Extent/Significance
Maintenance of hydrological regimes	Groundwater recharge and discharge	High
Erosion protection	Soil, sediment and nutrient retention	Medium

Cultural Services

Ecosystem service	Examples	Importance/Extent/Significance
Recreation and tourism	Picnics, outings, touring	High
Recreation and tourism	Nature observation and nature-based tourism	High
Spiritual and inspirational	Spiritual and religious values	Medium

Supporting Services

Ecosystem service	Examples	Importance/Extent/Significance
Biodiversity	Supports a variety of all life forms including plants, animals and microorganisms, the genes they contain, and the ecosystems of which they form a part	High

Other ecosystem service(s) not included above: (This field is limited to 1000 characters)

There are two versions about the formation of Phewa lake. Firstly, there was a "Paleo-Pokhara lake" filling the whole Pokhara basin and the existing lakes are the remains of the former huge lake (Hegen 1969). Others view that the lake was formed by damming of tributaries by sediments of Seti river (Gurung 1970).

Phewa is an important religious site where a famous Barahi temple is situated. The temples in Pokhara valley hold a religious value for local populations and are commonly visited during various religious and traditional festivals.

Have studies or assessments been made of the economic valuation of ecosystem services provided by this Ramsar Site? Yes No Unknown

4.5.2 - Social and cultural values

- iii) the ecological character of the wetland depends on its interaction with local communities or indigenous peoples

Description if applicable (This field is limited to 2500 characters)

4.6 - Ecological processes

<no data available>

5 - How is the Site managed? (Conservation and management)

5.1 - Land tenure and responsibilities (Managers)

5.1.1 - Land tenure/ownership

Public ownership

Category	Within the Ramsar Site	In the surrounding area
Local authority, municipality, (sub)district, etc.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Private ownership

Category	Within the Ramsar Site	In the surrounding area
Other types of private/individual owner(s)	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Provide further information on the land tenure / ownership regime (optional): (This field is limited to 1000 characters)

1. Phewa is under Pokhara Sub-Metropoly and partly managed by Village Development Committee.
2. Kamal Pokhari is under Pokhara Sub-Metropoly.
3. Begnas is under Lekhnath Municipality.
4. Rupa is under Lekhnath Municipality and partly under Rupakot Village Development Committee. Currently being managed by Rupa Lake Restoration and Fishery Cooperative.
5. Diang, Kaste, Neureni, Gunde and Maidi Lekhnath Municipality. Dipang: 20 years contract to private.

Catchment areas includes forest, grassland and bush areas that are owned by District Forest Office and District Soil and Watershed Conservation Office under the Ministry of Forest and Soil Conservation. Some of the small wetlands and their boundaries are need to be updated based on the demarcation process of the government of Nepal. The site specific management plan which is planning to be formed next year will address the boundary issues as per the country laws.

5.1.2 - Management authority

Please list the local office / offices of any agency or organization responsible for managing the site: (This field is limited to 1000 characters)

District Development Committee, Kaski
 Pokhara Sub-Metropolitan city, Kaski
 Lekhnath Municipality, Kaski
 District Forest Office, Kaski

RIS for Site no. 2257, Lake Cluster of Pokhara Valley, Nepal

District Soil Conservation Office, Kaski

District Plant Resource Office, Kaski

Urban Development Office, Kaski

Nine -Lake Conservation Committee (Phewa, Begnas, Rupa, Khaste, Gude, Dipang, Madi, Neureni, Kamalpokhari)

Postal address: (This field is limited to 254 characters)

1. Kamal Pokhari: Chief Executive Officer, Pokhara, Sub-Metropol, Kaski, Pokhara
 Ph: 977-61-521105, 521104
 2. Rupa, Maidi, Gunde, Dipang, Khaste and Neureni: Chief Executive Officer, Lekhnath Municipality, Ph: 977-61-560001, 560002, 560080, 5603

5.2 - Ecological character threats and responses (Management)

5.2.1 - Factors (actual or likely) adversely affecting the Site ' s ecological character

Human settlements (non agricultural)

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Housing and urban areas	Medium impact	Medium impact	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Tourism and recreation areas	Low impact	Low impact	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Water regulation

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Drainage	Low impact	Low impact	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Agriculture and aquaculture

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Annual and perennial non-timber crops	Low impact	Low impact	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Energy production and mining

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Renewable energy	Medium impact	Medium impact	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Biological resource use

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Fishing and harvesting aquatic resources	Low impact	Low impact	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Human intrusions and disturbance

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Recreational and tourism activities	Low impact	Low impact	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Natural system modifications

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Dams and water management/use	Low impact	Low impact	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Invasive and other problematic species and genes

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Invasive non-native/ alien species	Medium impact	Medium impact	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Pollution

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Household sewage, urban waste water	Low impact	Low impact	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Garbage and solid waste	Low impact	Low impact	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Please describe any other threats (optional): (This field is limited to 2500 characters)

Though water quality of the lakes are yet to be tested in the lab, all lakes are suffering from sedimentation problem. Pokhara valley is an area with the highest rainfall in Nepal and rainfall, run-off and floods linkages are observed in the catchment area. The upland farmers cultivate various crops across the year. However, because of tillage and unsustainable land use patterns, the depth of the water bodies has gradually reduced. Therefore, awareness on sustainable farming and conservation of uplands is crucial to keep the wetlands' water clean.

5.2.2 - Legal conservation status

Non-statutory designations

Designation type	Name of area	Online information url	Overlap with Ramsar Site
Important Bird Area	NP01AnnapurnaConsevationArea		

<http://www.birdlife.org/datazone/sitefactsheet.php?id=14322>

partly

5.2.3 - IUCN protected areas categories (2008)

<no data available>

5.2.4 - Key conservation measures

Legal protection

Measures	Status
Legal protection	Implemented

Habitat

Measures	Status
Catchment management initiatives/controls	Implemented
Hydrology management/restoration	Implemented

Species

Measures	Status
Control of invasive alien plants	Partially implemented

Human Activities

Measures	Status
Research	Implemented

Other: (This field is limited to 2500 characters)

In order to conserve the lakes and promote wise use of wetland resources, the local communities of each lake has formed a Lake Conservation Committee. Phewa is the largest lake. The government and non-government agencies work jointly to conserve the lake. Similarly, a trust fund was established Begnas lake. Rupa Lake has a very well functioning cooperative, which is exemplary among the conservation measures carried out by the local communities.

Various NGOs have been supporting the conservation measures at the lakes, however, the coordination mechanism among the local communities, I/NGOs and relevant government agencies needs to be strengthened. The National Lake Conservation Development Committee supports the conservation in the smaller lakes. A District Wetland Committee has been formed under the leadership of the District Development Committee and was joined by relevant government agencies . It is essential to strengthen the District Wetland Committee's capacity and secure financial resources for its both financial

RIS for Site no. 2257, Lake Cluster of Pokhara Valley, Nepal
and institutional sustainability.

5.2.5 - Management planning

Is there a site-specific management plan for the site? Yes No

Has a management effectiveness assessment been undertaken for the site? Yes No

If the site is a formal transboundary site as indicated in section Data and location > Site location, are there shared management planning processes with another Contracting Party? Yes No

5.2.6 - Planning for restoration

Is there a site-specific restoration plan? Please select a value

5.2.7 - Monitoring implemented or proposed

Monitoring	Status
Water regime monitoring	Implemented
Water quality	Implemented

6 - Additional material

6.1 - Additional reports and documents

6.1.1 - Bibliographical references

(This field is limited to 2500 characters)

Baral, H.S. and Inskipp, C., 2005. Important Bird Areas in Nepal: Key sites for conservation. Bird Conservation Nepal and BirdLife International, Kathmandu and Cambridge.

BCN and DNPWC, 2011. The State of Nepal's Birds 2010. Bird Conservation Nepal and Department of National Parks and Wildlife Conservation, Kathmandu.

Bhandari Jyoti Subedi Nabin, 2006. Status, Distribution and Habitat Use of Common Otter (*Lutra lutra*) in Rupa Tal, Nepal. A Research Report Submitted to Li-Bird, Pokhara.

Bhandari Jyoti Subedi Nabin, 2008. Preliminary Survey and Awareness for Otter Conservation in Rupa Lake, Pokhara, Nepal. Journal of Wetlands Ecology. No. I (1/2).

CBS, 2014. Statistical Pocket Book. Kathmandu, Nepal.

CSUWN, 2010. Wetland Resource Book. Conservation and Sustainable use of Wetlands in Nepal, Kathmandu.

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Gautam, P., Pant, P. R., and Ando, H., 2000. Mapping of Subsurface Karst Structure with Gamma ray and Electrical Resistivity Profiles: A Case Study from Pokhara Valley, Central Nepal. Journal of Applied Geophysics. 45:97-110.

IUCN, 1995a. Phewa Lake Conservation Action Plan. National Planning Commission in Collaboration with IUCN - the World Conservation Union, Kathmandu.

Lekhnath Darpan, 2006. The Garden city of Seven Lakes: Lekhnath Municipality, Lekhnath Darpan, Kaski.

Oli, K.P., 1996 (ed.) Environmental Study of Nepal ' s Begnas and Rupa Lakes. IUCN Nepal, Kathmandu.

Pokharel, Shailendra, 2008. Roles of Wetlands and Lake Conservation in the Promotion of Tourism: A Brief Introduction. Proceeding of the Inception Workshop of the National Lake Conservation Development Committee, Nepal.

Rai, A.K., 2000. Limnological Characteristics of Subtropical Lakes Phewa Begnas and Rupa in Pokhara Valley, Nepal.

Limnology. 1:33-46.

Rai, A.K., Shrestha, B.C., Joshi, P.L., Gurung, T.B. and Nakanishi, M., 1995. Bathymetric Map of Lake Phewa, Begnas and Rupa in Pokhara valley, Nepal. Mem Fac Sci Kyoto Univ (Ser Biol). 16:49-54.

Shrestha, P. and Sajani, 2010. Socio-economy, Cultural and Religious Characteristics of the Lake Basins of the Pokhara Valley. Submitted to Nepal Research Society, Kathmandu.

Shrestha, P. and Janauer, G.A., 2001. Management of Aquatic Macrophyte Resource: A case of Phewa Lake, Nepal.

6.1.2 - Additional reports and documents

i. taxonomic lists of plant and animal species occurring in the site (see section 4.3)

<1 file(s) uploaded>

ii. a detailed Ecological Character Description (ECD) (in a national format)

<no file available>

iii. a description of the site in a national or regional wetland inventory

<no file available>

iv. relevant Article 3.2 reports

<no file available>

v. site management plan

<no file available>

vi. other published literature

<no file available>

6.1.3 - Photograph(s) of the Site

Please provide at least one photograph of the site:

RIS for Site no. 2257, Lake Cluster of Pokhara Valley, Nepal



Khaste Lake (Prakah Subedi, 09-06-2015)



Beauty of Begnas and Rupa Lake (Prakash Subedi, 28-10-2015)



Phewa Lake (Ayush Rana, 08-09-2015)



Sunset in Begnas Lake (Krishna Mani Baral, 03-11-2015)



Niurini Lake (Krishna Mani Baral, 27-01-2015)



Maidi Lake (Krishna Mani Baral, 27-01-2015)



Dipang Lake (Prakah Subedi, 09-06-2015)



Gude Lake (Prakah Subedi, 09-06-2015)



Rupa Lake (Prakah Subedi, 09-06-2015)

6.1.4 - Designation letter and related data

Designation letter

<1 file(s) uploaded>

Date of Designation 2016-02-02