

# Information Sheet on Ramsar Wetlands (RIS)

*Categories approved by Recommendation 4.7 of the Conference of the Contracting Parties.*

**1. Date this sheet was completed/updated:**

28 January 2002

**2. Country:** Nepal

**3. Name of wetland:** Ghodaghodi Lake Area

**4. Geographical coordinates:** 28°41'03" N, 80° 56'43" E

**5. Elevation:** (average and/or max. & min.) 205 m

**6. Area:** (in hectares) 2563 ha

**7. Overview:** (general summary, in two or three sentences, of the wetland's principal characteristics)  
 Large and shallow lake, shape having finger-like projections, with associated marshes and meadows surrounded by tropical deciduous forest on the lower slopes of Siwalik range of hills. There are thirteen or more associated lakes and ponds, and some streams separated by hillocks situated on the periphery of Ghodaghodi. The forest and wetlands is the wildlife corridor between the low land Terai and the Siwaliks. About 850 ha of cultivated land with 6,700 population lies within the proposed site.

**8. Wetland Type** (please circle the applicable codes for wetland types; in the present document, the "Ramsar Classification System for Wetland Type" is found on page 9)

marine-coastal: A • B • C • D • E • F • G • H • I • J • K • Zk(a)

inland: L • **M** • **N** • **O** • P • Q • R • Sp • Ss • **TP**  
**Ts** • U • Va • Vt • W • **Xf** • Xp • **Y** • Zg • Zk(b)

human-made: **1** • 2 • **3** • 4 • 5 • 6 • 7 • 8 • **9** • Zk(c)

Please now rank these wetland types by listing them from the most to the least dominant:

Inland Wetlands : O, M, N, Tp, Ts, Xf, Y

Human-made Wetlands: 1, 3, 9

**9. Ramsar Criteria:** (please circle the applicable Criteria; the *Criteria for Identifying Wetlands of International Importance* are reprinted beginning on page 11 of this document.)

**1** • **2** • 3 • 4 • 5 • 6 • 7 • 8

Please specify the most significant criterion applicable to the site: 1, 2, 6

**10. Map of site included? Please tick *yes*  -or- *no***

(Please refer to the *Explanatory Note and Guidelines* document for information regarding desirable map traits).

**11. Name and address of the compiler of this form:**

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*Please provide additional information on each of the following categories by attaching extra pages (please limit extra pages to no more than 10):*

**12. Justification of the criteria selected under point 9, on previous page.** (Please refer to the *Criteria for Identifying Wetlands of International Importance* appended to this document)

Criterion 1: The area includes a number of lakes, of which the Ghodaghodi Lake is the largest natural terai (lowland) lake of Nepal. The lakes in the area are representative of several lakes found in the Western terai area of Nepal.

Criterion 2: Globally threatened species (IUCN, 2002) include:

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

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**13. General location:** (include the nearest large town and its administrative region)

Adjacent to the Mahendra Highway; one kilometer west of Sukhad bazaar ; 65 km east of Dhangadhi HQ, Kailali District

The site falls within 3 Village Development Committees of Darakh, Ramshikharjhala and Sandepani, in Kailali District, Seti Zone, Nepal.

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**14. Physical features:** (e.g., geology, geomorphology; origins - natural or artificial; hydrology; soil type; water quality; water depth, water permanence; fluctuations in water level; tidal variations; catchment area; downstream area; climate)

Ghodaghodi is a natural fresh water oxbow lake. It is situated at the base of the Siwaliks, the youngest mountain range of the Himalaya. The lake is characterised by deposits of soft shale and conglomerates. Soil type varies from alluvial to clay. The lake is fed by direct precipitation during the monsoon season, and by surface flows from the watershed area, ground water springs and small streams. Water depth varies from 1-2 metres during the dry period to 3-4 metres during the monsoon season. The weir recently constructed in the outlet could impound more water (about two additional metres) which can be used for irrigation. Water deposited during the monsoon will slowly recede through seepage to streams and will be lost through evaporation. The forest of the watershed area helps to check soil erosion. The lake and the watershed area is surrounded by cultivated land, the forest acts as the wildlife corridor between the Terai and the Siwaliks.

Results and findings of the lake water sample analysis

- Secchi depth transparency indicates that the condition of the lake is hypertrophic.
- Total phosphorous measured was high, which indicates that the lake is hypertrophic.
- Total nitrogen level indicates that the lake is eutrophic.
- Low chlorophyll 'a' measurement indicates that the lake is mesotrophic.
- Dissolved oxygen is lower than the international standards set for surface water, i.e., a minimum of 3-5 mg/L.

The oligotrophic and mesotrophic state of the lake is shown by the low content of chlorophyll 'a'. The low content of chlorophyll 'a' is likely to be due to the rich growth of macrophytes which prevents the penetration of daylight needed for photosynthesis. However, with respect to nutrient content and sechi depth, the lakes can be considered to be eutrophic to hypertrophic. This conclusion is based on a one-time analysis during the monsoon. The state of the lake may vary greatly at other times of the year. Only detailed and regular long-term monitoring in every season can depict the actual trophic status of the lake.

This area features a monsoon climate characterized by hot rainy summer and cool, dry winter. On account of its location in the western part of Nepal, it is exposed to some extent to Mediterranean climatic conditions, characterised by winter rainfall in relatively higher proportions compared to the central and eastern parts of Nepal

**15. Hydrological values:** (groundwater recharge, flood control, sediment trapping, shoreline stabilization, etc.)

The lake receives water from direct precipitation, from the watershed and from small streams. The lake helps to recharge and discharge the ground water. Impounded water is supplied to the streams. The watershed helps to control flooding in two of the adjacent rivers, the Kanara and the Donda.

**16. Ecological features:** (main habitats and vegetation types)

The Ghodaghodi lake area lies in the Indo Malayan bio-geographical realm. This is characterised by the occurrence of Sal (*Shorea robusta*) forest surrounding the lake area. It is in the Terai physiographic zone, an extension of the Indo Gangetic plain and lies to the south of the Churia or Siwalik mountain range in the western part of the Nepal Himalaya. This is characterised by its tropical vegetation type and the influence of the Western Himalayan floristic province as exemplified by the occurrence of a Willow (*Salix* sp.) occurring on the lake shoreline. The terrestrial vegetation is dominated by Sal (*Shorea robusta*) forest. The prominent associate species include Black plum (*Syzygium cumini*), Myrobalan (*Terminalia alata*), Silk Cotton (*Bombax ceiba*) and Haldu (*Adina cordifolia*). The wetland vegetation consists of Sedge (*Cyperus* spp.), Common Reed (*Phragmites karka*) and Morning Glory (*Ipomea carnea* ssp. *fistulosa*). The aquatic vegetation is represented by extensive coverage of floating leaved species, mainly Lotus (*Nelumbo nucifera*) followed by Water Cabbage (*Pistia stratiotes*). The free floating species include Water Velvet (*Azolla imbricata*) and Duckweed (*Lemna* spp.). The abundant submerged species include Water Nymph (*Najas minor*), Hydrilla (*Hydrilla verticillata*) and Hornwort (*Ceratophyllum demersum*). In general, the vegetation is in floating leaved succession stage. Reed swamp formations are found as floating islands and extensive marsh meadow conditions are found in the south-east corner. This indicates the eutrophic status of aquatic macrophytes and a high sedimentation rate. It implies rapid succession toward meadow/forest condition and reduction in the life span of this lake ecosystem.

**17. Noteworthy flora:** (indicating, e.g., which species/communities are unique, rare, endangered or biogeographically important, etc.)

A total of over 450 species of plants have been recorded from Ghodaghodi lake area. Aquatic plants with unique physiological adaptation include Water Primrose and Bladderwort. Monogeneric, rare, endangered and threatened species found in Ghodaghodi Lake are mentioned below. Bio-geographically important species, representative of Indo Malayan Realm, include Sal (*Shorea robusta*) and Myrobalan (*Terminalia alata*).

**Table: Important floral species occurring in Ghodaghodi Lake**

Botanical name	Common name	Status
<i>Aerides odorata</i>	Orchid	Endangered species: CITES Appendix III
<i>Acacia catechu</i>	Cutch tree	HMG /Nepal's gazetted species banned for transport, export and felling (Shrestha and Joshi, 1996)

Botanical name	Common name	Status
<i>Shorea robusta</i>	Sal tree	HMG /Nepal's gazetted species banned for transport, export and felling (Shrestha and Joshi, 1996)
<i>Ceratophyllum demersum</i>	Hornwort	Monogeneric species (Shrestha and Joshi, 1996), Troublesome aquatic weed (Spence and Bowes, 1993)
<i>Trapa bispinosa</i>	Water chestnut	Monogeneric species (Shrestha and Joshi, 1996).
<i>Hydrilla verticillata</i>	Hydrilla	Troublesome aquatic weed (Spence and Bowes, 1993)
<i>Pistia stratiotes</i>	Water cabbage	Troublesome aquatic weed (Spence and Bowes, 1993)
<i>Nelumbo nucifera</i>	Lotus	Religiously important, threatened plant species (Subramanyam, 1962)
<i>Hygrohiza aristata</i>	Wild rice	Rare species (Shrestha and Vaughan, 1989)
<i>Ipomea carnea</i> ssp. <i>fistulosa</i>	Morning Glory	Common invasive
<i>Potamogeton nodosus</i>	Pond Weed	Abundant sub-merged
<i>Lemna triscula</i>	Lesser Duckweed	First time reported from Nepal
<i>Chara aspera</i>	Muskgrass	Macro Algae
<i>Ricciocarpus natans</i>	Liverwort	Aquatic bryophyte
<i>Salix</i> sps.	Willow	Wetland indicator tree species
<i>Utricularia australis</i>	Bladderwort	Carnivorous submerged species

**18. Noteworthy fauna:** (indicating, e.g., which species are unique, rare, endangered, abundant or biogeographically important; include count data, etc.)

### Fish

One hundred and eighty-five species of fish have been described from Nepal (BPP, 1995) out of which 27 species have been recorded as from the Ghodaghodi lake area. Ecologically, Ghodaghodi is an eutrophic lake with the upper surface of the lake supporting species such as *Cirrhinia* spp., and *Notopterus notopterus*. A number of fish such as *Oxygaster bacaila*, *Puntius* spp., and *Chana* spp., which are potential larvivorous feed at the surface of the water. The middle layer of the lake is often dominated by coarse fishes such as *Chana* spp., *Xentodon cancila* and *Mystus* spp. The bottom layer is dominated by *Clarius batrachus* and *Hetropneustis fossilis*. Beside fish, a host of other herpetofauna, bird life, and mammals occur in this lake. To the local, this lake is very famous for its large turtles and marsh crocodiles.

**Table: Important fish species recorded from Ghodaghodi**

Scientific name	Local name	Status
<i>Notopterus notopterus</i>	Patara, Patali	found only in Terai
<i>Cirrhinus reba</i>	Reba	do
<i>Puntius chola</i>	Sidre	Threatened (Susceptible category)
<i>Oxygaster bacaila</i>	Chalwa	found only in Terai
<i>Mystus bleckeri</i>	Tengeri	do
<i>Chana marulius</i>	Sauri	do
<i>C. striatus</i>	Bhoti	do
<i>Nandus nandus</i>	Dhewari	do
<i>Colisa fasciatus</i>	Khesara	do
<i>Mastacembulus punctatus</i>	Kathgainchi	do
<i>C. gachua</i>	Bhoti	Abundant

Scientific name	Local name	Status
<i>Heteropneustes fossilis</i>	Singhe	Abundant

### Reptiles

Ghodaghodi is renowned for the large turtles residing in this lake. A small population of Marsh Mugger crocodile also reside here. It is also an important habitat for the endangered Golden Monitor Lizard (*Varanus flavescens*) and the Indian Rock Python (*Python morulus*). There were number of snakes, frog and toad species found, including tree frogs.

**Table: Important reptiles recorded from Ghodaghodi**

Scientific name	Common name	Remarks
<b>Turtles</b>		
<i>Kachuga tecta</i>	Indian-roofed Turtle	
<i>Lissemys punctata andersoni</i>	Flap shell Turtle	
<i>Kachuga kachuga kachuga</i>	Red-crowned Roof Turtle	
<b>Crocodile</b>		
<i>Crocodylus palustris</i>	Marsh Crocodile	5 - 10 suspected to occur (IUCN Vulnerable; Nepal, hunting banned species)
<b>Lizards and Skinks</b>		
<i>Varanus flavescens</i>	Golden Monitor Lizard	HMG Nepal protected species.
<i>Calotes versicolor</i>	Common Garden Lizard	
<i>Mabuya carinata</i>	Common Skink	
<b>Snakes</b>		
<i>Pythoh molurus</i>	Indian Rock Python	HMG Nepal protected species.
<i>Amphiesma stolata</i>	Buff striped Keel Back	1 dead
<i>Enhydris enhydris</i>	Schieder's Smooth Water Snake	7 dead (5 headless, 2 intact)

### Birds

About 140 species of birds, both migrant and resident, representing over 16 % of national avifauna has been reported from the Ghodaghodi lake area (Baral, 1992). The lakes support nearly 1% of the South Asian Cotton Teal population. The floating vegetation provides as excellent habitat for waterhen and jacanas. The surrounding forest provide a good vantage point for birds of prey and kingfishers. Bird life around Ghodaghodi seems to be active except for the absence of large waders (storks, ibises and egrets). Due to much of the fishing activity at the shoreline, the bird life in the lake surface seems a little disturbed.

**Table: Important bird species recorded from Ghodaghodi**

Bird Name	Remarks
<b>Ardeidae (Herons and Egrets)</b>	
Yellow Bittern ( <i>Ixobrychus cinensis</i> )	
Chestnut Bittern ( <i>Ixobrychus cinnamomeus</i> )	
<b>Anatidae (Ducks and geese)</b>	
Lesser Whistling Duck ( <i>Dendrocygna javanica</i> )	
Cotton Teal ( <i>Nettapus coromandelianus</i> )	*nearly 1% of the Asian population
<b>Accipitrididae (Birds of Prey)</b>	

Bird Name	Remarks
Gray Headed Fishing Eagle ( <i>Ichthyophaga ichthyaetus</i> )	Endangered
Osprey ( <i>Pandion haliaetus</i> )	Susceptible (Threatened)
<b>Rallidae (Rails, coot and waterhens)</b>	
White Breasted Waterhen ( <i>Amauornis phoenicurus</i> )	
Common Moorhen ( <i>Gallinula chloropus</i> )	
Purple Moorhen ( <i>Porphyrio porphyrio</i> )	
<b>Jacaniidae (Jacana)</b>	
Pheasant Tailed Jacana ( <i>Hydrophasianus chirurgus</i> )	
Bronze-winged Jacana ( <i>Metopidius indicus</i> )	
<b>Alcedinidae (Kingfishers)</b>	
White-breasted Kingfishers ( <i>Halcyon smymensis</i> )	
Stork-billed Kingfisher ( <i>Pelargopsis capensis</i> )	
<b>Cuculidae (Cuckoos)</b>	
Large Coucal ( <i>Centropus sinensis</i> )	

### Mammals

The highway provided easy access for the exploitation of natural resources including fodder collection, land encroachment and hunting. The impact is the loss of the large mammals that were once common in this forest. For instance, the Royal Bengal Tiger has disappeared from this forest, except for some stray individuals coming from the adjoining forests. The tigers' chief prey species, the Spotted Deer have also disappeared from this forest. The Smooth coated Otter frequent this lake for fishing, but they are seldom killed by native fishermen. The most common mammals include the Rhesus Macaque, which frequently raid cultivated fields. Other small common mammals include the Golden Jackal, the Jungle cat and the grey Mongoose.

**Table: Important mammals recorded from Ghodaghodi**

Scientific name	Common name	Remarks
<i>Macaca Mullata</i>	Rhesus Macaque	Common
<i>Canis aureus</i>	Golden Jackal	Common
<i>Panthera pardus</i>	Spotted Leopard	Vulnerable
<i>Lutra perscipillata</i>	Smooth-coated Otter	Threatened
<i>Lepus nigricolis</i>	Rufous-tailed Hare	Common
<i>Sus scrofa</i>	Wild Boar	Threatened

### 19. Social and cultural values: (e.g., fisheries production, forestry, religious importance, archaeological site, etc.)

Fish are harvested using traditional gear such as the gill-net but no measures for fish stocking are practiced. The forest is used for grazing, fuel wood collection and to harvest sal wood for timber. The lake is of a great religious value. There is a shrine to the Ghodaghodi deity where indigenous Tharu celebrate a traditional festival (*Agan Panchami*) by worshiping and offering animals during the month of December. People take holy bath in the lake. There are several legends related to the origin of Ghodaghodi Lake.

**20. Land tenure/ownership of:** (a) site (b) surrounding area

- a. Site: State owned, under the jurisdiction of Department of Forest (HMG/MoFSC).
  - b. Surrounding area: private cultivation
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**21. Current land use:** (a) site (b) surroundings/catchment

a) Within the proposed Ramsar site, the areas of various landuses are as follows:

Forest Land: 1420 ha; Cultivated Land: 810 ha; Pond and Lakes/Water Bodies 80 ha; Grassland: 110 ha; Sandy Area: 45 ha; Bush and Shrubs 30 ha; Swamp: 3 ha.

The proposed Ramsar Ghodaghodi lake area covers both forest and cultivated lands. About 850 ha of cultivated lands with approx. 6,700 human population lies within the proposed area. Out of total 6,700 population more than 50% are illegal settlers migrated from adjoining hilly areas. It is bordered by three Village Development Committees (VDCs) namely Sandepani, Darakh and Ramshikharjhala. The people's occupation is predominantly farming with traditional use of natural resources including grazing, twigs and fuel wood collection, and fishing. The water is also used for irrigating surrounding the cultivated land.

b) The total population of the VDCs surrounding the Ghodaghodi lake area is 43,687 from 6,110 households. The inhabitants of the area most dependent on lake resources are the Tharu-an indigenous ethnic group comprising 51.3% of the total population.

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**22. Factors (past, present or potential) adversely affecting the site's ecological character, including changes in land use and development projects:** (a) at the site (b) around the site

The Mahendra East-West Highway runs from the southern edge of the lake. The road provided access to the population and encouraged encroachment of the surrounding area. There are also plans for certain development activities such as an irrigation project, which would have a serious long-term effect.

- High Degree of human disturbance: highway traffic, construction of unplanned new temples, picnicking and increasing human activities around Ghodaghodi areas have disturbed the habitats of birds and other wildlife.
- High Grazing Pressure: Over 12,000 cattle from the villages adjoining the Ghodaghodi Lake Complex graze daily in all seasons either in the forests or on the fringes of the lakes. Grazing pressure is higher in the eastern part of Narcrodi Lake and the north and southeastern parts of Ghodaghodi Lake. The heavy grazing has led to the loss of native vegetation and the proliferation of the unpalatable *Imperata cylindrica*. Rearing of improved varieties of livestock and stall-feeding practices are very limited. Over grazing and browsing of palatable species has damaged the regeneration capacity of vegetation.
- Poaching, hunting and illegal forest produce extraction: Hunting is a common pastime of a certain section of the community in the region. Wildfowl, wild boar and deer species are commonly hunted. Wildfowl and bird trapping and egg collection has also been reported in the area. Illegal tree felling and smuggling of Sal (*Shorea robusta*) and Khair (*Acacia catechu*) timber is prevalent.
- Encroachment: Human encroachment along the lakes' shores and adjoining forests has been increased by continue inflow of migrants from the hill districts (Dadeldhura, Baitadi and Doti) since 1978. The open access conditions of the government managed forests and wetlands makes it easier for encroachers to convert these lands into agricultural lands. Due to increasing number of migrants over 400 hectares of forest land along Ghodaghodi Lake Complex has been converted into cropland. The encroachment problem is severe in the southeastern part of Narcrodi Lake, the eastern part of Sunpokhari and Budhi Narcrodi, and the southeastern and northwestern part of Ghodaghodi Lake.
- Eutrophication: Natural eutrophication through the death and decay of biological products is higher in Ghodaghodi. However, increasing human activities such as bathing, washing, disposals from religio-cultural practices, and buffalo wallowing and grazing around the area, have accelerated the process of eutrophication. The accumulation of humus and organic matter in the lakes has promoted the excessive growth of several species of emergent and aquatic plants. The aquatic herbaceous vegetation of the northern part of Narcrodi Lake is gradually being replaced by woody *Salix* species. The excessive growth of aquatic macrophytes such as *Ceratophyllum demersum*, *Nelumbo nucifera*, *Naja minor*, *Hydrilla verticillata* on the water surface of Ghodaghodi Lake has made it difficult to observe the bottom of the lake. A number of marshy floating islands dominated with Reed (*Phragmites karka*), sedge (*Cyperus* spp., *Schoenoplectus* sp.) and fern (*Thelypteris interrupta*) are observed to be profusely growing in the

Ghodaghodi Lake. Besides, many marshes and shallow lakes are being converted into grasslands due to a rapid succession rate.

- Siltation: Rapid deforestation, over-grazing, and other human disturbances have increased soil erosion and siltation in the rivers, canals and lake system and have gradually led to the subsidence of lake's bottom.
- Dependency on forest and wetland resources: There is a high dependence on forest and wetland resources since roughly 88 percent of the population is engaged in agriculture and fishing. Fish, snails, lotus leaves and rhizome, leaves of trees, wild fruits, green vegetables, grass, fodder, firewood and timber are extracted for use by the local community.
- Reduced inflows into the lakes: Due to degradation and silting up of the existing but inadequate canal system there is a decrease in water flows into the lakes leading to stagnation and succession. The northern Betin Siwaliks Watershed, where a number of water springs ooze out from the ground, is the major source of water for the Lake Complex. But due to rapid deforestation and encroachment in the area the water sources are gradually drying up.
- Lack of waste disposal schemes and pollution: The rites and rituals performed at the shrines in the area, the frequent visits of religious pilgrims and the observance of seasonal festivals contribute to polluting the lake area. Pollution by waste generated during the observance of religio-cultural practices in Ghodaghodi Lake is highest during Margha Panchmi, a special occasion for worshipping the Ghodaghodi deity during which the indigenous Tharu community celebrates by sacrificing pigs, goats, chickens, and pigeons. In addition, washing, bathing and buffalo wallowing also pollutes the lake waters.
- Invasive species: *Ipomoea carnea* ssp. *fistulosa* is the major invasive alien species in the area. The species is rapidly colonizing marshes/swamps, canals and ditches. Water Hyacinth (*Eichhornia crassipes*) has been introduced in small lakes and marshes.
- Exotic fish farming: Over 100 lakes and ponds in Kailali district are used extensively for farming exotic carp species (Common Carp, Grass Carp, Silver Carp). This is also true of all the smaller lakes in the Complex with only the larger Ghodaghodi and Narrodi being exempt from these practices.
- Drainage of water for irrigation and dredging: The main interest of landowners downstream of the Lake Complex is to secure water for irrigation. About 500ha of rice fields are currently irrigated by water from the Ghodaghodi Lake.

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**23. Conservation measures taken:** (national category and legal status of protected areas - including any boundary changes which have been made: management practices; whether an officially approved management plan exists and whether it has been implemented)

- Legal status — The area falls under the jurisdiction of Department of Forest.
- Wise use — An earthen dike and a weir with a sluice gate have been constructed to increase the water storage for irrigating nearly 500 ha. cultivation.
- Management category — It has been proposed to manage the area as a conservation reserve or a bird sanctuary and/or wildlife reserve.
- Management practices — Local people practice traditional fishing methods and harvest wetland products.
- A nature trail and watch tower have been constructed.
- Poaching has been reduced.
- Barbed wire fencing towards the highway has been initiated to control grazing and further encroachment.
- A participatory community-centered management plan has been prepared for the conservation of the Ghodaghodi lake area.
- Local community and local NGO are involved in conservation of lake resources by forming users' groups and participation in conservation activities.

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**24. Conservation measures proposed but not yet implemented:** (e.g., management plan in preparation; officially proposed as a protected area, etc.)

- The addition of organic matter from deposition of aquatic macrophytes, particularly of large leafed lotus, should be checked by dredging. Periodic harvesting and utilisation of its commercially useful fruits, leaves, flowers, petioles and rhizomes should be enhanced.
- Algal cover should be checked by introducing planktivorous fishes and by increasing the number of waterfowl.
- Exploitation of existing rare, endangered and monogeneric species should be checked through wider public awareness and enforcing relevant legal measures.



- A lake management plan incorporating a guided land use plan of the shoreline area should be developed, thereby emphasising both resource conservation and utilisation.
- Herbivorous fishes such as native major carp such as *Catla catla*, *Cirrhinus mrigala*, *Labeo rohita*, and *Labeo calbasu* can be stocked in certain suitable pockets to promote income generation activities for local people and to reduce the abundance of certain aquatic weeds.
- The stretches of unused, swampy water bodies can be used for intensive cultivation of air-breathing fishes such as *Clarius batrachus*, *Heteropneustus fossilis*, *Chana marulius*, *Chana striatus*, and *Chana punctatus*.
- Certain species of fish below a minimum-size should not be caught.
- *Colisa fasciatus* and *Chanda ranga* can be cultivated as ornamental fish in certain suitable pockets of the lake to promote income generation activity.
- Growth of thorny trees (Acacia, Tamarind, etc.) should be encouraged on protected islands to encourage heroneries.

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**25. Current scientific research and facilities:** (e.g., details of current projects; existence of field station, etc.)

Random survey work carried out by individual survey, BPP/DNPWC 1995 and IUCN 1996-1998 field study.

IUCN Nepal conducting resources assessment for designing a GEF project brief for conservation and sustainable use of Nepalese wetlands.

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**26. Current conservation education:** (e.g., visitors centre, hides, info booklet, facilities for school visits, etc.)

IUCN Nepal conducted conservation education programmes in five local secondary schools by organizing eco-clubs in collaboration with local NGO (Ghodaghodi Area Conservation and Awareness Forum).

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**27. Current recreation and tourism:** (state if wetland is used for recreation/tourism; indicate type and frequency/intensity)

Facilities available are insignificant but have great potential if established. The Ghodaghodi Lake is visited by local pilgrims to the Ghodaghodi temple and also due to its proximity to the East West Highway (also called Mahendra Highway). There is a watch tower near the lake but has no other tourism facility and only minimal foreign visitors.

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**28. Jurisdiction:** (territorial, e.g. state/region, and functional, e.g. Dept of Agriculture/Dept. of Environment, etc.)

District Forest Office, Kailali District, Seti Zone, Nepal.

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**29. Management authority:** (name and address of local body directly responsible for managing the wetland)

Department of Forest  
Babar Mahal, Kathmandu, Nepal.

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**30. Bibliographical references:** (scientific/technical only)

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