Designation date: 07/12/2004 Ramsar Site no. 1439

Information Sheet on Ramsar Wetlands (RIS) – 2009-2012 version

Available for download from http://www.ramsar.org/ris/key_ris_index.htm.

Categories approved by Recommendation 4.7 (1990), as amended by Resolution VIII.13 of the 8th Conference of the Contracting Parties (2002) and Resolutions IX.1 Annex B, IX.6, IX.21 and IX. 22 of the 9th Conference of the Contracting Parties (2005).

Notes for compilers:

1. The RIS should be completed in accordance with the attached *Explanatory Notes and Guidelines for completing the Information Sheet on Ramsar Wetlands*. Compilers are strongly advised to read this guidance before filling in the RIS.

2. Further information and guidance in support of Ramsar site designations are provided in the *Strategic Framework and guidelines for the future development of the List of Wetlands of International Importance* (Ramsar Wise Use Handbook 14, 3rd edition). A 4th edition of the Handbook is in preparation and will be available in 2009.

3. Once completed, the RIS (and accompanying map(s)) should be submitted to the Ramsar Secretariat. Compilers should provide an electronic (MS Word) copy of the RIS and, where possible, digital copies of all maps.

1. Name and address of the compiler of this form:

FOR OFFICE USE ONLY.
DD MM YY

Designation date | Site Reference Number

Name: La Ba
Address: Forestry Bureau of Purang County 850007,
Tibet Autonomous Region, China
Tel: +86-13638978111
Fax:+86-(0)897-2824420

2. Date this sheet was completed/updated:

July 2, 2012

3. Country:

The People's Republic of China

4. Name of the Ramsar site:

The precise name of the designated site in one of the three official languages (English, French or Spanish) of the Convention. Alternative names, including in local language(s), should be given in parentheses after the precise name.

Mapangyong Cuo

5. Designation of new Ramsar site or update of existing site:

This RIS is for (tick one box only)**:**
a) Designation of a new Ramsar site ❑; or
b) Updated information on an existing Ramsar site ☑

6. For RIS updates only, changes to the site since its designation or earlier update:

a) Site boundary and area

The Ramsar site boundary and site area are unchanged: ☑

or
If the site boundary has changed:
i) the boundary has been delineated more accurately ❑; or
ii) the boundary has been extended ❑; or
iii) the boundary has been restricted** ❑

and/or

If the site area has changed:
i) the area has been measured more accurately ❑; or
ii) the area has been extended ❑; or
iii) the area has been reduced** ❑

** **Important note**: If the boundary and/or area of the designated site is being restricted/reduced, the Contracting Party should have followed the procedures established by the Conference of the Parties in the Annex to COP9 Resolution IX.6 and provided a report in line with paragraph 28 of that Annex, prior to the submission of an updated RIS.

b) Describe briefly any major changes to the ecological character of the Ramsar site, including in the application of the Criteria, since the previous RIS for the site:

Compared with the previous RIS, the ecological character and the application of the Criteria of the Ramsar site remain unchanged.

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7. Map of site:
Refer to Annex III of the *Explanatory Note and Guidelines*, for detailed guidance on provision of suitable maps, including digital maps.

a) A map of the site, with clearly delineated boundaries, is included as:
i**) a hard copy** (required for inclusion of site in the Ramsar List): ❑;

ii**) an electronic format** (e.g. a JPEG or ArcView image) ☑;

iii) **a GIS file providing geo-referenced site boundary vectors and attribute tables** ☑.

b) Describe briefly the type of boundary delineation applied:
e.g. the boundary is the same as an existing protected area (nature reserve, national park, etc.), or follows a catchment boundary, or follows a geopolitical boundary such as a local government jurisdiction, follows physical boundaries such as roads, follows the shoreline of a waterbody, etc.

This Ramsar site shares the same boundary with Mapangyong Cuo Wetland Nature Reserve.

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8. Geographical coordinates (latitude/longitude, in degrees and minutes):
Provide the coordinates of the approximate centre of the site and/or the limits of the site. If the site is composed of more than one separate area, provide coordinates for each of these areas.

This Ramsar Site includes 3 seperate part:

Lake Mapangyong Cuo
Center:30°41'29"N, 81°28'42"E

Extent: 30°33'27"-30°48'52"N, 81°21'54"-81°37'2"E

Lake Laang Cuo
Center: 30°41'25"N, 81°13'57"E
Extent: 30°35'14"-30°50'51"N, 81°6'24"-81°19'45"E

The North part
Center: 30°50'46"N, 81°27'59"E
Extent: 30°49'1"-30°53'11"N, 81°26'26"-81°29'49"E

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9. General location:
Include in which part of the country and which large administrative region(s) the site lies and the location of the nearest large town.

This Ramsar site is situated in the north of Purang County, Tibet Autonomous Region, Western China. The wetland is under the administration of Bargar and Hall Townships, about 25 km southwest to the center of Hall Town.

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10. Elevation: (in metres: average and/or maximum & minimum)

Average: 4,700 m;
Maximum: 6,500 m; Minimum: 4,500 m.

11. Area: (in hectares)

Total area: 73,782 ha
Lake Mapangyong Cuo: 45,309 ha (with water area of 41,180 ha);
Lake Laang Cuo: 27,162 ha (with water area of 25,726 ha);
The North part: 1,311 ha.

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12. General overview of the site:
Provide a short paragraph giving a summary description of the principal ecological characteristics and importance of the wetland.

This Ramsar site is situated at the fault basin between Kangdese Mountains and Himalaya Mountains, Qinghai-Tibet Plateau known as “Roof of the World”. This site is mainly composed of two plateau lakes: Lake Mapangyong Cuo and Lake Laang Cuo. Lake Mapangyong Cuo is a typical plateau freshwater lake with the largest freshwater storage in Tibet, and one of the high-elevation lakes with the most abundant freshwater resources in the world. Lake Laang Cuo is a typical plateau saltwater lake. These lakes are surrounded with lagoon, swamp, meadow and river wetlands. This Ramsar site is representative and typical for its diverse wetland types and great ecological functions in the global alpine lake ecosystems. There lives lots of rare birds (e.g. *Grus nigricollis*, *Aquila chrysaetos*, *Haliaeetus leucoryphus* and *Gypaetus barbatus*) and rare mammals (e.g. *Uncia uncia*, *Equus kiang*, *Pantholops hodgsonii* and *Bos grunniens*). It also acts as one of the major corridors for the animals migrating to Himalayas. With the characters of high biodiversity and rarity in Tibetan alpine grasslands and deserts, this site is of great significance for biodiversity conservation in Tibetan Biogeographic Province, Palaearctic Realm.

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13. Ramsar Criteria:
Tick the box under each Criterion applied to the designation of the Ramsar site. See Annex II of the *Explanatory Notes and Guidelines* for the Criteria and guidelines for their application (adopted by Resolution VII.11). All Criteria which apply should be ticked.

1	2	3	4	5	6	7	8	9
☑	☑	☑	☑	☑	❑	☑	☑	❑

14. Justification for the application of each Criterion listed in 13 above:
Provide justification for each Criterion in turn, clearly identifying to which Criterion the justification applies (see Annex II for guidance on acceptable forms of justification).

Criterion 1:

This site holds representative and typical alpine lake wetlands in Tibetan Biogeographic Province, Palaearctic Realm. Within this site, Lake Mapangyong Cuo is one of the largest lakes in this biogeographic region, and the amount of fresh water resource ranks among the highest in this biogeographic region.

Criterion 2:

Species Name	Latin Name	IUCN Category	CMS Appendix	CITES Appendix	National Protection Class
Mammals					
Snow Leopard	*Uncia uncia*	EN	I	I	I
Chiru	*Pantholops hodgsonii*	EN	-	I	I
Saker Falcon	*Falco cherrug*	VU	-	□	□
Wild Yak	*Bos mutus*	VU	I	I	I
Birds					
Black-necked Crane	*Grus nigricollis*	VU	I/II	I	I
Pallas's Fish-eagle	*Haliaeetus leucoryphus*	VU	I	II	-

Criterion 3:

This Ramsar site is a biodiversity hotspot in Tibetan Biogeographic Province, Palaearctic Realm. The number of species is far beyond the average of this biogeographic region. There are abundant plant species, including 7 bryophytes and 287 seed plants. With rich wetland resources and vast areas, this Ramsar site provides important habitats for animals. In this Ramsar site, there are 65 bird species from 51 genera in 27 families, with 47 Palearctic Realm species (accounting for 72.30%), 9 widespread species (accounting for 13.85%) and 9 endemic species (accounting for 13.85%). There are 25 mammal species from 20 genera in 12 families, with 21 Palearctic Realm species (accounting for 84.0%), 4 widespread species (accounting for 16.0%). In addition, there are 7 fish species from 3 genera in 2 families and 1 amphibian species and 2 reptile species from 2 genera in 2 families.

Criterion 4:

This Ramsar site is critical for the breeding and migration of a large amount of waterfowls. It is also an important migrating corridor and breeding habitat for some rare species like *Grus nigricollis*, *Anas strepera* and *Pantholops hodgsonii.* The waterbird species breeding in this site include *Grus nigricollis* (Black-necked Crane), *Anser indicus* (Bar-headed Goose), *Tadorna ferruginea* (Ruddy Shelduck), *Podiceps cristatus* (Great Crested Grebe), *Larus brunnicephalus* (Brown-headed Gull), etc.

Criterion 5:

This Ramsar site is an important lake wetland in Tibetan Plateau. According to the records in 2008-2010 (observed during summer), there are about 80,000 waterbird individuals inhabiting in this site each year. The dominant waterbird species are listed below.

Scientific name	English name	Population in the	Population in the	Population in the

		year 2008	**year 2009**	**year 2010**
Grus nigricollis	Black-necked Crane	1500	1800	2000
Anser indicus	Bar-headed Goose	20000	20300	20500
Tadorna ferruginea	Ruddy Shelduck	23000	23000	23000
Podiceps cristatus	Great Crested Grebe	16000	16200	16500
Larus brunnicephalus	Brown-headed Gull	18000	18700	19000
Total		78500	80000	81000

Criterion 7:

This Ramsar site is a noteworthy distribution area of the endemic fish species in Tibetan Biogeographic Province, Palaearctic Realm. It holds endemic fish species belonging to 7 Cypriniformes in 3 genera of 2 families, such as *Schizopygopsis stoliczkae*, *Triplophysa aliensis*, *Triplophysa brevicuda*, etc. Moreover, Lake Mapangyong Cuo is the only habitat for the endemic fish *Schizopygopsis microcephalus*, which completes the whole life history in this lake.

Criterion 8:

This Ramsar site provides important feeding, spawning and breeding habitats for the endemic fishes such as *Schizopygopsis stoliczkae*, *Gymnocypris chui* and *Schizopygopsis stoliczkae*.

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15. Biogeography (required when Criteria 1 and/or 3 and /or certain applications of Criterion 2 are applied to the designation):

Name the relevant biogeographic region that includes the Ramsar site, and identify the biogeographic regionalisation system that has been applied.

a) biogeographic region:

Cold-winter (continental) deserts and semideserts, Tibetan Biogeographic Province, Palaearctic Realm

b) biogeographic regionalisation scheme (include reference citation):

A Classification of the Biogeographical Provinces of the World (Miklos D.F. Udvardy, 1975)

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16. Physical features of the site:

Describe, as appropriate, the geology, geomorphology; origins - natural or artificial; hydrology; soil type; water quality; water depth, water permanence; fluctuations in water level; tidal variations; downstream area; general climate, etc.

Geology and Geomorphology: This Ramsar site is situated in the core region of Brahmaputra-Gar Zangbo Depressed Fault Valley, between the Indian Plate and the Asia-Europe Plate. Eocene gravel layer is the main bedrock type. There are dale and lake landforms in the site with alpine landform surrounded.

Origin: Naturally originated.

Soil: The soil types include meadow soil, mountain meadow soil, mountain shrubby meadow soil, alluvial soil and bog soil. And the bog soil is the main type of this region.

Hydrology: The water supply comes from alpine snow/ice melting water, groundwater and rainfall, with alpine snow/ice melting water as the dominant type. Several large rivers are originated from the glaciers that developed around Gangrenboqi Peak and Naimonanyi Peak. The inland rivers include Zhaquzangbu, Bianzhuozangbu, Zumalonghe, Samohe, Naqu, Zhongqu, etc. There are two major lakes in the site.

Water quality: Water quality in this site is at the Class-I level of national standard (presenting the best water quality), basically without any man-made pollution.

Water depth: The average water depth is about 46 meters.

Water level: The elevation of water level is 4,587 m in Lake Mapangyong Cuo, and 4,572 m in Lake Laang Cuo.

Climate: This Ramsar site belongs to sub-frigid arid plateau climate, with the characters of cold dry and windy weather, abundant sunshine, strong evaporation and thin air. The mean annual temperature is 0 ℃ with large diurnal variation. Mean annual precipitation is 172.8 mm.

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17. Physical features of the catchment area:

Describe the surface area, general geology and geomorphological features, general soil types, and climate (including climate type).

The catchment is Mapangyong Cuo-Laang Cuo Basin, with an area of 8,000 km^2. The southern border of the catchment area is the second highest peak of Western Himalayas, namely Naimonanyi Peak, with an elevation of 7,694 m; and the northern border is the main peak of Kangdese Mountains, namely KangRinpoche Peak, with an elevation of 6,656 m. The lake basin of Mapangyong Cuo-Laang Cuo forms an integrated internal water system and diverse wetland ecosystems. The soil types mainly include meadow soil, mountain meadow soil, mountain shrubby meadow soil, alluvial soil and bog soil. Basically, there is no land use by human. The catchment area belongs to sub-frigid arid plateau climate zone, and the mean annual temperature is 0 ℃.

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18. Hydrological values:

Describe the functions and values of the wetland in groundwater recharge, flood control, sediment trapping, shoreline stabilization, etc.

This Ramsar site is one of the plateau wetlands with largest water capacity in this biogeographic region. It has great values of water supply and regional climate regulation. Maquan River, Shiquan River, Xiangquan River and Kongque River neighboring the wetland are the headwaters of the following famous rivers: Ganges River, Indus River, Sutlej River and Brahmaputra River in South Asia, respectively.

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19. Wetland Types

a) presence:

Circle or underline the applicable codes for the wetland types of the Ramsar "Classification System for Wetland Type" present in the Ramsar site. Descriptions of each wetland type code are provided in Annex I of the *Explanatory Notes & Guidelines.*

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)

b) dominance:

List the wetland types identified in a) above in order of their dominance (by area) in the Ramsar site, starting with the wetland type with the largest area.

O (55%), Q (35%), Va (3%), W (2%), Tp (2%), Zg (1%), Vt (1%), Sp (1%)

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20. General ecological features:

Provide further description, as appropriate, of the main habitats, vegetation types, plant and animal communities present in the Ramsar site, and the ecosystem services of the site and the benefits derived from them.

This Ramsar site is situated at vast pluvial piedmont fan and ice-water flood plain. Desert grasslands, dominated by *Stipa glareosa* and *Artemisia* spp, are widely distributed in this site. *Caragana versicolor* shrubs are widespread, and *Potentilla fruticosa* var. pumila is partly distributed.

Along the moisture gradient, the major vegetation types are represented as aquatic vegetation, swamp vegetation, alpine meadow and alpine shrubbery. Aquatic vegetation is dominated by *Potamogeton Pectinatus* community, providing living, breeding and spawning habitats for numerous fishes. Swamp vegetation is dominated by *Triglochin maritimum*, *Carex cryptostachys* and *Kobresia pygmaea* communities, providing good breeding habitats for rare and endangered waterfowl (e.g. *Grus nigricollis*, and *Anas strepera*). Alpine meadow is mainly composed of *Stipa purpurea* and *Stipa glareosa* communities attend by significant *Carex moorcroftii* and *Poa annua*, where *Aquila chrysaetos*, *Falco cherrug*, *Ursus arctos* and other national protected animals are distributed. And the alpine shrubbery is mainly composed of *Caragana versicolor* and *Potentilla fruticosa* var. pumila communities, providing major habitat for reptiles like *Scincella ladacensis*.

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21. Noteworthy flora:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 14, Justification for the application of the Criteria) indicating, e.g., which species/communities are unique, rare, endangered or biogeographically important, etc. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS*.

This Ramsar site has rich plant resources and diverse species. According to the China Flora Division, it belongs to western Himalayan plant region, Qinghai-Tibet Plateau subkingdom, Holarctic region, with transition characteristics from temperate to frigid area. According to the investigations and references, there are 7 bryophyte species from 4 genera in 3 families, 2 gymnosperm species from 1 genes of 1 family, 285 angiosperm species from 118 genera in 37 families. Pottiaceae and Bryaceae account for the most part of the bryophyte plants. The seed plants belong to 38 families. Of those, Gramineae has 18 species, followed by Asteraceae of 15 species and Leguminosae plants of 10 species.

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22. Noteworthy fauna:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 14. Justification for the application of the Criteria) indicating, e.g., which species/communities are unique, rare, endangered or biogeographically important, etc., including count data. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS*.

Besides the species listed in Criterion 2 of Section 14, there are 2 animal species under National Class-I Protection (*Aquila chrysaetos* and *Gypaetus barbatus*), 6 animal speices under national Class-II protection (*Gyps himalayensis*, *Buteo hemilasius*, *Falco tinnunculus*, *Bubo bubo*, *Athene noctua* and *Pseudois nayaur*).

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23. Social and cultural values:

a) Describe if the site has any general social and/or cultural values e.g., fisheries production, forestry, religious importance, archaeological sites, social relations with the wetland, etc. Distinguish between historical/archaeological/religious significance and current socio-economic values:

With unique geographic location and diverse landforms, this Ramsar site is a nature museum for plateau ecosystems. Known as “the king of holy lakes”, Mapangyong Cuo is the oldest and most scared bethel in Buddhism, Hinduism and the Bon religion, and it is the bethel in the heart of Buddhists. Mapangyong Cuo has many myths, legends and a long history of religion so that it is admired by local residents and Buddhists. This does great contribution to the maintenance of the ecological character of the wetland. Moreover, the beautiful scenery of the site and its surrounding areas are of great value in resource utilization, tourism and education.

b) Is the site considered of international importance for holding, in addition to relevant ecological values, examples of significant cultural values, whether material or non-material, linked to its origin, conservation and/or ecological functioning?

No.

If Yes, tick the box ❑ and describe this importance under one or more of the following categories:

i) sites which provide a model of wetland wise use, demonstrating the application of traditional knowledge and methods of management and use that maintain the ecological character of the wetland:

ii) sites which have exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland:

iii) sites where the ecological character of the wetland depends on the interaction with local communities or indigenous peoples:

iv) sites where relevant non-material values such as sacred sites are present and their existence is strongly linked with the maintenance of the ecological character of the wetland:

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24. Land tenure/ownership:

a) within the Ramsar site:

State ownership.

b) in the surrounding area:

State ownership; while the Contract Responsibility System is implemented for the surrounding grasslands.

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25. Current land (including water) use:

a) within the Ramsar site:

The land use types include conservation and low-intensity ecotourism

b) in the surroundings/catchment:

The surrounding areas of the wetlands are used for grazing.

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26. Factors (past, present or potential) adversely affecting the site's ecological character, including changes in land (including water) use and development projects:

a) within the Ramsar site:

Affected by the climate change, the water level decreased slightly.

b) in the surrounding area:

Gold mines were once exploited nearby. Now, they have been closed by the local government. This measure eliminate the risk of water pollution produced by the mining activities.

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27. Conservation measures taken:

a) List national and/or international category and legal status of protected areas, including boundary relationships with the Ramsar site:

In particular, if the site is partly or wholly a World Heritage Site and/or a UNESCO Biosphere Reserve, please give the names of the site under these designations.

The reserve was established with prefecture level in 2002. It was approved to a national forest park in 2004. In 2007, it was promoted to the autonomous region level (equivalent to the province level).

b) If appropriate, list the IUCN (1994) protected areas category/ies which apply to the site (tick the box or boxes as appropriate):

Ia ☑;Ib ❑; II ❑; III ❑; IV ❑; V ❑; VI ❑

c) Does an officially approved management plan exist; and is it being implemented?:

The Implementation Plan for the National Wetlands Protection (2005-2010). According to this plan, several wetland conservation and restoration projects were carried out based on a total investment of about 4.7 million USD. Boundary tablets and pillars, billboards, garbage disposal facilities were established; the important habitats were enclosed using fences of 16 km; marshes of 638 ha were enclosed for protection and vegetations of 384 ha were restored. Also, many conservation facilities were constructed, including 6 conservation stations, 3 conservation spots, 1 monitoring station, a patrol road of 9 km, 1 conservation dork and 1 watchtower. In addition, a management bureau, a visiting center, a propaganda and education center and an exhibition hall were established. The Implementation Plan for Wetland Protection in the Tibetan Autonomous Region (2011-2020) is being carried out.

d) Describe any other current management practices:

Four protection stations with 8 personnel have been set up around Lake Mapangyong Cuo by local forestry department. Effective management and protection on the surrounding shrublands is implemented. At the same time, staffs from local township government, Forestry Bureau of Ngari Prefecture and Purang County carried out patrol management in this site. Regulations have also been established by the government to manage the cantonments of the pilgrims and tourists.

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28. Conservation measures proposed but not yet implemented:
e.g. management plan in preparation; official proposal as a legally protected area, etc.

The Forestry Bureau of Tibet Autonomous Region has proposed the *Protection and Management Plan for Mapangyong Cuo*. This plan is now in the approval process.

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29. Current scientific research and facilities:
e.g., details of current research projects, including biodiversity monitoring; existence of a field research station, etc.

Tibetan Plateau Integrated Scientific Expedition of the Chinese Academy of Sciences (CAS) organized comprehensive investigations for the whole Qinghai-Tibet Plateau including Mapangyong Cuo Wetland, involving hydrology, geology, vegetation, soil, animals, and insects. Xinjiang Branch Institute of CAS researched the soil and insects in the site and has written a book *Purang's Soil*.

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30. Current communications, education and public awareness (CEPA) activities related to or benefiting the site:
e.g. visitors' centre, observation hides and nature trails, information booklets, facilities for school visits, etc.

Permanent signs were built for the Wetland of International Importance, and the propaganda activities of the site were developed for tourists and residents. However, as a remote wetland with few residents, fewer activities of CEPA have been developed presently.

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31. Current recreation and tourism:
State if the wetland is used for recreation/tourism; indicate type(s) and their frequency/intensity.

The surrounding area of the wetland is an important tour destination in Tibetan. The sight-seeing is the major tourism form and about 10,000 people visit here each year. No permanent tourism facility has been established at present.

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32. Jurisdiction:

Include territorial, e.g. state/region, and functional/sectoral, e.g. Dept of Agriculture/Dept. of Environment, etc.

Territorial:
The Government of Purang County, Tibet Autonomous Region.

Functional:
Forestry Bureau of Tibet Autonomous Region

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33. Management authority:
Provide the name and address of the local office(s) of the agency(ies) or organisation(s) directly responsible for managing the wetland. Wherever possible provide also the title and/or name of the person or persons in this office with responsibility for the wetland.

Principal: Zholma Yangtseong (Director)
Institution: Wildlife Preservation Section of the Forestry Bureau of Tibet Autonomous Region
Address: North Linkuo Road 25, Lhasa, Tibet Autonomous Region
Tel: +86-(0)891-6834770
Email: 1917374175@qq.com

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34. Bibliographical references:
Scientific/technical references only. If biogeographic regionalisation scheme applied (see 15 above), list full reference citation for the scheme.

Tibetan Plateau Integrated Scientific Expedition of CAS. 1984. *Tibet Rivers and Lakes.* Beijing: Science Press.
Tibetan Plateau Integrated Scientific Expedition of CAS. 1985. *Tibet Climate.* Beijing: Science Press.
Tibetan Plateau Integrated Scientific Expedition of CAS. 1986. *Tibet Mammalia.* Beijing: Science Press.
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Tibetan Plateau Integrated Scientific Expedition of CAS. 1985. *Tibet Soils.* Beijing: Science Press.
Tibetan Plateau Integrated Scientific Expedition of CAS. 1984. *Tibet Strata*. Beijing: Science Press.
Tibetan Plateau Integrated Scientific Expedition of CAS. 1988. *Tibet Vegetation*. Beijing: Science Press.
Bureau of Marine Products of Tibet Autonomous Region. 1990. *Tibet Fishes and Resources.* Beijing: China Agriculture Press.
Lu JJ. 1990. *China's Wetlands*, East China Normal University Press.
Wu YF and Wu CZ. 1991. *Tibetan Plateau Fishes.* Chengdu: Sichuan Science and Technology Press.
Planning & Design Institute of State Forestry Bureau in Central South China. 2007. *Integrated Investigation Report for Mapangyong Cuo Wetland Nature Reserve*.