COMMUNITY BASED TOURISM AND ENVIRONMENT CONSERVATION
SUPPORT PROGRAM FOR THE DALAI LAKE NATIONAL NATURE RESERVE

This technical note provides a detailed description of the proposed support program for the Dalai Lake National Nature Reserve planned under Output 4 and 5 of the project.

1. The Hulunbeir District of Inner Mongolia is part of the trans-boundary Daurian Eco-region and retains some of the largest and most important grassland and wetland ecosystems in northern People's Republic of China (PRC), forming part of the Eurasian Steppe. The area is predominantly a grassland ecosystem, and supports a major agricultural base with commercial livestock grazing, production of fodder crops and traditional herding the dominant land-uses. Large areas have been fenced and managed to meet agricultural objectives, and relatively little remains in a pristine state. Traditional Mongolian lifestyles are also a strong cultural feature in the region and there has been a growing summer season tourism industry focused on the grasslands and traditional Mongolian culture. Between 2007 and 2009 income from the tourism industry in Hulunbeir increased 33%.

2. A major geographical feature in the Hulunbeir landscape is Dalai Lake and its water catchment derived from the Kelulun and Wuergxun Rivers, and Be’ir Lake. The Be’ir Lake drains northwards into the Wuergxun River and enters the Dalai Lake at Gan Zhu Hua, before draining northwards into the Hailer (Argun) River and eventually the Amur River. Wulun Nur is a small, but significant off-shoot of the Wuergxun River (see Figure 1).

3. The Dalai Lake National Nature Reserve (NNR) forms part of the extensive grasslands of the Daurian dry steppe and the biodiversity is characterized by grassland species such as the Mongolian gazelle (Procapra gutturosa) and great bustard (Otis tarda). The grasslands are species-rich, 653 species of vascular plants have been recorded which include species adapted to natural grazing patterns and semi-arid, temperate conditions.

4. Apart from the presence of Mongolian gazelle (a National Class II protected species), the grasslands and wetlands of Dalai Lake provide significant breeding and migratory habitats for birds using the three North-South migration flyways that converge in this area. The grasslands also support significant populations of small mammals typical of grassland ecosystems, including Mongolia ground squirrel (Citellus dauricus), Mongolian gerbil (Meriones unguiculatus), Daurian pika (Ochotona daurica), Siberian Jerboa (Allactaga sibirica) and Chinese striped hamster (Cricetulus barabensis).

5. The biodiversity importance of the wetlands and grasslands of Dalai Lake are best represented by the numbers and variety of bird species using the area. The East Asian-Australasian, Central Asian and Eastern European-East Africa flyways converge in the region, and so far 295 bird species have been recorded. Birds use these flyways during annual migrations to move from the northern hemisphere breeding grounds to the southern hemisphere wintering areas, utilizing important habitats along the route to re-fuel and rest. Dalai Lake is an important re-fuelling area for many species, including significant numbers of Anatidae (ducks, geese and swans), Falconidae (falcons), Laridae (gulls and terns) and Fringillidae (buntings). Species of conservation significance (national Class I) include, great bustard (Otis tarda), Baer’s

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1 The Eurasian steppe is a vast belt of temperate grassland extending from eastern Europe through western and central Asia to north-east Asia. The steppe has a number of ecoregions, the project area is in the Daurian steppe ecoregion which includes the Mongolian-Manchurian grassland.
pochard (*Aythya baeri*), whooper swan (*Cygnus cygnus*), tundra swan (*C. columbianus*), swan goose (*Anser cygnoides*), demoiselle crane (*Grus virgo*), Siberian crane (*G. leucogeranus*), relict gull (*Larus relictus*) and steppe eagle (*Aquila nipalensis*).

6. The unique ecological function of the wetland system within the grassland landscape was recognized in 1987 when the Dalai Lake County Nature Reserve was established. The reserve was upgraded to a Provincial Nature Reserve in 1990, and finally as a National Nature Reserve in 1992. In 1994 the NNR was recognized for its regional significance, becoming a part of the Russia-Mongolia-China Dauria International Protected Area (DIPA). In 2001 Dalai Lake was included in the East Asia-Australasian Flyway Site Network due to its importance as a staging area for migrant waterbirds, and in 2002 the Dalai Lake NNR was designated as a Ramsar site (Wetland of International Importance, especially as waterbird habitat) as well as a United Nations Educational, Scientific and Cultural Organization (UNESCO) Man and the Biosphere Reserve. Figure 1 shows the boundary and key features of the Dalai Lake NNR.

**Figure 1:** Satellite image (2003) of Dalai Lake wetland system, showing NNR boundary (red line); NNR core zones (yellow lines) and hydrological linkages between Be’ir Lake and Dalai Lake, via the Wuerxun River.
7. The development of an improved road network in Hulunbeir District is expected to increase traffic volumes and the numbers of visitors and tourists entering the Dalai Lake NNR. This will increase pressure on natural resources, habitats and species within the reserve. The project will provide a program of assistance to the Dalai Lake NNR Management Bureau through the implementation of Output 4: Support for Community-Based Sustainable Tourism and Environmental Conservation and Output 5: Institutional Strengthening and Capacity Building to offset direct and induced impacts of the project.

8. The support program for Dalai Lake NNR includes three sub-components:

(A) Managing and Raising Awareness of Road Users

(B) Ecological Management and Monitoring

(C) Eco-Cultural Tourism Demonstration

A. Managing and Raising Awareness of Road Users

9. Rationale. The alignment of S203 from Manzhouli to Alatanemole adjacent to the Dalai Lake NNR provides opportunities to promote the ecological and cultural attributes of the Hulunbeir region, and to inform the public of the NNR and its’ conservation objectives.

10. There is expected to be a considerable increase in traffic volume along the road, once it is completed, including commercial vehicles, local transport and domestic tourists. If the existing situation continues, it is highly likely that grasslands adjacent to the road will continue to be degraded. Currently, there are no designated stopping areas along S203 and during peak tourism season vehicles pull off the road and drive across the grasslands in an ad hoc manner. The erection of appropriate signage along the roadside that highlights locations of interest and the provision of scenic stopping places and rest areas at these points should reduce this behaviour.

11. Tourist traffic will be the main target audience for conservation and awareness information. Other road users would also benefit from signage designed to inform them of rules and regulations pertaining to the NNR. Signage that will raise awareness and provide interpretation information can be distributed along the road at intervals, especially at rest areas and scenic stopping places provided along the route.

12. In accordance with PRC design standards, there are three stopping areas proposed at KM7 over-looking the city of Manzhouli; at KM72, over-looking a low-lying grassland ecosystem and at KM129, adjacent to the Kelulun River Bridge at Alatanemole. In addition, two larger rest areas will be provided with capacity to park 750 vehicles, basic toilet facilities and associated infrastructure. The first rest area will be located at KM54 and at KM100. PRC design standards for Class I roads require stopping areas every 65 km and rest areas every 50 km. There will also be a toll booth along at KM63. All of these areas have the potential to provide learning opportunities for travellers.

13. Sub-component Description. This component will make use of the opportunities provided by the new roads and associated facilities to educate travellers on the unique environment they are travelling through, as follows:

(i) A1: Road signs and information boards to be provided at the three stopping areas and two rest areas to provide information on the Dalai Lake
NNR and the Dauria grasslands-wetlands ecosystem, as well as educating travelers about environmental protection. Some examples of simple outdoor display shelters and information signs, examples are provided in photo numbers 2 to 4. Signs should include interpretation information relating to the grasslands and wetlands of Hulunbeir region, common birds of the area, other features of local interest, awareness information on NNR regulations and accessible areas for visitors.

(ii) A2: Viewing point for wetland and grassland to be developed at the S203 KM129 rest area located next to the Kelulun River floodplain near Alatanemole (example shown in photo number 1). A walking trail of 2 km length (examples are shown in photo numbers 5 to 8) will be developed at this site to provide visitor access to the grassland-wetland ecosystem and a unique learning experience. The trail will incorporate small rest areas, such as simple wooden benches or seats at 500m intervals along the route. At least two of these rest areas will be covered to provide visitors with shelter and will also provide interpretation information. The walking trail should be constructed using appropriate materials complimenting the grassland and wetland habitats through which it passes. In sensitive areas (e.g. wet soils, eroding soils and across stream gullies) the trail may need to be raised on a wooden boardwalk (as shown in the example photo numbers 5, 6 and 8) to prevent damage to the environment. At the end of the trail there will be a 10m tall viewing platform (example shown in photo number 1) over-looking the wetland floodplain of the Kelulun River to the west and providing a panoramic view of the surrounding grasslands. It may also be possible to get distant views of Dalai Lake on a clear day.

Photo 1: Example of a wooden viewing tower, over-looking wetlands
Photo 2: Example of a simple shelter providing information materials to visitors

Photo 3: Example of outdoor signage with detailed information, Note: no protection from weather.
**Photo 4:** Example of a covered, revolving information sign that would be suitable for education messages at scenic stopping points and rest areas along S203. Note: protection from weather.

**Photo 5:** Example of simple boardwalk or raised trail through a wetland.
Photo 6: Example of a raised pathway and wetland crossing.

Photo 7: Example of a constructed pathway through grassland, and simple shelter for rest or picnics
B. Ecological Management and Monitoring

14. **Rationale.** The Dalai Lake NNR has an existing Master Plan for the period 2003–2013, and will develop a new Master Plan for the 2014 to 2024 period (will start preparation in 2013). Management activities in the NNR currently focus on protection, and do not include habitat management for targeted species of conservation importance. An Ecological Management Plan (2002–2004) was developed for the reserve under a Sino-Canadian project (Inner Mongolia Biodiversity and Community Development) but it has never been implemented.

15. Due to the reduced water level in Dalai Lake, the nesting habitats and spawning areas for birds and fish in Dalai Lake have disappeared and the importance of the Wuexun River off-shoot lake, Wulun Nur, as the only remaining area of core zone for wildlife habitat has increased. Wulun Nur now supports some of the best reedbed habitats in the reserve, which are significant for the conservation of rare species in the area. Some small-scale wetland restoration has already taken place at Wulun Nur, and there are plans for larger-scale re-hydration and restoration in Wulun Nur, and elsewhere in the NNR.

16. Current monitoring within the NNR has been ongoing for 10 years. There are eight permanent monitoring/protection stations within the NNR, each station has four staff. 50 monitoring points for monitoring bird populations and other wildlife have been established; three transects and three permanent plots for monitoring changes in vegetation have been established. The biological monitoring by the NNR Management Bureau has not covered all the major categories of species; and water quality monitoring is currently done by the Environmental
Protection Bureau and Water Resources Bureau for few sites and at a low frequency, so the data is not adequate to support management decisions regarding the NNR.

17. The Dalai Lake NNR has recently been designated as a “Demonstration NNR” by State Forestry Administration, and is expected to demonstrate best practice in conservation of this unique lake and wetland eco-system in an arid region. Demonstration of how less sensitive areas of the NNR could be utilized for tourism and other income-generating activities, whilst maintaining ecological integrity and meeting reserve management objectives, could provide a meaningful contribution to the future national policy or guidelines on “Demonstration NNR”.

18. **Sub-component Description.** This component includes provision for:

(i) **B1.** Development of a comprehensive 10-year Master Plan to guide the sustainable development of the Dalai Lake NNR. The Master Plan will include planning of nature reserve management and monitoring, planning of eco-tourism development and management, and planning for wetland restoration and rehydration programmes. The project will provide significant technical consulting services (National and International) to support the NNR to meet these aims, in particular, specialist input for planning, feasibility assessment and design of large-scale wetland restoration programs and sustainable eco-tourism programs will be provided. Inputs from international and national specialists, and targeted training opportunities will build staff capacities to deal with these major planning issues. Domestic training will include NNR management planning and demonstrations of eco-tourism for both NNR staff and local communities. Overseas training opportunities will provide exposure to successful wetland restoration projects in similar ecosystems to those at Dalai Lake.

(ii) **B2.** Strengthened Protection of the Dalai Lake NNR will be achieved through support to build staff protection capacity and provision of modern protection equipment. Specialist optical equipment, two all-terrain quad bikes and outdoor survival and camping equipment will provide NNR staff with increased capabilities to directly survey and patrol the remote NNR boundaries to prevent illegal incursions and hunting. A specialized, remote surveillance camera will be installed at the south-western part of Wulun Nur to monitor activities. A 300m$^2$ multi-function visitor centre/protection station will be constructed at KM 190 of the S203 highway Alatanemole to Amugulang section (examples shown in photo numbers 9 and 10). The design of the centre should be compatible with the open grassland ecosystem and be integrated into the landscape. A low structure, built into the ground with an undulating roof structure is recommended. It may also be possible to use “green” roof technology to turf the roof so that it blends fully with the landscape (example shown in photo number 10). The construction and materials should meet China Green Building standards. The centre will facilitate better management and monitoring of negative impacts from increased traffic, visitors and tourists whilst providing interpretation, education and awareness material for reserve visitors. Domestic training will be a major element of this sub-component, including provision of targeted training in protected area patrolling, public awareness and outreach and specialist use of GPS and GIS applications for NNR protection.
Photo 9: Example of a low structure that may be suitable for construction of the multi-purpose protection centre at KM190 of S203, Dalai Lake NNR.

Photo 10: Example of a visitor centre using “green roof” technology. Turf roofing would be a good option for the multi-purpose protection station at KM190 on S203 to allow the structure to better blend into the grassland landscape.
C. Eco-cultural Tourism Demonstration

19. **Rationale.** There are numerous *ad hoc* tourism developments throughout the grassland area and many are located adjacent to the major roads. Most of these are privately operated ventures, where local businesses lease sections of the grassland adjacent to the road and have established some temporary tourism infrastructure facilities, such as ger camps, restaurants, and other activity-based facilities (e.g. horse-riding). Local tourism developments draw heavily on the local Mongolian and grassland culture—offering activities such as traditional music, horse-riding, and local foods). There is a lack of reference (signage) to the natural resources and wildlife of the area.

20. There are currently no guidelines for the development of tourism enterprises in and around the NNR. However, the NNR Management Bureau is currently in the process of drafting an Eco-tourism Development and Management Plan related to the experimental zone of the NNR, and as part of its “Demonstration NNR” designation. This should be included in the new Master Plan for Dalai Lake NNR.

21. The NNR Management Bureau plans to design some tourism activities that will offer different experiences from existing tourism areas. These activities will focus on cultural and ecological assets and could showcase standards and provide a business model for tourism that is compatible with the nature conservation objectives of an NNR whilst having benefits for local communities.

22. **Sub-Component Description.** This component includes provision for:

   (i) **C1. Support for the NNR and local households for the development and implementation of a small-scale community-based eco-cultural tourism demonstration in the Wulan Nur area of the NNR.** Appropriate visitor infrastructure, including viewing towers and bird watching hides, walkways and boardwalks, and fishing platforms will be constructed, and improvements will be made to household service facilities and associated NNR protection facilities.

   (ii) **C2. Technical consulting services for Dalai Lake NNR to develop guidance and management rules on tourism activities and development of a community-based eco-tourism program focused on nature-based activities such as bird watching, fishing, photography and trekking; and community-based activities such as homestays, home restaurants, development of local nature guide services, and other cultural activities in and around Wulun Nur.** The development of nature-based tourism packages and tourist routes within other parts of the NNR will also be included. Training in implementation of ecotourism programs will be provided for local people to enhance their skills to work with tourists and develop adequate facilities.

23. **Specific infrastructure included under this sub-component is:**

   (i) 1 km of walkways and boardwalks through the wetland habitats (see examples in photo numbers 5 and 6);

   (ii) several km of interpretive walking trail across the grasslands (see examples in photo numbers 7 and 8);
(iii) two 10m tall wetland viewing towers (see example in photo number 1); and,

(iv) a raised bird watching hide.

24. In addition, five wooden fishing platforms will be built in a designated fishing zone. Civil works will also include improvements to household service facilities (such as provision of solar water heaters) for households providing tourism facilities and associated NNR protection facilities.

D. Technical Assistance Attached to Loan Project

25. In addition to the activities funded through the project loan, a grant from the Multidonor Trust Fund under the Water Financing Partnership Facility for $500,000 has been awarded (27 February 2013) to support wetland restoration activities. The grant funds will be used to assist the Dalai Lake NNR Management Bureau to: (a) undertake detailed design of wetland restoration and re-hydration programmes in the NNR; (b) implement the hydrological restoration of 10 to 20 kilometers (km) of the Wuercun river channel; and (c) provide additional technical training for NNR Management Bureau and Water Resource Management Bureau staff in wetland restoration and monitoring.

E. Implementation

26. Full implementation arrangements for Output 4 are provided in the PAM. The Inner Mongolia Autonomous Region Department of Transport is the executing agency and the Hulunbeier Bureau of Transport is the implementing agency. A Project Management Office (PMO) has been established by these two agencies for implementation of the project. The Dalai Lake NNR Management Bureau will form an implementation team to oversee the project and will assign one staff member to the PMO to co-ordinate procurement and implementation activities relating to the reserve that are proposed through the project. The project will finance the appointment of an international eco-tourism and environmental conservation firm to manage and co-ordinate the consulting services proposed through the project to support the NNR Management Bureau. The company will be responsible for preparing procurement and bidding documents, appointment of technical specialists, coordination of specialist inputs and deliverables, delivery of equipment to the NNR and close co-ordination with the PMO.

F. Allocation of ADB Resources

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Note: Co-financing for Civil Works Packages 2 and 3 (amounting to USD1,760,000) will be secured from local government by Dalai Lake NNR Management Bureau.
Source: ADB staff and Dalai Lake NNR Management Bureau estimates.