UNITED NATIONSDEVELOPMENTPROGRAM
PEOPLE'S REPUBLIC OF CHINA

PROJECT DOCUMENT

Project Title: **CBPF-MSL: Strengthening the Management Effectiveness of the Protected Area Landscape in Altai Mountains and Wetlands**

UNDAF Outcome(s): Outcome 1: Government and other stakeholders ensure environmental sustainability, address climate change, and promote a green, low carbon economy

UNDP Strategic Plan Environment and Sustainable Development Primary Outcome: Mobilizing environmental financing

UNDP Strategic Plan Secondary Outcome: Mainstreaming environment and energy

Expected CP Outcome(s): Outcome 4: Low carbon and other environmentally sustainable strategies and technologies are adapted widely to meet China's commitments and compliance with Multilateral Environmental Agreements; and Outcome 5: The vulnerability of poor communities and ecosystems to climate change is reduced.

Expected CPAP Output (s): Output 4.1. Policy and capacity barriers for the sustained and widespread adoption of low carbon and other environmentally sustainable strategies and technologies removed, and Output 5.1. A strengthened policy, legal, institutional framework for the sustainable use of land, water, the conservation of biodiversity, and other natural resources in fragile ecosystems is enforced.

Executing Entity/Implementing Partner: Xinjiang Forestry Department, Liangheyuan Provincial Nature Reserve Management Bureau, Altai Mountains Forestry Bureau

Implementing Entity/Responsible Partners: Xinjiang Forestry Department, Liangheyuan Provincial Nature Reserve Management Bureau, Altai Mountains Forestry Bureau

Brief Description

As the largest province in Chinawith a total land area of 1,664,897 km^2 and covering one-sixth of the country, the Xinjiang Uyghur Autonomous Region serves as a significant store of the national biodiversity, with unique arid lands as well as vast grasslands, mountains, wetlands and forest ecosystems. The Altai Mountains in the far north of the province – a focal area in this biodiversity project – are recognized globally as part of the broader Altai-Sayan Ecoregion and also have been identified as a priority area in China's National Biodiversity Conservation Strategic Action Plan (NBCSAP).

In total, 35 nature reserves cover around 13% of the provincial land area, mostly administered by the Forestry Department and its subsidiary bureaus at local level. Provincial government also has plans to double the land area under protected status by 2030. Yet there are serious inadequacies in the current institutional and PA management systems and a number of critical barriers that must be overcome for successful conservation of biodiversity and ecological services to be ensured. Three main barriers hinder are: (i) insufficient systemic and institutional capacity at provincial level to plan and manage the PA system; (ii) a disconnect between management of PA systems and development and sectoral planning processes; and (iii) limited nature reserve capacities for planning and operations and limited local participation in PA management.

This project seeks to strengthen Xinjiang's systemic, institutional and operational capacity at provincial level and in the *Altai Mountains and Wetland Landscape* (selected asmodel area, with a focus on the wetland sub-system)(i) to ensure better integration and mainstreaming of the PA system in sectoral development priorities, in order to avoid conflicts of interest and to ensure the PA system's long-term financial sustainability; (ii) to effectively plan, resource and manage an enhanced PA system including *inter alia* PA system expansion, improved operational procedures for regular environmental monitoring and threats reduction, and increased environmental awareness; (iii) to develop provincial PA regulations and sector 'best practice' guidelines; (iv) to support and expand (to establish more widely) and administer environmental stewardship programmes in traditional rangelands, wetlands and community forests based on lessons learned in initial trials with PA co-management to be developed in the project; and (v) to respond effectively to the needs and aspirations of, and to meaningfully involve, different stakeholder groups in the on-going planning and operations of the enhanced PA System. These measures will help to improve the overall management effectiveness of the PA system in Altai Prefecture and in Xinjiang as a whole, with lessons learned applicable more broadly across China especially in other provincial wetland PA sub-systems.

The global environmental benefits of the project are represented by: (i) significant reduction in the number or extent of threats to global biodiversity from incompatible development projects; (ii) addition of an anticipated 150,000 ha of terrestrial landscapes under formal protection; (iii) increased management effectiveness at PA level (from a METT baseline ranging from <30% to 71%, to a final METT target of all PAs scoring between 60-80%); (iv) improvement of overall PA institutional capacity (from a baseline score of <60% in the Capacity Assessment Scorecard, to final values all >70%); and (v) increased financial sustainability of PAs (from a financial sustainability baseline score of 19%, to a final value >42%) as a result of the project. Institutionalization and increased support for local community partnerships for conservation through a co-management framework within the PA System also extends both the reach of environmental awareness programmes and the human resources available to achieve widespread conservation impact through local environmental monitoring and management

Programme Period:	60 months
Atlas Award ID:	00070004
Project ID:	00084238
PIMS #	4596
Start date:	Mar.1, 2014
End Date:	Feb.28, 2019
Management Arrangements:	NIM
PAC Meeting Date:	Nov. 23, 2013

Total resources required (total project funds)	25,544,679
Total allocated resources (UNDP managed funds)	
Regular (UNDP)	1,000,000
GEF	3,544,679
Other (partner managed resources)	
Government	21,000,000
o Grant	16,500,000
o In-kind	4,500,000

Agreed by the Forestry Department of Xinjiang Uyghur Autonomous Region: 徐翠花

Date/Month/Year

Agreed by Ministry of Finance of China (MOF): 郭峰

Date/Month/Year

Agreed by United Nations Development Programme (UNDP): 27/02/2014.

Date/Month/Year

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ACRONYMS

AFB	Altai Forestry Bureau (under the supervision of Prefecture Government and XFD; not the same as AMFB)（阿勒泰地区林业局）
AMFA	Altai Mountains Forestry Area
AMFB	Altai Mountains Forestry Bureau (under the supervision of Xinjiang Forestry Department; not the same as AFB). Also known as the Altai Mountains National Forest Management Bureau (阿勒泰山国有林管理局)
AMNFPPA	Altai Mountains Natural Forest Protection Project Area
AMWL	Altai Mountains and Wetland Landscape
ARR	Annual Review Report
ATLAS	'Atlas' is the UNDP corporate management system
AWP	Annual Work Plan
CBA	Cost Benefit Analysis
CBD	Convention on Biological Diversity
CBPF	China Biodiversity Partnership Framework
CCM	Community Co-Management (also Collaborative Management)
CCAs	Community Conserved Areas
CDR	Combined Delivery Report
CPAP	Country Program Action Plan
EA	Executing Agency
EFZ	Ecological Function Zones
EIA	Environmental Impact Assessment
FACE	Funding Authorization and Certificate of Expenditures (under Atlas)
FEOW	Freshwater Ecoregions of the World
FYP	Five Year Plan
GEF	Global Environment Facility
GHGs	Greenhouse Gases
IBA	Important Bird Areas
IW	Inception Workshop
M&E	Monitoring and Evaluation
MEP	Ministry of Environmental Protection

METT	Management Effectiveness Tracking Tool
MSL	Main Streams of Life Programme
NBSAP	National Biodiversity Conservation Strategic Action Plan
NEX	Nationally Executed
NFPP	Natural Forest Protection Project
NNR	National Nature Reserve
NP	National Park
NR	Nature Reserve
NTFP	Non Timber Forest Products
PA	Protected Area
PAC	Project Appraisal Committee (UNDP)
PES	Payment for Environmental Services
PIMS	Project Information Management System
PIO	Provincial Implementation Office
PIRs	Project Implementation Reviews
PLG	Project Leading Group
PMO	Project Management Office
PNR	Provincial Nature Reserve
PPLG	Provincial Project Leading Group
PRC	People's Republic of China
RCU	Regional Coordinating Unit (UNDP)
SFA	State Forestry Administration
TRAC	Target for Resource Assignment from the Core (UNDP)
UNDP	United Nations Development Programme
UNDP-CO	UNDP Country Office
UNDAF	UN Development Assistance Framework
UNESCO	United Nations Education, Science and Culture Organization
WB	World Bank
XDF	Xinjiang Department of Finance
XEPD	Xinjiang Environmental Protection Department
XFD	Xinjiang Forestry Department

XUAR	Xinjiang Uyghur Autonomous Region

SECTION I: ELABORATION OF THE NARRATIVE

PART I: Situation Analysis

INTRODUCTION

1. Xinjiang Uyghur Autonomous Region (XUAR)[1] covers around one-sixth of China's land area, or 1,664,897km^2, nearly three times the size of France. It is the largest provincial level administrative unit in PRC.[2] Situated in the centre of the Eurasian continent, XUAR shares borders with 8 countries along its northern and western frontiers: Mongolia, Russia, Kazakhstan, Kyrgyzstan, Tajikistan, Afghanistan, Pakistan and India (Figure 1). In 2008 the region's population was estimated at 21.3 million people from 55 nationalities,[3] three of which have over one million people: the Uyghur (9.6 million), Han (8.2 million) and Kazakh (1.5 million) people. The region is best known historically as an important section of the Silk Road that linked ancient civilizations of East and West, a long-standing crossroads of cultures and empires in Central Asia.

2. From a global environmental perspective, *Altai-Sayan Ecoregion* is a vast mountain area recognized internationally for its extraordinary landscapes, its traditional cultures and livelihoods, and its unique biodiversity. The Chinese portion of this ecoregion is situated in Altai Prefecture and shares international borders with Mongolia, Russia and Kazakhstan. The Altai Mountains are recognized as one of the country's 25 priority *Ecological Function Zones* (EFZ) with focus on water conservation, and are included as focal area in China's NBCSAP.

3. The *Altai Mountains and Wetland Landscape* (AMWL) includes both the headwaters (i.e., high montane areas including forests, grassland and wetland) and lower watersheds of the Ulungur and Ertix river systems, which flow down from the Altai Mountains through the northern part of the Junggar Basin. The AMWL region thus provides water for nearly all of northern XUAR, and is critical for life across much of the region.

4. Under the China Biodiversity Partnership Framework (CBPF) and UNDP/GEF Main Streams of Life Programme (MSL), this project aims to protect globally significant biodiversity by strengthening the management effectiveness of the landscape-wide protected area (PA) system, with special focus on the wetland PA sub-system. Experience and capacity in PA management and biodiversity conservation will equally be built at regional level through intentional project activities as well as development of projects partnerships.

CONTEXT AND GLOBAL SIGNIFICANCE

Xinjiang Uyghur Autonomous Region

5. XUAR is located in the central part of the Eurasian continent, encompassing China's two largest deserts–the Taklamakan desert (380,000 km^2) in the Tarim Basin in southern XUAR, and Gurban Tunggut desert (48,000 km^2) in the Junggar Basin in northern XUAR. These deserts and basins are bordered by three mountain ranges: the Altai Mountains in the north, Tian Shan Mountains in the centre, and Kunlun Mountains in the south (Figure 2). Forming the northern border

[1] Different spellings for geographic place names are provided in Annex 1.
[2] There are 31 provincial level administrative units in China including 22 provinces, 5 autonomous regions (incl. XUAR) and 4 municipalities. In addition, there are two special administrative regions: Hong Kong SAR and Macau SAR.
[3] China has 56 officially recognized nationalities, or ethnic groups, including the Han Chinese people. Only the Jino people are not present in XUAR.

area of XUAR, the Altai Mountains extend into 4 countries: China, Kazakhstan, Russia and Mongolia. In the Chinese portion of the range, extending a length of 546 km, the highest peakrises to 4,374m. In the central portion of the region, the Tianshan Mountains divide XUARinto northern and southern parts, withhighest peak at 7,443m.Bordering Tibet Autonomous Region in the south, the Kunlun Mountains culminate in K2 on the border with Pakistan; at 8,611m above sea level, this peak is the second highest in the world. The high mountains of all three ranges are glaciated: there are 18,600 glaciers in total, covering a total area of 2,218,400 ha (38% of the total in China).

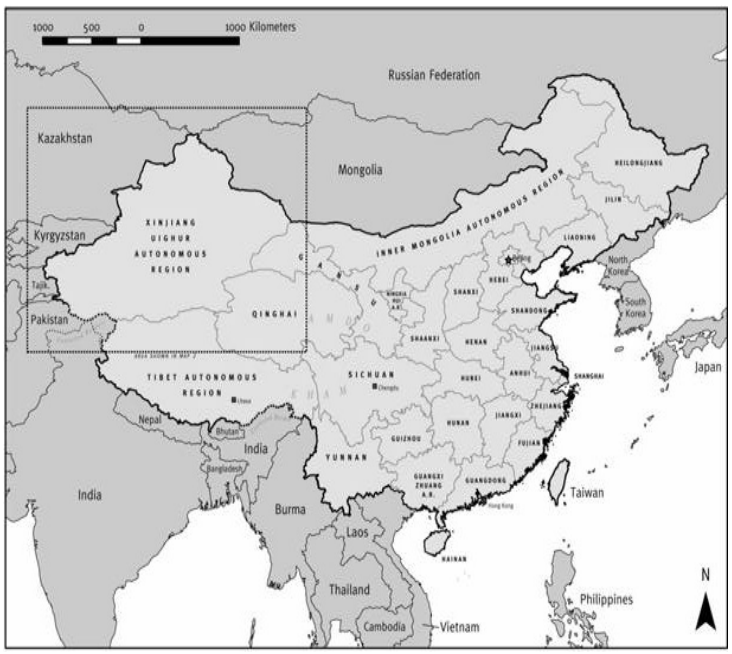


Figure 1. Xinjiang Uyghur Autonomous Region (XUAR) and surrounding provinces and countries.

6. XUAR'sis divided into 14 prefectures and 88 counties, as well as 174 agricultural and stockbreeding farms overseen by the Xinjiang Production and Construction Corps. While XUAR is primarilyan arid land(its deserts cover59% of the region),italso has a great variety of habitats including different types of grasslands (31%), forests (2%) and wetlands as well as mountains and glaciers, agricultural lands, and urban areas. The elevation ranges from 155m *below* sea level to 8,611m above sea level. With such ecological diversity and with pronounced seasonality, a unique suite of ecoregions and faunal assemblages including migratory birds are present in XUAR.

7. The global significance of XUAR is evident in its unique biodiversity and endemism.Although total species numbers is not extremely high, the *diversity* of its taxa is high – withabundant types of plant communities and a flora abounding in one-species and few-species genera and one-genus families. The regionincludes 40 *Important Bird Areas* (IBAs), as identified by Birdlife International – the third highest amongst Chinese provinces and regions, after Sichuan and Yunnan provinces. Its international significance is equally highlighted with its (partial) inclusion in the *Mountains of Central Asia* biodiversity hotspot (Conservation International), the *Altai-Sayan Montane Forests Ecoregion* (World Wildlife Fund, Global 200) and the *Upper Irtysh [Ertix] Freshwater Ecoregion* (World Wildlife Fund and The Nature Conservancy). Endemism within these ecoregions is high, especially for plant life.

8. More than 10% ofChina's higher plants and vertebrate species have been recorded in XUAR – in total,3,537 higher plants and 717 vertebrates (including 92 fish, 8 amphibians, 50 reptiles, 423 bird, and 144 mammals).There are also an estimated 20,000 types of invertebrates in the province.The fauna abounds in endangered species, with 108 vertebrates listed as nationally protected species. Internationally rare and endangered wildlife species include the wild horse, wild camel, wild yak, wild ass, snow leoaprd, sable, golden eagle, houbara bustard, whooper swan and

black stork. There are also many endemic species in the region such as theChinese beaver, Tianshan gopher, four talon tortoise, dry sand chameleon, Czech lizard, white stork, Chinese swallow, black lark, and yellow throated bee-eater.

9. The total area of wetlands in XUAR amounts tonearly 1.5 million ha, or 0.89% of the total area. Wetlands are located at altitudes ranging from 154 m to 4,800 m above sea level. According to official classifications, there are 45 riverine wetlands, 108 lake wetlands, 148 marsh wetlands and 134 artificial wetlands,which collectively form a diverse inland wetland complex (Table 1). Many of these wetlands contain significant peat deposits, which serve a valuable climate regulatory role as significant carbon sinks. High wetlands in particular, such as glacial lakes, wet grasslandsand river headwaters, support unique ecosystems and services that sustain the livelihoods of people – storingrain water and glacial melt feeding aquifers, and enhancing both the quantity and quality of water.

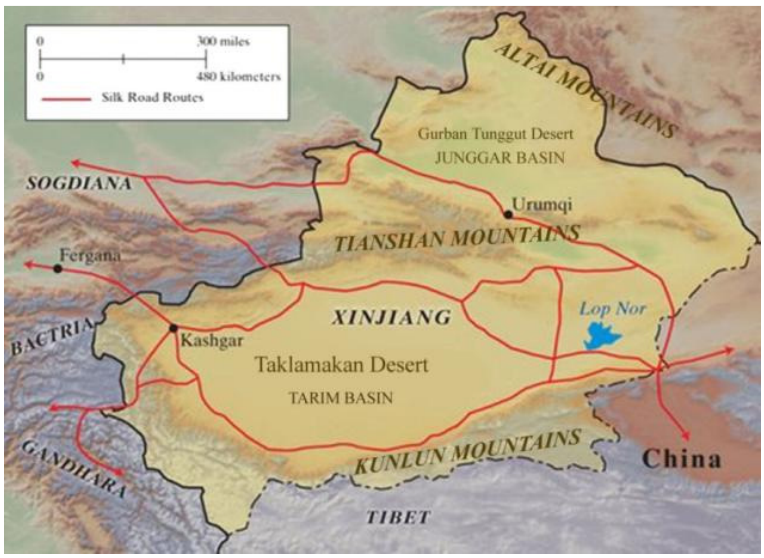


Figure 2. Major mountain ranges, basins and deserts situated in XUAR.

Table 1. Wetland types in XUAR.

Wetland type	Wetland Number	Total area (ha)	Proportion of wetland area (%)
Riverine Wetland	45	205,774.90	13.9
Lacustrine Wetland	108	696,867.00	46.9
Marsh/Swamp Wetland	148	369,313.00	24.8
Artificial Wetland (reservoirs, ponds, etc.)	134	211,577.50	14.4
Total	**435**	**1,483,532.40**	**100.0**

Source: Nurbayi, et al. 2004. Wetland Situation and Wetland Research in Xinjiang. *Environmental Protection of Xinjiang***26**: 63-66.

Socio-economic context, and past and present land use

10. Xinjiang Uyghur Autonomous Region is the largest provincial level administrative division in China, approximately1,665,000 km^2, with a rapidly growing population already over 21.3 million people. Its annual population growth rate is a staggering 16.8%, resulting mostly from in-migration to the region from other areas of China. All but one of China's 56 ethnic groups (including Han Chinese) live in the region; the largest groups are the Uyghur, Han and Kazakh people. There are 14

prefectures and 88 counties in XUAR, as well as 174 agricultural and stockbreeding farms under the Xinjiang Production and Construction Corps.

11. XUAR is well known for its fruits and other agricultural produce includinggrapes, melons, pears, cotton, wheat, silk, walnuts and sheep. Around 7% of the land is utilised for agriculture. Animal husbandry now accounts for nearly 30% of local agricultural output value. XUAR also has large deposits of minerals and oil and provides natural gas to Shanghai via the national West-East Gas Pipeline. The petrochemical sector (including oil gas and coal resources) accounts for 60% of the region's economy; the region includes the nation's second largest oil fields, the Karamay Oilfield in the Junggar Basin.In recent years, industry has replaced agriculture as the region's pillar economic sector. Tourism has equally seen rapid growth over the past decade. By 2008 the region had opened nearly 500 scenic areas or spots, including many related to the Silk Road history and culture. In 2011, the region hosted 39.61 million visitors and reported 41.1 billion CNY in tourism revenues. Region-wide, the net annual per capita income of farmers was reported at 5，432 CNY. Overall, XUARholds an intermediate position in terms of its economic development score, ranking 13th of China's 31 provinces, regions and municipalities.

12. Bordering Mongolia, Russia and Kazakhstan in northern XUAR, Altai Prefecture (the geographic and ecoregional focus of this project) has a reported population of 602,300 people including 36 nationalities. Kazakh people comprise the largest portion, accounting for around half the total population. In 2011 the total GDP of Altai Prefecture was 16.29 billion CNY. The agricultural sector including animal husbandry, forestry and fisheries accounted for a total 5.1 billion CNY. The tourism sector has equally increased in recent years, and accounted for around 2.98 billion CNY in 2011.

13. Altai Prefecture also is part of a larger bio-geographic context (regional and multi-national) as well as a broad socio-cultural context with a long history and local traditions and livelihoods. The Ertix and Ulungur rivers, for example, link the Prefecture with downstream areas in XUAR and internationally, and through water transfer projects also with all northern XUAR (in other prefectures). There are also many ecological affinities with the broader Altai Sayan Ecoregion, which influence the traditional suite of livelihood options available to local people – most prominently, transhumant livestock husbandry with sheep, camels and horses.

14. On the basis of current livelihood situations, the reported annual per capita income for Kazakh herders in the eastern Altai Mountains (in Qinghe County) is around 1,980 CNY.

15. The environment and natural resources of AMWL, particularly grassland and wetland forage resources, are foundational for the livelihood of pastoral communities in the area, mostly Kazakh herders. Through history, the whole region has long been home to pastoralists – with alpine grasslands used for summer pastures, and the lower lying, more arid lands used in the colder winter season. Such transhumance has been practiced for centuries, largely with a balance maintained between livestock numbers, the timing and duration of their grazing and grassland productivity, biodiversity and resilience. In more recent times, patterns of grazing have changed – largely due to new availability of winter fodder – leading in some situations to dramatic increase in grazing pressures, and in certain places to apparent over-grazing and the degradation of natural resources.

16. Whether or not recent land use practices and patterns have contributed to degradation, local herders and their culture remain an intrinsic part of the Altai Mountain social-ecological system. Archaeological finds in the Altai Mountain region clearly document pastoral culture dating as far back as around 2,500 B.C., to the Scythian nomadic horsemen of the Eurasian Steppe written about by the Ancient Greeks; long before the advent of the Silk Road. A rich socio-cultural history of nomadic and pastoral culture thus exists in the region, which now also may provide the basis for socio-economic development through culture-based tourism. The majority of Kazakh people still feel

strong affinities(at a minimum, cultural roots) with grassland and nomad culture– and this facet of life in Altai Prefecture is integral to current programs of cultural preservation as well as this project's goal to partner with local herding communities to jointly manage the natural resources and biodiversity in the Altai Mountains and to develop alternative livelihood options such as culture-based tourism and ecotourism.

Altai Mountains and Wetland Landscape

17. In geographic terms, the Altai Mountains are amongst the great mountain ranges ofCentral Asia,extendingaround 1,650 km from east to west and shared between Russia (50%), Mongolia (30%), China (10%) and Kazakhstan (10%). The Chinese part of Altai Mountains cover nearly one-quarter of Altai Prefecture in northern XUAR, bordering Mongolia, Russia and Kazakhstan. Broader than the Altai Mountains *per se*, the *Altai Mountains and Wetland Landscape* (AMWL) encompasses nearly two-thirds of Altai Prefecture; it includes not only wetlands in the mountain region but also the waterways and wetlands downstream, within the Ulungur and Ertix Rivers' watersheds including lowlands (Table 2 below clarifies the usage of geographic terms, regions and areas in relation to 'Altai' in northwest China).

18. Altai Prefecture is situated between 45º00'-49º11' N and 85º31'-91º04' E, in northern XUAR, with a total land area of 116,200 km^2. In the north and east, the prefecture boundary follows the ridgeline of the high Altai Mountains, culminating in the far north in the snow-capped Friendship Peak at 4,374 m above sea level. The highest areas are comprised of alpine grasslands and wetland, while the vegetation in the mid-level altitudes includes more forested areas with pine, spruce, cedar, fir, larch and birch. To the south and west of the mountains, the habitat transitions into lower foothills with shrub cover and grassland. Moving down and away from the mountains, the dominant habitat becomes arid and semi-arid steppe, dissected by the Ertix and Ulungur Rivers and their tributaries, and eventually leads to the the extensive, low-lying Gurban Tunggut desert. The Ertix and Ulungur Rivers – known by local people as "the sister rivers" – divide the prefecture into approximately equal halves with the Altai Mountains in the north and Junggar Basin in the south. Annual average temperatures in Altai Prefecture are between -4ºand 3º Celsius, with the lowest and highest recorded temperatures being -51.5 º and 41º, respectively. The annual rainfall is extremely variable across the prefecture, ranging from 100 to 600 mm.

19. The AMWL region has 578,900 ha of forest (including bushes and shrubs), covering around 8% of the landscape. From the low-lying foothills of the Altai Mountain range to the high ridgeline and international border, all forested lands (and all higher elevation areas) in Altai Prefecture are included in the national *Altai Mountains Natural Forest Protection Plan Area*(AMNFPPA) managed by Altai Mountains Forestry Bureau (AMFB) under Xinjiang Forestry Department (XFD) (see Figure 5).

20. Altogether AMWL has 1,378 species of flowering plants, 222 birds, and 54 mammals.Seventy-three of the landscape's 300 vertebrates are nationally protected. The landscapealso harbours many globally endangered species including ibex, argali sheep, red deer, otters and snow leopard (see *Part IV: Profiles of PAs and Biodiversity in AMWL*). AMWLalso supports a small remaining population of the Chinese sub-species of Eurasian beaver, *Castor fiber birulai*, endemic to the Ulungur River watershed.In addition, AMWL includes a unique wetland habitat, China's only known instance of *palsa* and *lithalsa* permafrost mounds.[4]

[4] Both *palsas* and *lithalsas* are permafrost mounds, primarily dependent on "the complex interplay of geomorphological, thermal and hydrological processes" (Calmels, Allard & Delisle 2008). The key difference between the two formations is that *palsas* are covered by peat, whereas *lithalsas* are devoid of peat cover. Both formations generally are found within a landscape of patterned fens, which are typical of West Siberia, Russia – but a unique occurrence also is found in the Altai Mountains of Xinjiang UAR, China.

21. The biodiversity and environmental significance of the Altai Mountains in Chinais particularly remarkable – at local toglobal scales. From a regional perspective, the natural resources of the Altai Mountains' river systems, especially water fromthe Ulungur and Ertix rivers' headwaters, are essential for life. Local residents including Kazakh herding communities are dependant on the grassland and wetland resources of the Altai Mountains and Wetland Landscape (AMWL) for their survival; as also do downstream communities, cities and industries situated in the vast, arid Junggar Basin (who receive water from AMWL through long-distance water transfer schemes). On this basis, the*Altai Mountains Forest and Grassland Ecological FunctionZone* has been designated nationally as one of the country's 25 key 'Ecological Function Zones' (EFZ) that must be protected and managed sustainable. The Altai Mountains also are recognized amongst China's 35 priority 'conservation areas' under the National Biodiversity Conservation Strategic Action Plan (NBCSAP) developed by the Ministry of Environmental Protection, a plan that seeks to control biodiversity loss in China by 2020 (the 35 designated 'conservation areas'together cover 23 percent of the national territory).

22. Internationally, the Altai Mountains are recognized for their biodiversity value as part of the *Altai-SayanEcoregion* (Figure 3),one of WWF's Global 200 Ecoregions of the world.[5]Thisecoregion occupies over 1,000,000 km^2, mostly in Russia and Mongolia. (The Chinese portion has received the least attention to date.) The ecoregion's floral and faunal diversity is high for temperate latitudes, with significant populations of large mammals including the endangered snow leopard and argali sheep. Altogether there are over 60 mammalian species in the ecoregion, around 300 bird species, and more than 300 rare or endemic plant species. More detailed information about the Altai-Sayan Ecoregion is given in Annex 2. Four of XUAR's 40 internationally recognized *Important Bird Areas* (IBAs, BirdLife International) are situated in AMWL: 'Burqin River and Kanas Lake', 'Altai Forest and Steppe', 'Ulungur Lake and Juli Lake' and 'Burgen River Valley' IBAs.

23. Concerning watersheds and waterways in AMWL, it is also noteworthy that two of its rivers are international rivers: One of the Ulungur River's four tributaries comes from Mongolia (the Bulgan River), and the Ertix River flows from China through Kazakhstan and Siberia (Russia) northward all the way to the Arctic Ocean. The Ertix River is recognized as globally significantunder the Freshwater Ecoregions of the World (FEOW) bioregional classification system (where it is known as the*Upper Irtysh [Ertix] Freshwater Ecoregion*).

[5] The 'Global 200 Ecoregions' are pristine or little-changed regions in the world,in which are concentrated over 90% of the planet's biodiversity.

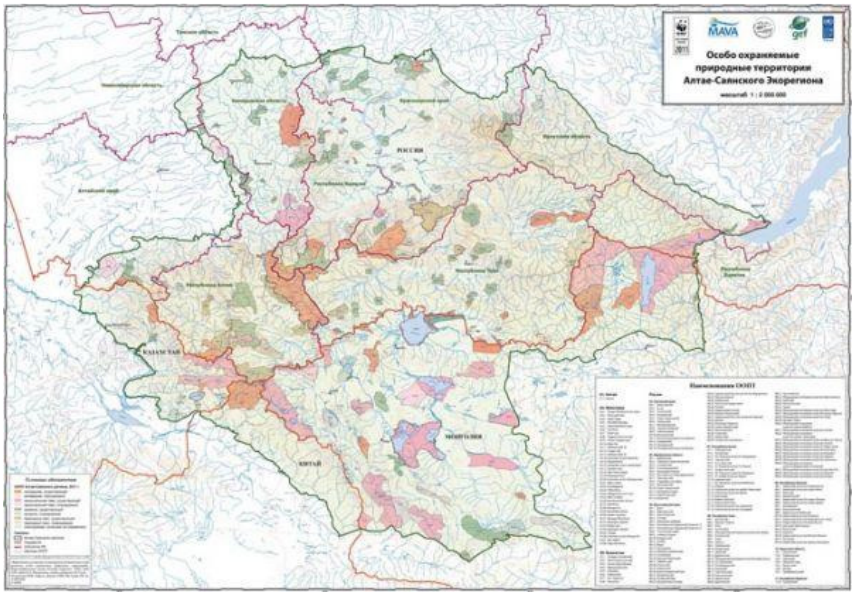


Figure 3. Map of the Altai-Sayan Ecoregion and its international PA Network, including existing and planned PAs in Russia, Mongolia, Kazakhstan and China. Based on the UNDP's GEF-financed project *Conservation of Biodiversity in the Russian portion of the Altai-Sayan Ecoregion (2005-2010).*(Data incomplete in Chinese portion of the Ecoregion).

Table 2. Geographic regions of AMFA, AMWL and Altai Prefecture.

Geographic regions	Area (ha)	Additional notes	Nature Reserves
Altai Mountains Forestry Area (AMFA)	2.74 million ha, nearly 1/4 of Altai Prefecture	Includes the Altai Mountains with the upper reaches (tributaries) and headwaters of Ulungur and Ertix Rivers in themountains	Two NRs: the Kanas NNR and Liangheyuan NR, with a total area of 900,938 ha, about 33% of AMFA
Altai Mountains and Wetland Landscape (AMWL)	7.33 million ha, 62% of Altai Prefecture	Includes both the Altai Mountains and the Ulungur and Ertix Rivers' watersheds downstream in the lowlands of Altai Prefecture	Six NRs: the Kanas NNR, Liangheyuan NR, Buergen NR, Kekesu Wetland NR, Ertix River Keketuohai NR and Jingtasi NR, with a total area of 1,092,349 ha, about 15% of AMWL
Altai Prefecture	11.77 million ha	Includes the Altai Mountains and all of the prefecture's lowlands including vast desert areas in South of Ulungur River and Ertix River	Seven NRs: the Kanas NNR, Liangheyuan NR, Buergen NR, Kekesu Wetland NR, Ertix River Keketuohai NR, Jingtasi NRand Kalamaili NR, with a total area of 2,438,765 ha, about 20% of Altai Prefecture

24. The Ertix and Ulungur Rivers and their tributaries and headwaters constitute the main wetland system in the Chinese Altai area. Including the montane region and these two river systems (in the mountains as well as the central plains and associated wetlands), the AMWL encompasses around two-thirds of Altai Prefecture; however the southern desert portion of Altai Prefecture in the Junggar Basin is excluded. From west to east, AMWL includes all of Habahe and Buerqin counties, all of Altai city (county), the northern half of Fuhai and Fuyun counties, and the northern two-thirds of Qinghe county (Figure 4). The landscape straddles a large altitudinal spectrum, ranging from 315 m to 4,374 m above sea level.

25. Altogether the Altai Mountains have 416 glaciers with a total water storage capacity of 16.492 billion cubic metres. Across the prefecture, there are 21 lakes larger than 100 ha including Kanas, Ulungur and Jili lakes. The prefecture has a total of 56 rivers, most of which flow into the Ertix and Ulungur Rivers. The Ertix River has a total annual flow of 10.749 billion cubic meters per year, while the Ulungur River has a total flow of 1.085 billion cubic meters. The water resources that originate in these rivers' headwaters, regulated and purified by the irreplaceable wetlands in these source areas as well as downstream, provision most of northern Xinjiang with the water necessary for life – for crop irrigation, fisheries, human consumption, mining and petro-chemical industries, and the entire array of wildlife (resident and migratory) that depend on water and on wetland and riparian habitats for their survival.

26. The Altai Mountains and their associated wetland ecosystems (AMWL) provide many critical ecosystem services such as watershed protection and regulation of water quality as well as climate regulation. Over 90,000 ha of peatlands are widely distributed in the Altai Mountains, which contain up to 3,000 tonnes per ha, or an estimated total amount of 300 million tonnes of carbon (over 1 billion tonnes of carbon dioxide equivalent) – which has clear implications for the emission, maintenance or sequestration of GHGs, according to whether or not the peatlands of the AMWL are degraded, protected or restored in the future.

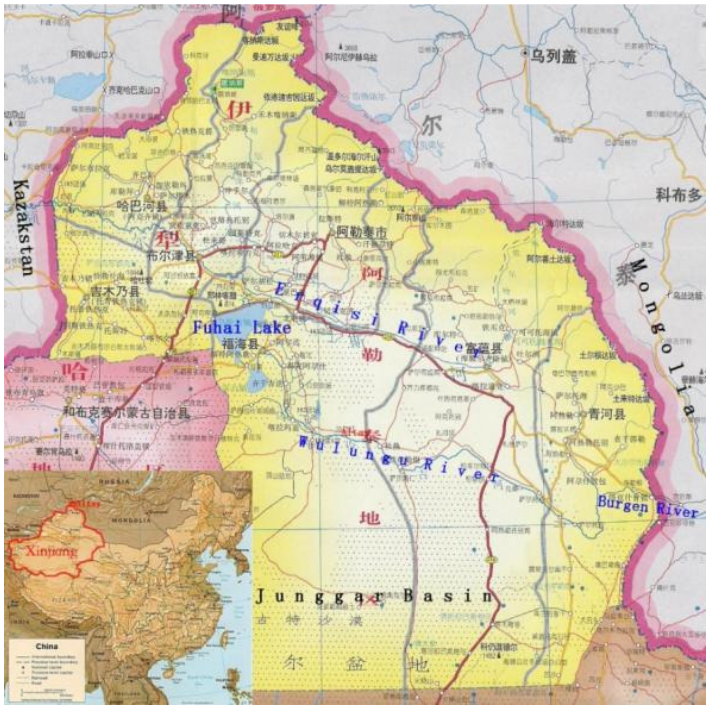


Figure 4. Location of *Altai Mountains and Wetland Landscape* and the main river systems in Altai Prefecture (i.e., the Ertix and Ulungur Rivers).

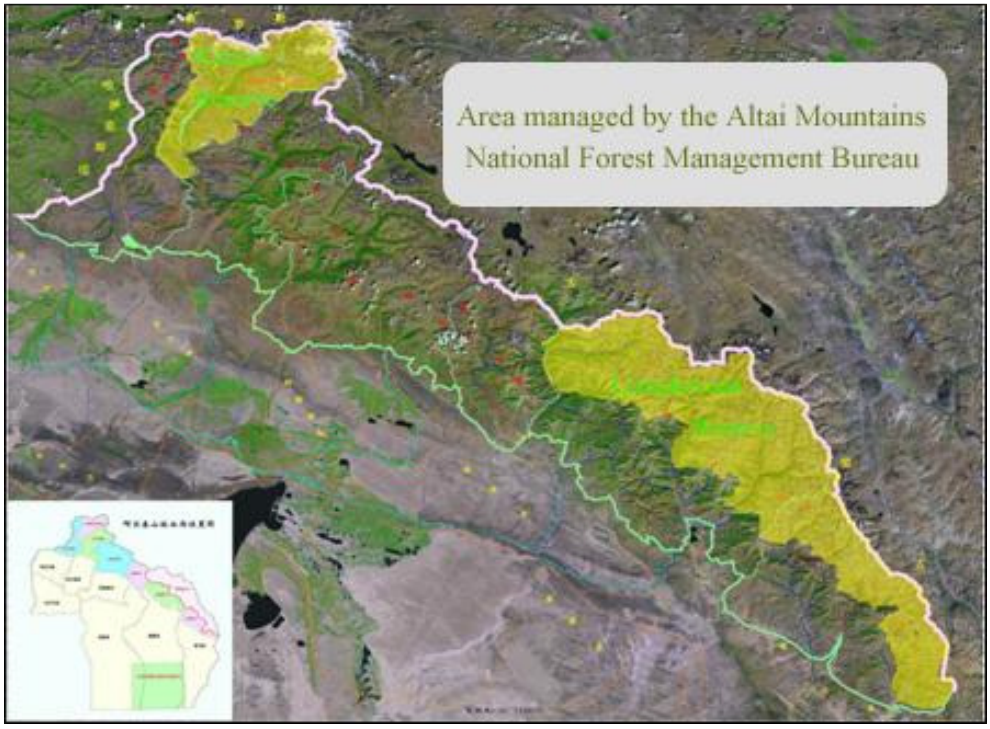


Figure 5. Mountain and forested area in Altai Prefecture (see inset) administered by Altai Mountains National Forest Management Bureau, or Altai Mountains Forestry Bureau (AMFB).

The areaincludes *Altai Mountains NFPP Area*, which is managed through sixcounty-level branches and 147 protection stations. Kanas NNR and Liangheyuan PNR are included inthe area managed by AMFB. Liangheyuan PNRis a focal site in the project.

Protected area system: Current status and coverage

27. To help protect special habitats and maintain viable wildlife populations in XUAR, and to maintain the ecological integrity of the region, an extensive system of Protected Areas (PA) has been established in XUAR including the AMWL region. However the management effectiveness of current PAs, the extent and scope of regional and landscape PA systems, the mainstreaming of environmental concerns across different government sectors and the level of participation and partnership with local communities all could be significantly improved throughout the province.

At provincial level, the development of Nature Reserves (NRs) for the protection of ecosystems and endangered wildlife under the Regulations on Nature Reserves (1994)[6] has led to formal protection status extending in total to 35 NRs covering 229,523km^2, or around 13% of the land area with 9 national, 20 provincial and 6 local NRs(see Figure 6 and Table 3). The 2 NRs under Department of Environmental Protection – which together comprise half of the area in XUAR under 'protected status'– are the A'erjin Mountains and Lop Nor Wild Camel National NRs, both in Ruoqiang County in southern XUAR.For a full list of PAs in XUAR, see Annex 3.

28. Between 2006 and 2030, the government anticipates the creation of an additional 30 NRs, which would nearly double the area under formal protection as NRs to 26% of XUAR's land area.

[6]Under the Regulations on Nature Reserves (NRs), NRs can be designated at the national, provincial, and local levels. National NRs are NRs with national and international significant biodiversity or specific research value, and proclamation of a National NR has to be approved by the State Council, thus making these conservation areas of the highest category. Local governments can apply for upgrading Provincial NRs to the National NR level after three years of existence of the NR. Local Departments can apply for a provincial, municipal or county-level NR status, which requires approval from local governments at the corresponding level. There are no differences in management objectives of national, provincial or local level NRs: the main difference is the degree of support in terms of financial and human resource provisions and support through programs, which are higher for the national level NRs

Twenty-eight of the current NRs are managed by departments of forestry, with the following focal interests: 2 NRs focus on desert biomes, 9 on forests, 7 on wildlife, 7 on wetlands, and 3 on wild plants.

29. The broader PA system[7]in XUAR also includes forest parks, wetland parks, scenic areas etc., with variable levels of protection and management status. Altogether the XUAR's comprehensive PA system is fairly representative across ecosystems, with an over-arching goal to safeguard the region's rich biological, geographical and cultural legacy. Forest parks in particular bring an additional of 12,964 km^2 of land in 56 sites into the regional PA network. It is recognized, however, that inadequate resources are available to effectively manage the comprehensive PA system, including financing as well as institutional and staff capacities—the two main areas where PA systems strengthening will be required to make lasting contributions to regional conservation goals.

30. The PA network in Altai Prefecture includes 7 NRs – their approximate locations are shown as numbers 1 through 6 and number 11 in the provincial NR map below(Figure 6); these NRs also are shown in the Altai Prefecture map below (Figure 7). Basic information about these NRs and several other PAs of different types in AMWL is presented in Table 4; photographs of several of AMWL's wetlands are presented in Annex 4. Other types of PAs also include the NFPP areas in the Altai Mountains (Figure 5) and (sometimes overlapping) local and national forest parks, wetland parks, scenic areas and possibly some community conserved areas.[8]Up to present, three of XUAR's internationally recognized IBAs have only partial protection, and one of the IBAs has no formal protection status.

31. Five of the NRs in Altai Prefecturespecially prioritize theprotection of wetlands and their ecological services, or have significant wetlands in their boundaries: the Liangheyuan, Buergen Beaver, Kekesu Wetlands, Kanas, and Ertix River Keketuohai Wetlands NRs (these NRs are highlighted with an asterisk in Table 4). A more detailed description of these NRs is presented in *Part IV: Profiles of PAs*.

32. Beyond NRs, the *Altai Mountains NFPP Area*(also see *Institutional Context* below) provides significant additional protection for AMWL biodiversity and ecological services.[9] Specifically, logging has beenbanned in this protection area since 1998. This is an area that previously was main source of timber for Altai Prefecture and XUAR. Forest fires also are controlled in this area, and the illegal harvest of plants and wildlife poaching are prohibited. Under the administration of AMFB,[10] this vast area is the largest 'protection unit' in the prefecture. In addition, the NFPP areas in AMWL encompass, geographically, both the second and third largest NRs in Altai Prefecture, Liangheyuan and Kanas NRs. Increased recognition and inclusion of the Prefecture's 6 NFPP areas (in six

[7] Protected Areas (PAs) are broadly defined as areas with some level of explicit conservation purpose. The strictest PAs are formally conserved lands such as Nature Reserves (NRs). However other categories of PAs also exist, including forest parks, wetland parks, scenic areas, some cultural or religious sites, and a variety of community conserved areas (CCAs). (NRs are one kind of PA, but not all PAs are NRs.) Thus, the development and strengthening of the PA Network in XUAR and AMWL allow for some creativity in reaching conservation goals, including mainstreaming of environmental objectives across sectors and developing community co-management as a tool for conservation through partnership with local Kazakh herding communities.

[8] CCAs may exist inside or outside of formally designated conservation areas. Traditional land use practices often have developed over centuries in ways that promote sustainability, consistent with the environmental objectives of a PA network.

[9] Under the national Natural Forest Protection Project (NFPP) for the Altai Mountains, a large part of Altai Prefecture is now protected under AMFB administration. Although NFPP is a 'project' rather than a permanent 'protected area' and the long-term fate of this important montane and forested area is uncertain (the 2nd phase of this project extends from 2010 to 2020), nonetheless – with the development of new livelihoods in the area, experimentation with co-management approaches, and a professional upgrading through training of AMFB field staff – biodiversity conservation in the NFPP area may be promoted in the coming few years, in such ways as to ensure longer-term benefits as well. Also see Figure 5 and Table 4 for more detailed information about the Altai Mountains NFPP Areas.

[10] AMFBis charged with administration of the Altai Mountains NFPP Areas through sixbranch offices (in six counties) and 147 protection stations. The AMFB also administersLiangheyuan NR, largely through two field stations: the Sandaohaizi Protection Station and Kuermutu Protection Station.

counties) in the PA Network will greatly enhance conservation outcomes in AMWL, throughenhanced monitoring and protection of ecological and biodiversity conditions.

33. In addition there are at least five more NRs or National Parks in the Altai Mountains region, in neighboring countries, which deserve special mention (Figures 8):

(i) Bulgan Gol NR in Mongolia, which borders the Buergen Beaver NR in China;

(ii) Altai Tavan Bodg NP in Mongolia,[11] which shares borders with Liangheyuan NR and Kanas NR in China;

(iii) Zona Pokoya Ukok NR in Russia, which borders Kanas NR in China;

(iv) Karagalskly NR in Kazakhstan, which borders Kanas NR in China; and

(v) Kabinskly NR in Kazakhstan.

34. Based on the current extent and status of the PA network in AMWL, the primary gaps that should be addressed through the project include: (i) more wetlands under protected status (including forest and wetland parks); (ii) a *de facto* functional extension of Liangheyuan NR to encompass a larger portion of the ecologically significant headwaters of the Ulungur and Ertix Rivers, as well as increased connectivity between AMWL and the Tavan Bogd NP in Mongolia; (iii) Liangheyuan and Buergen Beaver NRs enhanced to national level status; and (iv) function and capacity of Altai Mountains NFPPs (under AMFB) enhanced to encompass a broader suite of environmental monitoring and conservation responsibilities, integrating them more fully into the AMWL PA Network in the short term (up to 2020) and in the longer term mainstreaming PA objectives into land management practices. Altogether, addressing these gaps will help increase the overall conservation area in AMWL throughlegal extensionsas well as creation of *de facto* buffer zones for NRs such as Kanas and Liangheyuan NRs.

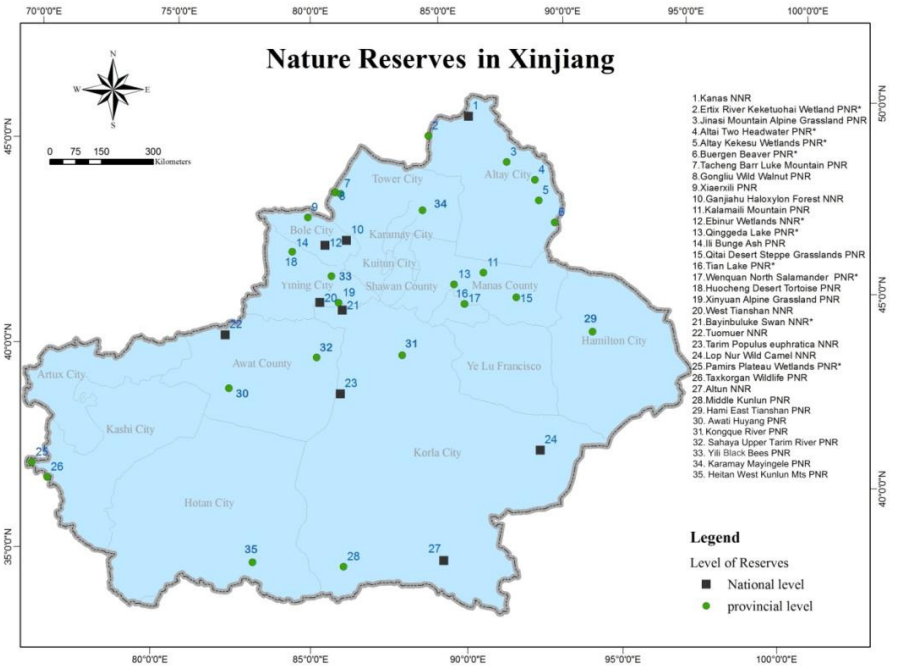


Figure 6. Nature Reserves (NRs) in XUAR. The NRs situated in AMWL are numbers 1-6 and 11.

[11]After Liangheyuan NR in China, the Altai Tavan Bogd NP in Mongolia is the second largest protected area in the region. It includes the headwaters of Khovd River. Established in 1996 and covering 636,200 ha, this PA encompasses a significant portion of the trans-frontier Russian-Chinese-Mongolian PA network, which cumulatively covers approximately 20,000 km^{2}in the central part of the Altai Mountains.

Table 3. Government departments in XUAR responsible for NRs, and total land area protected.

Management authorities	Number of NRs	Total area (ha)
Xinjiang Forestry Department (XFD)	28	10,488,826
Environment Protection(A'erjin Mountains NR, Lop Nor Wild Camel NR)	2	12,300,000
Agriculture (Fuhai Jintasi Rangeland NR, Xinyuan Meadow NR, Qitai Desert NR, and Yili Black Bee NR)	4	160,600
Xinjiang Production and Construction Corps (Qinggeda Lake Wetland NR)	1	2,912
Total number of NRs in XUAR, and area covered	**35**	**22,952,334**

Figure 7. Location of eight key PAs in Altai Prefecture, including 7 NRs. The map includes the prefecture and county boundaries, as well as the two major rivers systems of the Altai Mountains and Wetland Landscape.

Table 4. PAsystem in Altai Prefecture.

Name	Est.	Area (ha)	Geographic region	Main objective	Mgmt authority	Annual budget (USD) **	No. staff **
* Liangheyuan NR	2001	680,776	AMFA	Wetland & biodiversity conservation	AMFB and XFD	NR operational budget (excluding salaries): $62,794 Project or other supplementary: $5,218,210	50 permanent 5 seasonal
* Kanas NNR	1980	220,162	AMFA	Wetland & biodiversity conservation, tourism	Altai Govt [1]and XFD	NR operational budget (excluding salaries): $1,412,872 Project or other supplementary: $1,412,872	345 permanent 152 seasonal
* Kekesu Wetlands PNR	2001	30,667	AMWL	Wetland & biodiversity conservation	AFB and XFD	NR operational budget (excluding salaries): $5,000 Project or other supplementary: $403,000	12 permanent 5 seasonal
* Buergen Beaver PNR	1980	5,000	AMWL	Wetland & biodiversity conservation	AFB and XFD	NR operational budget (excluding salaries): $11,928 Project or other supplementary: $4,708	10 permanent 7 seasonal
* Ertix River Keketuohai Wetland PNR	2005	99,040	AMWL	Wetland and biodiversity conservation	AFB and XFD	NR operational budget (excluding salaries): $23,000 Project or other supplementary: $0	5 permanent 5 seasonal
Jingtasi Rangeland PNR	1986	56,700	AMWL	Grassland conservation	Pasture Bureau		
Ulungur Lake Endemic Fish NationalFisher y Germplasm Resources PA	2010	3,000	AMWL	Local fish conservation	Agriculture Bureau		

Kalamaili Ungulate PNR [2]	1982	1,346,420	Altai Prefecture	Biodiversity conservation	AFB and XFD
Ulungur Lake National Wetland Park	2012	127,000	AMWL	Tourism, education	AFB and XFD
Wuqilike National Wetland Park	2011	110,188	AMFA	Tourism, education	AMFB and XFD
Kelan River National Wetland Park	2011	752,500	AMFA	Tourism, education	AMFB and XFD
Fuhai-wenquan National Forest Park	2006	57,825	AMFA	Tourism, education	AMFB and XFD
Baihaba National Forest Park	1999	48,376	AMFA	Tourism, education	AMFB and XFD
HabaheWhite Birch National Forest Park	2002	24,701	AMWL	Tourism, education	AFB and XFD
Jiadengyu National Forest Park	2000	38,985	AMFA	Tourism, education	AMFB and XFD
Daqinghe Forest Park (provincial)	2000	31,236	AMFA	Tourism, education	AMFB and XFD
Shenzhongshan Forest Park (provincial)	2004	68,070	AMFA	Tourism, education	AMFB and XFD
Xiaodonggou Forest Park (provincial)	1996	1,495	AMFA	Tourism, education	AMFB and XFD
Altai Mountains NFPP area	2011 - 2020	1,335,293	AMFA	Natural forest protection	AMFB and XFD

* NRs that specifically prioritize the protection of wetlands and their ecological services, or with significant wetlands in their boundaries.

** Additional information available for AMWL's 5 wetland NRs (i.e., annual budget, and staffing).

1. The greater Kanas area has several different classifications, including NNRand national tourism scenic area. In practice, the Kanas area is under the oversight and management of the Government of Altai Prefecture.

2. The NR land area included in this table is the portion of the NR in Altai Prefecture. The other part is located in Changji Prefecture. The total area of Kalamaili Ungulate NR is 1,800,000 ha.

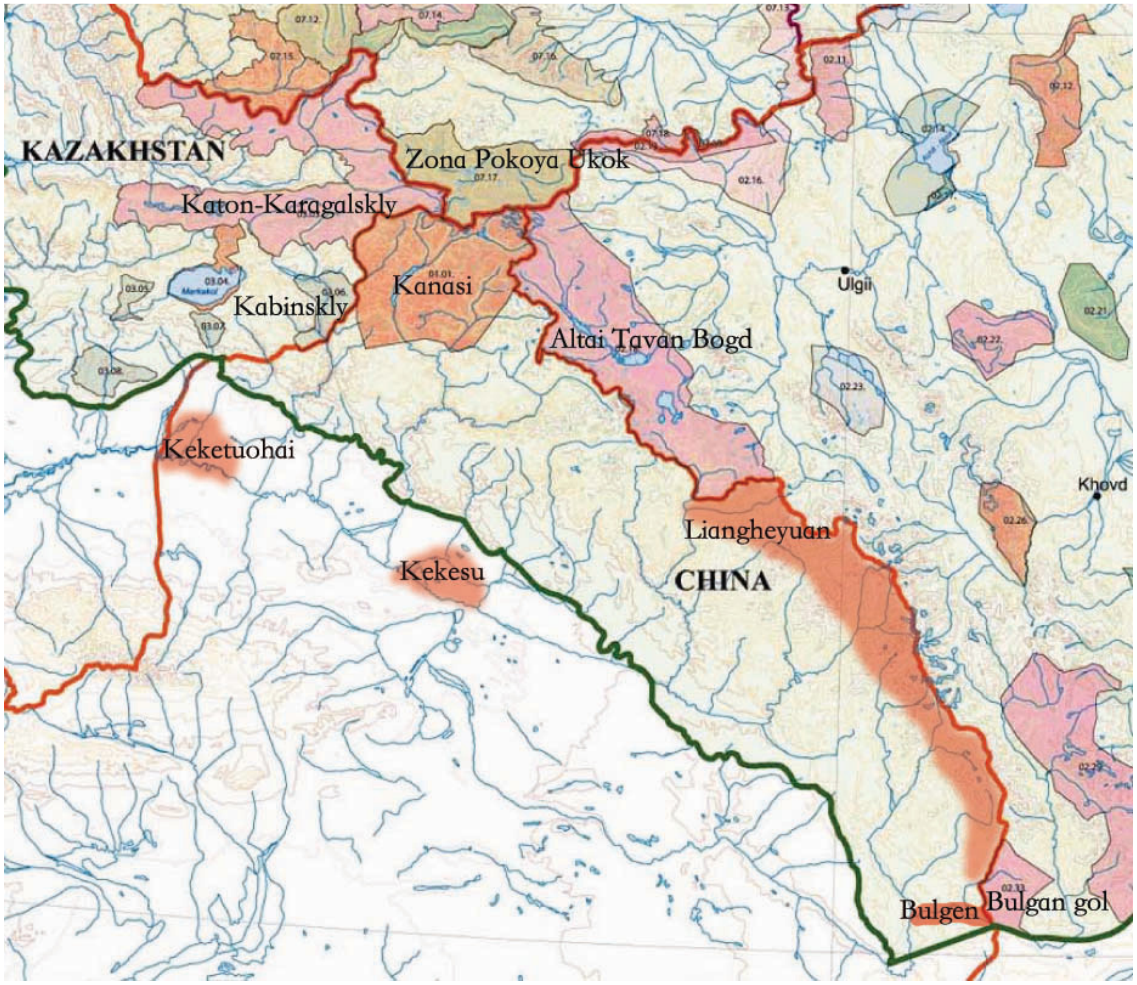


Figure 8. Regional AMWL PA System, including key PAs in China as well as neighbouring countries.

Institutional context

35. At national and provincial levels, environmental protection, biodiversity conservation and nature reserve (NR) management are the responsibilities of a wide variety of government ministries and departments. The highest authority for the NR system in China is the Ministry of Environmental Protection (MEP), with an administrative level higher than the State Forestry Administration (SFA). [12] Most NRs (also the largest coverage of NRs) – primarily with a focus on wildlife conservation, forest conservation and wetland conservation – are under the jurisdiction of SFA and its provincial departments; however the MEP has the authority to coordinate SFA and other ministries with NRs, and has final authority to decide which NR are upgraded to national level, through organization of specialist groups for evaluation of proposals for status upgrading. MEP also is charged with matters relating to pollution and China's participation in the Convention on Biological Diversity (CBD).

36. In terms of regular operations, most wildlife research and conservation and also the administration of NRs and coordination of wetland protection are within the remit of the SFA and its provincial Forestry Departments. National and provincial ministries/departments of agriculture, land and resources, water resources and several other government agencies also have some NRs (and other PAs, including geologic parks, wetland parks, scenic areas) within their jurisdiction; but these

[12]SFA used to be higher than MEP, then it was at same level; however nowthe SFA level is sub-ministerial (below MEP).

are fewer and cover smaller geographic areas than NRs under Forestry administration. SFA sets technical standards for NRs, provides technical programme support, manages the central database, and ensures effective management of the national NR system.

37. Within SFA, the *National Wetland Conservation Centre*is designated to organize and coordinate national wetland protection measures as well as implementation of international conventions such as the Ramsar Convention; at provincial level, these responsibilities are assumed by the XFD Wetland Conservation and PA Management Office. The Wetland Conservation Centre's major responsibilities include (i) drafting wetland related protection laws and regulations, studying and developing technical standards for wetland protection, formulating national and regional wetland protection plans, and organizing the implementation of protection plans; (ii) organizing and implementing the investigation, regular monitoring and quantification of national wetland resources; (iii) organizing and implementing protection and management activities such as establishing wetland park, etc.; (iv) fulfilling international obligations on behalf of the People's Republic of China; and (v) developing international cooperation projects for wetland protection. Provincial forestry departments parallel this national structure.

38. Most wetland management functions in XUAR are undertaken by the *Wetland Conservation and PA Management Office* of the provincial Forestry Department(XFD) and by lower level wildlife management offices and protection stations. Additionally, while wetland areas are managed through the Forestry sector, the management and administration of water resources *per se*also fall under the jurisdiction of Water Resources bureaus at multiple levels, and to a lesser degree also of agriculturalbureaus including livestock, pasture and grassland bureaus and offices. (This does cause confusion and some complications, as multiple sectors have competing and overlapping areas of interest – for conservation as well as development purposes – in wetlands and water.)

39. Although there is no difference in overall management objectives between national and provincial NRs, whether wetland PAs or otherwise, national level NRs generally receive much higher government investment and are better resourced and more respected (better recognized) across government sectors and by the general public. National NRs can more easily access national funding for improvementsin their basic capacity for management (including infrastructure, roads, equipment, and some personnel costs).However such national funds do not generally cover costs for training, for environmental and wildlife monitoring,or for law enforcement.

40. At provincial level, most NRs in XUAR are managed by the Forestry Department;however the Xinjiang Environmental Protection Department also oversees two NRs, which together comprise the largest area under 'protected status' in the province.A smallnumber of NRs are managed by the departmentsof Agriculture, Pastoralism, and the Xinjiang Army Construction Corps (see Table 3). Provincial authoritiesare responsible for management of the provincial NR system and for site management including PA staffing and financing of site level operations.

41. At the prefecture and lower site levels, most NRs are managed by theforestry bureauswithin local governments.NRs established by other departments in XUAR also are managed at local level through their respective bureaus under prefectural and county governments. Prefectural (or lower tier) governments also are jointly responsible (together with provincial government) for site level NR management and operations, and provide staff and financing for the operation of some NRs.

42. In Altai Prefecture, there are two different parallel Forestry bureaus operating in the prefecture simultaneously, each with different responsibilities for forest lands and NRs– with *Altai Mountains Forestry Bureau* (AMFB) responsible for the Altai Mountains Forestry Area (AMFA) including its forest lands and NRs, and the *Altai Forestry Bureau* (AFB) responsible for all other forest lands (including shrublands in lower lying areas as well as riparian forests along the rivers that run through in the desert basins) and several other NRs in the prefecture.

43. The AMFB is one ofthree national forestry sections in XUAR responsible for the administration of mountain areas of special national and global significance, managed directly under SFA and Xinjiang Forestry Department (XFD): the West Tianshan, East Tianshan and Altai Mountains Forestry Bureaus. The reporting arrangement for these special Bureaus is directly to XFD and SFA; not through Prefecture governments. Yet, even in such specially designated mountain areas, the standard government administrative structuresalso remain in place – with prefecture and county level Forestry Bureaus still operating under the authority of Prefecture Government. Thus in Altai Prefecture,AFBis responsible for several NRs and for forest lands in the lower-lying areas and reports to Prefecture Government; and AMFB[13]is responsible for Liangheyuan NR and the entire mountain area in Altai Prefecture (including forest and non-forest lands) and reports to XFD (and through XFD to SFA) (see Figure 5 and Table 4). AMFB is also responsible,on behalf of XFD,for all of the wetland parks in the Altai Mountains.

44. At local PA site level, NR field staff and other Forestry staff are mostly hired through county administrations. Higher level technical support for NRs comes from prefecture and provincial bureaus such as AFB and AMFB. Yet at local level (e.g., county government) many development decisions, including decisions that may affect NRs, are regularly made by local bureaus and leaders who may not understand or value conservation objectives – hence a need for greater inter-sectoral, multi-level coordination and integrated development planning.

Policy and legislative context

45. In 2003, the SFA and the ministries of Science and Technology, Land and Resources, Agriculture, Water Resources, Housing and Urban-Rural Developmentand Environmental Protectionas well as the State Oceanic Administration jointly formulated the Nation-wide *Wetlands Conservation Program (2004-2030),* which was approved by the State Council of China; implementation began in 2006. According to this program, by 2030 the number of wetlands NRs will be increased to 713, Ramsar sites will be increased to 80 sites, more than 90% of natural wetlands will be protected effectively, and in total 1,404,000 ha of wetlands will be restored. It is also planned that 53 national demonstration pilots will be established forwetland conservation and wise use. In this way China shall have a relatively sound system of legislation, monitoring and scientific-research for wetland PAs. Many of these program elements have already been integrated into China's current*12th Five Year Plan*, which sets specific targets and tasks for wetland conservation and management in China.

46. Four broad wetlandtargets were setinthe 12th Five Year Plan (FYP) period (2011-15): (i) establishment of a comprehensive wetland PA system, which consists of NRs and wetland parks, bringing 55% of China's natural wetlands under legal protection; (ii) restoration of 100,000 ha of reclaimed or degraded wetlands, to enhance their resiliencies; (iii) promotion of sustainable use of wetlands in China; and (iv) Capacity building for national and provincial level wetland conservation and management staff and institutions, including wetland monitoring, evaluation, research, public awareness and outreach capacity.

47. Other significant elements in China's 12th FYP that support project objectives (and vice versa) include: (i) ecological and environmental protection are designated top priorities for development in western China, including XUAR; (ii) the carbon sequestration capacities of forests (and wetlands) should be increased; (iii) adaptive mechanisms in the face of climate change should be developed, in particular in forests and wetlands; (iv) integrated land use and exploration for mineral resources should be rationalized; (v) ecological conservation and restoration should be promoted, with focus on nationally recognized Ecological Function Areas; (vi) eco-compensation mechansims should be developed and established as soon as possible; (vii) key ecological restoration

[13] The full name of AMFB is "Altai Mountains National Forest Management Bureau."

programs should be implemented and strengthened, such as the Natural Forest Protection Plan (NFPP) and the protection of grasslands and wetlands; (viii) regional and international cooperations should be encouraged; (ix) inter-sectoral coordination and planning should be strengthened; and (x) government at sub-national levels shall develop plans according to their specific situations and their strengths.

48. The designation of key *Ecological Function Zones* by the State Council of China in 2010 aimed to promote efficiency and coordination of sustainable land use patterns at national level. This significantzoning policy divides the country into four zones: *priority*, *key*, *regulated*, and *restricted* development zones. Two of these ecological function zones are directly related to the project, namely the *regulated* and *restricted* development zones. All National NRs as well as World Heritage Sites and national scenic areas, forest parks and geological parks belong to the 'restricted development' category. The *Altai Mountain Forest-Grassland Ecological Function Area*, on the other hand, is a'key ecological function area' within the national 'regulated development zone' category (the other sub-category is 'key agriculture production area'). All provincial governments also are urged to develop and promulgate their own provincial main ecological function zoning, in which provincial nature reserves, scenic parks, forest parks and geological parks are to be included within provincial level restricted development zones.

49. Both the 12thNational Forestry Development FYP (2011-2015) and the 2ndphase of Natural Forest Protection Plan(2011-2020) also attach great importance to the conservation of wetlands and to their wise use, with a special focus on the management of Ramsar sites, wetlands of national importance, and wetland PA systems. These two programs highlight and prioritize coastal wetlands, high altitude wetlands, migratory flyway network sites, and trans-boundary wetlands.The 12thNational Water Resource Conservation FYP (2011-2015) identified six major tasks, two of which focus on wetlands: the enhancement of wetland ecological services for flood mitigation, and the ecological rehabilitation of key rivers and lakes. The 12th National Environmental Protection FYP (2011-2015) also focuses on key issues related to water including control of water pollution, enhancement of aquatic environmental quality, and enforcement of ecological protection and inspection.

50. At provincial level, four key elements are contained in the XUAR 12th FYP that relate to the project's objectives, as outlined inTable 5).According to the Xinjiang Forestry Department 12th FYP, further development of the provincial PA system will be transferred from site-based to a network-based approach. The wetland monitoring system also will be improved and over 55% of provincial wetlands will come under effective conservation. In addition, the Altai Mountains are identified as one of three nationally significant mountain forest areas in the province (Altai Mountains, Tianshan Mountains, Kunlun Mountains) in which the NFPP, nature reserve construction and wetland conservation will be developed and enforced. The forest ecological compensation strategy and wetland ecological benefit compensation strategy will equally be improved and enforced. Nationally significant wetlands, wetland NRs and national wetland parks in XUAR will be developed as pilot areas for wetland ecological benefit compensation. The evaluation of ecological value for 'ecological function zones' and establishment of forest and wetland monitoring network are listed as key scientific projects for forestry science and technology innovation.

51. In specific terms, XUAR issued its wetland conservation regulations in 2012, which provide the legal basis for future use and conservation of wetlands in the region. The regulations were issued by the Standing Committee of Xinjiang UAR People's Congress on 31 July 2012, and are valid from 1 October 2012. Major elements of the *Xinjiang Wetland Conservation Regulations* (XWCR) as pertaining to this project include the following:

- wetlands in Xinjiang will be categorized as important wetlands and common wetlands;

- the conservation of wetlands will be mainstreamed as with national socio-economic development planning, and specific fund for wetland conservation will be established
- the date of May 25 will be assigned in Xinjiang for wetlands conservation awareness;
- a list of *Important Wetlands for Conservation in Xinjiang* will be developed by the Xinjiang Forestry Department (XFD) and collaborations will be developed with other relevant sectors; the list will be formally issued by Government of XUAR;
- the forestry administrative sectors in the People's Government at the county level and above will take responsibility for the development of wetland conservation planning in each of their respective administrative areas;
- wetlands listed as internationally important wetlandsites (Ramsar Convention), listed as nationally significant wetlands and some other key wetlands should be protected as new wetland NRs;
- wetlands that are degraded due to lack of water resource, over-grazing or reclamation should be restored by the People's Government at the county level or above; and
- all construction in wetland areas in XUAR should obey the wetland conservation plan, and also should undergo a formal Environmental Impact Assessment (EIA) process.

52. Further demonstrating its commitment to wetland protection and sustainable use, XUAR also has formulated a series of relevant laws and regulations (only 12 provinces or regions in China have issued their local wetland laws and regulations) including provincial ordinances for Nature Reserve Management, Wild Plants Protection, Natural Forest Protection, Environmental Protection Ordinances, River Course Management, Underground Water Resources Management, Tarim River Basin Water Resources Management, Water Fee Collection Management Approach, Bortala Mongol Autonomous Region Spring Xinjiang *Ranodon sibiricus* Nature Reserve Management, Tianshan Tianchi Scenic Resort Protection and Management, etc. These laws and regulations play an active role in protecting wetlands.

Table 5. XUAR's 12th Five Year Plan

Key elements of the XUAR 12thFYP	Related elements in the national 12thFYP	Relevance to the project
Improvement of people's quality of life (housing, employment, education, social security, etc.)	- Western Development Strategy (WDS)	Well-being of local people, community co-management
Modernization of agriculture and animal husbandry	(Same as national plan)	Grassland and wetland management, conservation of resources, maintenance of ecological services
To further open to the outside world, international cooperation	(Same as national plan)	Trans-frontier cooperation, conservation of landscape and regional biodiversity, connectivity, adaptation to climate change
Strengthening of ecological and environmental protection	- Western Development Strategy (WDS) - Natural Forest Protection Project (NFPP) - National Key Ecological Function Zoning Policy - Grain for Green Program - Three North Shelterbelt Program - Grassland protection, and eco-	Much of the project is directly in line with the Xinjiang 12th Five Year Plan (Eco-compensation, however, is not included specifically in the provincial Plan.)

	compensation scheme	

THREATS, ROOT CAUSES AND IMPACTS

53. With a complexity of ecosystem types, land use patterns and administrative overlays in XUAR, as well as different levels of protection status across the region, the distribution and intensity of threats to biodiversity and to ecological functions in such a large geographic area are not uniform. Yet a preliminary assessment of current and anticipated threats to biodiversity in the project area reveals the following general situation: Natural habitat is being degraded, decreased (lost) and fragmented; climate change is affecting many parts of the province, largely through desiccation; desertification is increasing in some areas; natural resources are being over-exploited in some areas of the province; and pollution is of increasing concern, especially where industry is increasing and where mineral exploration and extraction occur. This situation affects the entire province but is most pronounced in rangeland, wetland and mountain areas such as AMWL in northern XUAR.

54. Threats to biodiversity also can be categorized into four broad categories: **habitat degradation, habitat loss and fragmentation, over-exploitation**, and **climate change**. The main relations between key development sectors and these four categories of threat are summarized in Table 6 below.

55. As a tangible example, and a focal landscape in this project, specific threats that can be highlighted in AMWL include (i) livestock overgrazing and agricultural policies and practices that promote increases in livestock numbers; (ii) water management practices such as the construction of dams and other irrigation projects that fragment river systems; (iii) illegal harvest of natural resources and destruction of fragile riparian vegetation; (iv) mining pollution and other mining damage; (v) unplanned or inappropriate tourism development; (vi) construction of new roads that increase access to (disturbance of) ecologically fragile areas; (vii) construction of fences that will hinder wildlife movements; (viii) alien invasive species, especially fish; and (ix) regional climate change, which may lead to increased dessication in AMWL and also to changes in wildlife and ecological distribution patterns (e.g., north-south distributional changes and/or altitudinal changes, in response to changing temperatures or other climatic variations). These threats are each described in turn in greater detail below.

Table 6. Main threats to biodiversity, and affecting development sectors (root causes)in AMWL.

Sectors affecting biodiversity:	**Broad categories of biodiversity threats in AMWL**			
	Habitat degradation	***Habitat loss & fragmentation***	***Over-exploitation of natural resources***	***Climate change & desertification***
Livestock overgrazing	X Regional issue, including the Liangheyuan NR		X Livestock numbers high, including in Sandaohaizi Wetland area	Exacerbates the impact of grazing
Agricultural development	X Regional issue	X Regional issue	X Causal link with livestock survival, hence population	Changes regional water availability
Water management	X Rivers and streams dry up seasonally	X Beaver population at risk from dams	X	Changes regional water availability

Mining industries	X ~ 6,800 ha in the Liangheyuan NR	X E.g. valleys bottoms are degraded, splitting some valleys in half		
Tourism development		X Disturbance due to tourist numbers, also roads, cf. Kanas NNR	X Illegal collection of plants, animals, etc.	
Other:		Roads, fences New roads built for tourism, e.g. in the Sandaohaizi area	Illegal harvest of timber and NTFP	

Livestock overgrazing

56. Livestock grazing in grassland and wetland areas, particularly in Liangheyuan NR, is identified as one of the main causes to biodiversity through habitat degradation in AMWL. However the interplay between livestock grazing and climate change is significant, and underlying reasons for over-stocking (e.g., in the Sandaohaizi wetlands, the traditional summer pastures for Kazakh herders) are tightly connected with downstream agricultural development and water management policies. Thus the local cultural, economic and socio-political contexts are complex; and notions of livestock numbers alone being the cause of habitat degradation will not lead to long-term successful conservation. Root causes such as economic impoverishment also must be considered, in order not only to treat the symptoms (specific immediate threats) of the more systemic challenges in the AMWL socio-development landscape.

57. There are at least three underlying, policy-related root causes that have contributed to the currently observed situation of *over*-grazing in parts of AMWL: agricultural development, construction of dams and other irrigation infrastructure, and rangeland degradation (cf. decreased resource availability) due to climate change. (Each of these root causes' respective contributions, as *threats* to biodiversity, are presented more fully in following sub-sections.)Nonetheless, it is true that many AMWL grasslands are currently being degraded at least in part due to local grazing practices, including continued presence of high livestock numbers.[14]

58. A mosaic ecosystem of grasslands and wetlands, theAltai Mountains have providedrich pasture resources for local Kazakh herdsmen for generations. In recent times, though, the area has seena loss of plant species diversity, decreased forage productivity and increased soil erosion. The decline of pasture biomass is a result both of over-stocking and climate change.Such land degradationis in turn causing a decline in the water retention capacity of the wetlands, including peatlands, which is detrimental to biodiversity and impairs ecosystem services such as sequestration and storage of carbon and the availability of water resources and their flow downstream.

59. Supplementary feeding of domestic livestock in thewinter months (in the lower-lying agricultural villages, which have built in recent decades) has had a particularly strong impact on livestock numbers, leading to more than a ten-fold increase in livestock numbers; that is, from 432,000 'sheep units' in 1949 to the4,334,500 units now presentacross the AMWL region. Since around 2000, the livestock numbers have stabilized in response to government policies (see Figure 9), yet nature reserve authorities consider a partial further reduction still to be warranted, e.g. in Liangheyuan NR, to protect local biodiversity and ecological services.

[14]The Altai Mountains comprise the summer pasture grounds for local Kazakh nomadic herders, and a significant portion of their pasture land is situated within AMWL PAs.

Agricultural development

60. More and more wetlands and rangelands near low-lying rivers – the traditional winter pastures for Kazakh nomads – have been converted to cropland in the past several decades. There are two main consequences of such land use change. The amount of superior pasture for livestock has decreased (cf. habitat loss) and has led to over-grazing elsewhere. Secondly, the development of agriculture has created a situation conducive for supplementary feeding of livestock in winter, through which natural limitations (carrying capacity) of pastures have been removed. Winter was the most stringent season, but now over-winter survival is greatly increased – leading to over-stocking in summer pastures.

61. The close relationship between farmland and livestock population in Altai Prefecture, from 1949 to 2010, is illustrated in Figure 9 below. In Qinghe County in particular, which includes a large portion of Liangheyuan NR including Sandaohaizi wetland, there is a noted correlation between expansion of farming with new winter pastoral feeding practices and the number of livestock – all of which still must be grazed in the higher pastures in summer.

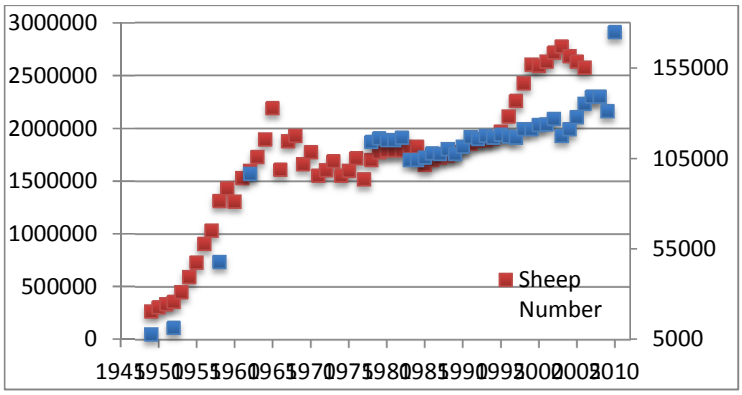


Figure 9. Increase of sheep and cropland in Altai Prefecture, from 1949 to 2010.

Water resource management

62. In support of the development of agriculture (i.e., crop farming) in the region, there has also been much construction of dams and other irrigation infrastructure project along the Ulungur and Ertix rivers and their tributaries, such as the Tsinggerli and Chaganguole rivers in Qinghe County. Ecological impacts are not seriously evaluated and considered during the construction of dams and irrigation infrastructure. Such dams and irrigation schemes result in the desiccation of lower reaches of the rivers and also in changes of river flow and flooding regimes – leading to habitat degradation and habitat loss. Dams block the migration of local fish species and, in eastern AMWL, decrease genetic connectivity in the beaver population. Irrigation infrastructure thus seriously threatens the survival of several species of fish and negatively affects beavers and other wildlife that rely on continuous availability of water and natural (seasonal) flood regimes.

63. Not only would the construction of new dams and other water irrigation infrastructure threaten biodiversity in AMWL, as outlined above, but continuation of current management approaches for existing infrastructure also threatens AMWL biodiversity. More biodiversity-friendly systems could be emplaced, promoting more appropriate water regimes. Dam-bypass mechanisms also could be developed to reduce the present fragmentation of the river systems. Without improved water resource management in Altai Prefecture, biodiversity will continue to decline, for example in the Buergen Beaver NR and in its vicinity in Qinghe County.

Mining industries

64. The mining sector constitutes the largest source of income in Altai Prefecture. For some counties such as Fuyun County, over half of the government's revenue comes from mining. There are a large number of mineral exploration and exploitation sites throughout the prefecture, both legal and illegal. In some instances, whole valleys have been destroyed by mining activities. There is therefore continued pressure for mining to expand wherever there are valuable resources, with insufficient consideration given to protected status designation.

65. *Altai* means "Mountains of Gold" in the Kazakh language. The region experienced a gold rush in the 1980s and 1990s. In 2000, the local government issued a ban on placer gold mining, yet illegal mining activities nonetheless still occur. Especially along river courses, gold mining poses a serious threat to biodiversity – not only because it seriously damages (and sometimes destroys) the riparian ecosystem as well as grassland pastures traditionally used by Kazakh herders, but also because changes in normal river flow regimes threaten the fish species and other wildlife that rely on the water courses. Gold mining also may pollute the water system through the processes used for extraction.[15]

Tourism development

66. Tourism development in Altai Prefecture currently is still oriented toward a pursuit of growth in total numbers of visitors, rather than a promotion of different forms of tourism. The environmental capacities of different sites and the variety of management options available are rarely considered. For example, now nearly one million people visited Kanas National NR each year, up from only 90,000 visitors in 2006. The large number of tourists that visit different sites could easily overwhelm the sites' socio-cultural or environmental capacities; in some places, e.g. Kanas National NR, local capacities already are surpassed. Inappropriate management threatens the long-term viability of tourism development and local biodiversity.

67. Tourism already is causing the degradation of natural ecosystems and endangering wildlife species in major tourist sites in the prefecture.According to local tourism managers, wild plants are being harvested illegally for the curio trade and tourism also is leading to habitat disturbance from trampling and fromthe pollution of streams.

Transport network (roads) and fencing

68. With the construction of roads – whether this beas part of a transport network aiming to improve access for tourism, to reach mineral exploration sites, etc. – thefragmentationof the landscape poses a threat to local biodiversity. New roads also mean increased access to previously less disturbed areas, which may harm wildlife through disturbance and hunting, may increase over-exploitation of natural resources (NTFP collection, placer mining, etc.), and may also change local demographic and land use patterns. New roads continue to be built in the Altai Mountains, e.g. to the Sandaohaizi area of Liangheyuan NR under the authority of county government for tourism development.

69. Construction of fences equally may harm wildlife by limiting their movements. This is particularly significant with regional fences, such as along the Sino-Mongolian border. Long-distance movement of wildlife is hindered, and there is decreased connectivity between regions including different PAs in the broader ecoregional landscape.

Alien invasive species

[15] A valuable review of the impact of mining on protected areas in Mongolia, and possible mitigation measures, is provided by Farrington, John D. 2005. The impact of mining activities on Mongolia's protected areas: A status report with policy recommendations. Integrated Environmental Assessment and Management 1(3):283-289.

70. Because of the introduction of new species of fishinto Ulungur Lake, alien invasive species have become a majorthreat for local fishes. Introduction of pond smelt *Hypomesus olidus* in 1991 has led to the endangering of the local species of Perch*Perca fluviatilis* and to Siberian dace *Leuciscus baicalensis*. Before the introduction of pond smelt, Siberian dace and perch were the dominant species in Ulungur River and Ulungur Lake, accounting for about 80% and 10% of total production, respectively. Howver pond smelt has become the dominantfish species since 1995 and now accounts for about 60% of total fishery production. At the same time, the production of Siberian dace and perch decreased to less than 1% since 1995.

Climate change

71. Climate change threatens biodiversity in the Altai region both directly and indirectly. Since the 1960s, the recorded temperature in Altai Mountains has exhibited an upward trend: according to the meteorological department of Qinghe and Fuyun County, the annual average temperature was -0.22°C during the period 1961-1970, but 3.31°C in the period 2000-2009. Together with associated changes in precipitation and dessication, such a drastic temperature increasedirectly affects the vegetation and biodiversity of AMWL. Through its deleterious effect on pastures, it also decreases the natural resource base available to Kazakh herders (for their livestock) and thus exacerbates the cumulative impact of current livestock numbers.

72. Climate change in recent decades is recognized by nearly all the herdsmen who were interviewed in the preparatory phase of the project. It has been generally observed that the climateis becoming warmer and drier, and this is one of the main reasons (as understood by local herders) for the observed rangeland degradation. Data recorded at the Ertai Weather Station near the Ulungur River indicate that both annual average temperatures and high temperatures exhibit distinct rising trends (Figure 10). Annual average and high temperatures during the 2000-2008 period were respectively 3.34ºC and 7.02ºC higher than those during the 1957-1966 period. Such increase in temperature resultsin increased evaporation, which in turn changesthe rangeland through desiccation and with shifts in plant species composition.

73. In lower agricultural areas (i.e., in herders' winter home areas), climate also affects cropland and pasture production systems. Because of new agricultural developmentssuch as an increased use of winter fodder for livestock, and alsobecause of over-use of local water resources for cropland irrigation (causing downstream desiccation), the total pasture available for livestock has decreased significantly in recent years. This situation has contributed to over-grazing in the remaining pastures in many parts of AMWL.The Altai Mountains region equallyis prone to desertification, which is exacerbated by climate change withits temporal and spatial perturbations in temperature and precipitation patterns. These perturbations will have a negative impact on wetland functioning, adding additional stress on the total system.

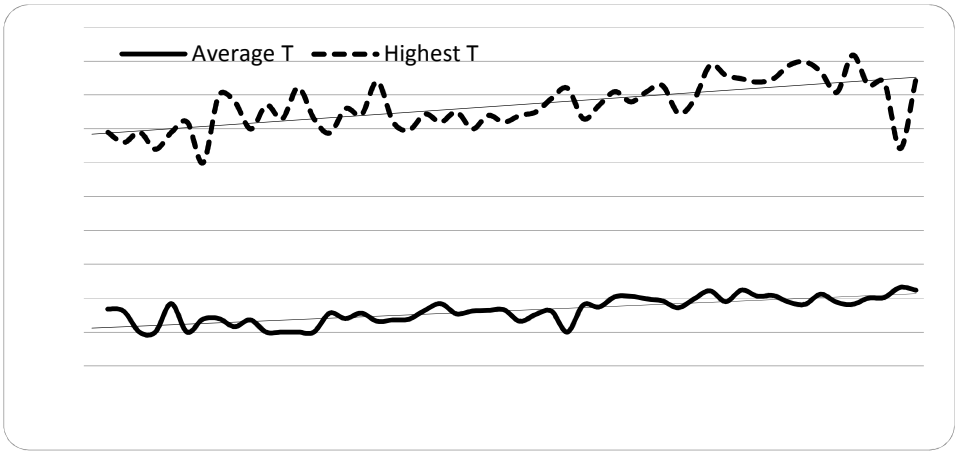


Figure 10. Yearly temperature changes recorded at the Ertai Weather Station.

74. The underlying causes for several of the above threats to biodiversity include not only individual decisions, but also a number of more systemic (institutional) development plans, priorities or approaches. For example, current agricultural development and water resource management practices in AMWL include the construction of dams, which fragments river systems and negatively impacts the local beaver population; the decision to build a dam, however, is outside individual residents' control and instead the responsibility of higher level government development planning. Yet at the same time, local farmers and herders' decisions also can affect globally significant biodiversity, such as individual and community decisions to farm or graze fragile riparian habitats or overstock pastures.

75. The root causes of current biodiversity threats (both individual and systemic threats) include poverty and a concomitant desire to enhance economic standing; population increase, both regionally and at local community level (which may lead, for example, to increased livestock numbers); market failure (i.e., not internalising ecosystem and biodiversity values in cost-benefit analyses and development planning);and insufficient integration across sectors, with consequent policy failure (viz. sustainability; e.g., inappropriate government subsidies encouraging inappropriate land uses, or policy distortion favouring some sectors over others). These threats and their root causes should be addressed from prefecture to provincial levels.

76. Failure to address current or potential threats to biodiversity in AMWL in particular will lead to a socio-environmental situation wherein the future of ecological security in the Altai Mountains comes into question, local livelihoods of Kazakh herders will be less certain, and a suite of critical wildlife, habitats and ecosystems of national and global significance will be increasingly endangered.

LONG-TERM SOLUTION AND BARRIERS TO ACHIEVING THE SOLUTION

77. **The long-term vision**of the project is a *safeguarded environment* that maintains representative biodiversity and provides important ecological services in XUAR, in particularin AMWL, through *ecologically soundand socially responsible mechanisms*. The project will contribute to this vision by strengthening the regional and landscape PA system, with special attention given to the wetland sub-system.

78. **Thelong-term solution**to protect biodiversity and essential ecosystem processesin XUAR, addressing the most important current and anticipated threats as outlined above,is the establishment and effective management of a representative system of PAs that is capable of fulfilling its role to safeguard globally significant biodiversity.This solution will not only ensure the survival of representative wildlife species, but will also deliver a range of vital ecological servicesthrough establishing an effective PA system with sufficient funds and competent management to screen threats to biodiversity and implement viable solutions.

79. Through PA system redesign, sector mainstreaming, strengthening of institutional and legislative frameworks, financial planning, staff capacity building, and introduction of more collaborative forms of natural resource management – the project will strengthen the wetland PA system at the regional (XUAR) and landscape (AMWL) levels. The development of this system should be underpinned by the following principles:

- Sufficient level of understanding and appreciation for the PA system and its vital roles in socio-economic development

- Integration of the PA system and its objectives in the provincial and sectoral planning processes and their *modus operandi*
- Adequate management knowledge and capacity should be available at different levels of government for future planning and interventions
- The design of the PA system should meet immediate biodiversity conservation needs yet also allow for adaptation as may be needed for species facing a changing climate
- The PA system should be designed and zoned in a way that creates minimum hardship and requires minimal adjustment of the economic activities (and further development) of poor local communities, and ideally should even bring new economic opportunities such as community-based tourism or paid employment asco-management workers
- In exchange for ecological services provided in AMWL, downstream beneficiaries and other beneficiaries in China should provide direct or indirect eco-compensation to upstream regions and to local communities; which may provide further incentive for local people to maintain the ecological integrity of the upper catchment areas and PAs

80. The project will address systemic and institutional issues at three differentlevels, thus offering a more comprehensive and integrated model ofPA management and biodiversity conservation. At *provincial level*, the project will strengthen the legal context and governance capacity for the regionalPA system. At*landscape level*, the project will develop and then demonstrate an effectivemanagement framework for a cluster (network) of PAs, focusing on the Altai mountains and wetland biodiversity. At*site level*, the project will develop a more collaborativeapproach to conservation, with enhanced government-community partnershipsin aNR where currently local residents are partially alienated from management authorities.

81. Adoption of a landscape mindset for conservation planning and management of Pas and a greater engagement with the public, including local people and communities as well as a broader public at provincial and national levels, are key components that will be promoted throughout the project, to support the development and strengthening of a PA system strategy in XUAR that can better achieve conservation and development goals across the province.

82. However there remaina number of significant barriers to the effective management of the PA systemin XUARand AMWL, which must be overcome to achieve the project vision. The three primary barriers are presented below.

Barrier 1: Insufficient systemic and institutional capacity at provincial level to plan and manage the PA system and the sub-system of wetland PAs

83. PA planning and management in Xinjiang remains hindered by a weak legal basis at both the national and provincial levels. The Regulations on Nature Reserves (1994) that allow for the establishment of NRs is outdated and does not provide much flexibility in terms of zoning and management options.Asan autonomous regionXinjiang has much stronger legislative rights than provinces in China, yet it still does not have relevant laws that could augment some of the weaknesses of the national framework orthat could more specifically be tailored to local conditions. As a result,management authorities in most NRs in XUAR assess and respond to their own local environmental and social situations to the best of their ability, but with insufficient guidance or support from provinical authorities – whether in terms of their knowledge of PA regulations and laws, an understanding of the different management options available, or training for environmental management including a regular monitoring, research and conservationprogram for wildlife and habitats of special concern or interest. Many NRs in XUAR maytherefore inadvertently be managed in ways that are contradictory to both the word and intent of national regulations.

84. *Lack of regional PA legislation*is thus one of the barriers to effective management of PAs and to wetland conservation in XUAR. Some of thespecificinstitutional and legislative challenges for

planning and management of wetland NRs and other NRs in XUAR are presented in Annex 5. Up to present, however, there is *no systematic provincial level PA system plan* – this is a major barrier that must be overcome. On the basis of sound legislation and sound institutional capacity, a PA system plan may be developed that maximizes regional ecosystem resilience as well asconnectivity between PAs and between ecological areas..

85. In AMWL PAs –home to approximately 65,000 residents, mainly livestock herders – different agencies have jurisdiction over different PAs and over different natural resources within each PA. As a result, standard zoningand management guidelines forthe reserves– as stipulated in the national regulations – often cannot be applied or implemented.*Insufficient flexibility for zoning inside PAs and a lack of suitable management options*thus also are barriers; increased options and flexibility in PA management, on the other hand, would allow local authorities to adapt the key principles of conservation and PA management to their local situations, enhancing conservation outcomes through protection and sustainable utilization.

86. The development of crop agriculture, livestock husbandry,mining and mass tourismin Xinjiang is leading to a rapid exploitation of water and wetland resources both inside and outside of PAs. Theseeconomically driven sectors generally are developedwith inadequate consideration given to the management objectives of PAsor the role of wetlands in sustaining biodiversity and essential water resources. *Lack of standards and guidelinesfor different PA management categories* and for *interactions between PAs and different government sectors* hinder the conservation of wetland biodiversity and ecosytem services as well, both inside and outside the PA system.Furthermore, inasmuch as environmental impact assessment (EIA) studies are required, adherance to strict implementation is often lacking. Overall, the regional PA system and its conservation objectives are not well integrated into the development and sector planning processes, which largely determine land-use and development activities within the province. For example, there is a notable lack of integration of PA concerns (and more broadly, environmental concerns) into cross-sectoral plans including tourism development and initiatives to achievelong-term water security.

87. Underlying many of these constraints, adequate capacities are lackingat local levelsto apply the available(national) regulations to the unique environmental and socio-economic contexts of each PA. ManyNR staff lack basic knowledge needed to discharge their duties and there are no accepted competence or performance standards. There is reinforced through*inadequateprofessional capacityat provincial level* for scientific planning and development of individual PA management plans, and even more so for planning at the landscape level with clusters or networks of PAs, such as found in the Altai Mountains Wetlands Landscape (AMWL). Technicalcapacity should be developed under the guidance of provincial bureaus, in particular XFD, which oversees and coordinates wetland management and conservation across the region. Yetthe*institutional and technical capacity of XFD to manage the wetland PA system in XUAR remain limited*, and theyare not yet able to provide sufficientguidance and support for localgovernment bureaus and PA managementauthorities to ensure the effective conservation of XUAR wetland biodiversity, in AMWL or elsewhere in the region.

88. Finally, due to the large area of PAsin XUAR (including AMWL) and to limited funding available fortheir management, *enforcement of legislation*(even in its present form) also remains difficult, which is one more barrier to effective conservation. The monitoring of development activities inside PAs(as well as outside of PAs, whichalso can affect wetlands inside PAs)isan onerous task. In addition, the PA system has grown fast, but most PAs remain under-staffed. For examplethe Ertix RiverKeketuohai Wetland NR, which covers an area of nearly 100,000 ha, has only 5 permanent staff; and the Buergen Beaver NR, which seeks to protect a flagship species, has only 10 permanent staff.

89. The Xinjiang Forestry Department's current institutional capacity to oversee multiple PAs, to make sound operational decisions, to manage budgets effectively, to deploy staff, and to monitor specific andoverall performance of PAsthus remains inadequate for effective regional PA management in XUAR and AMWL, with a focus on the wetland PA sub-system.

Barrier 2: Disconnect between the management ofPA systems and development and sectoral planningprocesses at the Altai landscape level

90. Although NRsencompass more than 13% of the land area in XUAR, a large number of important wetlands still are not included in the PA system. Unprotected wetlands in Altai Prefecture include *inter alia* the BuerqinRiver Rakorlor marsh (1,532 ha), Sawur Mountain lowland marsh (3,471 ha),a large portion of the Ulungur and Jili Lakes area (92,700 ha), Sayaram Lake (46,800 ha) and the Weili District group of lakes (100,000 ha,incl. 25 lakes).Significantly, atthe landscape level the PA system in XUAR is currently maladapted to address threats to biodiversity posed by development activities that occur outside of PA boundaries; therefore many important wetland areas are at risk of long-term degradation.

91. Wetlands are particularlyvulnerable to external influences, sincethey are dependent on water flow. Low-lying wetlands can be gravely affected by the movement of pollutants from upstream, often from far outside of PA boundaries and hence beyond the control of PA management authorities. A broader landscape approach to maintaining wetland biodiversity and ecosystem functions is therefore called for – rather than focusing on individual PAs, each in isolation – to ensure the integrity of the overall wetland PA system. For example, the unique Buergen Beaver NR with its dramatic riparian willow forests is partially threatened by both dam construction in its upper reaches and uncontrolled local removal of water from the river by surrounding land use activities. Large geographic areas must therefore be considered, even for the conservation and sustainable use of local and relatively small wetland areas.

92. While a province such asXUARmay be too large for implementation of alandscape approach in PA management, such a system can readily be developed and executed at the prefectural and catchment (watershed) levels. Such anapproach, however, is hindered by*lack of exposure and training of relevant government departments and bureaus*in multi-level andmulti-sectoral negotiation and consensus building. Transitioning to a more landscape-oriented mindset with a mainstreaming of PA objectives into sectoral development planning processes has not yet occurred; this will require a shift within PA management thinkingaway fromindividual PA (site-based) planning and managementto a network orcluster-based approach, which encompasses allPAs inthelandscape in a coordinated fashion.

93. Watershed level planning for the protection of wetlandsremains weak, however,and most government development planning does not yet adequately involve PA management authorities in the process. Coordination between government bureaus and administrative units in XUAR as well as between regions and countries (e.g., Mongolia and China) is limited. Thus *inadequate communication and cooperation* amongst the varied stakeholders across the landscape limit the effectiveness of actions taken. Overall, prefecture level development and socio-economic sector planning *inadequately integrates PA management concerns* and rarely are based on a holistic landscape approach. This may in the future lead to unforeseen threats to biodiversity and ecosystem services (direct or indirect) from development activities.

94. In addition, unlike the typical authority structure of most NRs, the authority over the land, water and other resources in wetland NRs is not exclusive to SFA (or its provincial and local subordinate agencies). Instead, there is significant complexity with many overlapping sector interests. For example, the user rights for surface waters of lacustrine NRs belong to fishery authorities (or local fishermen/farmers)while user rights for palustrine wetlands often belong to livestock herders.

Different agencies, such as agriculture, mining and water resources, each have jurisdiction over different resources within PAs – and these institutions tend to operate independently ofeach other and of PA management authorities, with little consideration for biodiversity impacts. Such a*disconnect between different authorities and institutions*hinders conservation efforts by allowing many activities to bepromoted within and outside PAs that may have negative impacts on biodiversity and ecosystems. For example, fencing projects for grassland protection implemented by the agriculture sector disrupt the migration patterns of wild ungulates;dam construction along the Ulungur River has fragmented the willow forest habitat, and hence threatens the survival of the endemic sub-speciesof beaver; andlarge-scale surface gold mines leave unaesthetic and polluted scars across the Altai landscape, including within the Liangheyuan NR.

95. Insufficient understanding of actual PA management costs and benefits and lack of a clear vision for the AMWL PA network are significant factors that contribute to the current sub-optimal budget allocation for the operation of the PA cluster in AMWL, a situation that hinders effective and systematic management. There also is*no systematic PA planning or biodiversity monitoring system in place*, which if implemented would increase efficiencies and also allow management costs to be measured against ecological and biodiversity conservation outcomes – thus providing a basis for environmental economic valuation and a financing plan to be developed. When suchecological data is collected, *lack of access to data*and *inadequate data sharing mechanisms* would preventthem from being used for effective planning and management of PAs, and development in the broader landscape; therefore new forms and new levels of coordination and partnership must be supported.

96. Where significant biodiversity and PA gaps exist in the landsacpe, strategic expansion of the overall PA network with addition of new PAs also is warranted, in order to effectively incorporate and protect the most ecologically sensitive wetlands and relevant corridors in the landscape from future detrimental development. Landscape planning in AMWL, however, is in early stages of development, and this *lack of exposure and experience* has translated into insufficient holistic, landscape planning.

97. One of the most significant barriers to full development of an integrated landscape approachto PA management – and also behind the chronic shortage of funds allocated for the protection of wetland PAs and other PAs in the landscape – is the *limited understanding of the economic value of wetland biodiversity and ecosystem services*. Government authorities and communities alike are generally unaware of how loss of these resources will negativelyimpactthe overall economy of the region, various sector industries, and local livelihoods.

98. Large amounts of funding sometimes are made available for construction projects in PAs (such as infrastructure,including roads and buildings), howevereven these resources largely have been concentrated on only a few national level NRs. Generally, *too little funding isapplied to the more direct conservation work* such as patrolling, monitoring, and ecological restoration. Such funds also are not guarranteed, and they mostly come from a variety of central government programs (i.e., individual programs, which are not sustainable) such as the “farmland to forest” or “grain to green” project, the natural forest protection project and the national wetland restoration program. Awareness of the importance of wetlands for both biodiversity and the delivery of ecosystem services is not well developed among government planners, the general public, or local communities. Even managers of wetlands NRs often have only partial recognition of the functional values of wetland sites. Thus*limited public and sector awareness*about the significance of wetlands and of PAs is a constraint that also must be addressed.

Barrier 3: Limited nature reserve staff capacities and limited community participation in PA management

99. At the site level, PA operationsgenerally are weak and unable to adequately address livestock grazing, mining and other local threats to biodiversity.Most PAs also suffer from a *lack of basic infrastructure* (e.g., field stations for field operations) and they often *lack field equipment* for basic surveillance and communication.*Lack of relevant technical backgrounds*to perform designated duties is also a significant barrier for PA staff to carry outtheir responsibilities. In addition, some staff only work part-time on PA management activities (as they may have other government duties) andmany staff haveonly *limited mandateor authority for law enforcement*, such that when they do apprehend people undertaking illegal activities they can only transfer them to forestry police, who may be located a considerable distance away. Overall, local capacities also are *limited in their knowledge and experience* of ecological monitoring, wildlife research, PA management planning and implementation, environmental awareness and education, development of alternative livelihoods with local herding communities, and restoration of degraded habitats such as old mining sites.

100. In order to address some of the barriers described above, community co-management is proposed as partial solution; yet new barriers in turn prevent its straightforward adoption and implementation as a new model of conservation.*Limited training about co-management* has been available to date. *Limited development of local governance mechanisms*, which are necessary foundations for community involvement in decision-making and management, also presents a significant barrier to overcome. When co-management does become operational, however, then some of the original barriers described above, including manpower limitations anda need for additional law enforcement support, will be decreased significantly.

101. With regard to livestock grazing in particular, in AMWL aselsewherein China,land inside and outside of PAs iscomprised of both State-owned and community lands. Much of the pasturelandin AMWL is leased to local households on 30-year contracts. Asthe area is vast and sparsely populated, it is difficult forthe Government to manage the land through regulatory mechanisms only – but the current system is not proving effective in addressing all biodiversity loss. Moreeffective management ofAMWL PAs will depend on the sustainable management of community lands andgovernment lands, both in collaboration with local Kazakh herding communities. The main barriers to achieving such collaboration include *lack of adequate social structures for dialogue and joint governance of PAs; few economic alternatives for local people, if/when it is determined that livestock numbers should be reduced; little or no experience of proposed alternative economic options for herders, such as ecotourism;*and *limited training of PA staff and local communities in co-management partnerships, which include activities such as wildlife monitoring, anti-poaching patrols, environmental awareness activities in the community, etc.*Sincemany wild animals move freely across PA borders and ecosystem servicesalso must be maintained beyond PA borders,effective community participation inthe protection and management of lands inside and around (particularly adjacent to) PAs is critical for regional biodiversity conservation.

102. Finally, whilelocal herding communities do have usufruct rights – which could in theory provide an incentive to improveland management – *a lack ofclear linkages betweenrights andresponsibilities* has lead in some instances to unsound management practices. There isan urgentneed to address this shortcoming, such as through the development of co-management with clearly agreed roles and responsibilities for all partners, local communities and PA authorities alike.

INTRODUCTION TO SITE INTERVENTIONS

103. Although the project is provincial in scope, it will focus its interventions on the AMWL region (as a model for XUAR) and on several specific sites within AMWL. Namely, the project will address specific threats and seek to improve management effectiveness in the Liangheyuan NR andalso in Buergen Beaver NR and several other NRs in AMWL,through a variety of complimentary

activities. The core PA in this project, however, is Liangheyuan NR – including its connectivity with Buergen Beaver NR and in the broader landscape. By adopting an integrated PA system approach, the project also will support the development and capacity building in other PAs. A full list of PAs in AMWL is provided in Table 4 above. Detailed information of intervened PAs can be found in Annex 9.

104. As part of the project's strategy, specific activities will include *inter alia*environmental awareness and education, capacity building, trial land restorations, development of co-management approaches to conservation, and a broadening of financing options for PA operations and for community livelihood development in particular through development of eco-compensation mechanisms that can assist in growing and strengthening conservation work forces and in supporting linked community development initiatives such as handicrafts and ecotourism.

105. Cross-cutting themes of governance, gender, empowerment etcalso will be addressed through the project, in concert with the strategic development of collaborative management and development of associated 'tools' such as com trust funds, cooperatives, etc.

106. A broader list of activities to be undertaken in/near Liangheyuan NR (the prime focal PA site in this project) is included in Table 7 below.

Table 7. Key interventions in/near Liangheyuan NR in the AMWL region

Training PA field staff	• For staff from Liangheyuan NR (also for other PAs in AMWL) • Main topics to include biodiversity monitoring, conservation planning, habitat and species management, community co-management, wetland/grassland restoration, etc.
Development of PA management plans and other PA-specific activities	• PA review, including management zones and expansion • Development of species and habitat conservation plans • Community relations and co-management framework • Tourism plan and other sector plans in the PA
Trial development of co-management partnerships	• Enhanced local governance (incl. fora for decision making) • Collaborations including environmental monitoring, paid labour, etc. • Development of community-based ecotourism sector for benefit of local communities • Support for local associations, including handicraft association • Trial implementation of eco-compensation mechanism
Restoration of degraded grasslands and wetlands (vis-à-vis grazing and mining threats)	• Full independent EIA prior to implementation of proposed restoration interventions • Demonstration of grazing impact in wetland areas, with use of localized fencing • Trial vegetation restoration experiments, to be expanded through the project
Transfrontier cooperation and international relations	• Development of conservation action plans (for species with international distributions) • Exchanges with Tavan Bogd NP in Mongolia, also meetings with PA colleagues from Mongolia • Creation of wildlife passageways across borders • Promotion of Sandaohaizi as a Ramsar wetland site
Education Centre in Keketuohai Forest Park	• Enhanced scope and quality of learning opportunities through the exhibition centre • Improvededucational strategy throughdevelopment of trails and signs along trails

STAKEHOLDER ANALYSIS

107. A wide array of agencies and people will be involved in this conservation project including government departments concerned with protection of biodiversity and ecosystem services and with regional socio-economic development, individual experts from provincial and national research institutes, local and regional associations and organizations as well as local communities comprised mainly of Kazakh herders, and the private business sector. Details of these stakeholders and their anticipated roles in the project are included in the Stakeholder Analysis section of this document (Section IV, Part III).

108. The project will be implemented by three relevant government agencies: the Xinjiang Forestry Department (XFD), Liangheyuan Provincial Nature Reserve Management Bureau, and Altai Mountains Forestry Bureau (AMFB).A key project structure is the Project Leading Group (PLG), which will be established at two levels, provincial and AMWL (see Project Organigram in Section IV, Part II) to ensure that broad stakeholder participation is maintained throughout the project. Table 8 presents the major categories of stakeholders and their involvement in the project. For additional information, also refer to *Section IV, Part III: Stakeholder Involvement Plan*.

Table 8. Key stakeholders in XUAR, with emphasis on the AMWL region

Stakeholder	Roles and Responsibilities
Ministry of Finance(MOF)	Operational Focal Point (OFP). Coordination and implementation of GEF financed projects.
UNEP, WB, ADB	Partners in the CBPF umbrella programme for China CBD actions for biodiversity conservation. WB manages another GEF co-financed wetland project in Xinjiang (*Mainstreaming Biodiversity Protection within the Production Landscapes and PAs of the Lake Aibi Basin*) which should be coordinated with this project.
Environment protection sector, at different levels (National Ministry of Environmental Protection, Xinjiang Department of Environment Protection, and Altai Environmental Protection Bureau)	Coordination of environmental issues, pollution control, and CBD implementation and reporting in China. Execution agency for CBPF. Processing and coordination of drafting of legislation related to environmental protection in China. Responsible for the Regulations on Nature Reserves. Directly manages 21 national wetland NRs and 28 provincial wetland NRs across the country (none in Xinjiang). Necessarily involved in any proposed regulatory revisions for nature reserve management.
State Forestry Administration(SFA) (incl. the National Wetland Conservation Centre)	Responsible for China's forest lands, for most nature reserves, for wildlife issues including trade (CITES), for wetlands protection (Ramsar Convention) and for the drafting of departmental (provincial) level regulations, especially with regard to wetlands. Also responsible for ensuring effective wetland PA management, with provision of supervisory and technical support for local PA authorities. Manages the vast majority of NRs in China(covering over 80% of NR area) and provides financial support for the construction and regular operations of national NRs.
Standing Committee of People's Congress of Xinjiang UAR	Responsible for the coordination of legislation and regulation functions in XUAR, including provincial regulations for NR management and regulations of wetland conservation.
Xinjiang Uygur Autonomous Region Development and Reform Commission	Responsible for large national and provincial construction projects(the commission reviews and grants permission for projects). Also responsible for oversight of the 12th FYP, as well as regional planning (主体功能区规划) including Altai Region as one of China's 25 priority ecological function zones
Xinjiang Finance Department	Financial responsibility for the project, including compilation and submission of budget requests, and co-leadership of the project together with XFD and UNDP.
* **Xinjiang Forestry Department** (**XFD**) including the XFD's *Foreign Economic and Technical Cooperation Office* and XFD's *Wetland and PA Management Office*	Planning and management of wetland (and non-wetland) PAs. Executing agency at provincial level for many projects, including the GEF-12 Degradation Project and the current WB Lake Aibi conservation project. Executing agency for the provincial level component of the project, through the XFD Wetland Conservation and PA Management Office.
* **Altai Mountains Forestry**	Planning and management of the national Natural Forest Protection Plan (NFPP)in Altai

Stakeholder	Roles and Responsibilities
Bureau(**AMFB**)(provincial level bureau, managed under the XFD)	Mountains, executed through branch offices in 6 counties in Altai Prefecture. Planning and management of Liangheyuan NR. Executing agency, through the Liangheyuan NR management division, for landscape and site level components of the project.
* **Management Bureau of Liangheyuan Nature Reserve**(**LNR**) (a major division of the Altai Mountains Forestry Bureau)	Responsible for the management of Liangheyuan NR. Will oversee and implement the project's landscape and site level project interventions as well as coordinate with XFD for implementation of the project's provincial level component.
Agriculture sector, at different levels (National Ministry of Agriculture, Xinjiang Department of Agriculture and Pastoralism, Altai Agriculture and Pastoralism Bureaus)	Responsible for fish conservation and management, and grassland conservation and management. Major stakeholder in terms of water use and sources of agricultural water pollution, grassland management, and development of pastoralism. The project should mainstream biodiversity and PA management within their plans, including pollution control measures for wetland sites. This sector can help to monitor wetland biodiversity on agricultural lands adjacent to NRs. Need their cooperation for control of fishing within sustainable limits.
Water resource sector, at different levels (National Ministry of Water Resources, Xinjiang Department of Water Resources, and Altai Water Resources Bureau)	Responsible for water resource management and security. Important stakeholder with high interest in project due to responsibilities in water quality, flood control and other water and wetland related ecological functions.
Tourism sector, at different levels (National Ministry of Tourism, Xinjiang Department of Tourism, Altai Tourism Bureau)	Responsible for tourism planning, development, and marketing. Designation of specific sites or scenic areas under national accreditation schemes (e.g., 5* sites).
Xinjiang Land Resources Department	Supervision and administration of land-use planning and management, of exploration and development of mineral resources It also takes charge of the supervision and management of geological park system(the department can lead to environmental damage, and potentially can prevent establishment or expansion of NRs in mineral-rich areas of the province. Please be noticed that not the department lead to environmental damage and other negative effects. It is the weak enforcement and un-sustainable use and illegal mining lead to all the negative effects).
Government of Altai Prefecture (including the Altai Forestry Bureau, Tourism Bureau, Mining and Land Resources Bureau, etc.)	Planning and management of wetland (and non-wetland) PAs in Altai Prefecture (Forestry Department) as well as tourism development, agricultural development, mining, and other landscape level or site-specific development planning matters in Altai Prefecture. Also responsible for legal and regulatory matters pertaining to the Altai prefectural context. All relevant county-level government bureaus also should be engaged in dialogue regarding site-specific project interventions.
Kanas management committee	This important committee provides comprehensive oversight for the development and management of the Kanas Scenic Area and the Kanas National NR.
Companies (business sector) in the project area, including public-private partnerships (PPPs) such as the Fuyun Keketuohai Forest Park - Keketuohai Tourism Company partnership	May help raise environmental awareness in the project area as well as increase or enhance local socio-economic livelihood opportunities.
Target herding communities	Principal natural resource users in Altai region. Community members are mainly Kazakh people, but also include other minority groups such as Tuwa, Mongol and Uyghur people who also herd their livestock in and around NRs. Local community members were involved during the preparatory phase of the project, and will also be centrally involved through the lifespan of the project. Appropriate consultation was undertaken to ensure community participation and consent for the project.
National and provincial Research Institutes focused on XUAR or on relevant thematics in the natural sciences or social sciences	Technical expertise available in fields such as hydrology and water management, biology including botany and zoology, economic development, sociology, sectoral planning, and other aspects of conservation and development in AMWL/XUAR. Strong assets include multi-disciplinary, cross-sectoral research and planning.
National and international organizations(NGOs) with prior experience in XUAR and AMWL,	Concerns for the environment and biodiversity, especially wetlands. Involvement in wetlands and biodiversity projects. Available for technical support, consultancies, training and monitoring. ECBP with GIZ previously also has undertaken a parallel project, which included wetland oriented work

Stakeholder	Roles and Responsibilities
such as GIZ, Wetlands International, etc.	in Liangheyuan NR. Other potential partners also include the Altai Wildlife Conservation Association and local forest protection unions, herder's unions and tourism home-stay associations.
Other organizations with interest in the*Altai-Sayan Ecoregion*, or with experience of co-management or of development of community tourism (such as WWF, Snow Leopard Entreprises, PCC-Mongolia, IUCN/WCPA, Plateau Perspectives, etc.	Concerns for biodiversity conservation and/or the welfare of local communities. High capacity for grassroots action, working in partnership with local people. A *stakeholder advisory group* will be formed at time of project inception to avoid duplication of effort and to ensure synergies in the project.

* Implementing agencies (for different components of the project)

BASELINE ANALYSIS

109. The baseline for this project is the "**business-as-usual**" scenario that would take place during the next 5 years in absence of the interventions planned under the project. Under the project baseline state, a range of activities relating to the management and expansion of PAs and to the mitigation of threats posed by anthropogenic activities as well as climate change within the province's PAs would be undertaken. These would have some positive impacts on native ecosystems and their flora and fauna. However this scenario alone (currently planned work) would not greatly reduce the major barriersidentified above. Yet the baseline scenario does provide a platform on which the project can build to extend both the scope and depth of environmental conservation and PA Network development in the province.

110. Although certain multi-sectoral interventions are already underway that may assist to conserve wetlands, in particular new legislation focused on wetlands and recognition of the Altai region as an area of special ecological significance, there is currently no comprehensive landscapelevel approach within government to address regional development and conservation with a focus on biodiversity and PA network planning. Agriculture, tourism, mining, transportation and other sectors remain largely unconcerned with biodiversity and the PA system. In addition, the vast potential to extend the region's conservation workforce (and increase environmental awareness) through co-management remains largely untapped. The three main barriers listed above thus would remain largely unaddressed under the current scenario.

111. Specific levels of activity that can be expected without the project's interventions,in relation to the identified barriers and anticipated project outcomes, are summarized below.

Mainstreaming of PAs and biodiversity in sectoral/development planning

112. Legislative reform: PA regulations exist at the national level (e.g., the Nature Reserve Regulations), but they are outdated and do not adequately incorporate different zoning and management options necessary to address community interactions and their participation in PA management. National Environmental Impact Assessment (EIA) regulations recently have been revised to better incorporate biodiversity concerns, and their application is required by law, yet they are not consistently applied at local level; leading in some cases to harmful developments in or near PAs and affecting the ecological environment and biodiversity. EIAs are required for mining and other construction projects in particular, but often there is lack of independent implementation.

113. At provincial level, the Xinjiang Wetland Conservation Regulations (XWCR) were recently approved, however these regulations have not yet been tried and tested in the field, nor have they yet been internalized in most sectors. Also, as few sector guidelines have been developed in relation to wetland and wildlife conservation as well as relationships with PAs (e.g., for tourism, agriculture,

mining, etc.), the above regulations still are dependant mainly on compliance through external enforcement (rather than self-regulatory mechanisms).This situation is unlikely to change without specific project interventions, including enhanced environmental awareness amongst government leaders and planners and in the general public.It is also unlikely that the above regulatory frameworks for PAs and biodiversity conservation or for the consistent application of EIA processes will advance significantly without project interventions.

114. Intersectoral coordination: Sectoral coordination in support of common goals remains a challenge across the country (and worldwide), yet is necessary for long-term development success. Some coordination is now promoted in the Altai Mountains area, as it is recognized as one of the country's priority 'Ecological Function Zones' –thus promoting a landscape approach to development and conservation in Altai Prefecture.The EU-China Biodiversity Programme (2005-2011) also has contributed to the development of the *Altain Mountain Wetland Conservation and Sustainable Use Strategy*, approved by the Prefecture Government in 2010; this strategy provides a foundation to actively manage wetlands for biodiversity in the region.Yet actual coordination between government bureaus will remain limited without project interventions, such as introducing a PA systems mindsetand integrating a valuation of biodiversity and PAsinto sector planning processes.Most government sectors still only 'monetize' resources – focusing exclusively on their cash values – ignoring the fundamental ecological values of biodiversity (and by extension, the value of the PA system that seek to protect biodiversity); such narrow mindset hinder the development of integrated development policies and programs. Without the project, multi-sectoral coordination will remain focused largely on economic aspects of development, such as promotion of tourism in the Kanas area.

115. According to national regulation, forestry sector is in charge of wetland conservation. However lack of participation from water resource management bureaus remainsan obstacle for effective wetland conservation. The only substantial cooperation with the water resource management sector is through the establishment of dams, which is common in Xinjiang and in AMWL – for example, the construction of an overflow dam in Kekesu NR. Yet such dams often posesignificant problems for wetland and biodiversity conservation.

116. There is also insufficient cooperation in Altai Prefecture between AMFB, which is in charge of the conservation of Altai Mountains Forestry area including its wetlands, and AFB, which is in charge of the lowland (non-mountain) wetland and forestry area of the prefecture including riparian forests. Lack of cooperation and coordination between these two agencies is a constraint to conservation and wetland management in the project area.

117. Financing of PAs: While much funding is available for PAs in China, most of this investment is designated for infrastructure development such as the construction of buildings, roads, fencing, etc. Much less funding is available for regular PA operations such as wildlife monitoring and patrolling, or for the development oflocal partnerships (co-management) or development of alternative livelihood options for local communities (which, in the long run, may be amongst the greatest alliesfor conservation). Thus, in effect, there is only a limited budget available for many PAs, especially for sub-provincial PAs and for PA operations. In addition, many PA managers do not have the technical knowledge or experience necessary to determine the most useful activities to protect biodiversity and manage their PAs effectively; therefore they most often focus on infrastructure construction, rather than building knowledge and staff capacities for threat-based conservation activities. The current situation also exhibits but a narrow set of financial channels; whereas a broadening of PA financial options through the project, such as with payments for environmental services (PES), could greatly assist the PAs in Xinjiang and AMWL by strengthening investments for conservation-related activities. Overall, without the project, there is only limited prospect of increased financing for regular PA operations (as opposed to infrastructure construction)

including biodiversity monitoring and development of co-management approaches. Additionally, without an adequate economic valuations of wetland biodiversity and ecosystem services,as planned in the project, there would be but little opportunity to strengthen the (economic) case for co-financing of the PA system with financial contributions from other sectors of the government.

118. Tourism planning: The tourism sector is growing very rapidly in XUAR and in Altai Prefecture. Regional tourism plans recently developed include the *Silk Route Tourism Plan* and the *Greater Kanas Scenic Area Tourism Plan* – yet these plans have not sufficiently considered environmental conservation needs, nor have they developed internal mechanisms to mitigate threats resulting from tourism. Tourism can be detrimental to native wildlife and to ecological services when numbers grow too large and management is inadequate. Without the project, it is also likely that tourism will remain externally driven and without fair benefit accruing to local communities. Some key advantages of community-based tourism and ecotourism will also remain under-developed. Ecotourism as an alternative livelihood option for Kazakh herding communities is a promising avenue, but would not be promoted on the basis of national and global experiences except with project interventions.

Institutional capacity building

119. Strategic planning for conservation: There is adequate technical expertise available at provincial level for some aspects of strategic planning, in different government bureaus and research institutes, yetthe little coordination and exchange of information between agencieshinders adequately informed strategic planning. Department planners rarely invite outside (academic) experts to participate in their planning processes and different departments rarely relate to each other. Beyond lack of coordination, limited knowledge (and sometimes over-specialization, including unhelpful divides between the social and natural sciences) also can be a problem for strategic planning. In addition, the social aspects of conservation are rarely considered, whether in scientific studies or the development and promulgation of biodiversity and ecological conservation plans.

120. Some steps have been taken in the development of species-orientedconservation plans. For example much attention and funding have been given for the conservation of the wild horse. However,little strategic coordination has occurredfor another flagship species,the Chinese beaver (which inhabits the Ulungur Riverwatershed in Altai Prefecture) – the area of protected habitat is very small compared to the beaver's overall range, water resource construction projects still threaten connectivity across its range, andthe international element of its conservation is insufficiently developed (the beaver's range extends into Mongolia).

121. Especially at the sub-provincial level, including individual PA sites, strategic planning is hindered by the limited knowledge of PA managers for effective biodiversity conservation and PA management. For example, managers generally have only limited knowledgeabout invasive species, wetland management, land restoration techniques, PA planning, endangered species conservation,climate change, etc.;up to the present, nocapacity or training needs assessments have been conducted in the region. Thus, without the project,insufficient inter-departmental and cross-sectoral coordination, limited knowledge of conservation, inadequate consideration of sociological matters and limited transfrontier (international) partnerships would remain the norm – all of which hinder strategic planning for conservation.

122. Forestry and PA staff training: Few opportunities currently exist for staff development at both the departmental and PA levels. Staff of the Ertix River Keketuohai NR, for example, have not had any opportunity for professional training since the NR's establishment in 2006.Development of a training program for Continuing Professional Development (CPD) is therefore welcomed, but up to present no mechanism has been proposed as to how this matter should be addressed. Current PA staff in AMWL exhibit a wide range of backgrounds (including formal training as well as field

experience); yet all PA staff, eventhose staff with higher qualifications or experience, would benefit from regular CPD. A systematization of such training opportunities and sharing of field experiences through networkingwould assist in environmental monitoring and PA management, but is not current available. Enhancing PA staff capacities is neededin key areas such asbiodiversity monitoring, wildlife management, community co-management, ecological restoration, etc. Outside of this project, there are no plans to rectify this capacity limitation.

123. Sector guidelines and EIA procedures: Few sector-specific guideliness (for tourism, agriculture, mining, etc) have been developed in relation to wetland and wildlife conservation or to sectors' relationship with PAs. Wetland regulations (XWCR) were recently issued, but these are not yet internalized inmost sectors and thereforestill dependant on compliance with external enforcement (not self-regulatory mechanisms).

124. Environmental Impact Assessments (EIAs) are required by national legislation, yet they are not consistently applied at local level; leading to some harmful developments in or near PAs and affecting the ecological environment and local biodiversity. EIAs are required for mining and other construction projects in particular, according to Chinese law, but there is generally a lack of independent implementation. This situation is unlikely to change without specific new interventions as outlined in this project, including enhanced environmental awareness amongst government leaders and planners and the general public.

125. Monitoring of illegal activities and law enforcement: Local monitoring of illegal activities is present in many PAs, however capacity for law enforcement by XFD field staff is limited since PA staff do not have power to enforce fines on entreprises engaged in illegal activities (however they can enforce fines on individuals). Community wardens have even less authority. In terms of a wider trade of illegally collected products (e.g., endangered species), an agreement has been reached between local governments in Mongolia and XUAR to mutually support law enforcement measures in the border areas; yet additional training and support is needed to ensure effective monitoring and partnership.Law enforcement also is weak in connection toenterprises, which usually are supportedby local governments – with some of the biggest threats stemming from the illegal activities of mining and reclamation enterprises. Many illegal activities that continue to occur could be mitigatyed through greater environmental awareness building, however current awareness campaigns are not marketed toward target audiences (with specific interests) or in relation to specific known threats.

PA system planning and biodiversity monitoring

126. Expansion of PA Network (conservation estate): As the cornerstone of its biodiversity conservation efforts, at provincial level XUARhasalready established 35 nature reserves including 9 national NRs, 20 provincial NRs and 6 local NRs. Xinjiangalso plans to extend NR coverage to a total of 26% of the provincial land area by 2030, in line with the NBCSAP – with wetland NRs as a priority.However, despite these plans to expand the provincial PA system, there are still significant financial gaps and capacity gaps that are not yet addressed in current government efforts or development plans; as well as insufficient wetland coverage. In Altai Prefecture, 8 NRs (six of which include significant wetland components) presently cover an area of 2,441,765ha (Table 4; also see Section IV, Part IV). Geographic and ecological gaps still exist, though, especially in light of anticipated wildlife and vegetational distributional shifts that may occur as a result of regional climate change.

127. Biodiversity and environmental monitoring: Some monitoring of individual species or wetland characteristics already occurs in some PAs in XUAR, howeversuch monitoring is patchy at best. Individual wildlife research projects also will continue. However a systematic approach to biodiversity and environmental monitoring – which is essential for the effective, long-term

management of PAs – is not present in the Altai region, nor is it planned outside of this project as a widespread and routine element of PA management. At present, monitoring is not undertaken in a way that can improve overall management and decision making. The two main problems underlying this situation are a lack of knowledge and skills for planning and monitoring of wildlife and environmental conditions, and a lack of skills and experience in the analysis and interpretation of data (information) collected through monitoring systems – which together are necessary to guide future conservation actions. Shortage of appropriate monitoring equipment and analytical facilities/equipment also hinder effective biodiversity conservation and PA management.

128. Information and data management system: There is currently neither a centralized nor a comprehensive data management system in XUAR for the storage, retrieval and analysis ofcritical information pertaining to biodiversity conservation and PA management. Without such a management system, PA conservation decisions will remain inadequately informed, sometimes even arbitrary. Without external incentive, it is unlikely that such a system will be developed and institutionalized, and made widely available to all key sectors concerned.

129. Adaptation for climate change: Without the projectclimate change is unlikely to be addressed as a threat to biodiversity, either in relation to PA management and zoning or with regard to enhancing coordination amongst PAs or enlarging the AMWL PA system. Even less likely is transfrontier coordination, with PAs in neighboring countries; in particular with the Tavan Bogd National Park in Mongolia. Yet such growth and coordination of PAs will be necessary to ensure the long-term conservation of wildlife and maintenance of ecological services in the Altai Mountains, at the broader landscape level of the Altai-Sayan Ecoregion.

Public awareness and local participation in PA management

130. Education and environmental awareness: Environmental awareness and promotion/ outreach campaigns already take place in XUAR including Altai Prefecture. These include environmental exhibits and photographic competitions, e.g. with focus on birdlife. An annual *Wetland Day* also is set for May 25th. However, apart from this project, there are no plans for increased attention on the value of water, ecological services, or the protected area system. Additionally, awareness campaigns targeting different sectors (e.g., tourism) and public education about the roles and values of different livelihoods and development approaches (cf. traditional pastoralism, Kazakh culture, etc.) also are not planned. There is also little targeting in current environmental awareness plans, such that 'environmental messages' tend to be general in nature, rather than targeting specific audiences with specific messages to tackle known biodiversity threats.

131. Community co-management: In order to enhance the effective PA workforce, reduce pressures and threats to grassland resources, increase public awareness about biodiversity, and develop alternative livelihood options for local Kazakh herderswho may need to reduce livestock numbers in order to maintain ecological integrity in the AMWL – 'community co-management' is proposed as a new approach for landscape and site level PA management and biodiversity conservation. However this community-centered approach to conservation would not have been considered, except in the context of this project; external funding is necessary to extend the concept from elsewhere (e.g., Qinghai Province) and to trial its use in AMWL.

132. In support of community co-management, as well as to increase transparency in financial management vis-à-vis eco-compensation transfers (see below) and other potential sources of revenue for local communities, local governance could be strengthened with local cooperatives and associations. In a variety of other contexts in China, such cooperatives have proven to be valuable organizational tools for social development. Across XUAR, several cooperatives and associations already are in existence. National legislation is supportive of their development and growth in numbers. A handicraft association is already established in Qinghe County, and several other

associations are present at prefecture level. However there are few learning opportunities or other forms of support available, which may assist in their further development. Regarding community cooperatives, the situation is even bleaker – despite national support for the development e.g. of herders cooperatives to assist with rural development in grassland areas. Local cooperatives can be used to strengthen local economic ventures such as community-based ecotourism development. Without the project, however, there is currently little support for the development of cooperatives despite the significant contributions they can bring (through community mobilization) for biodiversity conservation and co-management partnerships with PA authorities.

133. Eco-compensation schemes: While eco-compensation is not specifically included in the current provincial development plan (XUAR 12th FYP), it is an important part of many national environmental initiatives and subject of much on-going research and dialogue, which include XUAR and other provinces and regions in China. For example, the government is investing US$ 25 million (2006-2014) in the *Support Capacity Building and Innovations to Promote Green Development in China Project*, which includes US$ 7.6 million co-financing from the UNDP; Xinjiang is one of the target provinces of that project. The provincial level project, which started in 2009, aims to integrate poverty reduction and rural green economy development with an improved environment and capacity to adapt to climate change impacts. It supports the rehabilitation of ecosystems, the reduction of agro-GHG emissions, and the establishment of carbon trade and compensation schemes in rural XUAR – aiming to improve forest and wetland management at site level, and to reward local communities for their efforts to reduce livestock and develop their capacity to benefit from such conservation activities. This approach could be extended to the current project area, AMWL, and more generally to PAs across XUAR. Howeverat present no such plan is in place for the specific integration of eco-compensation with PA management, particularly in concert with the adoption of a co-management approach whereby both local communities and PA management authorities may receive some financial compensation in exchange for their contributions to environmental conservation. If integrated with national "ecological function area" plans, eco-compensation schemes could help meet the national government's goal of strengthening and increasing fund transfers (also known as 'equalization fund transfers') to key ecological function regions such as Altai Mountains.

PART II: Strategy

PROJECT RATIONALE AND POLICY CONFORMITY

Fit with the GEF Focal Area Strategy and Strategic Programme

134. The project is aligned with the GEF BD-1 Objective,*Improve Sustainability of Protected Area (PA) Systems*. More specifically, the project contributes to Outcome 1.1: *Improved management effectiveness of existing and new PAs* and Outcome 1.2: *Increased revenue for PA systems to meet total expenditures required for management*. The project will contribute to the afore-mentioned objective and outcomes by strengthening the capacities of authorities in XUAR to manage the PA system, in particular the sub-system of wetland PAs, and improving the spatial design of the wetland PA system. The project will bring at least an additional 150,000 ha of threatened wetlands under protection in AMWL, thus improving terrestrial wetland ecosystem representation in the PA system in this critical biodiversity area. This will increase the resilience of the sub-system in the face of a fast changing climate by maintaining connectivity between core areas and allowing for a gradual redistribution of component species of different wetland ecosystems and ensuring adequate protection of upstream non-wetland habitats such as forests and grasslands that serve as vital catchments for the wetlands themselves. The project also will consolidate and strengthen the enabling legal, planning and institutional framework governing the management of PAs in XUAR and will implement measures to enhance the financial sustainability of the PA system.

135. The Project directly contributes to the goals of the Programme of Work on Protected Areas (PoWPA), in particular Goal 1.2: To integrate PAs into broader land and seascapes and sectors so as to maintain ecological structure and function; Goal 2.1: To promote equity and benefit sharing; Goal 2.2: To enhance and secure involvement of indigenous and local communities and relevant stakeholders; 3.1: To provide an enabling policy, institutional and socio-economic environment for PAs; Goal 3.2: To build capacity for the planning, establishment and management of PAs; Goal 3.4: To ensure financial sustainability of PAs and national and regional systems of PAs; Goal 4.1: To develop and adopt minimum standards and best practices for national and regional PA systems; and Goal 4.2: To improve the effectiveness of PA management. The Project, furthermore, directly contributes to achievement of the Aichi Targets, in particular under the *Strategic Goal C: To improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity*. It also contributes to Target 11 through increasing significantly the coverage and connectivity of the PA system in important regions with high biodiversity importance and significant ecosystem services, and by increasing management effectiveness of the PA system in a way that is integrated into the wider landscapes.

Rationale and summary of GEF Alternative

136. In the baseline scenario, the Governments of China and XUAR have clearly identified habitat conservation as a priority area and they are making significant financial investments in wetland conservation and wetland PA management. However, much of this efforttargetsmainly physical work such as wetland restoration and infrastructure development, with little focus on wetland biodiversity conservation and species management*per se*. In parallel, the governmentcontinues to invest in large scale physical infrastructure projects such as gas pipeline development with inadequate consideration for biodiversity conservation. There also has been no systematic effort to remove some of the existing barriers to a sustainable and effective PA management system that will ensure that wetland biodiversity is safeguarded. In particular, in many existing PAs pressures for land and water resources as well as threats from more distant areas require urgent action in order to prevent further degradation of critical wetland ecosystems and loss of critically endangered species.

137. In the GEF alternative, the projectwill complement baseline programs and projects by seeking to protect wetland biodiversity by strengthening the wetland PA sub-system, rather than focusing only on individual PA sites. Improved legal and regulatory frameworks for PA management at provincial level will be established and a landscape level PA management framework will be established in AMWL to improve long-term conservation security of the Chinese portion of the Altai-Sayan Ecoregion. Furthermore, the project will demonstrate effective PA managementthrough community co-management. The project has been divided into three major components, seeking to achieve complementary outcomes at differenttiers (cf. provincial, landscape, site level) forbiodiversity conservation and PA management.The project interventions will thus help to secureimmediate global environmental benefits.

138. AMWL was selected by provincial and national (SFA) authorities as it exhibits some important characteristics that would benefit from more detailed consideration and from trial development of alternative management approaches. Lessons learned in AMWL may then serve to enhance conservation planning and a strengthening of PA management across the province – and through the MSL Programme, across China as a whole. In particular, this project will help national, provincial and local authorities to consider and develop appropriate strategic responses with regard to: (1) partnerships with herding communities (e.g., through adoption of a collaborative management approach, including the development of alternative livelihood options), (2) restoration methods for degraded wetlands and grasslands, especially post-mining, (3) mainstreaming of environmental concerns across development sectors, (4) trans-frontier issues (since AMWL extends beyond national

boundaries), and (5) methods to enhance public awareness and appreciation for the unique environmental and socio-cultural characteristics of the AMWL region.

139. Table 9 below summarizes the main project responses that will be carried out under the GEF Alternative.

Table 9. Specific project responses to identified threats and root causes.

Threats	Project's Response
Community-based: Over-grazing	✓ Provincial level regulatory measures to prevent adverse impacts from grazing ✓ Establishment of joint PA governance and management structure, including sustainable use management system and alternative livelihood programmes ✓ Setting up of ecological monitoring and wetland use management system ✓ Pilot restoration in Sandaohaizi wetland area ✓ Strengthening of enforcement and compliance monitoring capacity
Sector related: Mining, roads, tourism, etc.	✓ Sector specific standards for regulating activities in transport, mining, tourism, energy, etc. ✓ Strengthening of enforcement and compliance monitoring capacity ✓ Pilot restoration of (former) mining land in the Kuermutu area ✓ Integration of PA system and its objectives in Altai and provincial level planning ✓ Education and awareness through development of Keketuohai Forest Park outreach
Climate change	✓ Integration of PA system and its objectives in provincial level climate change mitigation and adaptation planning ✓ Economic valuation of Altai PA system including the roles wetlands will play in reducing vulnerability to water scarcity and carbon sequestration under conditions of climate change ✓ AMWL PA system planning ✓ Increasing capacity to participate in the transfrontier conservation initiatives

PROJECT GOAL, OBJECTIVE, OUTCOMES AND OUTPUTS/ACTIVITIES

140. The **project goal** is to enhance the effectiveness of XUAR's PA system to conserve globally significant biodiversity and to maintain healthy and resilient ecosystems with strategic emphasis on the regional PA wetland sub-system.

141. The **project objective** is to strengthen the management effectiveness of PAs to respond to existing and emerging threats to the globally significant biodiversity and essential ecosystem services in AMWL in northern XUAR, People's Republic of China.

142. This project objective will be achieved by removing or mitigating the barriers outlined above (Section I, Part I) through a suite of strategic project activities, leading to three main outcomes. In broad terms, the project will catalyse management effectiveness in the wetland PA sub-system by supporting and developing the capacities of regional institutional leaders, prefectural government authorities, local site managers and local communities to respond constructively, often collaboratively, to existing (known) and emerging (anticipated) threats.

143. As a targeted comprehensive response to the identified threats and barriers to wetland conservation and sustainable utilization in XUAR, this project has been organized in three components through which 3inter-related main **project outcomes** are expected in AMWL in Northwest China:

- *Systemic and institutional capacity strengthened* for the protection of wetland ecosystems and for planning and managing PAs in AMWL and across XUAR;
- Demonstration of effective biodiversity conservation including maintenance of environmental services *at landscape scale*, with an enhanced and expanded AMWLPA network and increased financial support for conservation across sectors; and

- Demonstration of effective PA management *through community co-management*, including development of alternative livelihoods to reduce biodiversity pressures and improve livelihood options and income for local people and communities living in or adjacent to Liangheyuan Nature Reserve.

144. While this strategic project seeks to impact the entire province, aiming to enhance the effectiveness of PA management and biodiversity conservation at regional level, its specific outputs and activitieswill focus primarily on (i) the wetland PA sub-system, (ii) on AMWL in Altai Prefecture (cf. landscape conservation, with a focus on the AMWL PA Network), and (iii) on aspecific PA site in AMWL, the Liangheyuan Nature Reserve. Severalother sites or areas within the AMWL PA Networkalso will be supported, under the coordination of the Liangheyuan NR Management Bureau and AMWL (see Part III for more details regarding management arrangements).

Outcome 1: The protection of wetland ecosystems with PA planning and management is enhanced in XUAR through systemic, legal and institutional capacity strengthening

Total cost: 6,585,000 US$		*GEF:515,000 US$*	*Co-financing:6,070,000 US$*
*Budget % of project:**	*27 %*	*15 %*	*29 %*

* excluding management costs

145. Designed to tackle the first major barrier to protecting wetland biodiversity and proper ecological functions in AMWL, namely **insufficient systemic and institutional capacity at the provincial level to plan and manage the PA system with special focus on the wetland PA sub-system**, this component (or suite of activities) will focus on enhancing legal, systemic and institutional capacities at the provincial level to protect wetland ecosystems and PAs in the province. Some of the project activities will occur at the provincial level, however most will be undertaken partially in Altai Prefecture as well; as the landscape focus afforded by this project allows for practical ground-truthing of the broad issues raised at regional level.

146. Under this component, an effective governance and legal framework for the Xinjiang PA system will be developed. The project will specifically support the revision of XUAR level regulations governing NR management, in close coordination with corresponding activities at national level under the MSL Programme (current regulations date to 1997, under the Xinjiang Environmental Protection Department). New regulations for PA establishment and management would provide *inter alia* for (i) different categories of PAs, each with clear criteria for their establishment, management objectives and standards catering for different ecosystem types, and with specific emphasis on wetlands; (ii) an effective monitoring and reporting regime for PAs; (iii) a framework for the development and management of revenue generating activities within PAs; (iv) measures to prevent adverse impacts from prospecting, mining and grazing; and (v) a regulatory framework for collaborative management of PAs and natural resources with PA residents and neighbouring communities. Development of NR specific regulations will also be explored. Simultaneously, PA-specific operational guidelines in the form of management plans[16] will be developed and formalised for selected wetland NRs in AMWL, so as to allow for the practical application of the above principles even in the absence of (or prior to full approval of) new legislation.

[16]The international concept of *Management Plans* differs significantly from *Master Plans* developed in China. The former type of plan guides habitat and species management, zoning, visitor use, education programmes, community relationships, buffer zone development, concessions and local regulations, patrolling, monitoring reporting, communications programmes, etc. The latter, on the other hand,largely only guides investment in the physical construction of NRs. It is the operational aspects of NR management that are traditionally ignored and under-financed in China.

147. This component will also establish aninter-sectoral governance framework to help inform and regulate development within and adjacent to PAs. This will include an embedding of PA management objectives and concerns in provincial level development plans, along with cross-sectoral plans related for example to climate change (both mitigation and adaptation), to tourism development, and to water resource management. Sector specific standards will be developed for areas in or near wetland PAs, including standards and procedures for the regulation of mining, tourism, and infrastructure placement activities. Official guidelines for ecological compensation and restoration will also be developed targeting in particular mining and tourism investors.

148. Finally, the professional capacity of XFD and other provincial institutions will be strengthenedfor conservation planning and for the monitoring and management ofwetland PAs,includingenforcement of newly developed or revised sector standards. Project activities will include the provision of training opportunities for mid-career and senior staff and application of professional competency standards for PA management staff, tobe developed as part of the national project; and the establishment and operationalization of a PA data and information management system.

149. The three main project outputs deemed necessary to strengthen the systemic, legal and institutional capacity of XFD and other government agencies to improve the protection of wetland ecosystems in AMWL and XUAR are described in more detail below.

Output 1.1: Provincial PA management regulations revised

150. TheXinjiang NR Management Regulations were issued in 1997, however they are very general and provide little guidance and regulatory measures for PA management. Therefore, these should be reviewed and updated to promote nationally and internationally accepted 'best practices' such asintegrated natural resource management at thelandscape, ecosystem, habitat and species levels; recognition and guidance for multi-sectoral development interests in the use of natural resources; equitable collaborations with local communities, who depend to varying degrees on local natural resources; and provisions for regular specialist trainings (upgrading) for PA staff to carry out their conservation and sustainable utilization agendas. The main authority for the NR regulations is Xinjiang Environmental Protection Department (XEPD); through the project, XFD will engage with XEPD, facilitated by a contracted implementing agency.Strategic revisions will bedeveloped and proposedfor inclusion in amended legislation.

151. In the development of **revised regulations** for establishment and management of PAs, the following key elements also shall receive special consideration: (i) different categories of PAs, each with clear criteria for establishment, management objectives, and standards; (ii) effective monitoring and reporting regimes; (iii) practical framework for the development and management of revenue-generating activities; (iv) measures to prevent adverse impacts from mineral prospecting and mining, livestock grazing[17] and water resource management; and (v) regulatory framework allowing for collaborative management of PAs with local residents and communities living in or near PAs. The development of nature reserve-specific regulations (e.g., for Liangheyuan NR as a model) also will be explored.

152. Managed as a contractual service, the process of achieving thisproject outputwill create strategic opportunities for discussion and dialogue, and ultimately for decision-making, with a focus on revisingcurrent PA regulations including the incorporation of new elements learned from national and global experiences into the regulations. The contract will include organization of consultations at AMWL and provincial levels in the first year of the project, followed by drafting of new legislation no later than early in the second year of the project. Extensive discussion and editing will continue

[17] Overgrazing generally is not the root-cause of ecosystem degradation. In addition, 'overgrazing' may be caused not only by livestock numbers, but also may occur as a result of other forms of over-exploitation of local water and soil resources.

over the next couple years, based on the input from multiple sectors and departments (through an iterative consultative process), bringing the relevant parties toward greater consensus on the amended PA regulations and ultimately to approval of the legislation. To ensure this process moves forward smoothly and rapidly, it should be developed on the basis of other in-country and global experiences, including that which can be provided under the national MSL Programme with other concurrent national experiences in wetland ecosystem and wetland PA management or through the participation of invited world experts [18] in critical dialogues, consultations or the drafting of legislation.

153. With strategic planning and guidance from the PMO this output could also synergize with Output 1.2that seeks to develop sector-specific guidelines that encourage incorporation (mainstreaming) of biodiversity and PA concerns into other sectors. This contracted activity also would benefit from the participation of XFD, XEPD and AMFB staffengaged in the process of revising the provincial regulations, to benefit from relevant training opportunities organized under Output 1.3. The experiences learned from other project components and outputs (such as the operationalization of more systematic PA management and biodiversity monitoring in the AMWL PA Network; Output 2.2) equally may be leveraged to contribute to the regulatory development process, including full participation of relevant institutions and academic experts.

154. The revised PA regulations and other related topics shall be proposed for inclusion in XUAR's 13thFYP.

155. A schedule of key consultationsand other meetings and a selection of topics related to the establishment and management of PAs will be agreed atthe project Inception Meeting.

Output 1.2: Sector-related governance and regulatory frameworks enhanced to support the PA system in XUAR

156. In addition to the revision and updating of provincial PA regulations (under XEPD), sector-related governance and regulatory frameworks in XUAR will be enhanced through the project with the development of 'best practice' guidelines, to be executed as consultancy contracts. In this way,development policy and regulation recommendations may be made *inter alia*for the tourism sector, mining industry, water resource management, pastoralism and rangelands, construction(including roads), etc.as well as cross-cutting themes such as adaptation to climate change. Guidelines also will be developed with regard to potential financing mechanisms such as payments for environmental services (PES) and allied eco-compensation offsets. While these learnings and recommendations, in the form of practice guidelines, will apply to many areas and situations across the province, special attention shall be given in particular to wetland PAs in XUAR and to the PA Network in AMWL.

157. **Keysector guidelines will be developed** through completion of selected desk studies complemented by site visits to inform the studies and guide an adapation of generic principles to the Xinjiang situation.The studies shall introduce, assess, and ultimately propose adoption of appropriate practices for PA management and for sectors affecting biodiversity and PAs, derived from field experiences elsewhere in China and abroad (including experiences from neighboring countries that share the broader Altai-Sayan ecoregion). Guidelines already developed (e.g., by IUCN World Commission on Protected Areas; regarding PA financing, collaborations with local communities, tourism management in PAs, etc.) shall be consulted extensively and incorporated into XUAR focused guidelines as appropriate.

[18]For example from IUCN–The World Conservation Union, which has published the *IUCN Guidelines for Protected Areas Legislation* (see http://data.iucn.org/dbtw-wpd/edocs/EPLP-081.pdf); or from Parks Canada, which in 2011 signed a bilateral Memorandum of Understanding with China's State Forestry Administration for cooperation in environmental management.

158. Senior wetland PA planners and managersalso shallhave opportunity to **participate in consultations**on selected themes,to assist them in the development ofrecommendations forsector-specific legislation and guidelines.Staff participation in such consultations should be organized in coordination with the national component and other provincial sub-projects of the MSL Programme.As in Output 1.1, if co-funding can besecured (for example, in connection with the Canada-China MOU co-signed by SFA and Parks Canada, which aims to promote international cooperation in environmental management) in-country or international learning exchanges may equally be organized to contribute to development of best practice guidelines for the key sectors, issues or threats that uniquely affect XUAR's wetlands.

159. Cross-cutting themes such as **climate change** and PA financing mechanisms will be considered in the above consultations as well. Climate change discussions should include in particularthe roles that can be played by PAs for adaptation to climate change and impact mitigation. Issues of water security, water resource management and ecosystem protection (especially in the headwaters of important river systems) should equally beprominent topics. With regard to the financing of PAs, unique opportunity also is present in this project(and in the broader MSL Programme) to discuss payments for water-related benefits including water as commodity, waterflow regulation andpurification services provided by wetlands.Special attention shall be given to the upstream service-providers (both local communities and the PA network) and to the payment options available to them in return for the ecological services that they maintain.

160. In the rapidly growing **tourism sector**, special attention will be given to a broadening of development indicators and measures of success with inclusion of guidelines targeting the interface between tourism and protected areas, the extent that community-beneficial tourism could play within the larger tourism sector, tourism for poverty alleviation and development, and educational opportunities in relation to environmental protection, sustainability and the value of water. Special attention also should be given to the unique role that ecotourism can play forsocio-economic development, environmental awareness, and conservation – thus providing a platform for win-win scenarios, if properly managed. The greatest advantage will be gained in this sector if project contributions focused primarily on the *Silk Route Tourism Plan* currently in developmentand the*Greater Kanas Scenic Area Tourism Plan* that also is being developed.

161. With regard to **infrastructure and transportation**, both in relation to tourism and more broadly, the placement of roads and buildings and entreprises is critical in relation to regional development and conservation planning; wetlands are especially fragile environments that would benefit from strict development oversight. As should be outlined in newly developed guidelines for all sectors including construction, environmental impact assessements (EIAs) always should be conducted beforehand (in Chinese law, EIAs are inclusive of social impact assessments or SIAs). Clear requirements for such assessments should be enshrined in thesuite of good practices developed for each sector, including immediate and local impactsof proposed developments as well as thelonger-term andgeographically broader impacts of proposed activities, both during construction and later in the operational phases.

162. In the **mining sector**, greater compliance in implementing EIA procedures should be encouraged bythe project; this may be achieved under the project's mainstreaming activities as well as with strengthening of sector principles and guidelines. Independent EIAs should be conducted for proposed mining operationsprior to granting permission even forexploration;specific monitoring requirements should be agreed and instituted throughout the lifespan of mining operations, PA and wetland management authorities should be recognized more widely as legitimate monitoring agencies, and clear standards should be set with minimum requirements for post-extraction site restoration. Financial guarantees from mining companies and other construction companies may equally be necessary.

163. All of the above matters shall be considered in sector-related dialogues, both through formal meetings and across project activities, leading to the development of appropriate and practical guidelines to improve PA management and biodiversity conservation in XUAR. Guidelines and other relevant protocols will be printed and distributed across the project area.

Output 1.3: Institutional strengthening

164. To further strengthen provincial and local institutional capacities to plan and manage the PA system, and to develop the supervisory capacity of XFD, the following project actions also are recommended: (i) provision of critical training opportunities for mid-career and senior provincial level staff;(ii) the development ofinformation and data sharing mechanisms;(iii) enhanced opportunities for exchanges and other forms of interactions between neighboring countries such as those sharing the Altai Sayan Ecoregion;(iv) adaptation of nationalPA competency standards to Xinjiang context; and (v) emplacement of long-term training opportunities to be delivered regularly in future.

165. Through **training sessions**(and sometime through joint fieldwork), provincial and prefecture staff with key responsibilities for PA planning and management will receive expert input in the inventorying and surveyingof natural resources, landscape and site level PA planning, monitoring wetland conditions including training in use of EHI[19], sociological considerations including co-management approaches to natural resource conservation and PA management, stakeholder engagement, public relations, etc. Some special trainings will also be dedicated to educating staff from other departments (sectors) in the importance and use of prepared best practice guidelines and in the application of EIA/SIA procedures, as well as in the use of relevant databases, GIS information and established data sharing mechanisms.

166. While most practical trainings will occur in the project area itself, either in or near Altai town or at PA sites in AMWL (e.g., in Liangheyuan NR), on occasion there may also be opportunity for provincial, prefecture and PA staff to participate in activities (either meetings or fieldwork) conducted elsewhere in the province. For example, technical learning could occur through participation of Altai PA staff in the tracking of wild horses in Kelameili Wild Ungulate Nature Reserve, in conjunction with planned reintroductions of wild horses by the Wild Horse Reintroduction Station – such an opportunity could lead to enhanced abilities of PA and XFD staff in use of GPS, GIS, immobilizers, radio-collars and other field equipment as well as basic research methodology and survey techniques. Provincial staff may contribute to the planning and execution of such collaborative work, bringing benefit at multiple levels.

167. Trainings aimed at raising the level of competency of PA management staff will also be arranged according to standards currently being developed at national level under SFA with input from the MSL Programme. Provincial partnersmay contribute to the development of such competency standards according to local situations. Collaborations with training institutes worldwide may also assist in development of appropriate curriculum, for example with UNESCO-IHE or Durrell Institute for Conservation and Ecology (Kent University).

168. Institutional capacity will also be strengthened at multiple levelsin XUAR withthe development of a practical, user-friendly **data and information sharing mechanism**.The mainfeatures of this information management system, which will integrate with the national level system, include four main components: (i) *A central virtual database* based on cloud storage to enable continuous updating and aggregation of wetland data from provincial and regional investigations. The virtual database is a fundamental component of the wetland data management

[19] For the purpose of trend analysis, an *Ecological Health Index* (EHI) is developed in this project (together with the other provincial sub-projects under UNDP's MSL Programme) to monitor changes in environmental and biodiversity conditions.

platform which contains location data of major wetlands, boundaries of all wetland NRs, and information about key features, species or vulnerabilities of each site. The database is accessible with different authority levels for users.(ii) *A map-based query and browse interface* accessing the database and displaying information in an intuitive manner through the Internet. PA managers can clearly and easily obtain relevant information by using the map-based interface, which can display PA data with different level of details. Basic data analysis functions are provided so that planners can get integrated information from massive raw data.(iii)*A web-based data communication component*reducing the labor work in re-typing and data verification at data collection stage. First-hand data file can be automatically merged into the remote database with error checking in order that wetland resource census can be made in efficient way. (iv) *A knowledge management and sharing interface*availing information and technical know-how on successful wetland management cases from wetland PAs in Xinjiang, elsewhere in China, and around the world. Experiences from other GEF supported projects in Xinjiang also will be included, such as the current Lake Aibi project and a former land degradation project. This knowledge management interface shall be able to synthesize wetland management achievements fromother investments in different parts of the country.

169. Theintegration of datasets and research findings from different agencies / institutionsin XUAR into a single access platform –withprovisions made for ease of data entry and retrieval, andfacility to conductspatially-referenced analyses – will greatly assist the work of biodiversity conservation and PA management authoritiesacross the province. Such a platform and gateway to relevant information should be located at XFD, with virtual access also possible from AMFB and other key locations in the province.

170. Biodiversity conservation and PA management in XUAR should also be informed by the experiences of projects and experts working in **neighboring countries**. Both virtual and direct exchanges should be encouraged between experts and conservation practitioners in the region, facilitated through a contracted service to network and to promote such synergies.Through a **sharing of experiences** regarding wildlife and ecosystem management, tourism development, community co-management, etc. – with special attention given to other GEF supported projects in neighboring countries – alternative conservation actions may also be explored that could support the development of an effective PA Network(including AMWL PA Network) and that could equally contribute to enhanced wetland PA management across the province. This activity will support both critical networking and exchange of summary reports between complementary projects in the region and a targeted site visit to learn firsthand from communities and government and other implementing agencies, for example, in Mongolian Altai region about effective community participation in wildlife conservation and PA management.

171. Finally, based on agreed PA staff competency standards, a**training program** will also be developedto meet professional management requirements. Theprogram will build on the sessions initially provided as stand-alone teaching units through the project, andwith dialogue and consensus building supported by the project shall be institutionalized as a series of workshops and courses that aim to build the professional capacity of PA planners and managers at multiple levels – this will be a training and upgrading mechanism that will long outlive the project *per se*. Training targets already identified include biodiversity monitoring, community-based conservation and co-management approaches to conservation, specialized database management skills, law enforcement techniques, etc. XFD will be the primary planning and coordinating agency with oversight for core content requirements. Some of the training mayalso be coordinated with key universities orsupported by other organizations or institutions as necessary.

Outcome 2: The biodiversity of AMWL is effectively conserved with a strengthened PA network and enhanced operational budget through adoption of a landscape approach to conservation planning and environmental management

Total cost: 9,310,500 US$		*GEF:1,631,000 US$*	*Co-financing:7,679,500 US$*
*Budget % of project:**	*38 %*	*48 %*	*36 %*

* excluding management costs

172. In response to the second barrier outlined above, namely **a disconnect between the PA system and the broader development and sector planning at Altai landscape level**, this component specifically focuses on *expanding* the PA network in AMWL, *improving* the standards and effectiveness of PAs for biodiversity conservation, *mainstreaming* biodiversity conservation and the PA system into broader development planning processes, *enhancing* public environmental awareness and appreciation of the PA system and ecological services including better recognition of the value of water, and *increasing* trans-frontier conservation.

173. Project outputs and activities will seek in particular to support and strengthen AMFB, the primary implementing agency for this component, together with Liangheyuan NR, the AMFB sub-division that will lead in project execution. Through these two lead management units, many of the PAs (both formal NRs and other 'protected areas' in AMWL) also will be supported by the project through inclusion in training activities as well as other conservation-oriented actions undertaken in the region. Project activities will contribute in complementary ways to enhancing the effectiveness of the PA system, and to raising public awareness and understanding of the values of wetland biodiversity and of the PA system that seeks to protect and maintain wetland ecological services and water security.

174. The five outputs deemed necessary to achieve the desired project outcome under this landscape component are described below.

Output 2.1: PA system in AMWL expanded

175. Althoughrecent analysis (in the PPG phase of the project) suggests thatthe greatest priority for wetland and biodiversity conservation in AMWL is to enhance the management effectiveness of current PAs, it also is deemed very important **tosystematically realign** and where necessary **toexpand the landscape PA network**in relation to AMWL biodiversity and climate change threats as well associo-political realities. Through such a PAnetwork expansion, currently unprotected high biodiversity areas and fragile and vulnerable wetlands will be incorporated into a revised landscape PA system.

176. The rationalization and further developmentof the PA Network will be guided by a **comprehensive geographic review and gap analysis** at the landscape level that will include assessment of wildlife species and biodiversity, special habitats including natural wetlands, and current PA coverage including levels of connectivity between NRs (and other PA components). Key species to consider will includeminimally themoose, beaver and otter. The potential impact of regional climate change on wildlife distributions will also be considered, as such changescould lead to recommendations forPA expansions or other modifications(includingmanagement zoning)as well as to transfrontier considerations (since wildlife and ecology do not respect international boundaries).Based on thiscomprehensive review –to be undertaken as a contracted assessment of the biological, ecological and other PA-related information available for AMWL, followed by a series of expert consultations, with the whole process being undertaken in close collaboration andinformed by the PMO – the PANetwork will be expanded with extension of current PAs or the creation of new

PAs, which shallbe gazetted and operationalized with government cofinancing.Systematic review may also lead to recommendations for NR status upgrades (e.g., from provincial to national status) and international designations (such as Ramsar sites or World Heritage Sites) in order to ensure higher levels of protectionand investment for their construction and operations.

177. Landscape conservation and sustainable development **government planning** equally will be influenced through this project, under the same contract, with as purpose to promote more inter-sectoral dialogue and consensus building and to integrate PA planning needs into the operationalization in Altai Prefecture of the provincial **Xinjiang Wetland Conservation Regulations (XWCR)**. The development of prefecture plans for conservation and sustainable development, inclusive of wetlands and biodiversity concerns and of climate change (also with recognition of the need to realign the PA Network accordingly), will provide the broad guidance and government support necessary for the proposed PA network realignment and expansion. The aforementioned review and gap analysis of the PA system will be undertaken under contract together with provision of planning and guidance for application of XWCR, provision of sound recommendations to local prefecture government, and the organization of a series of related government meetings.

178. Based on this strategic evaluation and on landscape level government planning, a conservation and sustainable management plan will be developed for AMWL. According to preliminary assessments carried out prior to and during the PPG phase, several changesareanticipated(to be confirmed in the first year of the project),as outlined below.**Realignment and expansion of the PA Network** will likely occur in four different ways: (i) enlarging of the PA estate in AMWL, (ii) increasing connectivity between PAs, (iii) upgrading the status of individual PAs, and (iv) mobilizing AMFB staff to redevelop the *Altai Mountains NFPP Areas* as special landscape 'protection areas' (PAs) that will function effectively in support of biodiversity conservation beyond their original intended NFPP lifespan.

179. Severalwetland areas in AMWL may be recommended for expansion on the basis of the planned review and analysis.Specific sites to consider, identified during the PPG phase, include the Tuergun Reed Wetland and Ulungur Lake Wetland in Fuhai County, River Rakorlor marsh in Buerqin County, and the Sawur lowland marsh, Sayaram Lake, and Weili District Lake group. Liangheyuan NR might also be recommended for expansion to maintain and restore the ecological integrity of the Ulungur and Ertix Rivers' headwaters, especially in the upper reaches of Kala Ertix River in Fuhai County. Altogether, over 150,000 ha of new wetland PA estate will be delivered through the project, in addition to all the other waysin which the PA system will be improved.

180. When considered from a broaderecological (international) perspective, Liangheyuan PNR and Kanas NNR also are contiguous with Mongolia's Tavan Bogd NP. The entire spine of the Altai Mountain range is thus included within a trio of PAs situatedalong the Sino-Mongolian border – hence, increased coordination and cooperation between these three PAs, especially the transfrontier element (see Output 2.5), would *de facto* enhance the conservation value of the current PA system. Additionally, any area increase in the Liangheyuan NR that would equally increase its continguity with the Tavan Bogd NP would further enhance connectivity and the effectiveness of the broader PA network in the Altai-Sayan Ecoregion. With strengthening of bilateral ties, an integrated network of montane and wetland parks could be recognized – with positive impact on regional conservation and community benefit through co-management across the Altai Mountain range. If duly recognized, this network would provide a solid foundation for adaptation to climate change with increased North-South and altitudinal migration options (cf. connectivity) for wildlife and vegetation.

181. Within Altai Prefecture, both the Buergen Beaver NR and Ertix River Keketuohai NR also will be supported through the project for upgrading to national levelprotection status, which will enhance the funding available to them to implement more effective operations.

182. Finally, the Altai Mountains NFPP Areas, managed under the AMFB,will also be supported to help their field staff transition from their current primary role as law enforcers to more conservation oriented roles as PA managers. With enhanced roles and responsibilities and appropriate staff training, these NFPP Areas could become the largest PAs in AMWL.[20]The main functions of NFPP staffcurrently areto control poaching, logging and collection of non-timber forest products (NTFPs), to help injured animals and toprevent forest fires. Local people are generally considered as partners in this prevention work, and sometimes are referred to as "phones on horseback" (due to their role in communications).

183. The Fuhai section of the Altai Mountains NFPP area comprises the summer pastures for Kazakh herders. There are two Forest Protection Institutes and four Forest Protection Stations under Fuhai Mountain Forestry Branch Bureau. The objective of such enlargement of Liangheyuan NR through co-management with Fuhai County is that the wetland and biodiversity in the area can come under effective conservation, so the area could become as a functional integrated part of Liangheyuan NR. Activities will include capacity building for forest protection institutes and stations for wetland biodiversity conservation, with training courseS and some monitoring equipment, and co-management will be undertaken through joint patrolling excerices. The Kuermutu station of Liangheyuan NR is close neighbour to the institutes under the Fuhai Mountain Forestry Branch Bureau, thus cooperation in protection activities will be relatively straightforward.

184. The current roles and responsibilities of NFPP staff should in such ways be enhanced, and local community members couldalso through community co-management assist with EHI monitoring (see Outputs2.2 and 3.2). Such a redevelopment of the NFPP Areas would signficantly expand the AMWL PA system, both in area and in professional capacities.

Output 2.2: Systematic PA management and biodiversity monitoring system established

185. A systematic PA management system will be developed through the project, including introduction of a regular monitoring and assessment of biodiversity and ecological health in the PAs in AMWL. Such a system should consider all the PAs in the landscape as a network, not only individual PAs. Additionally, to help guide landscape level management decisions, relevant information should be collected and stored in a user-friendly data storage and retrieval system accessible to NR staff and other conservation authorities. To achieve this output,extensive training is necessary for regional planners and for PA staff, biodiversity and EHI monitoring protocols must be developed, and newly developed systems must be trialled in the field according to real life conservation scenarios. Through this output, joint trainings and EHI survey activities will be operationalized across multiple PA sites in Altai Prefecture.

186. Establishment of a systematic data and information management system has already been outlined under Output 1.3. This system will be made accessible at the Altai landscape level (at AMFB) so that analyses can be undertaken that lead to landscape/network decisions. Systems level thinking in relation to the whole AMWL PA network (see Output 2.1) can thus be supported, as will prefecture development planning (see Output 2.3). Information about species distribution and other EHI components may also be analysed more comprehensively – considering not only data from different PAs, each in isolation, but at the landscape level. For example a landscape analysis of the Chinese beaver population, a flagship species, can be supported with this data management system; and may lead to informed recommendations for expansion of the PA estate, aiming to increase the

[20]For example the Fuhai Branch Office of AMFB, which oversees the NFPP area in Fuhai County, could collaborate with Liangheyuan NR to co-manage the upper reaches of the Kala-Ertix River, as this area is very important for an integrated Liangheyuan headwaters ecosystem conservation plan. Training courses for Fuhai County forestry staff and joint monitoring would strengthen wildlife and ecosystem protection, and would effectively enlarge a buffer region around Liangheyuan NR.

connectivity (vis-à-vis beaver populations) between Buergen Beaver NR and Liangheyuan NR as part of a broader PA network. A flagship species approach can also help direct local authorities toward a more integrated and systematic watershed view of conservation needs (in this case, in the Ulungur River basin).

187. EHI monitoring system established for the PA network. To assist inlong-term monitoring of outcomes of biodiversity conservation efforts, including maintenance of proper ecological function (essential for water security in the region), a new tool recently has been devised – theEcological Health Index, or EHI. This tool will be trialed through the project with the aim to assist in PA management decision-making. EHI will complement the Management Effectiveness Tracking Tool(METT) and other capacity scorecards already in use in biodiversity projects undertaken with UNDP support.

188. EHI will be introduced as methodological approach to all PA sites in AMWL, starting with Liangheyuan NR. The choice of indicator species for EHI assessments will be agreed by PA management authorities and simple protocols will be developed. Standard protocols and systems for data collection will be agreed, together with data storage and retrieval systems, data sharing agreements, and data analysis. Such information, collected on a regular basis, will lead to more scientifically informed management decisions at PA site levels. The EHI approach will also continue to be refined and adapted to the local situation in the course of the project, and will incorporate lessons and recommendations from other intiatives in China that aim to develop biodiversity-oriented indices. More detail about EHI and its application in the Altai project is given in Annex 6.

189. Capacity building for AMFB staff and for PA staffin the Altai landscape. Specialist training is needed for PA staff and other conservation authorities, in several fields and bureaus, to successfully introduce and anchor such a systematic PA management and biodiversity monitoring system in AMWL, and eventually more broadly in XUAR. Training should include both classroom-based and *in situ* (field-based) components, focused on three main areas: enhanced understanding of the *natural resources* themselves (i.e., biodiversity, wetlands, environmental services),the scienceof *biodiversity conservationand PA planning and management* (including the development of community partnerships), and *restoration* of degraded land and natural resources (e.g., with trial land restoration activities). Trainees will include AMFB staff as well as management staff from Buergen Beaver NR, Liangheyuan NR, Ertix River Keketuohai NR and other NRs in AMWL, Kektuohai Forest Park, Wuqilike Wetland Park, and Habahe and Buerqin Counties NFPP Areas, etc.

190. Specific training content will include practical matters such as grassland and wetland restoration, monitoring and patrolling, PA management, field station management, and other station responsibilities including e.g. fire prevention. Training sessions also should inform PA staff about data collection (including the development and use of monitoring protocols) and data analysis, the use of specialist equipment including computersand GPS, environmental awareness, biodiversity and EHI monitoring , community co-management, strengthening law enforcement, etc. Teaching will occur both in classroom settings and through joint fieldwork (*in situ* training).Classroom training will occur mainly in Altai town, at the AMFB offices, while field-based learning opportunities will be provided at field sites throughout AMWL, but especially in Liangheyuan NR.

191. Finally, a small grants scheme co-financed with government for strategic conservation projects in the AMWL PA Network will be supported, so as to promote greater participation and awareness of all the PAs' staff and conservation institutions in the AMWL area.This elementof the project will be managed by the PMO and technically supervised by a volunteer technical advisory group. Proposals will be considered on a rolling basis, as needs arise and are presented to the PMO. In this way, the capacities of multiple management units and their core staff will be directly enhanced with technical support including provision of trainings as well asbasic field equipment, support in management planning, and other related activities.

Output 2.3: Altai PA management objectives mainstreamed into provincial planning process

192. There is an urgent need to integrate wetland biodiversity conservation and other PA management objectives into regional development planning frameworks. The project will strategically build on a proposal recently made by the Governor of Altai Prefecture[21]in which he recommended that a **comprehensive landscape approach** be adopted for development in the prefecture, based on the premise that environmental conservation and sustainable resource management are necessary foundations for long-term socio-economic development. This plan eloquently refers to the broad landscape (AMWL) as the Liangheyuan Ecological FunctionZone,which should be considered *de facto* as a vast protected area that encompasses not only formal NRs and other PAs, but the *entire*landscape – with an integrated vision for regional conservation and sustainable development (see Figure 11). Such a perspectives lays excellent foundation for the mainstreaming of biodiversity and PA management objectives in different government sectors.

193. Specifically, the project will seek to**mainstream the PA network and biodiversity** into the provincial development planning processes through engagement at prefecture level, and thus ensure the inclusion of measures to strengthen PAs and biodiversity and wetland conservation as part of the provincial 13th FYP. This mainstreaming will be promoted through two main approaches, focused on communication and coordination and on economic matters. First, a coordination group for AMWL conservation will be established, informed by a stakeholder analysis and stakeholder involvement plan, which has been outlined during the PPG phase (see Table 2, also see Section IV, Part IV). Second, an economic valuation of AMWL biodiversity including wetlands will be carried out, together with the development of a financing plan for the Altai PA network. These activities are expected to lead to increased government recognition of the value of wetlands and of the PA system, and also to increased investment in the PA system as well as government support for reducing biodiversity threats in AMWL.

194. **Establishment of acoordination group** will ensure that all key government sectors are present for discussions and decisions with regard to the economic value of biodiversity, of wetlands, and of the PA system; and that the most significant development options are considered in dialogues and consensus building for the future of the region. This coordination group will be developed as the AMWL Project Leading Group(Altai PLG) – presented in more detail in Section IV, Part II (see Project Organigram).

195. Economic valuation of wetlands, biodiversity and the PA Network. As a means to generate revenue forbiodiversity conservation and PA management, including support forPA operations as well as resident communities, the estimated economic value of environmental assets and services in the area may be used as a fundamental elementin rationales presented to other sectors of government and to the private sector – seeking to obtain from them fair compensation and/or payments for the PA network and its biodiversity and ecological services. For this purpose an **economic valuation of the PAs in AMWL** will be conducted, withspecial attention given to wetlands and the importantecological services they provide, including potential roles in climate change adaptation and disaster mitigation. Such assessment of the Altai PA system should equallyincorporate both market and non-market values, and should also consider the region's Cultural Heritage including non-tangible nomadic cultural assets.

196. **An economic study** will be carried out in the first two years, to compare the value of ecosystems services under the business as usual scenario with two alternative scenarios within a Cost Benefit Analysis (CBA) framework. The alternative scenarios will include measures that address the current unsustainable practices threatening the areas biodiversity and flow of ecosystem services.

[21]in a speech given in Altaiin April 2012

Management practices that may be considered include: sustainable grazing practices based on the area's carrying capacity; the development of sustainable tourism activities; sustainable harvesting of NTFPs; and, appropriate measures to ensure water quality and quantity is maintained at a level that supports the provision of water for household, agricultural and industrial use and flow levels that support wildlife. A scenario could also be designed to demonstrate the implications of intensified pressures from development activities (e.g. from the mining sector).

197. The economic analysis will:

- improve the public's appreciation of the contributions made by PA's ecosystem services to the economy and local livelihoods, and importantly the cost of mis-management;
- Inform the development of appropriate management strategies for the PA and the development of sector policies;
- inform the development of sustainable financing opportunities for wetland PAs; and,
- underpin the development of a PA business plan.

198. The study will cover the wetlands in Altai Prefecture in northern Xinjiang (116,200 km^2), with a focus on AMWL (approx. 75,000 km^2).

199. While the economics work will be developed in more detail in the first year of the project, following a detailed data and information review, key aspects of the CBA study are outlined below.

200. Priority ecosystem services for valuation include:

- provisioning services and the dependence of local communities on these services. This is likely to involve survey work
- carbon - several studies have been carried out in neighboring provinces, regarding the carbon value of grasslands and wetlands, on which the assessment can build);
- water quality and quantity;
- tourism.

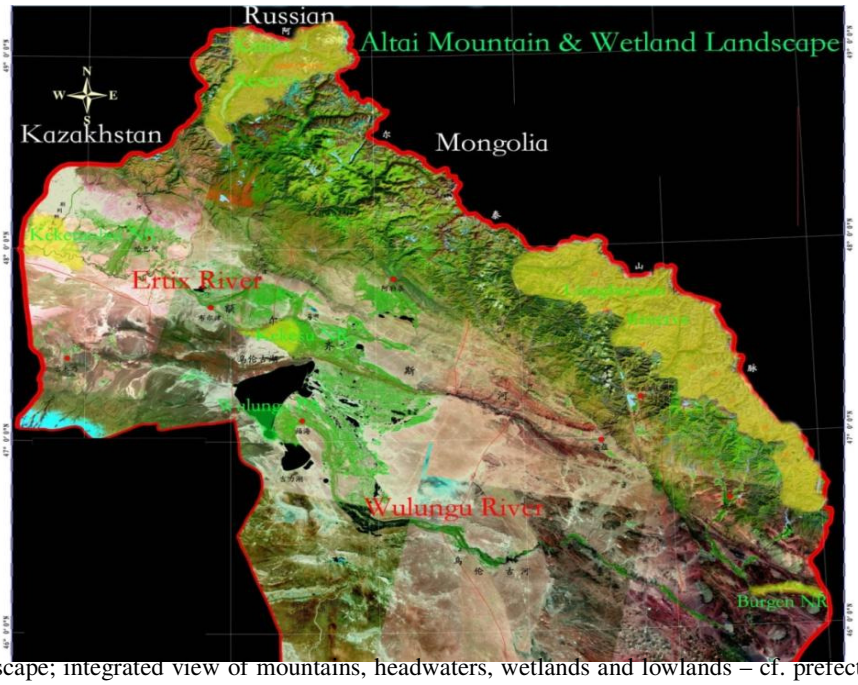


Figure 11. Prefecture landscape; integrated view of mountains, headwaters, wetlands and lowlands – cf. prefecture level Liangheyuan Ecological Function Protected Area.

201. Under each scenario the value of the ecosystem services provided to key sectors of the economy will be highlighted (e.g. agriculture, mining and petro-chemical industries). This will facilitate the mainstreaming of ecosystem services into sector policies and plans.The study should consider both the on-site and off–site costs of land degradation associated with over grazing and the benefits of moving toward more sustainable practices.

202. Water pricing is a very important issue in arid regions of China such as Xinjiang, and the market value of water will be assessed for agricultural purposes and other industries in the region with significant direct or indirect water requirements.

203. A distribution analysis will be a key part of the study, to understand how different sectors and stakeholders are affected under alternative management scenarios of the area. The analysis will help develop appropriate eco-compensation mechanisms and identify any potential payments for environmental services (PES).More detail is provided in Annex 7.

204. Sustainable financing plan for the PA Network. Building on the scenario analysis, a review of **sustainable financing options** will be undertaken. Developing new sources of sustainable financing for the PA system is necessary to effectively manage and protect the wetlands. Key areas to explore include the feasibility of carbon trading mechanisms (especially in the rich peatland areas of the Altai Mountains, such as in the Sandaohaizi wetland). This requires an in-depth feasibility study. Public-private partnerships (PPPs) between protected areas and commercial companies should also be pursued. For example, tourism development plans for the area may provide opportunities to promote more Public-Private Partnerships, and possibly some forms of co-management arrangements (since much tourism in AMWL is contingent on the natural beauty, as well as on cultural aspects of the human environment, as a significant draw for tourists). In order for local communities to benefit from new income streams appropriate means to receive new funds will need carefully development. In Qinghai Province where similar scenarios are present in Tibetan herding communities, a parallel GEF financed project as well as several non-government organizations are trialing the development of trust funds, of herders cooperatives and of community conservation contracts (some of these models have been trialed for several years), which may be of relevance.

205. **Eco-compensation mechanisms** will also be explored, for example potential mechanisms to support sustainable (reduced) grazing. Building on the ecosystem valuation work and assessment, and the distributional analysis, the study will identify possible opportunities for developing such payments, which could be further developed under a follow up study.The study will also identify **viable alternative livelihood options** for local communities (e.g. marketing of wetland products, community tourism) in the context of sustainable pastoralism – in order to diversify income streams and thus decrease dependence on livestock numbers alone. These alternatives options should link with the scenarios developed for assessment.

206. Based on the economic analysis and review of sustainable financing options, a **business plan** can be developed for the PA system. This should include costing of operating and capital expenditure. The business plan should set out the current funding gap, at the level of individual PAs and for the PA system as a whole, and the opportunities for addressing this gap, based on an understanding of the economic contribution made by PAs and feasible financing options.

207. The project will promote awareness through targeted campaigns (Output 2.4) about the real value of water (which currently is undervalued) as well as of wetlands, biodiversity and the PA system. On the basis of economic analysis as outlined above, the project should equally aim to enhance inter-sectoral dialogue and coordination, and ultimately co-financing of PAs, for the long-term socio-economic benefit of local communities, of the environment, and of the corporate business interests themselves (by adopting more sustainable approaches to production).

Output 2.4: Awareness of the importance of PAs for sustainable livelihoods increased

208. To support and promote a greater integration of wetland and biodiversity values and PA management concerns into the mainstream of public knowledge and appreciation in Altai Prefecture, a communications strategy will be developed by the project including use of a 'flagship species' well known in the project area, the Chinese beaver. This strategy will target a variety of different audiences and development sectors, and will also build on several of the activities already planned under the project. For example, some of the PA management small grants provided under Output 2.2 may include public awareness raising components.

209. Public awareness campaigns and publications. To appraise other government sectors as well as the general public about AMWL and the PA network, the current**AMFB website** will be reviewed and enhanced with new information – including a multilingual sub-site dedicated to this project. Both the natural and cultural heritages of Altai Prefecture and the AMWL PA network will be introduced, together with a description of the project's goals and planned activitites. The website will also linktorelated tourism websites that seek to introduce potential visitors to the region. Clear narrative and high quality photographs will present readers to the value of wetlands and biodiversity and introduce project collaborations with local Kazakh communities. A secure section of the website will also allow registered users including AMFB staff and PA managers to access the data-sharing platform developed under Output 2.2, with georeferenced information about local wildlife, biodiversity, EHI indicators, etc., that can assist in strategic decision-making.

210. A variety of **publications** will also be developed and made available for download through the website as well as distributed in print form through other avenues, in Chinese and sometimes also in Kazakh, with an aimto increase the public's awareness and appreciation of the value of wetlands and the wildlife they support.The significance of maintaining ecological integrity will be highlighted. Some publications will target the general public; however certain otherpublications will target the internal users (such as PA managers and government leaders), for example with case studies, 'good practice' manuals, guidebooks and guidelines, and other practical printed materials. Media will be made aware of such publications to ensure broad coverage and awareness within Altai Prefecture. When special meetings or consultations are organized, media also will be notified and encouraged to attend.

211. Publication of an ***Ecotourist's Guide*** to the Altai region(either as full book or as a booklet) including both 'natural' and 'cultural' (or livelihood) sections also is planned. This bookwill introduce readers to the concepts and purpose of biodiversity conservation in general, as well as the Altai PA network and co-management as new conservation approach. Target audienceswill include both national and international travelers, PA management authorities, other government bureaus, and the broader travel industry (tour operators, etc.).

212. As part of a broad strategy, a series of **exhibitions** will equally be organized in Altai on themes such as water, alpine and wetland landscapes, birdlife, etc. with the support of local artists and photographers, as well as an international photo-tourism competition that will aim to highlight the beauty and value of AMWL PAs in different seasons, including their natural and cultural heritages.

213. With a rapidly growing tourism industry, including current plans to better recognize and market Altai as part of the ancient Silk Route, tourism-related promotions and awareness raising should be clearly integrated into the project. In particular, a project partnership with the **Altai Tourism Bureau**will be developed for mutual advantage. Individual PAs may seek to advertise themselves within this sector, yet this should be done only in conjunction with pro-active planning and development of sustainable PA tourism plans. Additionally, greater clarity must be brought to this sector especially in regard to ecotourism – through project materials and other forms of media and communication – as ecotourism is not simply travel to areas of great natural beauty but,

significantly, it is tourism that contributes positively and directly to conservation goals and also contributes directly to local communities' well-being.

214. Conservation Education and Exhibition Centre in Keketuohai Forest Park. As a core educational activity under this project, assistance and support will be given to improve educational outreach in **Keketuohai Forest Park** in Fuyun County.[22] This forest park, which is encompassed within Fuyun County's NFPP Area adjoining the Liangheyuan NR's Kuermutu area, may in future become even more closely aligned with the management of Liangheyuan NR. In cooperation with the Forest Park and a private tourism company that has built and developed a museum near the entrance to this park, the project will helpdevelop an **educational strategy** that aims to educate and influence the tourism public and visiting government officials. Pilot awareness and education program for ecotourism and biodiversity conservation will be implemented including an exhibition room for introduction and learning about of ecotourism, AMWL and its biodiversity and ecosystem service. Innovative displays, photographs, wildlife specimens, interactive learning tools and trails in the Forest Park with informative signage and other means also will be used. The company will continue to operate the museum and manage access to the park, as per current arrangements; but the current project will add significant educational value to this already well-recognized tourism destination with improvements in educational museum exhibits and addition of new informative trail signage that will improve visitor experience.

215. An interpretive strategy will be developed with the park authorities to enhance the scope and quality of learning opportunities. As a recognized 5-star tourism destination in Altai prefecture, tens of thousands of national tourists pass through the centre and walk the trails of the forest park each year. Public awareness about the environment, and the value and need to conserve water and wetlands, will be promoted with an enhanced and expanded educational outreach component of the park and museum's functions. Greater awareness also will be promoted regarding the broader AMWL region, and about local and traditional livelihoods of Kazakh pastoral communities.

216. Through the environmental awareness activities described in this section, awareness and support for innovative public-private partnerships (PPP) will increase in the area. In addition, while the current operations of the park and museum are run quite well and efficiently by a private tourism company, there remains much scope for improvement through the project. The quality and accuracy of exhibits will be verified, new formats of presentation will be supported, and training of staff also will be supported. Signage along park trailes also will be developed.

217. The project will hire an expert to develop the overall interpretive strategy, which will serve as a window into the broader Altai landscape including (i) mountain scenery and geology, (ii) the natural environment with a focus on pertinent conservation issues, and (iii) local people, livelihoods and culture in the AMWL region. Project activities will include training of staff, development of the afore-mentionned comprehensive interpretive system (with considerations of the museum layout, including more space for wildlife biology and other environmental matters), outdoors pathway signage, and also input for community-oriented ecotourism development, etc. Forestry station staff working in vicinity of the exhibition centre will be included in the training component.

Output 2.5: Trans-frontier conservation improved

218. Several international conservation activities will also be carried out under this project, with a focus on Sino-Mongolian professional exchanges and cooperation.At least 4 wetland PAs on the Chinese side and 4 or more wetland PAs on the Mongolian side of the border together comprise a rich network of PAs in the broader landscape (see Figure 7). This output will focus on the

[22]Keketuohai situates in the East upper reaches of Ertix River and borders the middle of Liangheyuan NR. It is listed as National Geological Park, National Forest Park (Shenzhongshan National Forest Park) and National AAAAA Scenic Area. More than 360,000 tourists visited Keketuohai in 2011.

development of a species conservation action plan, targeting a flagship and umbrella species, and on increasing connectivity between Liangheyuan NR in China and the Tavan Bogd NP in Mongolia as well as more generally along the Sino-Mongolian border.

219. Beaver Conservation Action Plan. A conservation action plan will be developed in this project for the endemic Chinese beaver, a flagship species for conservation (through awareness campaigns)in Altai Prefecture. The endemic beaver also is an umbrella species for wetland conservation, as its protection requires protection of the riparian forests and grasslands in the Ulungur River watershed; this habitat is critical for wildlife and also for local Kazakh pastoralists through provision of important natural resources. This activity will require watershed level considerations, includingtransfrontier collaboration with Mongolia.

220. To develop the conservation plan, a distribution survey will be carried out together with an assessment update of key threats to the beaver popultion. Recommendations should be given about where/how to build detours so that the beavers can move and migrate around dams that have been built in their rivers and now hinder their movements. In this way, connectivity in the landscape will be increased, which will benefit both the beavers and fish species in the Ulungur watershed. Working with stakeholders in the upper and lower reaches of the Ulungur river and its tributaries, an integrated approach to conservation planning and wildlife management also will be promoted.

221. Of special value, focusing on the beaver will equally provide opportunity to enhance relationships and working partnerships with Mongolian colleagues. Cooperation will be necessary between Buergen Beaver NR in Qinghe County and Bulgan River Natural Reserve in Mongolia – both to learn more about the PA's respective approaches to species and habitat management and to gain better understanding of the beaver's distribution and conservation status.Buergen Beaver NR may equally be able to upgrade its status through this project, from provincial to national level.

222. Collaboration with Tavan Bogd National Park and increasing regional connectivity. The Tavan Bogd NPis equally significant for the AMWL region, on a broader scale. Figure 8 clearly illustrates how this Mongolian PA, together with Liangheyuan and Kanas NRs, will contribute to the core conservation goals of the PA cluster in the Altai Mountains – and highlights how greater collaboration and partnership with this PA is critical for success at landscape and regional levels. Exchange trips and meetings between Liangheyuan NR and Tavan Bodg NP are planned. In addition, a team of PMO staff, senior PA managersfrom AMWL (including Liangheyuan NR staff) and local community representatives will visit and learn from successful work carried out by Mongolian herding communities engaged in wildlife conservation in tandem with income generation including handicraft development in Mongolia. These exchangeswill provide opportunities for participants to learn from local communities andalso from representatives ofsuccessful development/conservation projects and social entreprises, such as WWF Mongolia's *Altai-Sayan Ecoregion Project*, the UNDP's *Community-based Conservation of Biological Diversity in the Mountain Landscapes of Mongolia's Altai Sayan Eco-region*, and the innovative work of *Snow Leopard Entreprises* and *People-Centred Conservation (PCC) Mongolia*.

223. Building on the above partnership between the two countries, a feasibility study will also be contracted, to assess the benefits and challenges associated with building wildlife passageways that would allow wildlife to travel more freely across boundaries (this approach has already been trialed in places along the China-Kazakh border).A contracted survey will aim to identify key areas where such passageways (corridors) could be developed. Removal of sections of boundary fence is an important way to strengthenbiodiversity conservation on the basis of having contiguous PAs extending the whole length of the Altai Mountain range on the Sino-Mongolian border, to allow wildlife to move freely through the larger landscape. A similar project was initiated along the Kazakh border with China in 2000, where Siaerxili NR staff opened several 5-10 m sections of

border fence to allow movements of wildlife; camera-trap photography has documented successul migrations of ibex and other species.

224. Supporting a regional approach to conservation with clear connectivity between PAs in neigbor countries is visionary. Not only willthisSino-Mongolian partnershipbuild more ties between the people of both countries, it also may serve as exciting model of international cooperation, building resilience to climate change into PA networks and further developing co-management approaches for wider application across China and Central Asia.

Outcome 3: The adoption and development of a 'community co-management' approach to conservation in Liangheyuan NR demonstrates improved management effectiveness for a wetland PA in the Altai Mountains and Wetland Landscape

Total cost: 8,373,631 US$		*GEF:1,221,679 US$*	*Co-financing:7,151,952 US$*
*Budget % of project:**	*34 %*	*36 %*	*34 %*

* excluding management costs

225. Designed to tackle the third barrier, **limited staff capacities and limited community participation in PA management**, this project component aims to develop and demonstrateviable co-management arrangements thatcan help improve the management effectiveness of Liangheyuan NR. As the largest protected areain the Altai Mountains, this NR is critically important for the conservation of peatland and other wetlands as well as for regional biodiversity includingthe flagship beaver. Liangheyuan means "two river headwaters," referring to the Ulungur and Ertix watersheds. The two main threats to biodiversity in this NR – grazing and mining – will be reduced. Liangheyuan NR also plans to submit an application for recognition asa wetland site of international significance (cf. Ramsar site) in near future.

226. The project will strengthen Liangheyuan NR operations to address threats through: (i) establishing an institutional apparatus for co-management, including decision making fora; (ii) participatory management planning with local communities; (iii) determination of management responsibilities and attachment of responsibilities to rights, with a system of incentives (including compensations for lost opportunities) and penalties for malfeasance; (iv) setting up ecological monitoring and wetland use management systems involving local communities; (v) strengthening enforcement of regulations (surveillance, interception of malfeasance, prosecution); (vi) restoration of criticalecosystems fragmented or degraded by mining or over-grazing, including peatland; and (vii) training for communities tailored to help improve management of specific threats to the PA. As part of the process of developing a management plan, a baseline survey of the NR and surrounding areas, including key ecologically interconnected areas, will be conducted. The most critical sites for wetland biodiversity conservation will be identified, with a view towards enhancing their protection.

227. Specifically the project will provide strategic input for two main geographic areasin Liangheyuan NR – the **Sandaohaizi Wetland** in Qinghe County, and thegreater**Kuermutu Area** in Fuyun County (see Figures 7 and 8) – with key planned interventions presented in Table 10and described more fully under Outputs 3.1 and 3.2 below.

Table 10. Site interventions in/near Liangheyuan NR.

Project outputs	Site interventions
Output 3.1: Development of PA management plan	• PA management plan review, including management zones, possible PA expansion, threats assessment • Setup of biodiversity and EHI monitoring programme

	• Development of species and habitat conservation plans • Community relations and co-management framework • Tourism plan and other sector plans in the PA • Assessment of staff training needs
Output 3.1: Training of NR field staff(for more detail, please see Output 2.2)	• Main topics to include: conservation planning, EHI and biodiversity monitoring, habitat and species management, community co-management, wetland and grassland restoration, strengthening of law enforcement, etc.
Output 3.1: Restoration of degraded grasslands and wetlands (cf. grazing and mining threats)	• Full EIA prior to implementation of proposed restoration • Demonstration of grazing impact in wetland areas, with use of localized fencing • Trial vegetation restoration experiments, to be expanded through the project
Output 3.1: Education and Environmental Awareness Centre(for more detail, see Output 2.4)	• Enhanced scope and quality of learning opportunities through the educational exhibition centre • Development of improved interpretive strategy for outdoor signs on Forest Park trails
Output 3.1: Trans-frontier cooperation as part of a PA management plan (for more detail, see Output 2.5)	• Development of a beaver conservation action plan (species with international distribution) • Exchanges with Tavan Bogd NP in Mongolia, including creation of passageways for wildlife (removal of border fences) • Promotion of Sandaohaizi as a Ramsar wetland site
Output 3.2: Trial development ofcommunity co-management	• Enhanced governance (including fora for dialogue and decision making) • Collaborations including environmental monitoring, paid co-management related labour, etc. • Trial implementation of eco-compensation, PES, etc.
Output 3.2: Development of community ecotourism	• Development of ecotourism sector for benefit of local communities • Support for local handicraft association

Output 3.1: Liangheyuan NR operations strengthened to address grazing and mining threats

228. This output will focus on strengthening PA operations for biodiversity conservation and reduction of known threats. Liangheyuan NR will be strengthened in the following three ways: development of PA management plan, restoration of degraded sites, and staff training.

229. Even prior to the development of a PA management plan or restoration of degraded sites, however, specialist training will be necessary to help inform the development of these plans and guide restoration activities. Thus staff training is both an important, explicit activity under this project as well asa key component that will be included as a recurring activity in the PA management plan.Training therefore will occur in this project *simultaneously*with the development of a NR management plan (described below) and other project activities. Details about PA staff training have already been described under Output 2.2, and apply to staff from Liangheyuan NR and other PAs in AMWL as well as from AMFB in Altai town.

230. Development and implementation of a PA Management Plan. Amanagement planfor Liangheyuan NR will be developed through this project,incorporating landscapeand climate change

considerations as well as a strong co-management framework. As outlined above, 'continuing professional development' (staff training) will also be included as integral to the management plan.Theplanning process will also consider the need to maintainwetland ecological integrity, possibilities of adjusting the zoning of the NR (current management zones are shownFigure 12), the development ofspecific wildlife and habitat management plans as well as sector plans (e.g., tourism), incorporation of regular EHI and biodiversity monitoring, and development ofpublic awareness and outreach programs.

231. Inasmuch as grazing and mining are identified as threats in the AMWL region, special attention will be given to these two sectors as well – for mitigating their impact, for reducing threats, and for restoring previously degraded lands. The management plan therefore also will need to indicate, for example, how livestock numbers in the PA will be reduced; for example, whether necessary reduction will be achieved through provision of new labor opportunities (e.g. herders to be paid for their participation in EHI and biodiverstiy monitoring activities),community eco-compensation plans, or the development of alternative livelihood options.

232. As part of the process of developinga management plan, a full threats analysis will be carried out by PA management authorities. Yet this exercise must still recognize that grazing in grassland areas also constitutes a service,inasmuch as some level of grazingis necessary to maintainthe vegetation at a certain succession level,and that without such grazing there would be a transformation of a landscape–particularly if there is alack of other grazing animals.The maintenance of some grazing (and hence successional state) could thus even be converted into a payable service,which could be linked to the co-management output.

233. Following a fullthreats analysis, development of the management plan will requirea review of the current extent and layout of the nature reserve in relation to habitat and wildlife distributions (this will be done as part of the gap analysiswith systemic review ofthe AMWL PA coverage, carried out under Output 2.3). On this basis, PA boundaries and management zones will be considered for possible realignment, including anticipation of climate change scenarios and their potential effect on wildlife and vegetation distributions and on migration patterns. Connectivity will thus be considered in PA redesign, including the NR's placement within the broaderPA network, inclusive of PAsin Altai Prefecture (China) and in Mongolia.

234. Peatlands will receive special consideration for protection and inclusion within the more strictly regulated 'core zones', since they store large amounts of carbon. If peatlands degrade (as would occur, for example, if ice-core *palsa* formations in Sandaohaizi wetland were to melt, due either to climate change or to a flooding of the wetland), they release large amounts of carbon into the atmosphere and their ecological functions including regulatory and purification functions would be disrupted.

235. Finally, adequate consideration of local involvement and partnership should be central in management planning and operation of Liangheyuan NR. While joint management and implementation is clearly known to include participation in environmental monitoring, it can and should in fact be much more than this (more detail about the *scope* of community co-management is provided under Output 3.2). However, for the present purpose of developing a Liangheyuan NR management plan, minimally it must be noted here that livelihood concerns of local communities also need to be considered and incorporated into the plan; and therefore, based on the local situation, tourism planning also must be incorporated explicitly as part of the Liangheyuan NR's overall plan and strategy. Ultimately a broader AMWL tourism plan should be developed as well, guided in part by AMFB and the Altai PA Network (as well as other government agencies) – but many important elements of a regional tourism sector plan can begin with development of PA tourism planning within the Liangheyuan NR context.

236. Other elements to include in the Management Plan include *inter alia* a financing plan (Output 2.3), public relations and environmental awareness raising strategies (Output 2.4), and also a strategy (if deemed appropriate) for transboundary cooperation (Output 2.5). The purpose and the mode of operation of ecological monitoring stations (three of which are to be established under the project, with co-financing from government) will also be clarified under the management plan; these stations will support the regular monitoring of EHI indicators as well as community land use in the area, with the aim to provide baseline information for PA management decisions. Key management guidelines and protocols also will be printed and distributed amongst PA staff and community wardens to further strengthen their awareness and capacities to undertake agreed conservation activities.

237. Model restoration of degraded grasslands and wetlands. This output will also support restoration of ecologically important grassland and wetland areas in Liangheyuan NR. Trial application of restoration methods will lead to development of a model for broader use across the landscape. Restoration work will be co-financed with project and government funds. In relation to livestock grazing, localized fenced plots will be set up to assess and demonstrate to herders and government the degree of grazing impact. In relation to land degradation caused by the mining sector, vegetation restoration experiments will be initiated and then extended according to project results. An independent environmental assessment of any proposed restoration interventions will also be conducted, prior to broad scale extension – to ensure that best practice guidelines are followed.

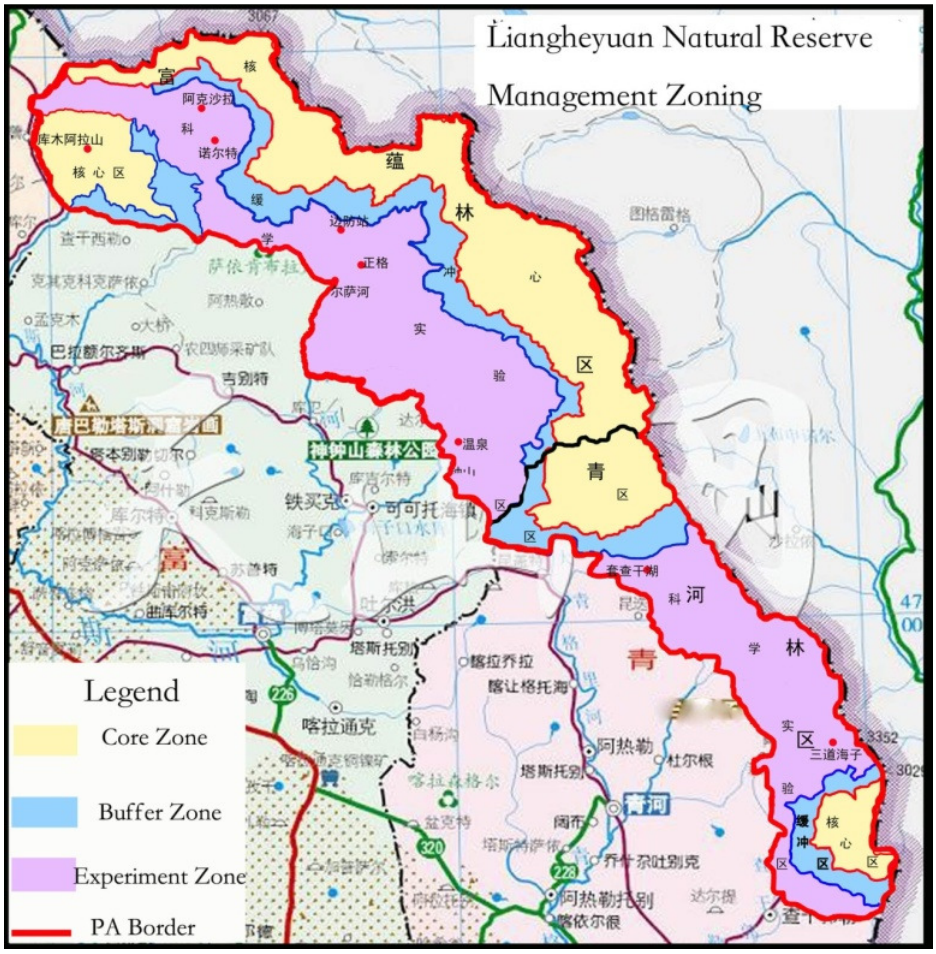


Figure 12. Map of Liangheyuan NR, with current management zoning (see the map's Legend).

238. In the Sandaohaizi wetland, small areas of land will be fenced to evaluate the level of grazing impact (one of the putative causes of grassland degradation). In old mining sites in the Kuermutu area, vegetation restoration trials will be undertaken where mining operations have destroyed river valleys, grasslands and wetlands. All of these trials will be carried out with the dual purposes of evaluating the success of different restoration approaches and presenting visual, real-life demonstrations that may help educate the public and government leaders about the impacts of grazing and mining and the possibilities for land restoration.

239. Regarding the unique *palsa* wetland formation in Sandaohaizi, based on the long-term development of peatland in the area and current permafrost conditions, a more detailed EIA is strongly recommended before any further environmental modifications are undertaken in the area since these may affect (possibly negatively) the structural integrity of this special habitat. The ice cores of *palsas* mounds are particularly vulnerable to changes in thermal properties of surrounding waterways, such that induced changes in water levels in the Sandaohaizi wetland may lead to a melting of the ice cores and subsequently to a loss (destruction) of the *palsas* themselves, with concomitant loss of peatland vegetation and local biodiversity.[23] Situated in the upper source of the Chaganguole and Xiao-Qinggerli River, the area is seriously degraded because of overgrazing. However climate change also is a threat to the wetland, over-grazing alone is unsatisfactory explanation. The degradation situation will be evaluated with problem analysis, and a full restoration plan will be developed. A pilot wetland restoration will be initiated in Sandaohaizi, yet it is still recommended that Sandaohaizi restoration work focus foremost on situation evaluation and analysis and restoration planning.

240. In the Kuermutu part of Liangheyuan NR, riparian ecosystems have been critically degraded by gold mining along the river. Mining has led to the fragmentation of the river and habitat loss in the riparian wetland and grassland. The blocked river will be opened to allow local fish to migrate freely and the riparian land will be leveled out. Soil restoration will be a challenge because most of the organic soil has eroded due to mining. In order to restore the vegetation, some nearby soil will be used to cover the leveled field, site by site. It must be ensured that the soil removal would not destroy the in-situ ecosystem. The revegetation of closed mining sites will occur with landscaping (ground levelling)followed by seeding of new grass cover, with temporary ground protection to allow for plant germination.Photo-plots will be used to document recovery. Methods from other countries including Canada and Australia will also be investigated and their ‘best practices’ borrowed and adapted to the local context.

241. Based on experience gained through the above activities, Liangheyuan NR authorities and AMFB will contributeto the further development of mining sector regulations, including EIA practices, and to raising public awareness of the damage caused by mining. In this way,threat mitigation will be promoted by the project in addition to post-mining rehabilitation.Most significantly, PA management will be strengthened to address mining threats and serve as deterrent for illegal mining operationsas the project provides a clear context and focus for increased awareness. Increased public awareness of the (negative) biodiversity impacts of mining can be leveraged to influence formal legislation, and even more importantly it can be used to encourage fuller compliance by mining companies and local government with sector regulations. Theapplication of standard EIA procedures, prior to granting of new land leases, is particularly important. Public awareness raising activities will focus on the need for, and anticipated success of, restoration activities;these will be integrated with the development of a regional environmental awareness strategy under Output 2.4.

[23] For this reason, the project does not support ‘restoration’ activities that seek to change the water levels in this wetland.

Output 3.2: Collaborative PA governance and management structure put in place (community co-management)

242. A new form of PA governance and management will be developed and trialed through this project, namely *collaborative management*with local communities, aiming to increase human resources available for conservation and sustainable resource management activities, on one hand, and to enhance communication and cooperation (including agreement on levels of resource use, development of alternative livelihood options, and support for introduction and development new financing mechanisms), on the other hand.[24] Altogether this approach to biodiversity conservation and community development will promote more inclusive forms of governance and incorporate local concerns, needs and aspirations into regional planning.

243. The standard definition of *co-management* recognizes that decision making powers, responsibility and accountability for PA management are shared between the government and other stakeholders, in particular local communities. 'Sharing of power' and 'equity' are two key elements of this definition. Co-management can occur in several forms or levels – from 'cooperation' to 'full joint management'. [25] This project aims fora genuine cooperation with mutual (bi-directional)support. [26] For this project, co-management is much more than simply a means to coordinate labor contributions from resident community members. Shared visionwill be cultivated, seeking to bring clarity and agreement about the the different roles and responsibilities amongst stakeholders. Community co-management will specifically enhance Liangheyuan NR's capacity for wildlife and environmental monitoring and for surveillance, and it will support the development of community tourism as alternative source of revenue for local people. Co-management also will support the development of community-oriented governance and financial management mechanisms,such asherders cooperatives, trust funds, business associations, etc. Innovative eco-compensation approaches, which in China can bring new financing to a region in exchange for demonstrated environmental outcomes (or behavioural changes, as proxy measure), will also receive special attention under this project.

244. In short, four forms of support will be sought under this co-management initiative from the NR to local community members: (i) environmental monitoring to be compensated with **paymentfor services**; (ii) assistance given for the development of **newincome streams** (e.g., community tourism,handicrafts); (iii) an enhanced policy environment that will allow and even encourage development of supportive **governance structures**; and (iv) financial transfers such as regional or national **ecocompensation funds**, which mayprovide important startup support forlocalventures such as community ecotourism or serve as seed monies for the establishment of new community trust funds.

245. Establishment of co-management governance sytem. A collaborative PA governance (co-management) structure will be set in place in Liangheyuan NR through a series of guided community workshops with PA authorities, whereby a spectrum of roles and responsibilities will be discussed and overall consensus reached. The definition and scope of co-management should be agreed

[24] A fuller discussion about the scope of 'community co-management' can be found in the article "Pastoralists and wildlife conservation in western China: collaborative management within protected areas on the Tibetan Plateau," published in the journal *Pastoralism* in September 2012.

[25] According to IUCN, "co-management [also known as 'shared governance'] comes in many forms. In *'collaborative' management*, decision-making authority and responsibility rest with one agency but the agency is required – by law or policy – to inform or consult other stakeholders. Participation in collaborative management [by local people and communities and other stakeholders] can be strengthened by assigning to multi-stakeholder bodies the responsibility of developing technical proposals for protected area regulation and management, to be submitted ultimately to a decision-making authority for approval. In *'joint' management*, various actors sit on a management body with decision-making authority and responsibility. Decisions may or may not require consensus. In any of these cases, once decisions about management are taken, their implementation needs to be delegated to agreed bodies or individuals."

[26] National NR legislation does not recognize space for full joint management, yet with mutual respect and understanding agreement can be reached for the different stakeholders to work together toward common goals, for mutual benefit.

amongst the parties through these meetings, including explicit linkages made between new labor and livelihood opportunities and a reduction in grazing pressure.[27]A sustainable use management system will be established for pasture and other resources that are used or harvested by communities in designated zones, with provisions made for natural resource inventories and the development of monitoring and enforcement systems. Such co-management arrangements will draw heavily on lessons learned from pilot co-management projects undertaken elsewhere in China and around the world. The specific structure and activities will be agreed between NR authorities and local communities residing in the PA,

246. As outlined above, in developing a co-management partnership it is necessary for NR authorities to support local people and communities not only with guidance and training (and payment) for their services as *de facto* park wardens, but also for community development including creation or enhancement of alternative economic opportunities (such as ecotourism) – which in turn may be supported by other new or strengthened governance structures. In particular, the support of NR authorities for development of local business associations, rural development cooperatives and trust funds is strongly encouraged, both through NR advocacy with local government and with provision of guidance and other forms of support for their development.

247. Several examples of rural development cooperatives and trust funds already exist,inInner Mongolia, Gansu, Qinghai and elsewhere in China; some of these cooperatives and trust funds are directly tied to emerging co-management frameworks being developed under another PA management projects supported by GEF and implemented through UNDP.

248. The development of such simple, transparent, community- and government-supported financing systems (cooperatives, trust funds, etc.) are important not only to assist local people to become more directly involved in their own socio-economic development (such as with development of community tourism ventures), but their development also is important as local communities, PAs and the government jointly search for practical ways in which eco-compensation funds maybe transfered and received. Community trust funds may provide such a mechanism for receiving payments, and cooperatives in turn may prove to be valuable tools for development and marketing of new businesses under co-management arrangements.

249. Community-basedwildlife and environmental monitoring. Environmental monitoring by community members as part of an agreedco-management strategy will include regular transect surveys along agreed routes and according to agreed annual schedule, searching for selected indicator wildlife species. As shall be decided in a management plan, block surveys and *ad hoc* wildlife observations may also be noted. In select areas, water flow and quality may equally be deemed important and included in survey agreements. Payment will be made to local herders for such co-management services, as well as travel costs. Necessary survey equipment will also be provided, along with training in use of equipment and note-taking as well as other matters pertaining to data collection and scientific environmental monitoring.

250. Data collected by community monitors will complement data gathered directly by PA staff, through their regular patrolling endeavours and at monitoring stations. Both PA staff and community wardens will collaborate in the collection of biodiversity and EHI data, which shall provide the foundation for strategic PA management decision-making. Consultants will be hired to assist in the design of wildlife monitoring protocols, partnership arrangements and training required for local herders and PA staff in order for to conduct effective monitoring.

[27] The underlying premise for introducing a co-management system is that grazing threats cannot be mitigatedsuccessfully without reducing the number of livestock, yet this is only feasible with development of complementary livelihoods options or eco-compensation arrangements introduced to help offset the economic losses incurred by local people.

251. Training will be provided to PA staff and selected co-managers on data collection and reporting, and appropriate guidelines developed for monitoring data collection. As outlined above, such training will be integrated with training activities supported under Component 2; in addition, some targeted training support will be necessary for community monitors.

252. Alternative livelihood option: Community tourism. In order to offset economic losses resulting from anticipated reductions in livestock numbers, alternative business options must be considered – and community tourism (especially ecotourism) has been suggested by PA management authorities as a promising way forward, a position endorsed by community members in the Sandaohaizi area of Liangheyuan NR. Complementing ecotourism, handicraft development can equally contribute to household income generation as well as to cultural preservation. The project will therefore support these two business opportunities, as a means to reduce dependence by resident Kazakh communities on livestock numbers.

253. Developing a pilot ecotourism product based on social and cultural realitiesmayalso assist in the creation of a more sustainable (diversified) pastoral economy; ecotourism can in fact be recognized as an extension of *eco-pastoralism* if it is developed on the basis of local products and experiences,rather than seen asa totally new, alternative livelihood.

254. While supported by consultant contracts to ensure that current tourism trends, private sector interests and opportunities, basic client requirements in different markets and regional tourism plans are all properly considered, local community ventures will still be developed with full stakeholder participation.Value chain analysis will also be used to encourage that as much benefit as possible come to local residents, not to external tour companies or investors.

255. Family-based tourism (homestays) and community-based ecotourism are proposed as complementary options for tourism development in the area. Both culture and nature will be highlighted.Tourism-related activities will be implemented by local residents, often with project plans developed by village ecotourism committees, rural development cooperatives or local business associations. Prioritising community-based products and experiences will help to ensure that community development occurs, not just the enrichment of a few individuals or families. The establishment of new development cooperatives and associations will be encouraged under this project, as will further support for the Qinghe County Handicrafts Association that already helps community members to market and sell local Kazakh products.

256. Strategic awareness raising, training opportunities and startup financial support for the development of community tourismwill be given through the project. Awareness raising is necessary for tour operators, in order to enrich their understanding of community tourism and how it can contribute to community well-being as well as regional conservation goals. Local residents and PA staff also may benefit from learning more about how ecotourism activities can be designed in ways that both support and draw benefit from local culture and history.Local cultural practices and traditions such as Kazakh eagle hunting, the development of skis (and skiing culture) in the Altai region, and presence of cultural relics such as the Sanhaizi Grand Tomb and ‘stone men’ sites could be highlighted to promote local community tourism.

257. Additionally, tourism sector planners must become more aware of the potential benefits of tourism, beyond measurement of success based on tourist numbers only. Selected trainings will equally be organized onorganizational management, accounting, marketing, etc. as well as handicraft development techniques and other tourism- and governance-related matters. Through a process of discussions and meetings with community members and PA managers, hired consultant support will assist in the design and trial implementation of several family- or community-based tourism initiatives, incorporating natural and cultural elements as main attractions and business planning made on the basis of target clients and market trends and opportunities.

258. As outlined under Output 3.1 above, PAtourism planning is also important, as NRs can help direct tourism development in areas under their jurisdiction in advantageous ways. If they take a pro-active role, NRs can help design and preferentially support tourism that brings greater benefit to local communities and promotes environmental protection. At the level of the AMWL PA Network, it is also recommended that development of a long-distance route be considered – e.g., the *Great Altai Mountains Ecotrail (GAME)* – which would connect several NRs in the landscape (and/or several community ecotourism projects) as a means to promote AMWL as ecotourism destination and simultaneously promote local development (income generation) and the preservation of local Kazakh pastoral culture.[28]

259. At a broader regional level, Altai Prefecture is becoming a hotspot in provincial and national tourism planning – an opportunity the project should capitalize. For example, a *Silk Route Tourism Plan* is currently being developed, which seeks to highlight Altai Prefecture's historic trade links and cultural affinities with Central Asia. Even more ancient history can be marketed too, with archeological sites (e.g., burial grounds and 'stone men' carvings) as well as local ancestral connections with Sycthian pastoralists that long predate Silk Route history.

260. Eco-compensation in support of community co-management.Building on new eco-compensation models currently being developed elsewhere in China, in particular in the high grasslands of Qinghai Province (under a parallel GEF supported project), this project seeksdirectly and indirectly to secure eco-compensation from downstream beneficiares for the protection of natural resources and ecological services by local communities and the PA system in AMWL. Compensation funds for ecological protection may provide a significant financing boost for PA operations, such as in Liangheyuan NR, and also for local pastoral communities. Local herders are in particular need of startup funds, to successfully develop new businesses or livelihoods – if they are to reduce their livestock numbers and suffer corresponding economic losses, for the sake of a greater good but in ways that are not in their own immediate, personal benefit. It is noteworthy that there are two main approaches for use of eco-compensation funds, or two main beneficiary groups: a portion of funds can serve as (partial) financing mechanism for Liangheyuan NR (and other NRs), in particular for field operations including development/support for community co-management initiatives and for regular wildlife and environmental monitoring; and a portion of funds should serve to assist local resident communities both to provide payments for services rendered under agreed co-management arrangements and to provide some of the startup support that is necessary for development of alternative livelihoods.

261. Eco-compensation funds can be delivered in several ways to local communities: they may be transferred as direct payment to individual households, provided as a contribution to local community funds, allocated to recognized community cooperatives (such as herders cooperatives), etc. Whichever approach is selected,transparent mechanisms must be used for selection of recipients, for execution of financial transfers, and also for follow-up monitoring of funds. For long-term sustainable and responsible management of funds, transfers to local cooperatives or community trust funds are recommended by the project.

262. As one of the main challenges in developing a viable eco-compensation scheme is the valuation of ecological services and the existence of wildlife populations, and as the process of building consensus among varied stakeholders may be a long, arduous process, an interim stop-gap measure is recommended to move forward the development and trialling of the co-management approach with transfer of eco-compensation funds for biodiversity conservation –namely, the provision from government environmental compensation funds (i.e., the reserves from which eco-compensations shall be made) of annual contributions to local co-managers' *community funds* in

[28] Such an approach to destination marketing (and to community development) could be modeled after *The Great Himalayan Trail* project in Nepal (see http://thegreathimalayatrail.org/).

amounts up to the lower estimates for an area's ecological services, or according to novel 'willingness-to-pay' approaches – so that, simultaneously with the development of appropriate valuation tools, there can also be adequate experimentation and development of the other fundamental part of the eco-compensation equation.

263. Such interim transfers to local communities, in financial amounts not more than initial estimated *minimum environmental values* of an area (so that nobody can argue that payments should be deferred, on the premise of a concern of over-paying for ecological services), can be considered as subsidies to local farmers and herders' livelihood costs; until full valuation of environmental services is complete and adequate internalization of environmental costs and benefits is made in context of national sustainable development programmes. In the short term, these payments can be used to catalyze the development of alternative livelihoods. In the Liangheyuan NR area, local nomadic Kazakh communitieshave chosen to focus such efforts on the building community ecotourism ventures, in lieu of livestock based economies.

PROJECT INDICATORS

264. The project indicators contained in Section II / Part I (Strategic Results Framework) include only impact (or 'objective') indicators and outcome (or 'performance') indicators; they are summarized in Table 11, below. All of the indicators are 'SMART'[29] indicators.

Table 11. Elaboration on Project Objective, Outcomes, Indicators and Targets.

INDICATOR	EXPLANATORY NOTE
OBJECTIVE: To strengthen the management effectiveness of wetland PAs to respond to existing and emerging threats to the globally significant biodiversity and essential ecosystem services in AMWL	
Institutional Capacity scores	Capacity scores for 3 provincial departments (Forestry, Water Resources, Environmental Protection) will increase from baselines that range from 52 to 60%, to all over 70% of the maximum possible score.
Financial Sustainability scores	Financial sustainability scores will increase from average baseline of 19% to average over 42% by the end of the project. Annual budgets for the regular operations of PAs in AMWL will increase by 40% through increased sector contributions and development of alternate financing mechanisms identified and trialed through the project. Sustainable eco-compensation mechanisms also will receive special attention.
PA coverage increased in the AMWL, including resilience and connectivity	At least 150,000 ha will be added to the AMWL PA Network. There will be greater collaboration between PAs, both within the AMWL and regionally. Institutional and staff capacities of the vast Altai Mountains NFPP areas, which are overseen by AMFB, will be enhanced; and the NFPPs will be incorporated into the AMWL PA network. The status of selected indicator species (as part of EHI) will improve through the project.
Outcome 1: The protection of wetland ecosystems through PA planning and management is enhanced in Altai Prefecture and XUAR through systemic, legal and institutional capacity strengthening	
Effective legal framework for provincial PA system, which enhances conservation in the	Provincial regulations for PAs will be developed by XFD, including specific consideration of wetlands (such as local threats as well as threats upstream, water quality, water flow seasonality, fish migrations, etc.) and participatory

[29]Specific, Measurable, Achievable, Relevant and Time-bound.

INDICATOR	EXPLANATORY NOTE
XUAR's current 35 NRs and establishment of future PAs	approaches to conservation and sustainable use planning (co-management). Wetland habitat, wetland biodiversity and protected areas will figure more prominently in two or more sectoral plans such as tourism and mining, as well as in the next provincial 13th Five Year Plan.
Professional capacities of the Forestry Department, including participatory PA management, enhanced staff competencies, greater public awareness and support	Progress on the specific questions in the capacity scorecard scores of the Forestry Department will be examined. It is envisaged the project's support for co-management, professional competency standards establishment and institutionalization of a systematic training programme for department and PA staff, as well as public awareness campaigns and an improved data sharing platform will positively affect these scores.
Safeguards in place in and near wetland PAs, to reduce main pressures on biodiversity from overgrazing, mining, tourism, agriculture and other sectors	Safeguards will include strengthened EIA law enforcement, clear standards for post-extraction site restoration of mining sites as well as operationalisation of a hotline contact number for illegal activities Safeguards will also include a systematic monitoring and data management system (see above) including a malfeasance reporting system aiming to discourage illegal and other activities to wetland ecosystems. Precise estimations of pressures on wetland biodiversity and target reductions will be developed early in project implementation (government agencies will include provincial departments under SFA as well as MEP, MOA, and MWR). The development of EHI methodology (Annex 6) will enable monitoring of pressure reduction and achievement of targets and will be used to develop and monitor a score.
Outcome 2: The biodiversity of AMWL is effectively conserved with a strengthened protected area network and enhanced operational budget through adoption of landscape level approach to conservation planning and environmental management	
Management Effectiveness Tracking Tool scores	METT scores for individual PAs in AMWL will increase from baselines ranging from 28% to 71% to scores between 60 and 80% at end of project. Specific targets are given in Section II, Part I: Strategic Results Framework Analysis, under the Outcome 2.
Ecosystem Health Index (EHI)	The project will fine-tune, adopt, and deploy an index to measure the health of wetland biodiversity. During the PPG phase, the Ecosystem Health Index (EHI) has been developed in draft form. This index will continue to be 'field-tested' and further refined under the MSL Programme; measured at project inception, mid-term, and project closing. In AMWL, the EHI scores of three different NRs will be monitored, with average target improvements over 10 percentage points for each PA.
Mining concessions	Mining poses a significant threat to biodiversity, especially to wetland biodiversity since it can pollute waterways (with local and downstream impacts) and fragments the landscape (e.g., for native fish species). By the end of the project, no mining will occur inside PAs in the AMWL region.
Co-management approach	Co-management will support both PA management authorities and local herding communities through development of alternate (complementary) livelihood options for Kazakh pastoralists. Structures for participatory planning and management need to be put in place, such as open for a for dialogue and debate as well as financial management structures that can transparently receive eco-compensation transfers (or other community level financing) as part of a holistic co-management approach to PA management. Additionally, specific alternative livelihood options will be developed – in particular, community ecotourism and handicraft development – to offset economic dependency on livestock grazing inside PAs and wetlands
Regional cooperation	Regional cooperation will be enhanced, in order to increase connectivity

INDICATOR	EXPLANATORY NOTE
	between PAs and a systems (landscape) approach to conservation. In order to achieve such cooperation, two targets have been selected: development and adoption of a conservation action plan for a flagship endemic species, the local Chinese beaver with distribution in Mongolia and China; and an agreement in the form of a 'Memorandum of Understanding' between the Tavan Bogd National Park in Mongolia and the Liangheyuan NR. Such regional partnerships and collaboration are necessary foundations for an effective, comprehensive Altai-Sayan Ecoregion conservation strategy.
Outcome 3: The adoption and development of a 'community co-management' approach to conservation in Liangheyuan NR demonstrates improved management effectiveness for a wetland PA in the AMWL	
Grazing pressure reduced	Grazing has been identified as one of the proximate threats to biodiversity in wetland areas of Liangheyuan NR. Around 7,000 herding families graze their livestock in the Nature Reserve in the summer season, including 170 families (with approximately 40,000 head of livestock, mostly sheep) in the ecologically sensitive Sandaohaizi wetland. Through the development of co-management, public awareness campaigns and alternate economic options for local herders, the project will help to bring a 20% reduction in livestock numbers in Sandaohaizi by the end of the project.
Revision of PA core areas	No human activity should occur with core zones of nature reserves in China. Yet the current layout of core zones (vs buffer zones, and traditional use or experimental zones) has not been rationalized. Through the project, a review of management options and zoning will be undertaken; by the end of the project, management zones will be both scientifically and participatorially designed and agreed; no livestock grazing shall occur inside core zones, and no mining will occur in either core or buffer zones of the Liangheyuan NR.
Socio-economic options that compensate for herders' lost economic opportunities	Community ecotourism will be developed and supported by the project, to enable local families with lost opportunities (due to grazing restrictions) to engage in new business activities. At least 3 community business ventures will be supported by the project, initially benefiting 30 families. Training and material support for development of sustainable business plans, product development, marketing and trial implementation will be provided.
Improved economic situation	Along with the development of new business or livelihood options, financial support also will be provided to local herders as payments for direct services rendered to the Nature Reserve such as wildlife monitoring or other forms of environmental monitoring and management, as well as for various labor requirements (short-term or seasonal employment). Altogether, the average household income of local residents should increase by at least 20% over the current situation (as measured during the PPG phase of project design).
Mining pressure reduced	Pressure from mining will be reduced, with all illegal gold mining activities stopped in Liangheyuan NR by the end of the project, and at least 800 ha of land previously degraded by gold mining will be restored in Kuermutu area.
Threatened species' population stable	The population of several endangered wildlife species (i.e., beaver, moose and wolverine) will be monitoring and found to be stable or increasing. The baseline is known for beaver, however the current status of wolverine and moose will be determined in the first phase of the project implementation. Wildlife observations will be incorporated in the EHI database, as part of the data and information management system developed by the project.

RISKS AND ASSUMPTIONS

265. The project strategy, described in detail within this project document, makes the following key assumptions in proposing the GEF intervention:

- Baseline conditions in selected areas are representative over a larger area, lessons learned can be successfully disseminated, and project activities can be replicated as appropriate in other wetland areas.
- Increased awareness and capacity will lead to changes in behaviour (both government and resident communities) with respect towards the conservation and sustainable use of wetland resources.
- The sustainable financing and effective management of wetland NRs will attain higher national priority within SFA and related agencies such as MEP, SOA and NRDC as knowledge and information are made available.

266. Projects risks were updated during PPG phase (from what was presented at PIF stage) and further elaborated and classified according to UNDP/GEF Risk Standard Categories[30] and assessed according to criteria of 'impact' and 'likelihood' (see Box 1). These risksand their mitigation measures (Table 12) will be continuously monitored and updatedthroughout the project, and will be logged in ATLAS and reported in the PIRs.

Box 1. Risk Assessment Guiding Matrix

		Impact				
Likelihood		CRITICAL	HIGH	MEDIUM	LOW	NEGLIGIBLE
	CERTAIN / IMMINENT	Critical	Critical	High	Medium	Low
	VERY LIKELY	Critical	High	High	Medium	Low
	LIKELY	High	High	Medium	Low	Negligible
	MODERATELY LIKELY	Medium	Medium	Low	Low	Negligible
	UNLIKELY	Low	Low	Negligible	Negligible	Considered to pose no determinable risk

[30] Standard UNDP/GEF risk categories include: environmental, financial, operational, organizational, political, regulatory, strategic and other.

Table 12. Project risks assessment and mitigation measures

Identified Risks	Category	Impact	Likelihood	Risk Assessment	Elaboration of Risks	Mitigation Measures
Different sectors involved in the establishment and management of PAs work in isolation	Strategic	Medium	Moderately likely	**Low**	Coordination of action between SFA and other PA management authorities proves difficult, as a result of institutional rigidities –thus undermining conservation efforts promoted through the project.	The Government recognises the need for better coordination, and has specifically requested project support to develop the coordination apparatus, as a key measure to improve environmental governance. The project is fully positioned as an integral part of the CBPF, in order to ensure that it contributes directly to overall biodiversity conservation efforts of the country through implementation of the NBCSAP. CBPF and NBCSAP implementation for a will be fully utilised in order to ensure that essential coordination between the PA management authorities occurs. During project preparation, initial consultative efforts have laid the foundation for the creation of a new, permanent inter-agency coordination and management committee for individual PA sites and for clusters or networks of PAs in Component 2.
Local communities may still follow incompatible land use and resource use practices, jeopardizing biodiversity	Political	Medium	Likely	**Medium**	Even under co-management (where communities have usufruct rights to natural resources), economic development interests of communities will override conservation priorities, leading to continued loss and degradation of biodiversity.	Whilst there is significant interest amongst local communities to be entrusted with conservation of the land where they live, both 'carrot and stick' may be required for some communities to implement agreed conservation actions (when it is not of direct short-term economic benefit for them, or causes losses in some livelihood opportunities). The government is already experimenting with a variety of eco-compensation schemes and the project will build directly on these government efforts. The project will also build on national and global experiences in co-management of PAs and of natural resources, and will provide support at every stage of co-management agreement development and negotiations between stakeholders. The distributional implications of management actions between and within communities also will be assessed as part of the environmental valuation and socio-economic assessments that will be undertaken under Component 2. The project equally will adopt an integrated approach to improving community attitudes and practices in relation to PAs, including awareness raising, participatory approaches including co-management, and support for the development of

						alternative livelihoods.
Conservation efforts may be limited by ecological responses to climate change	Environmental	Medium	Likely	**Medium**	Severity of climate change impacts, increased incidence and extended duration of extreme weather (e.g., floods and drought) and retreat of glaciers may undermine conservation efforts promoted by the project through changes in water availability, biodiversity distribution and changes in community resource use intensities.	Given that climate change impacts are likely to increase over the long term, the project will assess these changes as part of the PA system level analysis and will propose actions and management approaches to increase ecosystem resilience. These will include realignment of PA zones and boundaries if necessary and improving functional connectivity between habitats and PAs as well as across the broader landscape. Migration patterns and timings may change, requiring adjustments in the PA network design to accommodate species with large geographic ranges and migratory species.
Project implementation may be halted by political unrest in the project area	Political	Medium	Moderately likely	**Low**	There may be a political risk in the ethnically sensitive region of Xinjiang. Any repeat of former rioting could halt or compromise smooth project operations in the Autonomous Region	Recently the ECBP Programme was able to complete two projects in Xinjiang despite recent riots. Sensitivity of the region can even be an asset in guaranteeing high level of government attention to ensure good governance. Being an autonomous region, with a higher legislative power than provinces, Xinjiang presents an interesting opportunity to establish a modern and solid legal framework for PA management. In addition, in order to minimise this project risk, the Ministry of Finance will also sign an agreement with the Government of XUAR before project inception, which require necessary enabling conditions in Xinjiang including social stability, detailing various risk mitigation measures. Additionally, any potential risk to the project lies not so much in physical risk for individual participants, whether foreign or national; but rather in the possibility that provincial government may restrict travel or implementation of internationally (co-)funded projects — and while this is possible, it is unlikely, as the project has the highest levels of support in China, both at provincial and national level, with commitment given to this effect as has clearly been demonstrated through joint authorship and government signatures endorsing this important project.
Lack of financial incentives and poor or limited enforcement of agreed plans or	Financial / Regulatory	High	Medium	**Medium**	Mainstreaming wetland PAs (and more generally, biodiversity) into sectoral policies will be hindered by lack of incentives for other sectors, and poor enforcement	Although historically this risk has been very high, with the elevation of environmental agency to the level of Ministry, it is expected that the government will have greater capacity to identify and mitigate the severe threats such engineering-oriented programmes pose for biodiversity. This project proposes to not just focus on coordination but

priorities hinder mainstreaming wetland PAs and biodiversity in other sectors					of agreed priorities or plans allow for incompatible large-scale activities to occur in other sectors such as mining and tourism development. (For example, Kalamaili Ungulate NR is threatened by approval of large open-cast coal mining inside the NR, and Lop Nur wetlands have dried up as a result of upstream water diversions.)	also on joint planning, approval of policy, programmes and legislation at provincial level with participation of key wetland-impacting sectors and agencies. The project will support development of strong PA regulations and a framework for development of tools for mainstreaming such as sector specific standards developed for areas in/near wetland PAs including standards and procedures for regulating mining and other extractive activities, a consolidated information database on wetland PAs, a wetland PA system review, and economic valuation studies. Under the CBPF umbrella, efforts will be made to develop viable partnership between different (sometime competing) government agencies. The project will also seek to operationaliz new Wetland Conservation Regulations.
Local government lacks an interest to establish or enlarge wetland PAs	Political	Medium	Likely	**Medium**	Due to lack of understanding of the benefits of PAs, lack of scope for participatory management, and interest in maintaining current economic land and resource uses, county and prefecture government generally prefers to keep land administration under its direct control, without consultation or partnership with PA authorities, with resultant ecological damage. In addition, it is often difficult for local governments to adequately finance the management of PAs.	The project aims to raise awareness of the economic values of wetland biodiversity and ecosystem services, to develop eco-compensation arrangements to help provide sustainable financing for PAs and related local communities, and to engage local authorities through participatory processes with regard to the development and expansion of the PA system and for the management of individual PAs.
Management of PAs remains ineffective, leading to a decline of biodiversity	Operational	Medium	Moderately Likely	**Low**	In many cases PA staff lack professional capacity for dynamic leadership, with few incentives for them to demonstrate commitment in achieving NR management objectives, and opportunities for continuing professional development are few.	The project will support the development of professional standards for PA jobs, provide training to raise current standards, and work with PA system planners to develop sustainable financing for the PA system. In addition, the project will provide opportunities for learning and for sharing of experiences and approaches between NRs, and a provincial systems level plan will be developed for long-term training opportunities for PA staff at multiple levels.

INCREMENTAL REASONING AND EXPECTED GLOBAL, NATIONAL AND LOCAL BENEFITS

267. The project seeks to improve PA management effectiveness from the low end towards the effectively managed end of the spectrumm, to significantly reduce threats to biodiversity. **The incremental approach of the project is summarised as follows:** The Government of China and the Government of Xinjiang Uyghur Autonomous Region have clearly identified wetland conservation as a priority, and are making significant investments and efforts for conservation and wetland PA management. Howevermuch of the current investment tends to be for physical work such as infrastructure development and hardware installation, with little focus on biodiversity conservation and species management. In parallel, the governments invest many resources, for example, in tourism infrastructure development and in mineral exploration and extraction, with little consideration for biodiversity conservation. There has also been no systematic effort to remove the existing barriers to a sustainable and effective PA system to ensure that, at a minimum, wetland biodiversity within PAs can be safeguarded. In many existing PAs, pressure for the use of land and natural resources, as well as threats coming from more distant areas through water courses, requires urgent action in order to prevent further degradation of critical wetland ecosystems and loss of critically endangered species.

268. **Without GEF investment in the proposed Programme**, there will be no provincial framework and tools for systematic management of the sub-system of wetland PAs. There will also be no coordinated PA system management at the landscape level in the ecologically important regions such as AMWL.The wetland PAs in the AMWL will continue to be managed at the site level under the national regulations that are not suitable for the reality on the ground. The provincial and prefectural wetland PA management authorities will have limited capacity for effective management and have neither tools nor capacities for mitigating threats coming from outside the PAs. Hence the management effectiveness of wetland PAs will remain weak and highly vulnerable to overgrazing and external influences such as inappropriate development and economic activities within the PAs and in the watershed beyond PA and national borders that directly affect the wetlands within the AMWL PAs. As such, the AMWL PA system will remain unable to fulfil its role in safeguarding globally significant biodiversity. Insufficient technical and functional capacity of the provincial and local forestry departments and lack of mechanisms for viable co-management with resident herding communities will remain a critical bottleneck.

269. **Alternative scenario enabled with GEF investment**: This project will complement baseline programmes and projects by addressing biodiversity conservation through strengthening the provincial PA system as a whole rather than focusing only on individual PA sites. Yet, given both the geographic scope and ecological complexity of the province and the challenges associated with effectively mainstreaming PA and conservation objectives across government sectors, the project will bring special attention to a unique landscape in Xinjiang – the Altai Mountains and Wetland Landscape – which can serve as a model for development of regional *clusters* of wetlands PAs. GEF investment will enable expansion of the PA system in AMWL through a series of connected measures, including planning for the wetland PA subsystem and climate change adaptation; strengthening the systemic and institutional capacity of the provincial and local forestry departments for PA system planning and management through introducing professional competency standards and training for PA staff positions; and increasing the availability of sustainable operational funding for PA-based biodiversity management with financial planning that trials new sustainable financing options.

270. At the wetland site level, the project will introduce a PA network approach focusing specially on five PAs in AMWL with significant wetland resources, which will seek to improve the management effectiveness of individual PAs through capacity building based on professional competency standards and through introduction of more collaborative forms of PA

management.Effective PA managementwill also be demonstrated through management planning, EHI monitoring, strengthening of buffer zones, awareness and education programs, and supporting development of viable alternative livelihoods for local communities. By demonstrating systematic improvement of wetland PAs at provincial level, the project will introduce an ecosystem based approach to PA management, with the aim of replicating this strategy more widely in other wetland PAs as well as other types of PAs across the province.

271. Finally, while strengthening the ability of PA authorities to manage emerging threats in the PA system itself, the project also will seek to put in place safeguard standards and measures to ensure that land and resource uses, both in and outside PAs, particularly in areas that directly affect the integrity of wetland biodiversity, are regulated. This will be addressed through strengthening inter-sectoral cooperation between provincial and prefecture agencies, developing regulatory standards and guidelines for at least two key sectors impacting wetland resources, tourism and mining, and conducting an awareness programme that will convey the economic values of water and wetlands to key audiences based on an economic analysis. Information on the wetland reserves will also be systematically collected and made available to planned and decision-makers through a centralized database to facilitate more informed planning and management.

272. **Global environmental benefits:** GEF funding will help to secure critically important biodiversity in the Chinese portion of the globally recognized Altai Sayan Ecoregion, maintaining 1.5 million ha of the Altai Alpine Meadows and Tundra Ecoregion and 1.8 million ha of the Montane Forest and Steppe Ecoregion, richly endowed with post-glacial montane peat bogs and riverine forests providing important habitats for many fauna and flora. By doing this, it will deliver global benefits including the strengthening of the sub-network of wetland PAs and enhanced conservation and management of the habitats of endangered wildlife species including*inter alia*Chinese beaver, snow leopard, wolverine and moose.

273. **Socio-economic benefits:**The target PAsin this project make enormous contribution to the provincial economy through the protection and maintenance of ecological services including provision of water, and forthe socio-economic welfare of the people of Xinjiang. Wetland PAs in Xinjiang provide essential water resources to both people and industries. For example, more than 50 riversoriginate in theAltai Mountains, and eventually converge into two major rivers, the Ertix and the Ulungur. These rivers are the lifeblood foran estimated one million people of all ethnicities in Altai Prefecture, and the basic foundation of economic developmentin north Xinjiang. By safeguarding vital hydrological services, the project will generate large positive social and economic externalities to the Province. Wetlands also support livelihood and economic opportunities, such as fisheries and agriculture, and offer opportunities for public recreation and tourism. By strengthening the management of PAs, and putting in place measures to manage the adverse impacts of tourism and other sectors, the project will make an important contribution to safeguarding future use options in Xinjiang. Finally, in Liangheyuan NR, the estimated 3,000 residents will also directly benefit from the sustainable use system to be put in place as well as from a sense of empowerment that comes from fuller participation in PA co-management and benefit sharing arrangements. Specific alternative livelihood programmes also will be developed, focused on community tourism.As women in the local communities play a major role in herding workand are engaged innatural resource use, they also are included amongst the primary local beneficiaries of the project.In fact, Kazakh women are at the heart of the households' family and economic matters. With the project, this household level involvement will be enhanced to a broader community level through support of local cooperatives (such as handicraft cooperatives, in which women are the main artisans) and the development of novel governance mechanisms for improved interaction and partnership with protected area authorities (such as the development and strengthening of channels for community dialogue and emplacement of co-management arrangements). It is also important at a more regional level to further advance gender considerations – and to integrate these considerations at all

administrative levels and across development sectors and in the business sector. One way this is achieved through the project is by developing key partnerships with successful businesses owned or operated by women leaders. The content of awareness raising materials – whether oriented to environmental conservation or with presentation of local culture and livelihoods – also will be used to present more equitable interactions across genders as well as for promotion of conservation goals.

COST-EFFECTIVENESS

274. The project's approach of addressing PA system level barriers (including inadequate provincial level management capacity, limited tools and capacities at site level, and a significant disconnect between the management of wetland PAs and development and sectoral planning)is cost-effective in that it will havebroad applicability at provincial and national levels, including impacts beyond the selected demonstration sites. The project also is cost-effective inasmuch as it helps extend the scope of conservation funding in the project area – which to date is focused mainly on forested areas – to consider the broader landscape as a comprehensive and integrated whole, including wetlands and rangelands as well as local people and communities' traditional livelihoods.

275. As part of the national CBPF-MSL programme, the project contributes directly towards larger national policy, regulatory, fiscal, data management and communications goals in support of wetland biodiversity conservation and an effectively managed national wetland PA system through upscaling of its demonstration activities and approaches. The project implementation arrangements include a direct link between the Provincial Project Leading Group (steering committee) and the CBPF MSL national project to ensure that this will be realized.

276. At a technical level, the streamlining of approaches in the provincial PA system for law enforcement, for biodiversity and ecological monitoring, and information management [31]will be a cost-effective investment in terms of project impact as well as for XFD's subsequent operations. The project's approaches to building support within multiple development sectors and stakeholder groups including local communities and building capacity of the provincial forestry bureau are expected to lead to cost-effective PA management that avoids duplication of work, reduces biodiversity degradation and loss of ecosystem services from incompatible development practices, and ensures the sharing of timely information and resources.

277. The project also is cost-effective because it builds on community-based approaches to conservation and sustainable resource use that have already undergone preliminary trialing in herding communities elsewhere in western China, particularly in Qinghai Province.

278. The total GEF investment of US$3,544,679 for this project will leverage a minimum of US$22million in co-financing from XFD and UNDP, a highly cost-effective ratio of 6.2. The overall GEF investment for strengthening the management effectiveness ofXUAR's terrestrial PA system will average around US$ 3.2 per square kilometer per year (or US$ 0.03 per hectare per year). Even when the investment is considered in relation only to the wetland NRs in AMWL (cf. Outcomes 2 and 3), comprising a smaller geographic coverage, still the project represents a cost-effective investment at less than US$ 0.70 per hectare per year.

279. Finally, the receipt of GEF resources channeled through a UN implementing agency is a source of pride forprovincialgovernment agencies in China, which often facilitates their ability to achieve the necessary political commitment to take difficult decisions on issues such as upgrading PA protection status, inter-agency coordination to reduce external pressures on PAs, the adoption of

[31] In some instances in project implementation, these management approaches will be developed and trialed at the landscape level, in order to later serve as a model for province-wide application.

more environmentally friendly practices in related sectors, and concessions on land uses; a particularly cost-efficient means to an end.

COUNTRY OWNERSHIP: COUNTRY ELIGIBILITY AND COUNTRY DRIVEN-NESS

280. China's commitment to PA development and biodiversity conservation is also evident in China's early signature to the Convention on Biological Diversity (CBD) in 1992, and many other conservation conventions (CITES, Ramsar, etc.). China has remained steadfast in its commitments under CBD and in particular with activities under article 8 (*in situ* conservation; including especially sub-articles 8 (a-e) regarding protected areas and landscape conservation, and articles 8 (i-j) regarding sustainable use of natural resources, local communities and traditional knowledge). A very extensive national system of protected areas has already been established. By 2010 China had established over 5,000 PAs covering more than 18% of the national territory.

281. There are also clear elements of policy embedded in the national FYPs (the 12th FYPstarted in 2011), national biodiversity strategy and action plan (NBSAP, 2010), provincial development plans and many national programmes. These all add up to a clear commitment on behalf of the government to ensure adequate protection and restoration of the natural environment of the country to protect biodiversity, maintain vital ecosystem functions (especially water catchment protection) and help regulate climate. The recently approved NBSAP specifically identifies 35 priority areas where ecosystem protection will be a national priority.

282. China's commitment to PA development and biodiversity conservation is also evident in China's early signature to the Convention on Biological Diversity (CBD) in 1972, many other conservation conventions (CITES, Ramsar etc.). China has remained steadfast in its commitments under CBD and in particular with activities under article 17 *(in situ* conservation). A very extensive national system of PAshas been established.

PROJECT CONSISTENCY WITH NATIONAL PRIORITIES/PLANS

283. The Project is well aligned with national and provincial policies and programmes. The 12th National Five-Year Plan (2011-2015) emphasises the need to promote sustainable growth and environmental protection in tandem. The plan treats biodiversity conservation as a priority, highlighting the need to strengthen the management of Nature Reserves (NR) – the main protected area category. The project is also in line with thenational Government's Western Development Strategy, which aims to assist the underdeveloped western region (six provinces, and five autonomous regions including Xinjiang and one municipality) to catch up economically with the more prosperous eastern region. Twenty-five priority 'ecological function zones' have also been identified nationally, which contribute to the protection and sustainable management of significant regions of the country – the Altai Mountains constitute one of these zones, with a special focus on water resources.

284. The project will equally enable the State Forestry Administration (SFA) to achieve its target of adequately protecting 55% of the natural wetlands in China by the end of 2015, mitigating further loss of natural wetland areas and degradation of their functions.Meanwhile, the newly approved National Biodiversity Conservation Strategy and Action Plan (NBCSAP 2011-2030) identifies 35areas in China, as the priority loci for conservation action. This includes the Inner Mongolia–Xinjiang Plateau and Altai Mountain Region which is partially targeted by the project. The project will address key priorities under the NBCSAP, which places a priority on strengthening the effectiveness of the PA system in China. The project contributes directly towards the achievement of the following action programmes under Plan Action lines 12,13 and 14 respectively, including:

coordinating action to implement and improve the national nature reserve plan; enhancement of biodiversity conservation in priority areas for conservation; and standardisation of management in nature reserves so as to improve the quality of nature reserve management.

285. The project is also in line with China Biodiversity Partnership Framework (CBPF), the country'sprimary investment strategy for biodiversity conservation, which is supported by the GEF and other partners. This project has been designed to implement urgent and catalytic interventions identified under the CBPF, in particular under Theme 3: Investing in PA management so as to reduce biodiversity loss in PAs. It will contribute directly and substantially to Results 4, 16, 17, 18 and 19 of the agreed Framework which are respectively: financial flows to biodiversity conservation increase over current baseline; effective governance and legal framework for the national protected area system; harmonised and effective national system for selecting, designing, managing and monitoring protected areas; NRs and PNRs are effectively managed; National NRs and PNRs have stable and sufficient finance. CBPF provides a national platform to ensure strong coordination between approved and planned GEF biodiversity projects and other relevant initiatives of the Government and international development agencies – coordinated through the CBPF Steering Committee and national Partner Coordination Group (see the Project Management section, described in more detail in the national MSL project document).

286. At provincial level, Xinjiang Government and local governments currently allocate US$1,515,594 for the operation(excluding staff salaries) of the 5wetland NRs in AMWL (see Table 4). The National Government also has established a grassland ecological conservation subsidy incentive scheme (US$ 62.475 million; 2011-2020), which aims to improve local herders' income and conserve and restore grasslands by providing subsides to reduce livestock numbers and to fence degraded grasslands for regeneration.The National Government also has several projects that are geared toward improving conservation management within NRs. The *Wetlands Conservation and Capacity Building Project* (US$ 4.518 million; 2011-2013) aims to support the development of infrastructure and restoration of wetlands in Xinjiang. The *Wetland Ecological Conservation Project* (US$ 618,000; 2010-2011) also recently piloted advanced technology for restoring wetlands in the LiangheyuanProvincial NR. Finally, the *Natural Forest Protection Plan* (US$ 12.893 million; 2011-2020) aims to build a strategic timber reserve base through restoration efforts, so as to improve forest condition, the forest stock and the socioeconomic conditions of local people living in forested areas. It aims to improve ecological functions of the forest and increase biodiversity.

287. Government also is investing US$ 25 million (2006-2014) in the *Support Capacity Building and Innovations to Promote Green Development in China Project*, with US$ 7.6 million co-financing from UNDP; Xinjiang is one of the province's target provinces. The provincial level project, which started in 2009, aims to integrate poverty reduction and rural green economy development with an improved environment and capacity to adapt to climate change impacts. It supports the rehabilitation of ecosystems, the reduction of agro-GHG emissions, and the establishment of carbon trade and compensation schemes in the rural areas in the Xinjiang UAR. These investments aim to improve forest and wetland management at the site level, and to reward local communities for their efforts to reduce livestock and develop their capacity to benefit from conservation activities.

288. This project is part of the UNDP/GEF Programme *Main Streams of Life - Wetland PA System Strengthening for Biodiversity Conservation*, which is a sub-programme of the CBPF. It is one of six provincial level initiatives planned under the umbrella framework programme, and will contribute to the national level programme outcomes under all three programmatic components. The project also will build on the achievements (lessons learned) of UNDP/GEF regional biodiversity conservation initiatives elsewhere in thegreater Altai-Sayan Ecoregion,which have been carried out over the past decade in Mongolia, Kazakhstan and Russia.

289. It will also complement theWB/GEF supportedLake Aibi project (*Mainstreaming Biodiversity Protection within the Production Landscapes and PAs of the Lake Aibi Basin, 2009-2014*) by strengthening Xinjiang's PA system – which includes Lake Aibi National NR – with particular emphasis on developing or improving wetland safeguard measures from sector development activities.[32]Coordination between these two synergistic biodiversity projects will be assured through XFD, in particular by including representation from the Lake Aibi project in this project's Leading Group(PPLG).

290. The recent *EU-China Biodiversity Programme* (2005-2011), implemented through UNDP, invested US$ 80 million in strengthening biodiversity conservation in the country and supported the mainstreaming of wetlands management into broader development through 18 field projects. It facilitated *inter alia* a range of training courses, and supported development of management plans and strengthening of data management. Three of the 18 sub-projects were focussed on XUAR. These included peatland rehabilitation and development of the *Altain Mountain Wetland Conservation and Sustainable Use Strategy*, which was developed in collaboration with Wetlands International and approved in August 2010 by the Government of Altai Prefecture. The strategy provides foundation for actively managing wetlands for biodiversity in the region through the present project.

291. The WB*Gansu and Xinjiang Pastoral Development Project*(2004-2010) assisted the government's efforts to improve the capacity of pastoral areas to support biodiversity and livestock simultaneously, and to raise the living standards of the population living in those areas.The project provided training to over 600,000 farmers, herders and technicians, and supported public information campaigns on grassland conservation in schools and communities. Some of these materials could profitably be used in this project. The central and local governments provided 340 million yuan in counterpart funding, while GEF provided a grant of US$10.5 million in technical assistance to implement community-based grassland management, mitigate grassland degradation and conserve globally important biodiversity. The Canadian International Development Agency (CIDA) provided support to the training activities of the project.

292. Finally, one of the key PA sites in AMWL – Liangheyuan NR – is slated to receive around 2,200,000 USD annually from the governement, over the next 3-5 years, for wetland conservation. These funds will be used for infrastructure such as protection stations, for land restoration, and for equipment including patrolling vehicles, binoculars, camera, etc. However, although this funding is dedicated to wetland conservation, it is for construction and for hardware, not for NR operational costs. Beyond the aforementioned wetland conservation construction funds, there are also national Natural Forest Protection Plan (NFPP) funds available for use in Liangheyuan NR, in the amount of US$ 600,000 per year over the next 10 years.

SUSTAINABILITY AND REPLICABILITY

293. The Environmental and Social Screening Procedure (ESSP) was followed during the PPG, as required by the ESSP Guidance Note of the UNDP. The results of the ESSP for this project are summarized as follows. Please see Annex 8 for the full ESSP summary.

[32]The Lake Aibi project is a FSP from GEF 4. Its about one year into implementation. The project works in two protected areas - lake Aibi National Wetland Reserve - also known as Ebinur Wetlands and marked as number 12 in Figure 6, in Bortala. The second PA is a provincial reserve, Wenquan Salamander Reserve; marked as number 17 on Figure 6 (however it is shown in the wrong location, as it is also in Bortala, west of Urumqi). This project is undertaking PA and species conservation and community development activities, under component 3 of the overall project. The other two components are focused on water use optimization and sustainable land management in forested and agricultural areas. All 3 components work together towards halting and reversing the decline in water surface area of Lake Aibi, as the lake has been shrinking. More information can be found at http://www.thegef.org/gef/project_detail?projID=3611.

294. The project explicitly aims to achieve overall positive ***environmental benefits*** with respect to environmental quality, ecosystem integrity and biodiversity conservation in order to achieve global environmental benefits. Only one concern was raised during the project formulation phase, concerning a technical matter for wetland restoration; but this has been resolved; it is agreed that the project will not bring support for such 'ecological construction' activities. In addition, all restoration-oriented activities will undergo an independent review through a formal environmental impact assessment.

295. Regarding potential***social impacts*** of the project, the primary issue to consider is changing livelihoods. Howeverthe basic rationale for the suggested changes is sound – i.e., to diversify local communities' economies in order to make them less dependent on natural resources, especially in the context of climate change, and to reduce livestock pressures on ecologically fragile grasslands and wetlands. Nonetheless, social impacts of interventionswill remain in center view through the lifespan of the project.

296. A fuller discusion of potential impacts is included in Annex 8 (Environmental and Social Screening Procedure).

297. The project has been designed to be sustainable and replicable, in the following ways:

- Financial sustainability will be achieved through the project's emphasis on improving funding security for PA operations, especially to support effective PA management including environmental monitoring, enforcement programmes and other routine tasks. The project will also develop and evaluate eco-compensation mechanisms that have potential to provide sustainable financing for PAs and for resident communities, linked to national level policy development through the CBPF MSL national project.
- Institutional sustainability will be improved through capacity development measures for XFD and related agencies involved in managing the provincial PA system. The project specifically focuses on building staff and institutional capacity for enhanced planning and management effectiveness in provincial and sub-provincial PA systems. In addition, the project will raise the profile of PAs (and their objectives) in order to strengthen coordination with broader development planning and sectoral agencies, and to mainstream the PA system into key sectors including water resources, fisheries, mining, and tourism development. The development of new legal instruments will also help to enhance effective protection and promote new governance mechanisms within the PA system.
- Social sustainability will be improved through efforts to support and empower local herding communities for greater involvement in PA management activities, especially through demonstration of co-management arrangements that include environmental monitoring activities as well as sustainable livelihood development and awareness raising to address existing local resource use conflicts. Long-term improvements in legal and institutional contexts, long-term investments to raise staff and institutional capacities for stakeholder participation, and sustained improvements in relations with local communities (through regular communication, joint field operations and targeted awareness raising) will lead to increased levels of local participation and improved PA governance and management systems, contributing to the overall sustainability of project outcomes.
- Environmental sustainability will be achieved through improved PA system design in terms of size, habitat representation and connectivity, especially in relation to coverage of wetland habitats. Key considerations include increasing the resilience of the PA system in the face of climate change, anticipated future developments and environmental change, reinforcing a catchment management approach to wetland systems.

The project's outcomes are replicable as the barriers it addresses are largely shared by other provinces, and the approaches used are transferable to strengthen the management effectiveness of PA systems across China. For instance, the benefits of establishing an ecosystem-based PA network (for river headwaters and riparian wetlands, in this case) will be documented and evaluated for potential uptake at national level. As an integral part of the national CBPF-MSL programme, the project's outcomes will contribute directly towards larger national policy, regulatory, fiscal, data management and communications goals in support of wetland biodiversity conservation and an effectively managed national wetland PA system. This will include informing national policy on issues such as mainstreaming of the PA system and biodiversity conservation objectives into related sectors, valuation of wetland ecosystem services, eco-compensation mechanisms to bring additional financial support for PA operations and for development of alternative livelihoods for local communities (where current livelihoods are identified as threats to biodiversity), monitoring ecosystem health, and community co-management approaches to conservation. Additionally, on a practical level, community-based models of PA management developed under this project will be applicable over vast areas of rangeland across northwestern China (including Tibet, Qinghai, Sichuan, Gansu and Inner Mongolia) where similar ecosystems predominate and where herders have long practiced animal husbandry; thereby vastly increasing the human resources available for PA management including regular monitoring and patrolling operations across the country. Finally, project implementation arrangements include a direct link between the Project Leading Group and the CBPF-MSL national project, to ensure that the above will be realized. Several activities for capturing best practices and local traditional knowledge will be used in the project to help promote replicability, including UNDP's Learning and Knowledge Sharing electronic platform.

PART III: Management Arrangements

Project Oversight

298. The project management arrangements will be set to maximally smooth the implementation of the project. Project implementation will last for five years. The Xinjiang Forestry Department (XFD) is the government institution responsible for broad oversight and coordination of the project and will serve as the government Executing Agency (EA). UNDP is the GEF Implementing Agency (IA) for the project. The project is Nationally Executed (NEX) in line with the Standard Basic Assistance Agreement between UNDP and the Government of China, and the Country Program Action Plan (CPAP).

299. At national level, all Main Streams of Life (MSL) provincial level projectswill be coordinated under CBPFthrough a MSL Programme Steering Committee,chaired by SFA, to ensure complementarity, synergetic outcomes and sharing of lessons and experiencs.

Project Management at the Provincial Level

300. At provincial level, established the Xinjiang Project Steering Committee,the XFD will take overall responsibility for project executionand for the timely and verifiable attainment of project objectives and outcomes, reporting to the Provincial Project Leading Group (PPLG). The Leading Group (PPLG)will be chaired by the vice governor of XUAR and will serve as steering committee at provincial level. To PPLG will be comprised of key staff in relevant deveopment sectors at provincial level as well as from local government (prefecture) and from selected major PAs. Specific roles will include: (i) responsibility for intersector communication and coordination; (ii) enhancing convergence and linkages of the project with the national programme, also integrating possible similar resources from government to maximize project outputs; and (iii) supervision of progress, with provision of guidance for on-going project direction. Consultation at the provincial level to discuss and resolve any major issues that need to be coordinated during the implementation process will also fall under the mandate of the PPLG. Core members will at minimum include XUAR Department of Finance, XFD (including XFD Foreign Economic and Technical Cooperation Project Office , and Wetland Conservation and PA Management Office), UNDP and the Government of Altai Prefecture. More detail is provided in Figure 13 and in Section IV, Part II.

301. A Project Implementation Office (PIO) will be established at provincial level as well, under supervision of PPLG, for implementation/execution of PPLG tasks. Akey coordinator will be assigned fromthe XFD Foreign Economic and Technical Cooperation Project Office which is also the Project Implementation in Urumqi. The PIO will be lead by a deputy director of XFD, and XFD will provide support and inputs to the implementation of all project activities. The main role of the PIO will be to oversee execution of project activities under Component 1 and also to assist with communication between the PMO and provincial partners and to communicate with SFA and the national level project.

302. Figures 13 and 14 provide visual representations of the above institutional contexts.

Project Management at the Landscape and Site Levels

303. An AMWL Project Leading Group (Altai PLG) will be established at landscape level, which will be in charge of landscape and site level project activities. Altai PLG will supervise the operation of a Project Management Office (PMO), located within AMFB in Altai town. Altai PLG will be chaired by the vice governor of Altai Prefecture, and the deputy leader will be the director of AMFB. Members will include the head of AMFB and representatives from AFB, Water Resource

Bureau and Environmental Protection Bureau. The PMO will be lead by the director of Liangheyuan NR (Project Director).

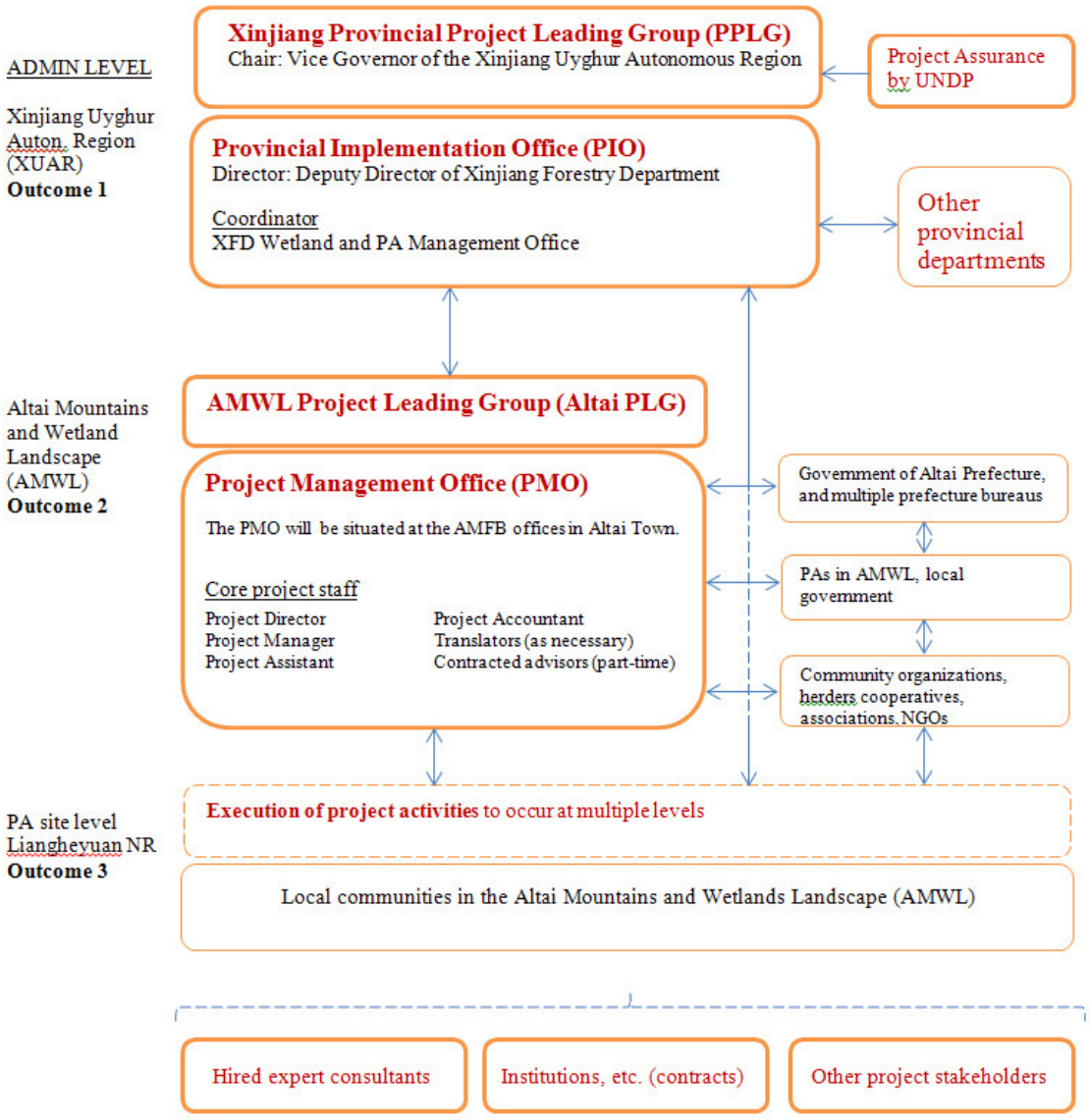


Figure 13. Simplified project organigram (more detailed organogram in Section IV, Part II)

304. The PMO will recruit project staff and contract consultants and service providers, under the advice and involvement of UNDP as required by the contracting arrangements (i.e., for recruiting international consultants).Most PMO staff may come be from the Liangheyuan NR's senior staff. A representative from AFB will also work in the PMO to help coordinate relevant project activities in Buergen NR, Kekesu Wetlands NR and Ertix Keketuohai NR, which are operatedunder AFB. More detailed information is provided in Section IV, Part II.

305. The PMO and PIO will jointly oversee the day-to-day administration of the project, however the greater level of administration will occur at PMO in Altai town. The PMO will include a a Project Manager, Administrative Assistant, Accounting and Disbursement Officer, and Translator; for a core team (with Project Director) of 5 positions, as well as involvement of contracted part-time

national/international expert advisors.Senior staff from Liangheyuan NR will provide substantial support when additional site level assistance is required for field work or for the organization of specialist PA staff trainings and other meetings.

306. The key responsibilities of the PMO are: (i) coordination project implementation to ensure the achievement of proposed objective and all outcomes under the project; (ii) be responsible for developing annual and quarterly work plan, annual and quarterly project and financial report, arrangement of project activities, daily management of project funds and assistance in annual auditing by coordinating National Audit Office; (iii) organization of all project-related meetings and conferences and of activities at site level; and (iv) undertaking other tasks as required, including tasks assigned through the PPLG and PIO.

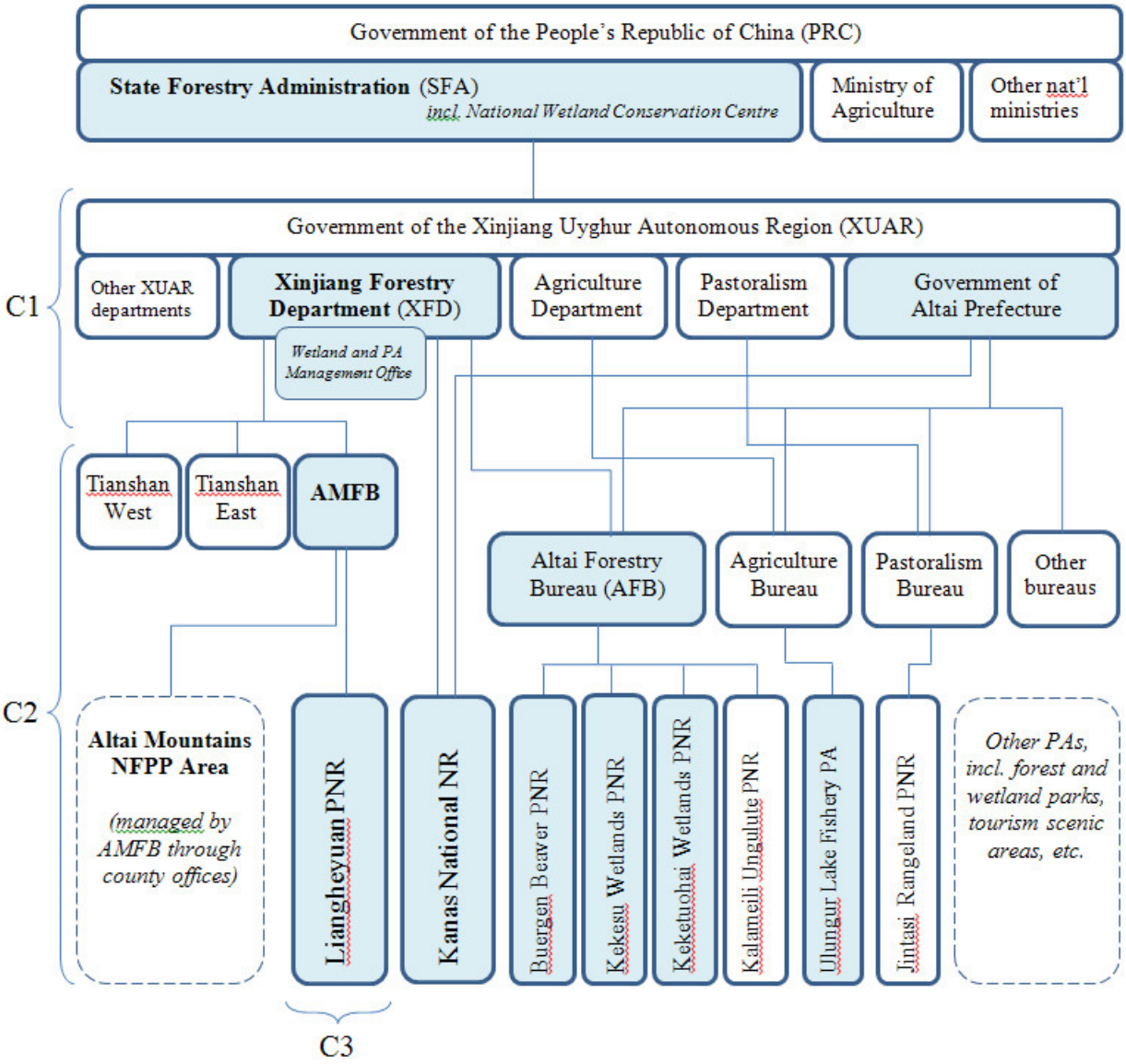


Figure 14: Institutional Framework in PRC and XUAR, in relation to project implementation

PART IV: Monitoring and Evaluation Plan and Budget

MONITORING AND REPORTING[33]

307. The project's Monitoring & Evaluation (M&E) framework will build on the UNDP's existing M&E Framework for biodiversity programming.Project monitoring and evaluation will be conducted in accordance with established UNDP and GEF procedures and will be provided by the project team and the UNDP Country Office (UNDP-CO) with support from the UNDP/GEF Regional Coordination Unit in Bangkok, Thailand. The Strategic Results Framework in Section II, Part I, provides performance and impact indicators for project implementation along with their corresponding means of verification. The METT tool, Financial Scorecards and Capacity Assessment Scorecards (see Section IV, Part V) will all be used as instruments to monitor progress in PA management effectiveness. The M&E plan includes: inception report, project implementation reviews, quarterly and annual review reports, a mid-term review and final evaluation. The following sections outline the principle components of the Monitoring and Evaluation Plan and indicative cost estimates related to M&E activities. The project's Monitoring and Evaluation Plan will be presented and finalized in the Project's Inception Report following a collective fine-tuning of indicators, means of verification, and the full definition of project staff M&E responsibilities.

Inception Phase

308. A Project Inception Workshop will be conducted with the full project team, relevant government counterparts, co-financing partners, the UNDP-CO and representation from the UNDP-GEF Regional Coordinating Unit, as well as UNDP-GEF (HQs) as appropriate. A fundamental objective of this Inception Workshop will be to assist the project team to understand and take ownership of the project's goal and objective, as well as finalize preparation of the project's first annual work plan on the basis of the logframe matrix. This will include reviewing the logframe (indicators, means of verification, assumptions), imparting additional detail as needed, and on the basis of this exercise, finalizing the Annual Work Plan (AWP) with precise and measurable performance indicators, and in a manner consistent with the expected outcomes for the project. Additionally, the purpose and objective of the Inception Workshop (IW) will be to: (i) introduce project staff with the UNDP-GEF team which will support the project during its implementation, namely the CO and responsible Regional Coordinating Unit staff; (ii) detail the roles, support services and complementary responsibilities of UNDP-CO and RCU staff vis à vis the project team; (iii) provide a detailed overview of UNDP-GEF reporting and monitoring and evaluation (M&E) requirements, with particular emphasis on the Annual Project Implementation Reviews (PIRs) and related documentation, the Annual Review Report (ARR), as well as mid-term review and final evaluations. Equally, the IW will provide an opportunity to inform the project team on UNDP project related budgetary planning, budget reviews, and mandatory budget rephasings. The IW will also provide an opportunity for all parties to understand their roles, functions, and responsibilities within the project's decision-making structures, including reporting and communication lines, and conflict resolution mechanisms. The Terms of Reference for project staff and decision-making structures will be discussed again, as needed, in order to clarify for all, each party's responsibilities during the project's implementation phase.

Monitoring responsibilities and events

309. A detailed schedule of project review meetings will be developed by the project management, in consultation with project implementation partners and stakeholder representatives and incorporated in the Project Inception Report. Such a schedule will include: (i) tentative time

[33] As per GEF guidelines, the project will also be using the BD 1 Management Effectiveness Tracking Tool (METT). New or additional GEF monitoring requirements will be accommodated and adhered to once they are officially launched.

frames for PLG meetings (both Provincial and Altai PPGs), and (ii) project related Monitoring and Evaluation activities. Day-to-day monitoring of implementation progresswill be the responsibility of the Project Manager based on the project's Annual Work Plan and its indicators. The Project Manager will inform the UNDP-CO of any delays or difficulties faced during implementation so that the appropriate support or corrective measures can be adopted in a timely and remedial fashion. The Project Manager will fine-tune the progress and performance/impact indicators of the project in consultation with the full project team at the Inception Workshop with support from UNDP-CO and assisted by the UNDP-GEF Regional Coordinating Unit. Specific targets for the first year implementation progress indicators together with their means of verification will be developed at this Workshop. These will be used to assess whether implementation is proceeding at the intended pace and in the right direction and will form part of the Annual Work Plan. Targets and indicators for subsequent years would be defined annually as part of the internal evaluation and planning processes undertaken by the project team.

310. Measurement of impact indicators related to global biodiversity benefits will occur according to the schedules defined in the Inception Workshop, using METT scores. The measurement of these will be undertaken through subcontracts or retainers with relevant institutions. Periodic monitoring of implementation progress will be undertaken by the UNDP-CO through quarterly meetings with the Implementing Partner, or more frequently as deemed necessary. This will allow parties to take stock and to troubleshoot any problems pertaining to the project in a timely fashion to ensure smooth implementation of project activities.

311. Annual Monitoring will occur through the bi-annual AMWL Project Leading Group (Altai PLG) followed by the annual Provincial Project Leading Group (PPLG) meetings. The PLG meetings arethe highest policy-level meeting of the parties directly involved in the implementation of a project. The project will be subject to these leadership and supervisory meetings two times a year. The first such meeting, at both provincial and landscape level, will be held within the first six months of the start of full implementation.

312. The Project Manager in consultations with UNDP-CO and UNDP-GEF RCU will prepare a UNDP/GEF PIR/ARR and submit it to PLGmembers at least two weeks prior to the PLGfor review and comments. The PIR/ARR will be used as one of the basic documents for discussions in the PLGmeeting. The Project Manager will present the PIR/ARR to the Project Leading Group, highlighting policy issues and recommendations for the decision of the PLGparticipants. The Project Manager also informs the participants of any agreement reached by stakeholders during the PIR/ARR preparation on how to resolve operational issues. Separate reviews of each project component may also be conducted if necessary. The Project Leading Grouphas the authority to suspend disbursement if project performance benchmarks are not met. Benchmarks will be developed at the Inception Workshop, based on delivery rates, and qualitative assessments of achievements of outputs.

313. The terminal PLG is held in the last month of project operations. The Project Manager is responsible for preparing the Terminal Report and submitting it to UNDP-CO and UNDP-GEF RCU. It shall be prepared in draft at least two months in advance of the terminal PLGin order to allow review, and will serve as the basis for discussions in the PLG. The terminal meeting considers the implementation of the project as a whole, paying particular attention to whether the project has achieved its stated objectives and contributed to the broader environmental objective. It decides whether any actions are still necessary, particularly in relation to sustainability of project results, and acts as a vehicle through which lessons learnt can be captured to feed into other projects under implementation of formulation.

314. UNDP Country Offices and UNDP-GEF RCU as appropriate, will conduct yearly visits to project sites based on an agreed upon schedule to be detailed in the project's Inception

Report/Annual Work Plan to assess first hand project progress. Any other member of the Project Leading Groupcan also accompany.

Project Reporting

315. The Project Manager in conjunction with the UNDP-GEF extended team will be responsible for the preparation and submission of the following reports that form part of the monitoring process. The first six reports are mandatory and strictly related to monitoring, while the last two have a broader function and the frequency and nature is project specific to be defined throughout implementation.

316. A Project Inception Report will be prepared immediately following the Inception Workshop. It will include a detailed two-year Work Plan divided in quarterly time-frames detailing the activities and progress indicators that will guide implementation during the first year of the project. This Work Plan will include the dates of specific field visits, support missions from the UNDP-CO or the Regional Coordinating Unit (RCU) or consultants, as well as time-frames for meetings of the project's decision making structures. The Report will also include the detailed project budget for the first full year of implementation, prepared on the basis of the Annual Work Plan, and including any monitoring and evaluation requirements to effectively measure project performance during the targeted 12 months time-frame. The Inception Report will include a more detailed narrative on the institutional roles, responsibilities, coordinating actions and feedback mechanisms of project related partners. In addition, a section will be included on progress to date on project establishment and start-up activities and an update of any changed external conditions that may effect project implementation. When finalized, the report will be circulated to project counterparts who will be given a period of one calendar month in which to respond with comments or queries. Prior to this circulation of the IR, the UNDP Country Office and UNDP-GEF's Regional Coordinating Unit will review the document.

317. An Annual Review Report (ARR) shall be prepared by the Project Manager and shared with the Project Leading Group. As a self-assessment by the project management, it does not require a cumbersome preparatory process. As minimum requirement, the Annual Review Report shall consist of the Atlas standard format for the Project Progress Report (PPR) covering the whole year with updated information for each element of the PPR as well as a summary of results achieved against pre-defined annual targets at the project level. As such, it can be readily used to spur dialogue with the Project Leading Groupand partners. An ARR will be prepared on an annual basis prior to the Project Leading Groupmeeting to reflect progress achieved in meeting the project's Annual Work Plan and assess performance of the project in contributing to intended outcomes through outputs and partnership work. The ARR should consist of the following sections: (i) project risks and issues; (ii) project progress against pre-defined indicators and targets and (iii) outcome performance.

318. The Project Implementation Review (PIR) is an annual monitoring process mandated by the GEF. It has become an essential management and monitoring tool for project managers and offers the main vehicle for extracting lessons from ongoing projects. Once the project has been under implementation for a year, a Project Implementation Report must be completed by the CO together with the project team. The PIR should be participatorily prepared in July and discussed with the CO and the UNDP/GEF Regional Coordination Unit during August with the final submission to the UNDP/GEF Headquarters in the first week of September.

319. Quarterly Progress Reports (QPR): Short reportsoutlining main updates in project progress will be provided quarterly to the local UNDP Country Office and the UNDP-GEF RCU by the project team.

320. UNDP ATLAS Monitoring Reports: A Combined Delivery Report (CDR) summarizing all project expenditures,is mandatory and should be issued quarterly.Quarterly financial reporting should be done in concert with advance financial planning, in accordance with UNDP FACE procedures. The Project Manager should send it to the Project Leading Group(Altai PLG) for review and the Implementing Partner should certify it. The following logs should be prepared: (i) The Issues Log is used to capture and track the status of all project issues throughout the implementation of the project. It will be the responsibility of the Project Manager to track, capture and assign issues, and to ensure that all project issues are appropriately addressed; (ii) the Risk Log is maintained throughout the project to capture potential risks to the project and associated measures to manage risks. It will be the responsibility of the Project Manager to maintain and update the Risk Log, using Atlas; and (iii) the Lessons Learned Log is maintained throughout the project to capture insights and lessons based on good and bad experiences and behaviours. It is the responsibility of the Project Manager to maintain and update the Lessons Learned Log.

321. Project Terminal Report: During the last three months of the project the project team will prepare the Project Terminal Report. This comprehensive report will summarize all activities, achievements and outputs of the Project, lessons learnt, objectives met, or not achieved, structures and systems implemented, etc. and will be the definitive statement of the Project's activities during its lifetime. It will also lay out recommendations for any further steps that may need to be taken to ensure sustainability and replicability of the Project's activities.

322. Periodic Thematic Reports: As and when called for by UNDP, UNDP-GEF or the Implementing Partner, the project team will prepare Specific Thematic Reports, focusing on specific issues or areas of activity. The request for a Thematic Report will be provided to the project team in written form by UNDP and will clearly state the issue or activities that need to be reported on. These reports can be used as a form of lessons learnt exercise, specific oversight in key areas, or as troubleshooting exercises to evaluate and overcome obstacles and difficulties encountered. UNDP is requested to minimize its requests for Thematic Reports, and when such are necessary will allow reasonable timeframes for their preparation by the project team.

323. Technical Reports are detailed documents covering specific areas of analysis or scientific specializations within the overall project. As part of the Inception Report, the project team will prepare a draft Reports List, detailing the technical reports that are expected to be prepared on key areas of activity during the course of the Project, and tentative due dates. Where necessary this Reports List will be revised and updated, and included in subsequent APRs. Technical Reports may also be prepared by external consultants and should be comprehensive, specialized analyses of clearly defined areas of research within the framework of the project and its sites. These technical reports will represent, as appropriate, the project's substantive contribution to specific areas, and will be used in efforts to disseminate relevant information and best practices at local, national and international levels.

324. Project Publications will form a key method of crystallizing and disseminating the results and achievements of the Project. These publications may be scientific or informational texts on the activities and achievements of the Project, in the form of journal articles, multimedia publications, etc.and will be project 'knowledge products' that disseminate key lessons learned. These publications can be based on Technical Reports, depending upon the relevance, scientific worth, etc. of these Reports, or may be summaries or compilations of a series of Technical Reports and other research. The project team will determine if any of the Technical Reports merit formal publication, and will also (in consultation with UNDP, the government and other relevant stakeholder groups) plan and produce these Publications in a consistent and recognizable format. Project resources will need to be defined and allocated for these activities as appropriate and in a manner commensurate with the project's budget. Since the project is located in a predominantly Kazakh-speaking area,

those publications that are aimed at local stakeholders or communities should be also published in Kazakh.

INDEPENDENT EVALUATIONS, AUDITS AND FINANCIAL REPORTING

325. The project will be subjected to at least two independent external evaluations as follows: An independent Mid-Term Review will be undertaken at exactly the mid-point of the project lifetime. The Mid-Term Review will determine progress being made towards the achievement of outcomes and will identify course correction if needed. It will focus on the effectiveness, efficiency and timeliness of project implementation; will highlight issues requiring decisions and actions; and will present initial lessons learned about project design, implementation and management. Findings of this review will be incorporated as recommendations for enhanced implementation during the final half of the project's term. The organization, terms of reference and timing of the mid-term review will be decided after consultation between the parties to the project document. The Terms of Reference for this Mid-term review will be prepared by the UNDP CO based on guidance from the UNDP-GEF Regional Coordinating Unit.

326. An independent Final Evaluation will take place three months prior to the terminal Project Leading Group meeting, and will focus on the same issues as the mid-term review. The final evaluation will also look at impact and sustainability of results, including the contribution to capacity development and the achievement of global environmental goals. The Final Evaluation should also provide recommendations for follow-up activities. The Terms of Reference for this evaluation will be prepared by the UNDP CO based on guidance from the UNDP-GEF Regional Coordinating Unit.

LEARNING AND KNOWLEDGE SHARING

327. Results from the project will be disseminated both within and beyond the project intervention zone through a number of existing information sharing networks and forums. Project publications are described earlier, under Part IV: M&E. On-going internal assessment by PMO staff will help to collate lessons learned, and will seek to identify what the project team considers to be useful and practical information to gather and analyze. Because this requires additional effort, time and funds, an associated budget has been included for this.

328. In addition, the project will participate, as relevant and appropriate, in UNDP/GEF sponsored networks, organized for Senior Personnel working on projects that share common characteristics. UNDP/GEF Regional Unit has established an electronic platform for sharing lessons between the project coordinators. The project will identify and participate, as relevant and appropriate, in scientific, policy-based and/or any other networks, which may be of benefit to project implementation though lessons learned. The project will identify, analyze, and share lessons learned that might be beneficial in the design and implementation of similar future projects. Identify and analyzing lessons learned is an on- going process, and the need to communicate such lessons as one of the project's central contributions is a requirement to be delivered not less frequently than once every 12 months. UNDP/GEF shall provide a format and assist the team in categorizing, documenting and reporting on lessons learned.

329. Capturing and sharing knowledge and lessons learned will constitute an important component of the project and an essential way to ensure sustainability and replicability of project achievements. This project element cuts across all three project components. As the local stakeholders are mostly Kazakh, it is important that project communication activities have access to necessary facilities for translation and distribution in appropriate languages. It is also noteworthy

that most field areas are unable to receive electronic information, therefore reliance on printed materials will be high.

COMMUNICATIONS AND VISIBILITY REQUIREMENTS

330. Full compliance is required with UNDP's Branding Guidelines and guidance on the use of the UNDP logo. These can be accessed at http://web.undp.org/comtoolkit/reaching-the-outside-world/outside-world-core-concepts-visual.shtml. Full compliance is also required with the GEF Branding Guidelines and guidance on the use of the GEF logo. These can be accessed at http://www.thegef.org/gef/GEF_logo. The UNDP and GEF logos should be the same size. When both logs appear on a publication, the UNDP logo should be on the left top corner and the GEF logo on the right top corner. Further details are available from the UNDP-GEF team based in the region.

331. Full compliance is also required with the GEF's Communication and Visibility Guidelines (the "GEF Guidelines").[34] Amongst other things, the GEF Guidelines describe when and how the GEF logo needs to be used in project publications, vehicles, supplies and other project equipment. The GEF Guidelines also describe other GEF promotional requirements regarding press releases, press conferences, press visits, visits by Government officials, productions and other promotional items.

332. Where other agencies and project partners have provided support through co-financing, their branding policies and requirements should be similarly applied.

AUDIT CLAUSE

333. The Government will provide the Resident Representative with certified periodic financial statements, and with an annual audit of the financial statements relating to the status of UNDP (including GEF) funds according to the established procedures set out in the Programming and Finance manuals. The Audit will be conducted according to UNDP financial regulations, rules and audit policies by the legally recognized auditor of the Government, or by a commercial auditor engaged by the Government.

Table13. M&E Activities, Responsibilities, Budget and Time Frame.

Type of M&E activity	**Responsible Parties**	**Budget US$** *Excluding project team staff time*	**Time frame**
Inception Workshop	Project Manager UNDP CO UNDP GEF	10,000	Within first two months of project start up
Inception Report	Project Team UNDP CO	None	Submit draft two weeks before the IW, finalize it immediately following IW

[34]The GEF Guidelines can be accessed athttp://www.thegef.org/gef/sites/thegef.org/files/documents/C.40.08_Branding_the_GEF%20final_0.pdf

Type of M&E activity	Responsible Parties	Budget US$ *Excluding project team staff time*	Time frame
Measurement of Means of Verification for Project Purpose Indicators	Project Manager will oversee the hiring of specific studies and institutions, and delegate responsibilities to relevant team members	To be finalized in Inception Phase and Workshop. Indicative cost: 15,000	Start, mid and end of project (Years 1, 3, 5)
Measurement of Means of Verification for Project Progress and Performance (measured on an annual basis)	Oversight by Project Manager Project team	To be determined as part of Annual Work Plan's preparation. Indicative cost: 8,000 per year; total: 32,000	Annually prior to ARR/PIR and to the definition of annual work plans (Years 2-5)
ARR and PIR	Project Team UNDP-CO UNDP-GEF	None	Annually
Quarterly progress reports	Project team	None	Quarterly
CDRs	Project Manager	None	Quarterly
Issues Log	Project Manager UNDP CO Programme Staff	None	Quarterly
Risks Log	Project Manager UNDP CO Programme Staff	None	Quarterly
Lessons Learned Log	Project Manager UNDP CO Programme Staff	None	Quarterly
Mid-term Review	Project team UNDP- CO UNDP-GEF Regional Coordinating Unit External Consultants (i.e. review team)	40,000	At mid-point of project implementation (Year 3)

Type of M&E activity	Responsible Parties	Budget US$ *Excluding project team staff time*	Time frame
Final Evaluation	Project team, UNDP-CO UNDP-GEF Regional Coordinating Unit External Consultants (i.e. evaluation team)	40,000	At the end of project implementation (Year 5)
Terminal Report	Project team UNDP-CO local consultant	0	At least one month before the end of the project
Lessons learned	Project team UNDP-GEF Regional Coordinating Unit (suggested formats for documenting best practices, etc.)	15,000 (average 3,000 per year)	Yearly
Audit	UNDP-CO Project team	25,000 (average 5,000 per year)	Yearly
Total indicative cost *Excluding project team staff time and UNDP staff and travel expenses; included across project components*		US$ 177,000	

PART V: Legal Context

334. This Project Document shall be the instrument referred to as such in Article I of the Standard Basic Assistance Agreement between the Government of Xinjiang Uyghur Autonomous Region, People's Republic of China and United Nations Development Programme, signed by the parties on January 29, 1979. The host country-implementing agency shall, for the purpose of the Standard Basic Assistance Agreement, refer to the government co-operating agency described in that Agreement.

335. The UNDP Country Director in Beijing is authorized to effect in writing the following types of revision to this Project Document, provided that he/she has verified the agreement thereto by the UNDP-EEG Unit and is assured that the other signatories to the Project Document have no objection to the proposed changes:

a) Revision of, or addition to, any of the annexes to the Project Document;

b) Revisions which do not involve significant changes in the immediate objectives, outputs or activities of the project, but are caused by the rearrangement of the inputs already agreed to or by cost increases due to inflation;

c) Mandatory annual revisions which re-phase the delivery of agreed project inputs or increased expert or other costs due to inflation or take into account agency expenditure flexibility; and

d) Inclusion of additional annexes and attachments only as set out here in this Project Document.

SECTION II: STRATEGIC RESULTS FRAMEWORK (SRF) AND GEF INCREMENT

PART I: Strategic Results Framework (SRF) Analysis

INDICATOR FRAMEWORK AS PART OF THE SRF

Table 14. Indicator framework as part of the SRF.

Objective/ Outcome	Indicator	Baseline	End of Project target	Source of Information	Risks and assumptions
Objective – To strengthen the management effectiveness of PAs to respond to existing and emerging threats to the globally significant biodiversity and essential ecosystem services in the Altai Mountains and Wetland Landscapes in Xinjiang Uyghur Autonomous Region	Provincial Capacity: - Forestry Department - Water Resources Dept. - Environmental Protection	 59% 60% 52%	All >70%	Capacity Scorecards	Risks: Mainstreaming of biodiversity and recognition of the valuable roles of protected areas will be limited by inadequate incentives for other sectors and poor enforcement of agreed priorities and plans Assumption: Government remains committed to strengthening the PA system in XUAR, including increase in financing for PA network Government continues to be committed to provision of eco-compensation funds
	Financial sustainability: - Component : Legal, regulatory and institutional frameworks - Component 2: Business planning and tools for cost-effective management - Component 3: Tools for revenue generation	 24% 20% 11%	 40% 50% 40%	Financial Sustainability Scorecards	
	Increase in PA coverage, strengthened resilience and connectivity in the AMWL	PA network design not optimized for resilience and connectivity	Incorporation of AMNFPPA into AMWL PA framework Expansion of PA system in AMWL – with total increase of at least 150,000 ha in coverage Regional collaboration with neighbouring PAs enhanced	AMFB documents	

Objective/ Outcome	Indicator	Baseline	End of Project target	Source of Information	Risks and assumptions
Outcome 1 The protection of wetland ecosystems through PA planning and management is enhanced in Altai Prefecture and XUAR through systemic, legal and institutional capacity strengthening	**Outputs** 1.1 Provincial PA management regulations developed 1.2 Sector-related governance and regulatory framework enhanced to support PA systems 1.3 Institutional strengthening				Risk: Government institutions cannot agree on management authority for wetlands and PAs Government agencies and leadership do not prioritize dialogue and strategic planning for wetland protection and PA planning and management Assumption: Stakeholder institutions constructively engage in the identification of the most cost-effective institutional and governance arrangements The individual PA institutions maintain a clear mandate and unequivocal authority to fulfill local oversight and management obligations for the PA network Information to support the planning and management of the PAs is made available by government and institutional data holders
	▪ Existence of effective legal framework for the Xinjiang PA system emplaced, enhancing the conservation status of natural wetlands within the 35 PAs in Xinjiang UAR	No provincial level PA regulations w/ guidance for managers or clear stipulation of levels of authority No sector plans that integrate PA objectives as well as biodiversity	Provincial regulations for PAs proposed by the XFD, including wetland considerations, greater clarity of different management categories, and new framework for co-managed PA zones At least two sectoral plans integrate PA objectives and biodiversity considerations, such as water resources and agricultural bureaus	Revised PA regulations 13th Five Year Plan Provincial sectoral plans Provincial department plans and documents	
	▪ Improved capacity scorecard (SC) scores of Forestry Department for participatory approaches in PA planning and management (Q8 in SC), PA staff competencies (Q9 & 16-19 in SC), and public awareness and support (Q21 in SC)	Average score for Q8,9, 16-19 and 21 is 1.43. Most PA management plans not designed in participatory ways, and not comprehensive; and most PAs not managed collaboratively	Average score for Q8,9, 16-19 and 21 is 2.4 at minimum, through *inter alia* the following improvements: Majority of PAs in AMWL with updated and participatorially prepared management plans, including co-management components More systematic staff training program designed and initiated Accessible data and information sharing platform developed under supervision of XFD in support of PA management operationalised	Mid-term and final capacity scorecard assessment of XFD AMFB and other Altai Forestry Department documents Forestry Department planning documents and progress reports Forestry Department documents including progress reports and selected (sample) dataset outputs Design of data and	

Objective/ Outcome	Indicator	Baseline	End of Project target	Source of Information	Risks and assumptions
	▪ Existence of operational safeguard measures to protect wetland habitat and biodiversity from infrastructure placement and mining	Many Forestry and PA staff with inadequate skills for their jobs Systematic monitoring and reporting systems not established, limited availability or access to information necessary for PA operations, incl. biodiversity and socio-economic development situations in/near PAs EIA procedures are not adequately followed leading to undesirable impacts from infrastructure construction and mining. No legal obligation for post-mining rehabilitation. No system for reporting malfeasance, or through which to submit formal	Data sharing platform includes 'freeform' categories for observations or information (incl. complaints) submitted anonymously or by the public EIA law is strictly enforced for construction and mining projects affecting wetland PAs, with full participation of the wetland and PA management authorities. Clear standards are officially set up and enforced with minimum requirements for post-extraction site restoration of mining sites. Hotline contact number operationalized – also see the information platform above – with referral system (i.e., to other sectors) in place	information system EIA records Existence of approved official standards Mining and rehabilitation record Hotline call records	

Objective/ Outcome	Indicator	Baseline	End of Project target	Source of Information	Risks and assumptions
		concerns or complaints or to make suggestions			
Outcome 2 The biodiversity of the Altai Mountains and Wetland Landscape is effectively conserved with a strengthened PA network and enhanced operational budget through adoption of a landscape level approach to conservation planning and environmental management	**Outputs** 2.1 PA system in AMWL expanded 2.2 Systematic PA management and biodiversity monitoring system established 2.3 Altai PA management objectives mainstreamed into provincial planning process 2.4 Trans-frontier conservation improved 2.5 Awareness of the importance of the PAs in Altai landscape increased				<u>Risks</u>: The effects of climate change degrade the conservation value of PAs and wetlands The processes for development of regulations and safeguard measures to support effective management are prolonged and drawn out <u>Assumptions</u>: The Provincial and prefecture governments continue to be committed to the establishment and the support for PAs, including co-management options and genetic corridors Distributional data of threatened native species is updated and maintained at provincial level
	▪ Increase in management effectiveness of AMWL PA complex, as per the average METT scores of individual PAs ▪ Improved ecological conditions of PAs, as per Ecosystem Health Index (EHI) ▪ Reduction in incidence of new mining contracts in PAs in AMWL region ▪ Viable alternative options are developed for herding	METT scores: - Liangheyuan NR = 65 - Kekesu Wetland NR = 71 - Buergen Beaver NR = 47 - Kanas NR = 64 - Ertix Keketuohai NR =28 **Average = 55** EHI scores: - Liangheyuan NR = 67 - Kekesu Wetland NR = 67 - Buergen Beaver NR = 57	METT scores: - Liangheyuan NR > 80 - Kekesu Wetland NR > 80 - Buergen Beaver NR > 65 - Kanas NR > 75 - Ertix Keketuohai NR > 60 **Average = 72** EHI Scores: - Liangheyuan NR > 75 - Kekesu Wetland NR > 75 - Buergen Beaver NR > 70 No mining occurs inside PAs in AMWL region New co-management structures are	METTs applied at BD-1 TT Baseline, mid-Term and final asssessments EHIs applied at PPG stage and integrated into standard PA functions AMFB reports Individual PA reports Revised Liangheyuan NR management plan,	

Objective/ Outcome	Indicator	Baseline	End of Project target	Source of Information	Risks and assumptions
	communities, that offset economic dependency on grazing inside PAs ▪ Cooperation between Altai-Sayan Ecoregion countries is enhanced ▪ Operational budgets for PAs in AMWL increase	Gold mining still occurs in some PAs, despite current regulations (but no specific baseline figures available) No assistance available from PA system to help local communities with economic opportunities No conservation action plan for Chinese beaver No relationship between two adjacent NRs in Altai Mtns Operational budget for AMWL PA network is US$ 1,515,594 per year	in place, which support and strengthen alternative livelihood options for Kazakh herders (and other forms of collaboration) Beaver conservation action plan developed and adopted (agreed) by Altai Prefecture and the local government in Mongolia Tavan Bogd NP – Liangheyuan NR partnership MOU is reached Operational budget is increased by 40%, with new contributions from local, prefecture and provincial government	progress reports, etc. Other AMFB reports NR progress reports, consultation reports, etc. NR progress reports, consultation reports Financial Scorecards Financial records	
Outcome 3 The adoption and development of a 'community co-management' approach	**Outputs** 3.1 Liangheyuan NR operations strengthened to address grazing and mining threats 3.2 Community-based collaborative PA governance and management structure put in place				<u>Risks</u>: Even under co-management, economic development interests of communities will

Objective/ Outcome	Indicator	Baseline	End of Project target	Source of Information	Risks and assumptions
to conservation in Liangheyuan Nature Reserve demonstrates improved management effectiveness for a wetland PA in the Altai Mountains and Wetland Landscape	▪ Reduction in biodiversity pressure from overgrazing	7,000 herding families graze livestock in the NR in summer, incl. 170 families (approx. 40,000 stock) in ecologically sensitive Sandaohaizi wetland Management zones in Liangheyuan NR not rationalized	Livestock numbers reduced by 20% in Sandaohaizi wetland, with economic burden to local people offset with alternative (complementary) livelihoods Zoning of Liangheyuan NR re-assessed and modified based on EHI surveys with illegal mining banned in core/buffer zones and grazing banned in core zones	Liangheyuan NR progress reports AMFB reports	override certain conservation priorities, leading to continued loss and degradation of biodiversity Insufficient incentives are created by eco-compensation and other financing schemes to facilitate conservation through co-management negotiations
	▪ Enhanced socio-economic options to compensate for lost opportunities improving local economic situation	Community ecotourism not present in project area (Liangheyuan NR) Avg. household income is 1,980 CNY/year in Sandaohaizi community	At least 3 community tourism ventures established, bringing benefit to at least 30 families serving as a model for up-scaling Average household income for park residents increased by at least 20%, as a result of new livelihood opportunities	Business plans, project reports, government reports Socioeconomic survey results (undertaken by the Liangheyuan NR)	Other sector benefits will be deemed to outweigh identified short- and long-term ecological benefits of water and wetlands <u>Assumption</u>: Government policy remains favourable to involvement and responsibility of communities in co-management of grasslands, forests and wetlands
	▪ Reduction in biodiversity pressure from mining ▪ Populations of threatened species (beavers, moose, wolverine) are stable	6,800 ha of PA land in NR is still threatened by mining activities Wildlife populations: Beaver = 300-400 Moose = tbd Wolverine = tbd	Illegal gold mining activities stopped in NR, and restoration of 800 ha of land previously degraded by mining All select wildlife populations are stable or increasing	Liangheyuan NR reports EHI database	Government support remains strong in its desire to promote intersectoral dialogues and consensus building

List of Outputs per Outcome as part of the SRF

Table 15. List of Outputs per Outcome.

Project's Development Goal: To enhance the effectiveness of XUAR's PA system to conserve globally significant biodiversity and to maintain healthy and resilient ecosystems with strategic emphasis on the regional PA wetland sub-system	
Project Objective: To strengthen the management effectiveness of protected areas to respond to existing and emerging threats to the globally significant biodiversity and essential ecosystem services in the Altai Mountains and Wetland Landscapes in Xinjiang Uyghur Autonomous Region	
Outcomes	**Outputs, with process indicators/milestones**
Outcome 1. The protection of wetland ecosystems through PA planning and management is enhanced in Altai Prefecture and Xinjiang UAR through systemic, legal and institutional capacity strengthening	Output 1.1: Provincial PA management regulations developed ▪ Unique elements of the wetland sub-system and of participatory planning and management considered in PA systems Output 1.2: Sector-related governance and regulatory framework for supporting PA system ▪ Key sector regulations are assessed and revised, including introduction of EIA requirements, more consultative processes, restoration guarantees, eco-compensation, etc. ▪ Guidance available to assist PA managers and sector leaders, including sector specific 'best practice' guidelines as well as sustainable management and financing options, incl. legal position with regard to mining activities in PAs and wetlands Output 1.3: Institutional strengthening ▪ Information and data sharing mechanisms are available to help inform decision-making in PAs ▪ Training opportunities available for provincial Forestry and AMWL PA Network staff (joint sessions in Altai area)
Outcome 2. The biodiversity of the Altai Mountains and Wetland Landscape is effectively conserved with a strengthened PA network and enhanced operational budget through adoption of a landscape level approach to conservation	Output 2.1: PA system in AMWL expanded ▪ AMWL PA system is expanded, more effective; clear management plan for PA system developed Output 2.2: Systematic PA management and biodiversity monitoring system established ▪ Relevant professional training is available for key department and PA staff on themes incl. biodiversity and wildlife monitoring, PA management, restoration, co-management, etc.; at least 2 courses per year for PA staff participating in the project ▪ Ecological Health Index tool developed and used by PA managers to monitor environmental trends, with appropriate training

planning and environmental management	Output 2.3: Altai PA management objectives mainstreamed into provincial planning process ▪ Enhanced inter-sectoral dialogue at prefecture level, with AMWL coordination group established organizing bi-annual forum ▪ The economic value of water and biodiversity, and of PAs and the ecological services they protect, more widely recognized by the public and government, based on a targeted (wetland focus) economic valuation of biodiversity and the AMWL PA system Output 2.4: Trans-frontier conservation improved ▪ Cooperation with Mongolia helps to integrate Chinese portion of Altai Mountains within the broader ecoregional landscape, incl. Beaver Conservation Action Plan, Tavan Bogd NP – Liangheyuan NR partnership, training border guards about wildlife trade Output 2.5: Awareness of the importance of the PAs in Altai landscape increased ▪ Public awareness of PAs and value of wetland services is enhanced through media campaigns, interpretative strategy, guidebook
Outcome 3. The adoption and development of a 'community co-management' approach to conservation in Liangheyuan Nature Reserve demonstrates improved management effectiveness for a wetland PA in the Altai Mountains and Wetland Landscape	Output 3.1: Liangheyuan NR operations strengthened to address grazing and mining threats ▪ Threats to biodiversity better understood, based on more in-depth assessment of threats including mining and grazing ▪ Practical upgrading of PA staff abilities with training courses and also joint field work (as per project's activity plan) ▪ Development of sound community co-management structures, including regular participatory forum, and an agreed EHI monitoring system ▪ Degraded land restored with proven methods, maintaining the full ecological health and integrity of targeted wetland habitats Output 3.2: Collaborative PA governance and management structure put in place ▪ Alternative livelihoods for local communities assist with their socio-economic development needs, in the context of requirement to reduce livestock number; at least 10 families begin a home stay business and 4 community ecotourism ventures are established ▪ Sound and sustainable financing mechanisms are in place to support people-centred development (as opposed to infrastructure) amongst Kazakh herding communities, incl. strengthened handicraft association, establishment of community cooperatives, and eco-compensation funds attracted through project (by way of Liangheyuan NR) to support local socio-economic development

336. A detailed activity list and chronogram of activities per output will developedatproject inception.

Part II: Incremental Cost Analysis

Baseline trends

337. Significant habitat degradation including wetlands and species declines have occurred in Xinjiang, leaving habitats and ecosystems that are vulnerable to the impacts of continuing rapid economic development, intensive resource use and other environmental change. This is particularly the case for wetland habitats, as water resource usage and development pressures including tourism, mining and expanding agriculture are growing rapidly. Urgent action is needed to prevent further degradation of critical wetland ecosystems and loss of biodiversity and ecosystem services.

338. **Without the GEF investment in the proposed project**, there will be an inadequate provincial framework and limited tools for systematic management of the wetland PAs, and inadequacies in provincial regulations governing PAs and wetlands are unlikely to be addressed. The provincial Forestry Department's PA management work will remain site based with no uniform management standards nor staff competency standards required for effective PA management. Future expansion of the PA system beyond existing plans and habitat restoration will become increasingly difficult due to increasing land use pressures, therefore this project offers a timely opportunity to consolidate the PA system.

339. While investment in the PA system will be substantial, PA management work will remain site specific and investment will continue to be mainly focused on infrastructure (management offices and buildings in towns) rather than supporting operational needs such as adequate staffing, field stations, equipment, training, information management and outreach to local stakeholders.Without increased capacity and mechanisms for engaging local stakeholders, communities in and around PAs will continue to remain marginalized and threats and conflicts related to local land uses will continue. There has also been significant interest and investment in mineral explorations and tourism development with little or no consideration of local ecological needs or impacts on local ecology.There is a considerable existing research information base and technical capacity through local universities, however results are not mobilized into management and strategic planning due to lack of coordination with PA system managers.

340. Lack of integration of PA system plans into sectoral and development planning processes and the continuing development of tourism, agriculture, mining and infrastructure without ecological guidance and environmental standards will exert increasing pressures on PAs. Hence the management effectiveness of wetland PAs will remain weak and highly vulnerable to pressure from these economic sectors as well as livelihood activities from neighboring communities. As such, the Xinjiang PA system will remain unable to fulfill its role in safeguarding globally significant biodiversity. There is also a lack of cross-sectoral integration of plans due to independent working habits of different government departments, and information on PAs is not centralized or easily accessible. Thus the provincial and local PA management authorities will continue to have limited capacity for effective management and lack the tools and capacity for mitigating threats coming from outside the PAs.

Global Environmental Objectives

341. The project intervention will achieve the following incremental global environmental benefits: i) increased management effectiveness at the PA level through a range of interventions at AMWL PA Network sites from a METT baseline of 28-71 (average 55) to 60-80 (average 72); ii) improving the overall PA System institutional capacity for XFD, XEPD and XWRDfrom a baseline of 52-60% (average 57%) in the Capacity Assessment Scorecard to all over 70%; (iii) increasing the financial sustainability of the PA system from a sustainability baseline average score of 19% to

target scores over 42%, as measured through UNDP's Financial Sustainability Scorecard; and (iv) expanding and significantly improving the PA system design with at least an additional 150,000 ha of terrestrial ecosystems under protection, the inclusion of specific wetland PA subsystem plans and incorporation of climate change adaptation and mitigation measures into PA system planning. Through strengthened regulations, sectoral standards, guidelines, law enforcement capacity, targeted awareness raising and community participation, the project will also incrementally reduce long term threats to wetland biodiversity including mining and tourism development, unsustainable grazing practices, illegal mining operations, and spread of invasive species.

342. The Project will generate global benefits directly for AMWL PA network sites totaling over 1 million ha through enhanced PA effectiveness based on a collaborative approach to conservation capacity building and demonstrated co-management approaches. By strengthening overall provincial institutional arrangements and coordinating capacities and actions to mainstream biodiversity considerations in provincial planning and decision-making, and by strengthening provincial and local PA management authorities' institutional and individual capacities, the project will also contribute to improving the overall effective management of Xinjiang'sterrestrial PA system, with a current total area of 22,952,334 ha.

Alternative

343. The project builds on the baseline by strengthening the provincial PA system as a whole and the wetland sub-system in particular. The GEF investment will enable expansion of the PA system in the Province,improving ecosystem coverage, connectivity and climate change resilience.This will be directly complemented by the improved systemic and institutional capacity of the provincial and local forestry departments for the PA system planning and management, as well as increased availability of operational funding for biodiversity management within the PAs through more comprehensive and systematic financial planning for the PA System incorporating sustainable financing mechanisms including demonstration of eco-compensation mechanisms supporting PA management and local communities.Management and zoning of wetland PAs in line with wetland and PA regulations will be improved by technical guidelines involving relevant agencies.

344. A PA network management approach will be introduced focusing on wetland PAs. By demonstrating the provincial systematic improvement of the wetland PAs, the project will introduce an ecosystem based approach to PA management, with the aim of replicating this strategy in other types of PAs within the province and wetland PAs in other provinces in the country. The capacity of PA network reserves will be enhanced through mechanisms for coordination between PAs including the introduction of shared management approaches and tools such as monitoring ecosystem health, information sharing, technical exchanges, and collaboration on common issues; significant enhancement of site level management capacity through training on key issues such as law enforcement and monitoring, and introduction of professional compentency standards. Demonstration interventions will be undertaken to develop model PA management plans, establish co-management and sustainable livelihood programmes including community-based ecotourism, and develop awareness programmes.

345. While strengthening the ability of PA authorities to manage emerging threats in the PA system itself, the project also seeks to put in place and safeguard standards and measures to ensure that land and resource uses in and outside PAs, particularly in areas directly affecting the integrity of wetland biodiversity within the PAs and their broader landscape, are regulated and incentives developed towards encouraging more sustainable practices. Wetland conservation concerns will be embedded in cross-sectoral plans and inter-sectoral coordination improved with key sectors related to wetland PAs in order to reduce external threats. Support for wetland conservation from decision makers, planners and the wider public will be enhanced through a targeted awareness campaign

informed by a study of the economic values of water and ecosystem services, as well as the economic consequences of their loss and degradation, with the intention of mainstreaming wetland PAs and PA system concerns into the 13th Five-Year Plan. Economic valuation and mainstreaming will also aim to underpin increased government financing for PA operational budgets. A wetland PA and biodiversity data sharing platform will provide enhanced access to information for planners, managers and other stakeholders. Lessons will be upscaled through the CBPF MSL programme to other projects and wetlands.

System Boundary

346. The project aims to achieve the *in situ* conservation of Xinjiang's wetland biodiversity – fauna, flora, habitats and ecosystem processes, with a focus on the resources and ecological services of the Altai Mountains and Wetland Landscape (AMWL). Geographically, the project is limited to XUAR, following a stratified multi-level approach to achieve the project outcomes. One aspects of the project (Component 1) covers the entire province, including institutional capacity building, competency standards, data sharing, and mainstreaming. Component 2 focuses on strengthening the management effectiveness of the network of wetland PAs in AMWL through a collective approach to capacity building, information sharing, management and monitoring as well as strategic PA network planning and financing, economic valuation of wetland services, mainstreaming, and targeted awareness raising. Component 3 supports more in-depth interventions with respect tomanagement planning, co-management, wetland restoration, and appliedconservation at specific demonstration sites. Overall, the project strategy aims to achieve a greatly strengthened network of wetland PAs that effectively conserves Xinjiang's important and unique wetland ecosystems within the context of a more efficient and expanded provincial PA system with a strengthened financial basis to support operational management costs. Baseline and incremental costs have been assessed over the five-year life span of the project.

Summary of Costs

347. The Baseline associated with this project is estimated at US$100 million. The GEF Alternative has been costed at US$ 125.544 million. The total Incremental Cost to implement the full project is US$ 25.544 million. Of this amount, $3.544 million is requested from GEF. GEF funds have leveraged US$ 22.0 million in co-financing for the Alternative strategy. Costs have been estimated for five years, the duration of the planned project Alternative. These costs are summarized below in the incremental costs matrix.

Table16. Incremental Cost Matrix.

Cost/Benefit	Baseline (B)	Alternative (A)	Increment (A-B)
BENEFITS			
Global benefits	Inadequate legal protection, PA management capacity, financing for PA operational costs, and mainstreaming of PA system concerns into other sectors results in ineffective PA management and PA system weaknesses. Globally significant wetland ecosystems inside and outside	Upgrading of legal protection for selected PAs, extension of the PA system, financing plan for PA system and a demonstration of sustainable financing options enable improved PA management. Improved protection and management through development of competency	Increased area and management of globally significant ecosystems included in Xinjiang's PA system, and enhanced legal protection. Threats to globally significant wetland biodiversity within PAs are reduced. Globally significant wetland

Cost/Benefit	Baseline (B)	Alternative (A)	Increment (A-B)
	Xinjiang's PA system are partially protected but being degraded. Globally significant wetland biodiversity is declining inside and outside Xinjiang's PA system.	standards, capacity building and demonstration activities, enhanced co-management, and raised awareness levels. Threats reduced through improved legal protection and enforcement, sector specific standards, and inter-sectoral collaboration mechanisms. Also enhanced awareness of economic values and improved information management.	biodiversity is conserved and used sustainably within the wetland PA subsystem. Increased security for globally significant species reliant on the wetland PA subsystem, such as migratory bird populations
National and local benefits	Wetland ecosystem services in PAs threatened by encroachment, unsustainable uses and lack of inter-sectoral cooperation. Local resource uses and downstream availability of water jeopardized from unsustainable practices.	Wetland ecosystem services in PAs maintained through improved integrated resource management, increased awareness of economic values of ecosystem services, and sector standards and incentives. Different development sectors are regulated, community resource use conflicts are managed through co-management agreements, and resource usage is improved through environmental awareness raising and development of alternative livelihood options and eco-compensation schemes.	Wetland ecosystem services provide sustainable flow of benefits to local communities and the provincial economy, including wetland protection and water security. Increased tourism revenues and benefits to local communities from alternative land uses. Increased sustainability of land and resource uses provides greater security of income for local communities and consumptive uses increasingly replaced by non-consumptive uses such as ecotourism.
COSTS			
Outcome 1: Enhanced systemic and institutional capacity for planning and managing the PA system (including wetland PA sub-system)in XUAR	**Baseline: US$ 30,000,000**	**Alternative: US$ 36,585,000**	GEF $515,000 Co-financing $6,070,000 **TOTAL $6,585,000**
Outcome 2: Strengthened ability to conserve biodiversity in AMWL through adoption of	**Baseline: US$ 40,000,000**	**Alternative: US$ 49,310,500**	GEF $ 1,631,000 Co-financing $ 7,679,500 **TOTAL $ 9,310,500**

Cost/Benefit	Baseline (B)	Alternative (A)	Increment (A-B)
landscape approach and with an increased operational budget			
Outcome 3: Demonstration of effective wetland PA management through community co-management	**Baseline: US$ 30,000,000**	**Alternative: US$38,373,631**	GEF $ 1,221,679 Co-financing $ 7,151,952 **TOTAL $ 8,373,631**
Project Management		**Alternative: US$ 1,275,548**	GEF $ 177,000 Co-financing $ 1,098,548 **TOTAL $ 1,275,548**
TOTAL COSTS	**Baseline: US$ 100,000,000**	**Alternative: US$ 125,544,679**	**TOTAL $ 25,544,679**

SECTION III: TOTAL BUDGET AND WORKPLAN

Award ID:	00070004	**Business Unit:**	CHN10
Project ID:	00084238	**Project Title:**	CBPF-MSL: Strengthening the Management Effectiveness of the Protected Area Landscape in Altai Mountains and Wetlands
Award Title:	PIMS 4597 BD FSP CBPF-MSL-Wetland PA in Altai	**Implementing Partner (Executing Agency)**	Xinjiang Forestry Department, Liangheyuan Provincial NR Management Bureau, Altai Mountains National Forestry Management Bureau

GEF Outcome / Atlas Activity	Imple-menting Agent	Fund ID	Donor Name	Atlas Budgetary Acct Code	Atlas budget description	Amount Year 1 (USD)	Amount Year 2 (USD)	Amount Year 3 (USD)	Amount Year 4 (USD)	Amount Year 5 (USD)	TOTAL (USD)	Budget Note
Outcome 1: Protection of wetland ecosystems enhanced in Altai Prefecture and XUAR through systemic, legal and institutional capacity strengthening	XFD AMFB LNRM B	62000	GEF	71200	International consultants	9,000	18,000	9,000	9,000	0	45,000	1
				71300	Local consultants	9,600	16,800	7,200	7,200	2,400	43,200	2
				71600	Travel	10,000	13,000	8,000	8,000	5,000	44,000	3
				72100	Contractual Services - companies	55,000	66,250	66,250	76,250	26,250	290,000	4
				72800	IT equipment	31,000	35,000	0	0	0	66,000	5
				74200	Audiovisual & printing prod. costs	0	0	0	12,000	14,800	26,800	6
				Total		**114,600**	**149,050**	**90,450**	**112,450**	**48,450**	**515,000**	
Outcome 2: Biodiversity of AMWL effectively conserved with a strengthened PA network and operational budget through development of a landscape approach to conservation planning	XFD AMFB LNRM B	62000	GEF	71200	International consultants	33,000	36,000	36,000	6,000	0	111,000	7
				71300	Local consultants	31,200	40,800	48,000	7,200	0	127,200	8
				71600	Travel	22,000	23,000	23,000	7,000	7,000	82,000	9
				72100	Contractual Services - companies	90,000	181,750	263,250	111,750	98,250	745,000	10
				74200	Audiovisual & printing prod. costs	3,000	24,000	54,000	50,000	44,800	175,800	11
				75700	Training, workshops, and conferences	40,000	85,000	105,000	100,000	60,000	390,000	12
				Total		**219,200**	**390,550**	**529,250**	**281,950**	**210,050**	**1,631,000**	

Outcome 3: Community co-management approach in Liangheyuan NR demonstrates an improved management effectiveness for wetland PA in AMWL	XFD AMFB LNRM B	62000	GEF	71200	International consultants	30,000	36,000	15,000	9,000	0	90,000	13
				71300	Local consultants	27,600	31,200	28,800	24,000	18,000	129,600	14
				71600	Travel	32,000	32,000	42,000	42,000	37,000	185,000	15
				72100	Contractual Services - companies	120,000	110,000	118,500	35,000	48,500	432,000	16
				72200	Equipment and furniture	40,000	98,000	45,000	71,000	0	254,000	17
				74200	Audiovisual & printing prod. costs	0	6,000	10,000	10,000	30,079	56,079	18
				74500	Miscellaneous	6,000	6,000	6,000	6,000	6,000	30,000	19
				75700	Training, workshops, and conferences	15,000	15,000	15,000	0	0	45,000	20
				Total		**270,600**	**334,200**	**280,300**	**197,000**	**139,579**	**1,221,679**	
Project Management	XFD AMFB LNRM B	62000	GEF	71300	Local consultants	18,000	18,000	18,000	18,000	18,000	90,000	21
				71600	Travel	3,000	3,000	3,000	3,000	3,000	15,000	22
				72200	Equipment and furniture	12,000	0	0	0	0	12,000	23
				74100	Audit	5,000	5,000	5,000	5,000	5,000	25,000	24
				74500	UNDP cost recovery charge	953	2,859	2,859	0	953	7,624	25
				74500	Miscellaneous	10,622	2,998	2,998	5,857	4,901	27,376	26
				Total		49,575	31,857	31,857	31,857	31,854	177,000	
Total						**653,975**	**905,657**	**931,857**	**623,257**	**429,933**	**3,544,679**	

Summary of Funds						
Source	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Total**
GEF	653,975	905,657	931,857	623,257	429,933	3,544,679
Government (cash)	3,500,000	3,500,000	3,500,000	3,000,000	3,000,000	16,500,000
Government (in kind)	1,000,000	1,000,000	1,000,000	1,000,000	500,000	4,500,000
UNDP	200,000	200,000	200,000	200,000	200,000	1,000,000
Total	5,353,975	5,605,657	5,631,857	4,823,257	4,129,933	25,544,679

Budget Notes	
COMPONENT 1	
1	Two international consultants: • **PA Regulations and Sector Guidelines specialist** (US$ 3,000 x 9 mw) to support the review of sector regulations and procedures and development of sector specific safeguard (Output 1.2.1); and to develop 'best practice' guidelines that are based on global experience as well as national and local experiences and context (Output 1.2.2). • **Data and Information Management specialist** (US$ 3,000 x 6 mw) to support with the transfer and adaptation of the information system developed by the national-level MSL project to the Xinjiang context (Output 1.3) (this specialist may be shared with the national level project). All international specialists will work in close collaboration with national specialists.
2	Two national consultants: • **PA Regulations and Sector Guidelines specialist** (US$ 1,200 x 20 mw) to support the review of sector regulations and procedures and development of sector specific safeguard (Output 1.2.1); and to develop 'best practice' guidelines that are based on global experience as well as national and local experiences and context (Output 1.2.2). • **Data and Information Management specialist** (US$ 1,200 x 16 mw) to transfer and adapt the data and information system developed by the national-level MSL project to the Xinjiang context (Output 1.3).
3	Estimated travel costs for international and national specialists and project staff, including international and domestic airfare, terminal costs and accommodation expenses.
4	Four contracts are planned under Component 1:
	• Contracted services for facilitation of consultation and planning meetings for the development of provincial PA regulations and refinement of regional PA management strategy with focus on wetland PA sub-system, climate change adaptation and resilience planning, management options including co-management, and potential role of eco-compensation and l mechanisms for sustainable financing of regular PA operations and the development of alternative livelihoods for local communities. (Output 1.1) (US$ 100,000)
	• Service contract for support and provision of capacity building services, including especially the planning and delivery of training for senior and mid-career XFD staff (Wetland and PA Management Office, wetland PA staff) and for Environmental Protection and Water Resources bureaus staff, to address both immediate needs and longer-term knowledge gaps for strategic conservation planning and PA management. (Output 1.3) (US$ 85,000)
	• Service contract to compile key documentation and information and especially to develop and promote strategic networking amongst recent past and current biodiversity and sustainable development projects situated in the broader Altai-Sayan Ecoregion including Mongolia, Russia and Kazakhstan. The primary focus of networking shall be PA management authorities and community co-management initiatives inside and outside PAs, in relation to monitoring biodiversity and ecological health. Networking and exchange of information should be encouraged with a wide variety of government and non-government agencies and individual experts, to enhance partnerships and knowledge sharing within and between countries in the Altai-Sayan Ecoregion. A site visit and meeting in western Mongolia will also be organized to learn directly from participants in community co-management and alternative livelihood development projects. (Output 1.3) (US$ 75,000)
	• Monitoring and evaluation costs (see Table 11 and CEO Endorsement Section H for details). The M&E budget includes costs associated with inception meeting planning and reporting ($10,000); contracted services for both mid-term review and terminal evaluations (including international project evaluators, national project evaluators and associated travel for evaluators) (2x $40,000); and specific studies, monitoring and oversight associated with MoV for project indicators and annual progress and performance evaluations ($47,000). Most of the M&E costs are shared between the three project components. (Sub-total US$ 30,000)

5	Information Technology (IT) equipment for new PA data and information management system, to be established and operationalized at two levels (XFD and AMFB) under the project. The data management system shall be established in line with national level MSL project design, and with concomitant participatory wetland conservation consultations in Xinjiang and AMWL to determine specific data needs, access requirements, and functionality requirements. (Output 1.3)
6	Translation, production and printing of reports and publications including 'best practice' guideline developed through the project based on global experience as well as experiences from Xinjiang and especially lessons learned from AMWL and Liangheyuan NR. (Output 1.2)
COMPONENT 2	
7	Three international consultants: • **PA Management and EHI Monitoring specialist** (US$ 3,000 x 9 mw) to assist in the development and delivery of a comprehensive PA staff training program including biodiversity and EHI monitoring as well as their institutionalization at the landscape level (Output 2.2). • **Environmental Economics and PA Financing specialist** (US$ 3,000 x 13 mw) to guide and support a valuation of environmental services (including water) in AMWL, with particular reference to the PA Network (Output 2.3) (this specialist may be shared with other MSL provincial level projects). • **Environmental Awareness and Education specialist** (US$ 3,000 x 15 mw) to co-lead in the development of a landscape and regional level public awareness and environmental education program (7 weeks), development of an innovative interpretive strategy in the Keketuohai Forest Park (3 weeks), and production of an ecotourism guidebook focused on the Altai Region (5 weeks) (Output 2.4). All international specialists will work closely with national specialists.
8	Four national consultants: • **PA Management and Wildlife Monitoring and Conservation specialist** (US$ 1,200 x 26 mw; Output 2.2)to support AMFB as well as individual PA staff in management activities, with special focus on environmental monitoring and the trialing and development of EHI methodology including staff-executed and participatory approaches. • **Environmental Economics and PA Financing specialist** (US$ 1,200 x 21 mw; Output 2.3) to plan and carry out a detailed assessment of PA system financing needs at landscape level, to assess current and potential future financing mechanisms including novel tools such as eco-compensation and tourism concessions (public-private partnerships), and most importantly to estimate (including levels of confidence) the socio-economic values of AMWL biodiversity and ecological services including the provision of water for AMWL and XUAR, with special reference to contributions made by the AMWL PA network and direct and indirect values to different sectors. • **PA System Planning and Mainstreaming specialist** (US$ 1,200 x 21 mw; Output 2.3) to support AMFB and other implementing agencies and stakeholders in system level planning, providing technical input and review of project plans as they are developed annually in the first years of the project (at least up to the mid-term review) and drafting relevant documentation based on first-hand knowledge and literature review to strengthen the PMO's position and interaction with government sectors in mainstreaming activities including establishment of a stable and influential Coordination Group in AMWL that can affect landscape and provincial planning processes. • **Environmental Awareness and Education specialist** (US$ 1,200 x 38 mw; Output 2.5)to provide extensive professional support and to properly contextualize public awareness campaigns in Altai Prefecture and the provincial capital regarding biodiversity and water conservation and the beneficial roles of protected areas in their maintenance, to bring experiences of environment and culture-focused educational exhibitions from around the country to bear on the development of innovative learning models for the Keketuohai educational centre and outdoor trail system, and to co-author an informative and illustrative 'ecotourist guide' for AMWL region.
9	Estimated travel costs for international and national specialists, including international and domestic airfare, terminal costs and accommodation expenses, for building the capacity of and mobilizing 6 county NFPP branches for biodiversity conservation, and for establishing and developing a prefectural Coordination Group for AMWL conservation.
10	Six additional contracts are planned under Component 2:
	• AMWL conservation and sustainable management planning, integrated with implementation of XWCR by Altai Prefecture government (US$ 120,000; Output 2.1).

	• Comprehensive PA staff training program developed and operationalized, with participants primarily from AMWL PAs, some participants also from provincial departments; training will be provided in PA planning and management, wildlife research and monitoring, use of equipment, community co-management, land restoration, etc. (US$160,000 USD; Output 2.2).
	• Capacity building for individual PAs in AMWL through competitive sub-contracts granted and overseen by PMO (max. sub-contracts of $20,000) to encourage and support adoption of more systematic management and biodiversity monitoring systems; exclusive of training courses (US$ 160,000; Output 2.2).
	• Sino-Mongolian Beaver Conservation Action Plan developed (US$ 75,000; Output 2.4).
	• Basic EIA and feasibility study regarding the development of 'wildlife passageways' along international border (with Mongolia) with goal to increase connectivity between adjacent PAs and mountain habitats (US$ 50,000; Output 2.4).
	• Innovative display units, specialist equipment, furniture and building costs for an enhanced environmental awareness and education strategy to teach the public about biodiversity, PAs, AMWL and sustainability; to be integrated with Keketuohai Forest Park outreach centre, including an outdoor trail with signs (US$ 120,000; Output 2.4).
	Monitoring and evaluation costs (see Table 11 and CEO Endorsement Section H for details). The M&E budget includes costs associated with inception meeting planning and reporting (US$10,000); contracted services for both mid-term review and terminal evaluations (including international project evaluators, national project evaluators and associated travel for evaluators) (2x US$40,000); and specific studies, monitoring and oversight associated with MoV for project indicators and annual progress and performance evaluations (US$47,000). Most of the M&E costs are shared between the three project components. (Sub-total US$ 60,000)
11	Translation, production and printing and audio-visual production costs for environmental awareness campaigns including television, printed materials, and art and photographic exhibitions (US$ 80,000; Output 2.5); also printing of an Ecotourism Guide (US$ 34,800; Output 2.5) and printing of materials for Keketuohai Forest Park environmental center (US$ 50,000; Output 2.5). Printing of biodiversity monitoring protocols and other field materials (US$ 11,000; Output 2.2).
12	Meetings, trainings, consultations and mobilization toward the following project outputs: • AMWL PA system expanded with realignment of the PA system to enhance ecosystem resilience and connectivity (US$ 125,000), and Altai Mountains NFPP Areas mobilized for conservation to function as special landscape PA (US$ 105,000) (Output 2.1) • Coordination group for AMWL conservation established to assist in the mainstreaming of PA management objectives (US$ 70,000) (Output 2.3) • Transfrontier conservation improved with enhanced ecosystem connectivity between Liangheyuan NR and Tavan Bodg NP (US$90,000 USD) (Output 2.4)
COMPONENT 3	
13	Three international consultants: • **PA Management and EHI Monitoring specialist** (US$ 3,000 x 8 mw) to support the development and establishment of three ecological monitoring and wetland use monitoring stations in Liangheyuan NR (2 mw; Output 3.1), and development and trial implementation of joint wildlife monitoring activities with community wardens (co-managers) and community-based patrolling (6 mw; Output 3.2). • **Sector Guidelinesspecialistwith experience of land restoration** (US$ 3,000 x 4 mw) to support ecological restoration initiatives at trial sites fragmented or degraded by mining (Kuermutu river) or overgrazing (Sandaohaizi), which will demonstrate and enhance the practical implementation of XWCR (Output 3.1). • **Ecotourism Development specialistwith familiarity of co-management frameworks** (US$ 3,000 x 18 mw) to help guide and support emplacement of community co-management structures in Liangheyuan NR (4 mw; Output 3.2), and especially to bring strong support to the development of community-based ecotourism as alternative livelihood option for local Kazakh herding communities, together with support of ancillary handicraft development initiatives (14 mw; Output 3.2). All international specialists will work closely with national specialists.

14	Four national consultants: • **PA Management and Wildlife Monitoring and Conservation specialist** (US$ 1,200 x 48 mw; Outputs 3.1 and 3.2) to provide expert guidance and support for the establishment of ecological monitoring and land use monitoring stations in Liangheyuan NR, and especially to provide supportive guidance to Liangheyuan NR and community partners in development of joint wildlife and environmental monitoring activities carried out under co-management framework (with introduction of practical protocols for community-based wildlife monitoring as well as specialist field equipment and forms suited for people with limited literacy). • **Land Restoration specialist** (US$ 1,200 x 16 mw; Output 3.1) to oversee the development and monitoring of land restoration activities in relation to overgrazing and mining related degradation, also with proven ability to contribute to the development of sector best practice guidelines. • **Community Tourism Development and Co-Management specialist** (US$ 1,200 x 34 mw; Output 3.2) to work alongside management authorities, community groups and local herders (families) to help guide and build consensus with regard to co-management structures (including fora for dialogue and regular exchange of ideas and suggestions, local businesses including cooperatives, and trust funds that can receive *inter alia* government grants from eco-compensation transfers), and especially to support the development of model community tourism ventures based on local natural and cultural resources and other market-based opportunities such as adventure tourism (at least 30 families will be supported through the project, both individually and through cooperative structures, and will serve as model for future up-scaling). • **Handicraft Development specialist** (US$ 1,200 x 10 mw; Output 3.2) to provide technical training and support to local individuals and families that wish to engage in handicraft production (which is allied with the development of local tourism), and also to seek and introduce national and international market opportunities to local community members and handicraft associations.
15	Estimated travel costs for international and national specialists (US$ 45,000), including international and domestic airfare, terminal costs and accommodation expenses as well as travel costs associated with surveillance and enforcement (US$ 50,000), the development of natural resource inventories and usage monitoring system (US$ 30,000), and community-based patrolling and monitoring (cf. co-management) (US$ 60,000).
16	Three additional contracts are planned under Component 3:
	• Management planning including threats assessment and implementation of strategic threats abatement in Liangheyuan NR (US$ 80,000) (Output 3.1)
	• PA staff training to improve management of specific identified threats including mitigation of grazing and mining impact and ecological restoration techniques (US$ 105,000) (Output 3.1)
	• Equipment rental, labor and supplies necessary to pilot restoration in areas fragmented or degraded by mining (Kuermutu River) or overgrazing (Sandaohaizi Wetland), incl. peatlands. (US$ 200,000) (Output 3.1)
	Monitoring and evaluation costs (see Table 11 and CEO Endorsement Section H for details). The M&E budget includes costs associated with inception meeting planning and reporting (US$10,000); contracted services for both mid-term review and terminal evaluations (including international project evaluators, national project evaluators and associated travel for evaluators) (2x $40,000); and specific studies, monitoring and oversight associated with MoV for project indicators and annual progress and performance evaluations (US$47,000). Most of the M&E costs are shared between the three project components. (Sub-total US$ 47,000)
17	Field equipment for wildlife and environmental monitoring for use by Liangheyuan NR management staff (US$ 75,000) and community co-managers (US$ 46,000). Equipment and furniture for 3 ecological monitoring stations (US$ 90,000). Equipment and assorted furniture and materials for trial development and modeling of community ecotourism ventures (US$ 43,000).
18	Costs associated with the development and production of guidelines and protocols for Liangheyuan NR staff and community co-managers (US$ 36,000) and with training and marketing materials for local businesses, associations and cooperatives in relation to the development of community ecotourism (US$ 20,079).
19	Contingency for exchange rate fluctuations and minor costs associated with project activities.
20	Consultations and community dialogues for the emplacement of agreed participatory community co-management structures in Liangheyuan NR.

PROJECT MANAGEMENT COSTS	
21	Co-funding of PMO staff salaries such as full-time bilingual (Chinese and English speaking) Project Manager, recruited nationally, to be co-financed by GEF and Implementing Agency. The GEF contribution to Project Manager's salary is US$375/mw x 240 mw=US$90,000. Co-financing will cover the salaries of the following recruited PMO staff: Project Assistant, Project Accountant, Coordinator, and Translator (Chinese-Kazakh-English).
22	Travel costs associated with project management for PMO staff in Altai Town with site visits and liaison to provincial capital.
23	Setup costs (basic office equipment and furniture) for PMO in Altai Town.
24	Annual project audit fees (cost is higher than average because of remote project location). (Full set of M&E activities described in Table 11 and CEO Endorsement Section H).
25	Estimated costs of Direct Project Services (DPS) requested by the project Implementing Agent to UNDP for executing these services; requested by the Implementing Agent (XFD) through the Letter of Agreement (Annex 11). DPS costs will be charged at the end of each year based on the UNDP Universal Pricelist (UPL) or the actual corresponding service cost. The amounts indicated here are estimations based on the services indicated in Annex 11. As part of annual project operational planning, the direct project services to be requested during that calendar year would be defined and the amount included in the yearly budgets. As noted these costs would be charged based on actual services provided at the end of the year and would be reported to the implementing partners. (US$ 7,624)
26	• Annual assessment of lessons learned through project implementation; with production, translation and printing of a project completion report in the last year of the project. (Full set of M&E activities described in Table 11 and CEO Endorsement Section H). (US$ 15,000) • Contingency for exchange rate fluctuations and minor costs associated with project management. (US$ 12,376)

SECTION IV: ADDITIONAL INFORMATION

PART I: Other Agreements

CO-FINANCING LETTERS

新疆维吾尔自治区财政厅文件

新财外〔2013〕16号　　签发人：张小庚

关于报送新疆阿尔泰山生物多样性保护示范推动新疆保护区体系建设项目国内配套资金承诺函的报告

财政部：

为保证全球环境基金（GEF）“新疆阿尔泰山生物多样性保护示范推动新疆保护区体系建设项目”的顺利实施，根据财政部《全

球环境基金赠款项目管理办法》，我厅承诺如下：

该项目配套资金由自治区林业厅及阿尔泰山国有林管理局负责落实。其中，现金配套 1650 万美元来源为中央及地方财政预算每年安排阿尔泰山国有林管理局的天然林保护工程资金及国家级公益林纳入森林生态效益补偿资金。实物配套 450 万美元来源为阿尔泰山国有林业管理局以天然保护林和公益林建设形成的管护站和交通、通讯工具等。

我厅承诺与自治区林业厅加强紧密配合，要求阿尔泰山国有林管理局在实施项目中，按国内配套资金来源按时足额落实配套资金。

附件：联合国开发计划署配套资金承诺函（英、中文）

新疆维吾尔自治区财政厅

2013 年 6 月 7 日

抄送：自治区政协副主席、自治区财政厅厅长穹海川，自治区财政厅党组书记艾拉提·艾山，财政部驻新疆财政监察专员办事处，自治区审计厅、自治区林业厅，本厅预算处、国库处、农业处、财政监督检查局

新疆维吾尔自治区财政厅　　2013 年 6 月 7 日印发

06 June 2013

Renata Lok-Dessallien
Resident Representative
United Nations Development Programme
2 Liangmahe Nanlu
Beijing 100600
P. R. China

Subject: Counterpart Fund Commitment Letter of CBPF- MSL: Strengthening the Management Effectiveness of the Protected Area Landscape in Altai Mountains and Wetlands

Dear Ms. Dessallien,

We are delighted to submit the CEO Endorsement Request and Project Document for the project *CBPF-MSL: Strengthening the Management Effectiveness of the Protected Area Landscape in Altai Mountains and Wetlands*. The Government of Xinjiang Uygur Autonomous Region of the People's Republic of China herein earnestly commits to the local counterpart fund USD 21,000,000, of which USD 16,500,000 will be supplied in cash and USD 4,500,000 will be provided in kind, to secure the smooth implementation of the project.

We would like to take this opportunity to express our sincere gratitude to UNDP for your great support to this project.

The Department of Finance of the Government of Xinjiang Uygur Autonomous Region of the People's Republic of China

2013-6-6

罗黛林 女士

驻华代表

联合国开发计划署

中国北京亮马河南路 2 号

100600

加强阿尔泰地区保护体系 保护生物多样性 (CBPF-MSL)项目配套资金承诺函

尊敬的罗黛林女士:

为确保“加强阿尔泰地区保护体系，保护生物多样性项目（CBPF-MSL）”的顺利实施，中华人民共和国新疆维吾尔自治区人民政府承诺为该项目提供地方配套资金共 2,100 万美元，其中：现金配套 1,650 万美元，实物配套 450 万美元。

真诚感谢贵署对我区项目工作的大力支持!

特此致函。

中华人民共和国

新疆维吾尔自治区财政厅

- 4 -

United Nations Development Programme

联合国开发计划署

Empowered lives.
Resilient nations.

7 January 2013

Dear Ms. Dinu,

Subject: Co-financing Commitment Letter of CBPF- MSL: Strengthening the Management Effectiveness of the Protected Area Landscape in Altai Mountains and Wetlands

This is to confirm the support the UNDP China Country Office to the project *CBPF-MSL: Strengthening the Management Effectiveness of the Protected Area Landscape in Altai Mountains and Wetlands* focused on improving management effectiveness of the protected area system in the Xinjiang Uygur Autonomous Region. This project will combine the strengths of UNDP and the Forestry Department of the Xinjiang Uygur Autonomous Region. We confirm that the UNDP CO will contribute USD 1,000,000 in grant co-financing to the project.

We are earnestly looking forward to the commencement of the project.

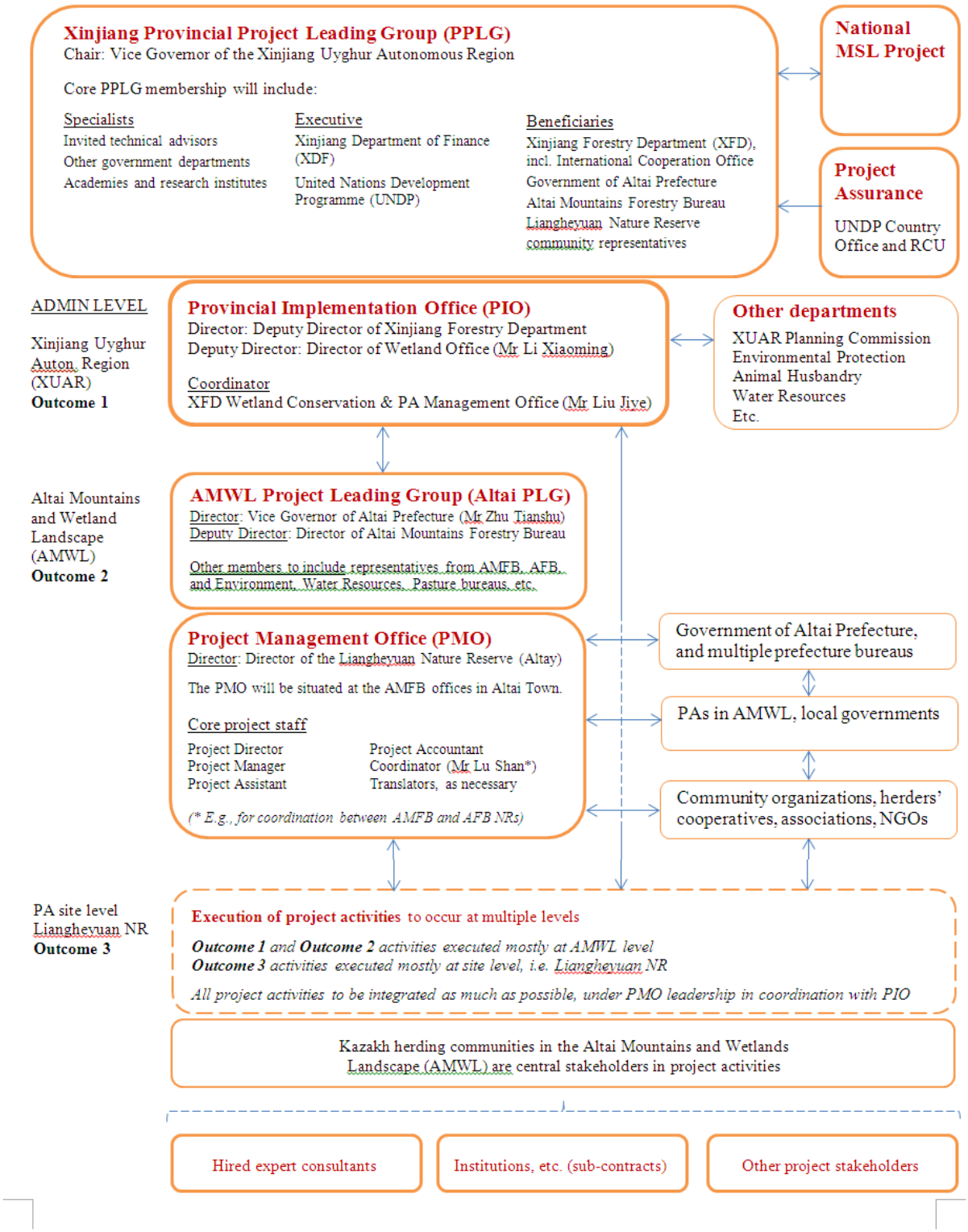
Yours sincerely,

Christophe Bahuet
Country Director

Adriana Dinu
Deputy GEF Executive Coordinator
United Nations Development Programme
One United Nations Plaza
New York, NY 10017
U.S.A.

2 Liangmahe Nanlu, Beijing 100600, China
Tel: 86-10-85320800 Fax: 86-10-85320900 Website: www.undp.org.cn
中国北京亮马河南路二号 邮编：100600

PART II: Project Organogram



PART III: Stakeholder Involvement Plan

348. The PPG phase included consultations with the project's key stakeholders at the national, regional and local levels. Field trips were carried out to Urumqi (the capital of Xinjiang Uyghur Autonomous Region) and to all county-level administrative units in Altai Prefecture that include a portion of the Altai Mountains landscape (Habahe, Buerqin, Aletai, Fuhai, Fuyun and Qinghe). All project sites (e.g., designated PAs) also were visited. Local government authorities and community organisations were presented in outline the project purpose and proposed activities, and general consensus was obtained on the value and operability of the project in each case. The process of local engagement and consultation included community meetings and consultation, and during the formal PPG phase of the project (in 2012) visits and meetings were also held by the project development team with local Kazakh community cooperatives, family businesses and individual herders.Two workshops at national level also were held,during which the project was thoroughly discussed. In addition several bilateral meetings were held, mostly with donors and high-level stakeholders who could not attend the workshops. In general, the project design hasthus been a participatory process, in line with UNDP's and GEF's requirements.

Approach to stakeholder participation

349. The project's approach to stakeholder involvement and participation is premised on the principles outlined in Box 2 below.

	Box 2. Stakeholder participation principles
Principle	**Stakeholder participation will:**
Value Adding	Be an essential means of adding value to the project
Inclusivity	Include all relevant stakeholders
Accessibility	Be accessible and promote involvement in decision-making process
Transparency	Be based on transparency and fair access to information; main provisions of the project's plans and results will be published in local mass-media
Fairness	Ensure that all stakeholders are treated with respect in a fair and unbiased way
Accountability	Be based on a commitment to accountability by all stakeholders
Constructive	Seek to manage conflict positively and to promote the public interest
Redressing	Seek to redress inequity and injustice
Capacitating	Seek to develop the capacity of all stakeholders
Needs Based	Be based on the perceived and real needs of all stakeholders
Flexible	Be flexibly designed and implemented
Rational and Coordinated	Be rationally planned and coordinated, and not on an ad hoc basis
Excellence	Be subject to on-going reflection and improvement

350. The project will focus stakeholder engagement at two levels of intervention: (i) working with national, provincial and local public institutions and agencies in order to strengthen their capacity to

consolidate, expand and effectively manage the PA System and to align project activities with government's strategic priorities; and (ii) working directly with civil society organisations, formal and informal resource users (rights holders) and individuals to strengthen collaborative relationships with individual PAs, demonstrate co-management arrangements, mitigate impacts of sectoral practices, and optimise the benefits arising from project activities.

Stakeholder involvement plan

During the project preparation stage, a preliminary stakeholder analysis was undertaken to identify key stakeholders, to assess their interests in the project and to define their respective roles and responsibilities in project implementation. A full *Stakeholder Involvement Plan* remains to be prepared upon project inception, to update and refine the initial analysis presented here. Box 3 below summarizes major project stakeholders at the national, provincial and local levels.

Box 3. List of the project's key stakeholders

NATIONAL LEVEL	LOCAL LEVEL	
	At XUAR	**At AMWL**
Government bodies • Ministry of Finance • Ministry of Environmental Protection • State Forestry Administration • Ministries of Agriculture, Water Resources, Tourism, etc. **Civil society** • National/international conservation and development donors and NGOs, e.g. GIZ, Wetlands International, IUCN/WCPA, etc. **Development partners** • Research institutes and universities	**Government bodies** • Standing Committee of the People's Congress of XUAR • Xinjiang Finance Department • Xinjiang Development and Reform Commission • Xinjiang Forestry Department • Provincial departments of land resources, water resources, tourism, etc. **Private enterprise** • Companies with financial interests including tourism and mining **Civil society** • Institutions with experience e.g. in Altai Sayan Ecoregion, such as WWF, IUCN/WCPA, Snow Leopard Enterprises, etc. **Development partners** • Provincial research institutes and universities	**Government bodies** • Government of Altai Prefecture and its subsidiary bureaus and management committees • Altai Mountains Forestry Bureau • Altai Forestry Bureau • Liangheyuan NR and other PAs in AMWL • PA management authorities **Private enterprise** • Companies in the travel industry and other sectors **Civil society** • Civil society at local level, such as photography association, herders unions, cooperatives, artists **Development partners** • Handicraft association and other business associations **Local people and communities** • Kazakh herding communities

351. Theanticipated level of involvement for each majorstakeholder including main roles and responsibilitieshas already been presented in Table 8 (on pages 38-40 in this document). Stakeholder participation also is supported through the project management structure (see Project Organogram in Part II, above), including Project Leading Groups at provincial and landscape levels; and also with regular dialogue and interaction planned between communities (and other local stakeholders) and the Project Management Office that will be situated in Altai Mountains Forestry Bureau in Altai Town.

Long-term stakeholder participation

352. The project will provide at least the following opportunities for long-term participation of all stakeholders, with a special emphasis on active participation of local communities, and enhancement of inter-sectoral coordination for the PA system:

353. Capacity building at systemic, institutional and individual levels is akey intervention of the project and will target all stakeholders that have potential to be involved in brokering, implementing and/or monitoring management agreements related to activities in and around Nature Reserves. The project will target (or help develop) formal and informal organizations operating at community level to enable them to actively participate in developing and implementing co-management arrangements.

354. Communication will include the participatory development of an integrated communication strategy. The communication strategy will be based on the following key principles: (i) providing information to all stakeholders; (ii) promoting dialogue between all stakeholders; and (iii) promoting access to information.

355. Project design also incorporates severalfeatures to ensure on-going and effective stakeholder participation in the project's implementation. The mechanisms that will facilitate involvement and active participation of stakeholders include the following:

356. The project will be launched with a project inception workshop, hosted by XFD and AMFB, to provide opportunity for stakeholders to receive updated information on the project, refine and confirm the work plan, and establish a basis for further consultation as the project's implementation commences.

357. Constituency of the Project Leading Groups (a.k.a. steeringcommittees) – one at provincial level and one at landscape (prefectural) level – will ensure broad representation of all key interests throughout the project's implementation.

358. The Project Management Officewill take direct operational responsibility to facilitate stakeholder involvement and ensure increased local ownership of the project and its results. The PMO will be located in the offices of the Altai Mountains ForestryBureau (under the Xinjiang Forestry Department) and willensure coordination among stakeholder organizations at the provincial, landscape and site levels during the project period.

359. Implementation arrangements (cf. Project Strategy) have been designed such that a number of project activities directly involve local stakeholders in the implementation of, and benefit from, these activities. These include: the creation or development of new opportunities for sustainable livelihood options and natural resource uses for local communities, stemming from earlier work and planning by Liangheyuan NR management authorities and from the PPG phase of the project including site visits and review of the literature regarding national and global experiences of co-management. Such a model of conservation management (cf. co-management) also will benefit from formalization of cooperative goverance structures at PA site level, to ensure the on-going participation of local stakeholders in the planning and management of selected demonstration NRs.

Coordination with other projects

360. An outline of how the project **willcoordinate with other related initiatives**in the region is presented in Table 17 below.

Table 17. Coordination and collaboration between this project and other related initiatives.

INITIATIVES / INTERVENTIONS	HOW COLLABORATION WITH THE PROJECT WILL BE ENSURED
WB/GEF Project: *Mainstreaming Biodiversity Protection within the Production Landscapes and PAs of the Lake Aibi Basin, 2009-2014* Aims to strengthen the Xinjiang's PA system – which includes Lake Aibi National NR – emphasis on developing/improving wetland safeguard measures from sector development activities	Coordination with this biodiversity project will be ensured through XFD, with representation from the project's leadership in the PPLG. A regular sharing of experiences and key lessons learned will be integrated into regular PMO operations.
Other international projects in the Altai Sayan Ecoregion, from which important lessons may be learned for this project: - EU-China Biodiversity Programme (ECBP) – AMFB and Wetlands International developed a *Wetland Conservation and Sustainable Use Strategy for the Altai Mountains*, which was endorsed by Prefecture Government (completed) - WWF Mongolia – *Ensuring long-term conservation of biodiversity in trans-boundary areas of the Altai Sayan Ecoregion between Mongolia and Russia*(completed) - Darwin Initiative – *Cross-border conservation strategies for Altai Mountain endemics (Russia, Mongolia, Kazakhstan)*(completed) - IUCN/WCPA –*Altai-Sayan Mega Connectivity Conservation Corridor: An adaptation response to climate change in the heart of Asia* (on-going development)	Lessons and recommendations from these projects have already been considered and elements incorporated into project design. In addition, an activity under Output 1.3 (institutional strengthening) focuses on the promotion of continued dialogue and relevant exchange of information and experiences between projects, across Altai Sayan Ecoregion countries. Thus lessons learned and recommendations from these projects will have opportunity to feed into Xinjiang's wetland PA conservation strategy development.
Tourism development in Altai region: - A UN World Tourism Organization (UNWTO)*Sustainable Tourism Observation Site* was established in Altai's Kanas Scenic Area on 16 September 2012 - The *Altai Thousand-Kilometer Tourism and Cultural Corridor Project* is currently being considered by prefecture government; the *International Economic Cooperation and Planning Meeting* focused on the Silk Road and Altai Region was held on 9 August 2012	The project implementation team should consider cooperation with Zhongshan University, partner with UNWTO in establishing the observation site in Kanas Scenic Area. Zhongshan University has opened a *Kanas Tourism Development and Planning Research Center*, which recently co-organized the *Kanas Area Tourism Planning and Sustainable Development International Workshop* together with UNWTO. Several Altai-focused regional tourism plans are currently in development and under consideration by both prefecture and provincial governments; partnerships with these initiatives will be developed through the project. Government of Altai Prefecture, Xinjiang Normal University and Xinjiang Finance and Economics University have jointly organized some planning meetings. The *Greater Kanas Scenic Area Tourism Plan* also is currently being developed by government.

PART IV: Terms of References for Key Project Staff

NATIONAL PROJECT MANAGER

Background

National Project Manager (PM), will be a locally recruited national selected based on an open competitive process. He/She will be responsible for the overall management of the project, including the mobilization of all project inputs, supervision over project staff, consultants and sub-contractors. The PM will report on regular basis to the Project Director in close consultation with a designated officer at UNDP CO for all of the project's substantive and administrative issues. From a strategic point of view of the project, the PM will report on a periodic basis to the Project Leading Group (Altai PLG and PPLG). Generally, the PM will be responsible for meeting government obligations under the project, under the national execution modality (NEX). S/he will perform a liaison role with the Government, UNDP and other UN Agencies, contracted parties (institutions and individual experts) and other project partners, and will also maintain close collaboration with other donor agencies providing co-financing for the project.

Duties and Responsibilities

- Supervise and coordinate the production of project outputs, as per the project document;
- Mobilize all project inputs in accordance with UNDP procedures for nationally executed projects;
- Supervise and coordinate the work of all project staff, consultants and sub-contractors;
- Coordinate the recruitment and selection of project personnel;
- Prepare and revise project work and financial plans, as required by provincial government and UNDP;
- Liaise with UNDP, relevant government agencies and all project partners, including donor organizations and NGOs for effective coordination of all project activities;
- Facilitate administrative backstopping to subcontractors and training activities supported by the Project;
- Oversee and ensure timely submission of the Inception Report, Combined Project Implementation Review/Annual Project Report (PIR/APR), Technical reports, quarterly financial reports, and other reports as may be required by UNDP, GEF, DGA and other oversight agencies;
- Disseminate project reports and respond to queries from concerned stakeholders;
- Report progress of project to the Leading Groups, and ensure the fulfilment of Leading Group(including national CBPF and MSL Steering Committee requests)directives;
- Oversee the exchange and sharing of experiences and lessons learned with relevant community based conservation and development projects, nationally and internationally;
- Ensure the timely and effective implementation of all components of the project;
- Assist participating community groups, municipalities, NGOs, project staff and others with development of essential skills through workshops and on the job training, thereby upgrading their institutional capabilities to participate effectively in project activities;
- Coordinate and assists scientific institutions with the initiation and implementation of all field studies and monitoring components of the project;
- Assist and adviseproduction teams responsible for documentaries and advertisements (television), tourism guidebooks, awareness campaign, field studies, etc.; and

- Carry out regular inspection (both announced and unannounced) of all sites and activities to ensure regular and smooth progression toward outputs is occurring in a timely manner.

Qualifications

- University degree (Masters or PhD) in Development Studies or Environmental Sciences;
- At least 10 years' experience in natural resources management (incl. protected areas and water resource management);
- At least 5 years of proven project/programme management experience, preferably with international component (e.g., international donor agency or implementing agency);
- Work experiences with ministries and national institutions is preferred, but not required;
- Proven ability to effectively coordinate a large, multi-stakeholder project;
- Proven ability to administer budgets, to train and work effectively with counterpart staff at all levels, and to communicate and collaborate effectively withmultiple stakeholders;
- Strong drafting, presentation and reporting skills (in Chinese and English);
- Strong computer skills, in particular mastery of all applications of the MS Office package and internet search;
- Strong knowledge about political and socio-economic contexts, both at national and local levels;
- Excellent written communication skills in both English and Chinese; and
- Very good working knowledge of English (oral) also is a requirement for this position.

OTHER PMO STAFF

Other project staff that needs to be hired by the implementing agencies (including XFD, AMFB and Liangheyuan NR Management Bureau; in agreement with UNDP CO) to staff the PMO will include:

- Project Administrative Assistant
- Project Accounting and Disbursement Officer
- Project Coordinator
- Project Translators

Several translators will be identified at an early stage in the project; a roster will be maintained for possible part-time (short-term) translators to hire as may be required for project activities undertaken with short-term consultant inputs.

The Project Director will be the Director of Liangheyuan Nature Reserve.

OVERVIEW OF REQUIRED TECHNICAL ADVISORS

Several technical advisors will be hired to assist in the execution of this project, both national and international. International consultants will be hired through UNDP CO; national consultants will be hired directly through the PMO. The main qualifications and experience required for these positions are presented below. The main tasks and inputs required from each consultant is provided in Section IV, Part VII.

Positions that need to be filled:

International Consultants

1) PA Regulations and Sector Guideline specialist
2) Data & Information Management specialist
3) PA Management & EHI Monitoring specialist
4) Ecosystem Valuation and PA Financing specialist
5) Communication, Education and Awareness specialist
6) Ecotourism Development and Co-management specialist

National Consultants

1) PA Regulations and Sector Guideline specialist
2) Data & Information Management specialist
3) PA Management & EHI Monitoring specialist *
4) Ecosystem Valuation and PA Financing specialist
5) PA System Planning and Mainstreaming specialist *
6) Communication, Education and Awareness specialist
7) Land Restoration (Sector Guidelines) specialist
8) Community Tourism and Co-management specialist *
9) Handicraft Development specialist

** indicates that this position (hired consultant) could be suitable for the role of Project Manager.*
Full detailed ***Terms of Reference*** for PMO staff and for hired consultants will be developed at project inception, based on required inputs and tasks. The following template, developed for the

Ecosystem Valuation and PA Financing specialist, can be modified to meet specific project requirements.

ECOSYSTEM VALUATION AND PA FINANCING SPECIALIST

Background

The biodiversity and wetland economic valuation and PA financing component of the Xinjiang project under the MSL Programme, with a focus on *Altai Mountains and Wetland Landscape*, will be undertaken with support from the Programme consultant leading the economics section of the national level project. More than one local consultant may also be hired to cover specific areas of expertise, such as ecosystem service valuation, sustainable financing, business planning, or matters pertaining to natural resources specific to this project. It will also be necessary to form inter-disciplinary teams. For example, scientists may provide the bio-physical information with regard to the value of wetland regulatory services in support of fisheries, water flow regulation and carbon sequestration; social scientists can contribute to assessment of social benefits or costs of proposed PA financing/management options; and engineers will give design recommendations and cost estimates for possible mitigation measures.

Main duties and responsibilities

Economic appraisal

- Review of existing valuation studies at site, provincial and ecosystem scale, and identify potential value transfers.
- Undertake a detailed evaluation of data availability at provincial level.
- Review EHI to ensure consistency in terms of context for economic studies and baselines and targets defined in the economic studies, and to build up a qualitative understanding of the ecosystem services provided at the site .
- Provide a detailed design of the economic assessment, setting out scale of study (note that detailed assessment will be at selected demonstration sites, but a high level assessment is also required ay provincial/landscape scale), rationale for study (key question to be addressed), ecosystem services to be valued, appraisal context (e.g., cost benefit analysis) and other analyses to be undertaken (e.g., distributional analysis, impact on local people's livelihoods, alternative income options).
- Implement economic study (this is likely to include survey work).
- Provide appropriate dissemination materials for different stakeholder groups (i.e., decision makers, users of wetland resources, general public).

Sustainable finance and business planning

- Review provincial FYP to understand requirements for eco-compensation at provincial level (if applicable). What regulations are in place at the provincial level in terms of eco-compensation mechanisms? What are the barriers to eco-compensation and other PA financing mechanisms at the provincial level?
- Review of sustainable financing options and identification of appropriate revenue generating mechanisms at the site and at landscape scale. What are the opportunities for wetland eco-compensation and other types of PA financing mechanisms? How is wetland conservation and PA management in the province and at demonstration site(s) currently financed? Apart from government funds and eco-compensation mechanisms, what other financing opportunities are there at the site?

- Develop site-level business plans. The business plans will build on the valuation work, and review of sustainable financing options. It will set out operating and capital costs required to optimally manage the site, the current funding gap and how that gap can be addressed.

General

- Close stakeholder liaison at all stages of the project, to ensure that people agree with the approaches being used and have confidence in final outcomes.
- Preparation of dissemination materials at key points in the study (e.g., after detail design to inform stakeholders of work, and final results).

Qualifications

- University education (MSc or PhD) with expertise in environmental economics and in business planning
- At least 10 years of professional experience, with at least 8 years at international level
- Previous experience with other GEF supported projects is preferable
- Effective negotiator with excellent oral and presentation skills
- Excellent writing and presentation skills in English
- Knowledge/understanding of China's environmental and socio-economic context an asset
- Working knowledge of Chinese language also a strong asset

PART V: Overview of Inputs from Technical Assistance Consultants[35]

Consultant	US$ / person week	Person weeks	Tasks and Inputs
For Project Management			
Local / National contracting			
Project Manager[36]	375 (salary to be co-financed)	240	The Project Manager is responsible for overall coordination of the project activities and timely and quality delivery of project outputs. S/he will: ▪ Supervise and coordinate the production of project outputs, as per the project document; ▪ Mobilize all project inputs in accordance with UNDP procedures for nationally executed projects; ▪ Supervise and coordinate the work of all project staff, consultants and sub-contractors; ▪ Coordinate the recruitment and selection of project personnel; ▪ Prepare and revise project work and financial plans, as required by UNDP; ▪ Liaise with UNDP, relevant government agencies, and all project partners, including donor organizations and NGOs for effective coordination of all project activities; ▪ Facilitate administrative backstopping to subcontractors and training activities supported by the Project; ▪ Oversee and ensure timely submission of the Inception Report, Combined Project Implementation Review/Annual Project Report (PIR/APR), Technical reports, quarterly financial reports, and other reports as may be required by UNDP, GEF, SFA and other oversight agencies; ▪ Disseminate project reports and respond to queries from concerned stakeholders; ▪ Report progress of project to the steering committees, and ensure the fulfillment of Project Steering Committee directives. ▪ Oversee the exchange and sharing of experiences and lessons learned with relevant community based integrated conservation and development projects nationally and internationally; ▪ Ensures the timely and effective implementation of all components of the project; ▪ Assist community groups, townships, NGOs, staff, students and others with development of essential skills through training workshops and on the job training thereby upgrading their institutional capabilities; ▪ Coordinate and assists scientific institutions with the initiation and

[35]The exact TOR and timing of consultancies will be reviewed at Project Inception and on an annual basis in preparation of annual workplans. TOR for different consultancy inputs are given above for the relevant outputs in section Part One – Section II Strategy. Some activities could be combined for efficient contracting purposes.

[36] The Project Manager will also provide significant technical inputs to all components, possibly as national PA System Planning and Mainstreaming Specialist. The Project Manager's salary will be shared between UNDP/GEF and Xinjiang co-financing; the project's contribution to the manager's salary is set at US$1,500 per month. Other PMO staff salaries will be paid through co-financing.

Consultant	US$ / person week	Person weeks	Tasks and Inputs
			implementation of all field studies and monitoring components of the project ▪ Ensure good communication on project results and lessons, liaising with media and stakeholders. ▪ Carryregular, announced and unannounced inspections of all sites and the activities of any project site management units.
Project Administrative Assistant	Covered entirely by co-financing	260	Project Administrative Assistant will be responsible for overall administration of the project. S/he will: ▪ Collect, register and maintain all information on project activities; ▪ Contribute to the preparation and implementation of progress reports; ▪ Monitor project activities, budgets and financial expenditures; ▪ Advise all project counterparts on applicable administrative procedures and ensure their proper implementation; ▪ Maintain project correspondence and communication; ▪ Support the preparations of project work-plans and operational and financial planning processes; ▪ Assist in procurement and recruitment processes; ▪ Assist in the preparation of payments requests for operational expenses, salaries, insurance, etc. against project budgets and work plans; ▪ Follow-up on timely disbursements by UNDP CO; ▪ Receive, screen and distribute correspondence and attach necessary background information; ▪ Prepare routine correspondence and memoranda for Project Managers signature; ▪ Assist in logistical organization of meetings, training and workshops; ▪ Prepare agendas and arrange field visits, appointments and meetings both internal and external related to the project activities and write minutes from the meetings; ▪ Maintain project filing system ▪ Maintain records over project equipment inventory; and ▪ Perform other duties as required.
For Technical Assistance			
OUTCOME 1			
Local / National contracting			
PA Regulations and Sector Guidelines	1200	20	**Output 1.2**, in Years 2-3-4-5: Sector-related and regulatory frameworks enhanced. Development of 'best practice' guidelines, based on global and national experience as well as lessons learned in AMWL and Liangheyuan Nature Reserve. The specialist shall review and analyse current sector

Consultant	US$ / person week	Person weeks	Tasks and Inputs
specialist			planning processes and guidelines as well as EIA regulations and procedures, design sector specific standards and measures in collaboration with other relevant stakeholders, and design biodiversity safeguarding measures for inclusion in provincial planning processes and relevant legislation and regulations.
Data and Info Management specialist	1200	16	**Output 1.3**, in Years 1-2: Institutional strengthening. PA data management system to be established and operationalized, including identification and listing important wetlands for conservation in Xinjiang so as to implement the Xinjiang Wetland Conservation Regulations. The specialist shall work closely with the national project technical advisor to adapt plans to the Xinjiang and AMWL context, and to incorporate local wetland and institutional specificities into the design of database structures.
International / Regional and global contracting			
PA Regulation Guidelines and Sector specialist	3000	9	**Output 1.2**, in Years 2-3-4: Sector-related and regulatory frameworks enhanced. Development of 'best practice' guidelines, based on global and national experience as well as lessons learned in AMWL and Liangheyuan Nature Reserve. The specialist equally shall support the review of sector regulations and procedures and development of sector specific safeguards.
Data and Info Management specialist	3000	6	**Output 1.3**, in Years 1-2: Institutional strengthening. PA data management system to be established and operationalized, including identifying and listing important wetlands for conservation in Xinjiang so as to implement the Xinjiang Wetland Conservation Regulations. The specialist shall support the transfer and adaptation of the information system development by the national project to the Xinjiang context, in close collaboration with national experts for the national and provincial projects. The data and information management system shall network with other systems already in place, fully incorporate GIS capabilities, and be user-friendly and oriented toward practical management concerns. The specialist should also oversee the development of a simple operations manual.
OUTCOME 2			
Local / National contracting			
PA Management and EHI Monitoring specialist	1200	26	**Output 2.2**, in Years 1-2-3. Systematic PA management and biodiversity monitoring system established. The specialist shall develop and trial biodiversity and EHI monitoring protocols for use in AMWL and more broadly in XUAR. S/he will support AMFB as well as individual PA field staff in management activities, with special focus on environmental monitoring and the trialing and development of EHI methodology including field staff-executed as well as participatory (community-assisted) monitoring approaches. Technical support will be required for selection of indicator species, and of other indicators to be monitored in relation to climate change and resilience. Training in collection of field data and provision of support for community wardens also will be required.
Ecosystem Valuation	1200	21	**Output 2.3**, in Years 1-2-3: Altai PA management objectives mainstreamed into provincial planning process. Economic valuation of

Consultant	US$ / person week	Person weeks	Tasks and Inputs
and PA Financing specialist			AMWL biodiversity to be carried out, including development of AMWL PA Network financing plan. The specialist shall plan and carry out a detailed assessment of PA system financing needs at landscape level, assess current and potential financing mechanisms including novel tools such as eco-compensation and tourism concessions (public-private partnerships), and most importantly estimate (including levels of confidence) the socio-economic values of AMWL biodiversity and ecological services including provision of water, with special reference to contributions made by the AMWL PA network and economic values to different sectors.
PA System Planning and Mainstreaming specialist	1200	21	**Output 2.3**, in Years 1-2-3: Altai PA management objectives mainstreamed into provincial planning process. Coordination group for AMWL conservation to be established, with mainstreaming of PA management objectives into provincial planning processes. The specialist shall support AMFB and other implementing agencies and stakeholders in system level planning, providing technical input and review of project plans as they are developed annually in the first years of the project (at least up to the mid-term review) and drafting documentation based on first-hand knowledge and literature review to strengthen the PMO's position and interaction with government sectors in mainstreaming activities including establishment of a stable and influential Coordination Group in AMWL that can affect landscape and provincial planning processes.
Communications, Education and Awareness specialist	1200	38	**Output 2.4**, in Years 1-2-3-4: Awareness of the importance of PAs for sustainable livelihoods increased. The specialist will support the development of regional public awareness campaigns including television, exhibitions, Xinjiang Wetland Conservation Day on May 25th, etc. (14 weeks, in Years 1-2-3); the development of an interpretive strategy for the educational centre in Keketuohai Forest Park (12 weeks, in Years 2-3); and the development and writing of an 'Ecotourism Guide to AMWL' (12 weeks, in Years 3-4). Contextualization of public awareness campaigns for audiences in Altai Prefecture and the provincial capital as well as the tourist public will be considered by the specialist, as well as incorporation of both environment and culture-related educational materials and learning models for the Keketuohai Forest Park educational centre.
International / Regional and global contracting			
PA Management and EHI Monitoring specialist	3000	9	**Output 2.2**, in Years 1-2-3: Systematic PA management and biodiversity monitoring system established. Biodiversity and EHI monitoring protocols will be developed and trialled, and ultimately adopted regionally as a management tool for wetland PAs in Xinjiang. The specialist will assist in particular in the development and delivery of a comprehensive PA staff training program (including biodiversity and EHI monitoring) and the institutionalization at landscape level of regular, on-going professional development. Work duties will include review of competence standards required for PA managers and staff, core content of training program, and the benefits and limitations of different training formats including full-time studies, workshops, refresher courses, distance learning options, and field based vs classroom teaching. A roster of trainers will be developed as well as educational or research institutions that may contribute to a sustainable training program in AMWL and the province.

Consultant	US$ / person week	Person weeks	Tasks and Inputs
Ecosystem Valuation and PA Financing specialist	3000	13	**Output 2.3**, in Years 1-2-3: Altai PA management objectives mainstreamed into provincial planning process. Economic valuation of AMWL biodiversity will be carried out, including development of AMWL PA Network financing plan. The specialist will guide and support an economic valuation of critical environmental services (including provision of water supply) in AMWL and northern XUAR, with particular reference to the PA system. This work will be coordinated with other MSL provincial level projects.
Communications, Education and Awareness specialist	3000	15	**Output 2.4**, in Years 1-2-3-4: Awareness of the importance of PAs for sustainable livelihoods increased. This specialist will co-lead in the development of a landscape and regional level public awareness and environmental education program (7 weeks), the development of an innovative interpretive strategy in the Keketuohai Forest Park (3 weeks), and production of an ecotourism guidebook focused on the Altai Region (5 weeks).
OUTCOME 3			
Local / National contracting			
Land Restoration (and Sector) specialist	1200	16	**Output 3.1**, in Years 1-2-3-4: Liangheyuan NR operations strengthened to address grazing and mining threats. Ecological restoration will be piloted at sites previously fragmented or degraded by mining or overgrazing, incl. peatlands, in order to demonstrate and enhance implementation of the new Xinjiang Wetland Conservation Regulations. The specialist will oversee the development and monitoring of land restoration activities in relation to livestock overgrazing (in Sandaohaizi wetland) and the mining industry (in Kuermutu river area). S/he also will contribute to the development of sector best practice guidelines.
PA Management and EHI Monitoring specialist	1200	48	**Output 3.1**, in Years 2-3-4: Liangheyuan NR operations strengthened to address grazing and mining threats. The specialist will assist with setting up ecological and wetland use monitoring stations to enhance effective PA management and natural resource use (8 weeks).**Output 3.2**, in Years 1-2-3-4-5: Collaborative PA governance and management structure put in place (co-management). Joint monitoring activities will be trialled with local community co-managers, leading to community-based patrolling as part of regular PA management operations (40 weeks). This work also contributes to Output 3.1. The specialist will provide expert guidance and support for the establishment of ecological monitoring and land use monitoring stations in Liangheyuan NR, and especially to provide supportive guidance to Liangheyuan NR management authorities and to community partners in the development of joint wildlife and environmental monitoring activities carried out under a co-management framework. Practical protocols for community-based wildlife monitoring as well as specialist field equipment and forms (e.g., suited for people with limited literacy) will also be developed and introduced through the project.
Community Tourism and Co-management specialist	1200	34	**Output 3.2**, in Years 1-2-3-4-5: Collaborative PA governance and management structure put in place (co-management). Community co-management structures will be put in place (9 weeks, in Years 1-2-3), and alternative livelihood options for Kazakh herders including ecotourism and other forms of community tourism will be developed (25 weeks, in Years 1-2-3-4-5). For this purpose, the specialist shall work alongside PA

Consultant	US$ / person week	Person weeks	Tasks and Inputs
			management authorities, community groups and local herders (families) to help guide and build consensus with regard to co-management structures (including for a for dialogue and regular exchange of ideas and suggestions, local businesses including cooperatives, and trust funds that can receive inter alia government grants from eco-compensation transfers). S/he also will provide regular in-depth support for the development of model community tourism ventures based on local natural and cultural resources and other market-based opportunities such as adventure tourism. Overall, at least 30 local families will be supported through the project, both individually and through cooperative structures, with the aim that their experiences can serve as model for future up-scaling of local family and cooperative-based tourism businesses.
Handicraft Development specialist	1200	10	**Output 3.2**, in Years 1-2-3-4-5: Collaborative PA governance and management structure put in place (co-management). Development of alternative livelihoods for local herders will also encompass development and marketing of traditional Kazakh handicrafts. To support this output, the specialist will provide technical training and support to local individuals and families who wish to engage in handicraft production (which is allied with the development of local tourism). S/he also will research and introduce both national and international market opportunities to local community members and handicraft associations.
International / Regional and global contracting			
PA Regulations and Sector specialist	3000	4	**Output 3.1**, in Years 1-2: Liangheyuan NR operations strengthened to address grazing and mining threats. Ecological restoration will be piloted at sites that have been fragmented or degraded by mining or grazing, including peat lands; this work will then be used to demonstrate and enhance implementation of Xinjiang Wetland Conservation Regulations. The international sector specialist hired by the project shall possess specific and practical knowledge of mining site restoration, so that s/he may not only contribute to sector guideline development but also guidance for field-based land restoration with landscape and planting of new vegetation.
PA Management and EHI Monitoring specialist	3000	8	**Output 3.1**, in Year 2: Liangheyuan NR operations strengthened to address grazing and mining threats. This specialist will support the establishment of three ecological and wetland use monitoring stations (2 weeks). S/he also will contribute substantially to **Output 3.2**, in Years 1-2-3: Collaborative PA governance and management structure put in place (co-management), focused on development of joint monitoring activities with community co-managers (6 weeks). The latter activity equally contributes to Output 3.1. S/he will provide technical assistance for development of area specific management plans with repeated monitoring of EHI indicators, development of local co-management agreements, and establishment of clear guidelines as well as clear roles and responsibilities with regard to monitoring by co-management partners.
Ecotourism Development and Community Co-managemen	3000	18	**Output 3.2**, in Years 1-2-3-4: Collaborative PA governance and management structure put in place (co-management). The specialist will contribute to the development of community co-management structures (4 weeks, in Years 1-2) and to the development of alternative livelihoods for Kazakh herders, including ecotourism and other forms of community tourism and handicraft development (14 weeks, in Years 1-2-3-4). S/he will help guide and support emplacement of community co-management

Consultant	US$ / person week	Person weeks	Tasks and Inputs
t specialist			structures in Liangheyuan NR and especially to bring strong support to the development of community-based ecotourism together with support of ancillary handicraft development initiatives.

PROJECT ANNEXES

ANNEX1. Main Place Names in the Project Document, with Variant Spellings

Standard name	Variant names[1]
China	People's Republic of China (PRC), *zhongguo*
Xinjiang	Xinjiang Uyghur Autonomous Region (XUAR), Sinkiang
Altai	*Aletai*, *Aertai*, Altai (note that the same name 'Altai' can be used for the town, the county, and the prefecture)
Uyghur	*Weiwu'er*, Uighur, Uygur, Uigur
Kazakh	*Hasake*, Kazak
Ulungur (River)	*Wulungu*, Ulunge (note that this river has four main tributaries: the *Buergen*/Bulgan/Burgen, *Daqinghe*/Greater Chinggil, *Xiao Qinghe*/Lesser Chinggil, and *Chagan* rivers)
Ertix (River)	*Erqisi*, Irtysh
Kanas	*Hanasi*
Nature Reserves in AMWL:	Liangheyuan NR = Two River Source Areas NR Kekesu Shidi NR = Kekesu Wetland NR Buergen Heli NR = Buergen Beaver NR Hanasi NR = Kanas NR Erqishi Keketuohai = Ertix River Keketuohai NR

1. Chinese names (pinyin) are italicized.

ANNEX 2. Introduction to the Altai-Sayan Ecoregion

The Altai Sayan Ecoregion is a relatively large area (1,065,000 km2), running roughly east - west through the region where Russia, Kazakhstan, China and Mongolia meet. The Altai Mountains extend along the Russian-Kazakhstan border in the northwest to the Chinese- Mongolian border in the southwest. The Western and Eastern Sayan Mountains extend toward the east from the Altai mountains nearly to the southern tip of the Lake Baikal. The ecoregion is largely within the Russian and Mongolian territories, 62 percent in Russia, 29 percent in Mongolia, 5 percent in China and 4 percent in Kazakhstan.

The area contains geographically distinct biomes, consisting of high mountains, tundra, alpine forest, wetland, steppe and desert that share a large majority of their species, dynamics and environmental conditions. The Altai Sayan Mountains are extremely rugged, with rich forests stretching high into the mountain valleys, with glaciers in the higher valleys.

The Altai Sayan is one of the last refuges for the Altai argali (*Ovis ammon ammon*), the largest wild sheep on earth and an important population of the endangered snow leopard (*Uncia uncia*). The snow leopard and argali sheep are critical species indicative of the overall health of the Altai Sayan ecoregion.

The vertical climatic conditions and the isolation of distribution areas determine the richness and endemism of the floral species in the Altai Sayan.

Although crossed by the political borders of Russia, Mongolia, Kazakhstan, and China, the Altai Sayan ecoregion shares not only common natural heritage but also cultural heritage. The local population of all the four countries in Altai Sayan shares common history, lifestyle, religion, food, music, tradition and more.

In recognition of the enormous ecological value to humankind and science, the Uvs Lake Basin and Altai Golden Mountains of Altai Sayan ecoregion have been registered as World Natural Heritage Sites.

Currently, several conservation programs are on-going in Mongolian part of the ecoregion as well as in the Russian part. Thus, in Mongolia, GEF/UNDP funded project titled “Community based Conservation of Biological diversity in the Mountain Landscapes of Mongolia’s Altai Sayan Eco-region” and MAVA funded “2012 Protected Areas Programme: Altai Sayan Ecoregion” project are directly of concern to us. With less relevance, SIDA funded program titled “Poverty alleviation and improved livelihoods through sustainable herding activities, economic strengthening and environmental education in Mongolia” is run by WWF Mongolia within the region, but in surrounding areas of Khar Us Lake NP.

ANNEX3.List of 35 Nature Reserves in Xinjiang Uyghur Autonomous Region

No.	Nature Reserve name	Location	Area(ha)	Main Object of Protection	Date	Responsible authority
1	Kanas NNR	Buerqin County	220,162	Forest ecosystems and natural landscapes	1980	Forestry
2	Ertix River Keketuohai Wetland PNR*	Altai Municipality	99,040	River wetlands, lake wetlands, swamp wetlands flora and fauna	2005	Forestry
3	Jingtasi Rangeland PNR	Fuhai County	56,700	Alpine grassland ecosystems	1986	Agriculture
4	Liangheyuan PNR*	Altai District	680,776	Forests, flora and fauna, wetlands	2001	Forestry
5	Kekesu Wetlands PNR*	Altai Municipality	30,667	Wetlands, plant and animal resources	2001	Forestry
6	Buergen Beaver PNR*	Qinghe County	5,000	Beaver and their habitats	1980	Forestry
7	Tacheng Barr Luke Mountain PNR	Yumin County	115,000	Wild almond and their habitats	1980	Forestry
8	Gongliu Wild Walnut PNR	Gongliu County	1,180	Wild walnut and their habitats	1983	Forestry
9	Xiaerxili PNR	Bole Municipality	31,400	Forest and wildlife resources	2000	Forestry
10	Ganjiahu Haloxylon Forest NNR	Wusu Municipality	54,667	Haloxylon forest and its habitat	1983	Forestry
11	Kalamaili Mountain PNR	Fukang Municipality	1,346,420	Wild ass, other ungulate wildlife and their habitats	1982	Forestry
12	Ebinur Wetlands NNR*	Junggar Basin	267,085	The most representative of the extreme arid area of wetland ecosystem	2000	Forestry
13	Qinggeda Lake PNR*	Wujiaqu Municipality	2,912	A variety of waterfowl and wetland ecology	2002	Xinjiang Prod. and Const. Corps
14	Ili Bunge Ash PNR	Yining County	405	Bunge Ash and their habitats	1983	Forestry
15	Qitai Desert Steppe Grasslands PNR	Qitai County	38,600	Desert ecosystem and desert steppe ecosystem	1986	Agriculture
16	Tian Lake PNR*	Fukang Municipality	38,069	Forest ecosystems, mountain lakes	1980	Forestry
17	Wenquan North Salamander PNR*	Wenquan County	695	Xinjiang North salamander and its habitat	1997	Forestry
18	Huocheng Desert Tortoise PNR	Huocheng County	34,552	Desert tortoise and their habitats	1983	Forestry
19	Xinyuan Alpine Grassland PNR	Xinyuan County	65,300	Prairie meadow, wild grass relatives	1986	Agriculture
20	West Tianshan NNR	Gongliu County	31,217	Schrenk Spruce Forests in the ecosystem	1983	Forestry
21	Bayinbuluke Swan NNR*	Hejing County	148,689	Swans and other rare water birds, wetlands	1997	Forestry
22	Tuomuer NNR	Wensu County	237,638	Forest and Wildlife	1980	Forestry
23	Tarim Populus euphratica* NNR	Yuli County	395,420	Populus euphratica species	1983	Forestry
24	Lop Nur Wild Camel NNR	Ruoqiang, Hami Municipality,	7,800,000	Wild camels and their habitats	1986	Environmental protection

		Turpan, Shanshan				
25	Pamirs Plateau Wetlands* PNR*	Akto County	125,600	Typical Plateau wetland ecosystem	2005	Forestry
26	Taxkorgan Wildlife PNR	Taxkorgan Tajik Auton. County	1,500,000	Snow leopard, argali and other alpine wildlife	1984	Forestry
27	Arjin/Altun NNR	Ruoqiang County	4,500,000	Ungulate wildlife and plateau ecosystems	1983	Environmental protection
28	Middle Kunlun PNR	Qiemo County	3,200,000	Tibetan antelope and other wild animals	2001	Forestry
29	Hami East Tianshan PNR	Yiwu, Balikun, Hami City	990,000	Forest, desert, wetlands ecosystems	2005	Forestry
30	Awati Huyang Country NR	Awati	345,000	Huyang forest and Tarim hare	1994	Forestry
31	Kongque River* local NR	Korla City	141,300	Wetland ecosystem	2002	Forestry
32	Shaya Upper Tarim River* local NR	Aksu State, Shaya County	256,840	Wetland ecosystem	2004	Forestry
33	Yili Black bee local NR	Yili (8 counties, one city)		protection of black bee genetic resources	1980	Agriculture
34	Karamay Mayingele local NR	Karamay	60,000	Pasture and desert ecosystems	2002	Forestry
35	Hetian West Kunlun Mts local NR	Hetian Prefecture	132,000	High altitude desert, Tibetan antelope, wild ass	2004	Forestry

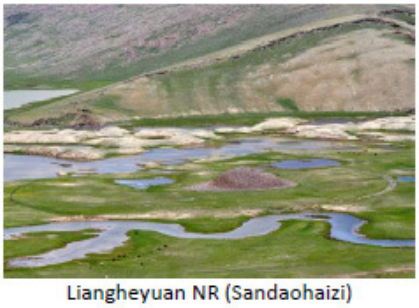
* indicates wetland related nature reserve

ANNEX 4. Wetlands of AMWL


Liangheyuan NR (Sandaohaizi)

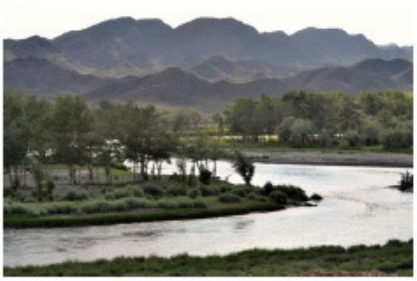

Liangheyuan NR (Sandaohaizi)


Liangheyuan NR (Sandaohaizi)


Liangheyuan NR (Sandaohaizi)


Liangheyuan NR (Kuermutu)


Liangheyuan NR (Kuermutu)


Burgen Beaver NR


Burgen Beaver NR


Ulungur Lake NR


Kekesu Wetland NR


Ertix River Keketuohai NR


Kanas National NR


Keketuohai Geologic Park


Tuergan Reed Wetland


Kalashazi Wetland

ANNEX 5. Key wetland management Problems in China

Some problems still exist in China's wetland management system. Specifically, major problems in China's biodiversity and PA management system include:

(i) relevant legislation needs improvement, there is no law of wetland protection at the national level, the structural setting and responsibilities division of protection management are unclear or conflicting in relevant laws of wetland protection and wetland resources using, and there is no law or regulations concerning institution and capacity construction;

(ii) (multi-department control and decentralization in wetland resources management both lead to ambiguity in management authorities and responsibilities of relevant management institutions, that is, every department manage the wetland resources and ecological environment from its own perspective, formulate its own policies, so they cannot form effective coordination mechanism and same wetland protection management goal, causing conflictions in relevant programs and management work, and further reducing the using efficiency of limited wetland protection fund;

(iii) there is unclear ownership of lands and other resources, leading to the sharpening of contradictions between protection and development, and there also lacks effective management means and solutions;

(iv) single mean of compensation and improper compensation amount and manner for losses of relevant shareholders in wetland protection lead to the insignificant effect of wetland ecological compensation;

(v) there are relatively large differences existing in legislation goals and legal system because there are as many as 13 relevant laws (at the central level) of wetland ecological environment and resources, greatly affecting wetland protection and the using and management according to laws; the wetland management organization structure is imperfect, with only part of provinces and regions have established independent wetland management institutions and a certain number of provincial wetland reserves while the majority of city and county wetland reserves lacking independent institutions and stable management personnel;

(vi) only part of provincial wetlands and protection management departments have set up relevant policies concerning wetland protection management, and most of the reserves below the provincial level haven't, leading to no policy guarantee for management;

(vii) lack investment in wetland protection limiting the evolvement of wetland protection, different types of wetland reserves and wetland parks have different fiscal investment channels, and the amount is insufficient and unstable, with only national wetland reserves being able to receive central fiscal support but mainly focusing on infrastructure construction;

(viii) provincial protection management institutions and wetland reserve management institutions of every level lack enough manning quotas, and the current staff lack professional background and standard training, leading to low management ability; and

(ix) the effects of all kinds of planning and program implementation lack effective monitoring, supervision and management. These problems in wetland protection management also show in Xinjiang Uyghur Autonomous Region and Altai Region in different degrees, and they are also major problems for wetland protection management institution in Xinjiang Uyghur Autonomous Region and exist in its ability construction.

The XUAR's wetland protection institutions also have some problems. Apart from the imperfect legal system regarding wetlands, there are problems, including:

(i) legal conflicts and bad coordination leading to the management conflicts among relevant management institutions;

(ii) lacking fund investment and stable channel, affecting the evolvement of management work;

(iii) decentralized management and no effective coordination mechanism reducing the management efficiency; and

(iv) imperfect institutions, lacking effective management system guarantee, especially the systems concerning the formulation, enforcement and monitoring of the wetland protection and management plans and programs.

The main factors that affect the wetland protection and management organization and ability construction in Xinjiang Uyghur Autonomous Region also include:

(v) low professional level of the staff and lacking systematic training;

(vi) the imperfect management restriction and encouragement mechanism, and no guarantee on management efficiency;

(vii) insufficient study on relevant science, unclear about the background of wetland ecological system and resources, and difficult to provide basis for formulating scientific management plan, etc.

ANNEX 6. Ecosystem Health Index (EHI) Methodology

6.1 EHI OVERVIEW

Definition:
Ecosystem Health is taken to be the suitability of a site to continue to provide secure conditions for survival of component species and delivery of key ecological services, including resilience to climate and other changes.

Objective:
EHI is a not an evaluation. It is a dynamic, constantly varying index that reflects biodiversity health, just as a financial index reflects economic performance.

- EHI provides a baseline against which targets for maintaining or achieving a given level of health can be set
- EHI can be used as a results based indicator of project achievement and impacts
- EHI can indicate where the project is succeeding or failing and allow revision of activity efforts throughout the project
- EHI is complimentary to the Management Effectiveness Tracking Tool (METT) in project monitoring and evaluation.

Introduction:
Ecosystem health is reflected in the ability of a site to maintain its biodiversity values and ecological functions. These will vary significantly from site to site. The index developed to assess this health has three components: 1) score of habitat suitability for maintaining important biodiversity; 2) status of that biodiversity and 3) the broader environmental context. The score does not necessarily indicate stability. Many wetland sites are very dynamic but what we are interested in is the ability of the biota to adapt to or even thrive with the changes. This will become increasingly important as climate and water flow patterns change. A simple scoring system is recommended to give the results transparency and robustness. Each site using this index should undertake a baseline survey which also selects indicators and target species for subsequent surveys. Indicators should include key wetland birds, important aquatic fauna – fish, mollusks; selected indicator insects; endangered mammals; major components of vegetation; incidence of AIS.

The index establishes a snapshot value at the time of surveying; can relate present scores against baselines established at an earlier date, identifying trends in the different indicators; and can establish reasonable targets for improvement for each different indicator, and compare current state against identified targets.

Just as a human body may appear healthy in not yet showing much physical deterioration, we can identify several indicators of lifestyle that certainly constitute health threats (excessive drinking and smoking habits, lack of sleep, lack of inoculation, living in region of known diseases, poor hygienic habits, lack of medical facilities etc.). In the same way we can recognize several threats to ecosystem health in the external context that may not be immediately reflected in condition of habitat or status of species. Such indicators include the levels of external development threats, the level of secure legal protection enjoyed, and the level of human use pressures being applied or expected in the future.

Use of the EHI Score sheet

1. Forming the monitoring team
Should include manager, ecologist, consultant, local experts and if possible local community member/members)

2. Classifying and mapping main habitat types
The scoring of habitat sub-index requires assessing whether the extent, diversity, connectivity and condition of key habitats is maintained. For this it is necessary to classify, map, measure extent and status of specific

habitats. For ease of work and subsequent analysis it is recommended to use a simple hierarchical habitat classification. An example for Poyang Lake is given below but it is not important to follow any formal classification system and use of whatever classification is already used by management or researchers in the area is usually adequate. If no suitable classification is already in use, it is recommended to follow the classification system of wetlands international (see Asian Wetlands Inventory Handbook) for wetland types. For terrestrial vegetation, use classifications in current use at local level. Google maps can be downloaded from internet and provide basis for mapping different recognizable vegetation formations. These can then be compared with later imagery to monitor changes in distribution. Use of GIS is useful but not essential. Once mapped, the area of habitat types can be calculated by counting dots on transparent sheets. Retain maps and results for future comparisons.

Suggested habitat classification and hierarchy (sample)

Ist Order	2nd Order	3rd Order	4th Order
Water bodies	Natural Fresh water	Lakes	Open Lake
			Shallows
			Small Lake
		Rivers	Large River
			Small River
	Artificial	Ponds	Reservoir
			Small Pond
Terrestrial	Barren	Sparse vegetation	Beach
			Mudflats
		No natural vegetation	Bare Land
			Urban area
	Arbour	Woodlands	Willows
			Poplar plantation
			Mixed plantations
			Natural mixed forest
		Scrub	Scrub
	Herbaceous	Marshes	Reed-beds
			Lotus-beds
		Grasslands	Miscanthus meadow
			Phalaris meadow
			Carex meadow
			Artemesia meadow

3. Identify main threats to be monitored

- Key threats have already been identified for each project area.
- Additional threats can be tagged for attention when local teams are assembled or if unpredicted changes occur during the project cycle.There should be a good match between indicator species selected and the specific threats they indicate.

4. Identifying suitable indicator species to be monitored

- Conservation target species (n.b. rarely seen species give little data)
- Commoner species that are sensitive to habitat quality – amphibia, dragonflies, birds
- Easily identified – large mammals
- Easily quantified (harvest levels of fish, crabs etc. or plants)
- Alien species of concern

5. Undertake baseline measurements

This will involve checking in the field, examining plans, maps and other documents, interviewing managers and local community members and undertaking status assessments of selected indicator species (this latter task should be incorporated into routine monitoring activities but baselines need to be established).

6. Calculate baseline indices

Pick the score for each indicator that best meets your observations. Most important is to complete the notes explaining on what basis this score was selected and listing the requirements that should be targeted by the project for improving this score. Identification of areas where improvement can be expected is the key to calculating the target index score that the project can realistically hope to achieve.

7. Periodically repeat measurements(minimum would be mid-term and end of project)

Routine monitoring of indicator species should be more often than this, at least twice per year.

8. Analyze observed changes in relation to established targets

Note changes in relation to baseline or previous evaluations

9. Report results and feed into project planning revisions

Append full notes, maps, tables of scored species, or any data on human uses and activities, tourism entries etc. on which the answers were based. This is important as the next team to evaluate may be different and need to see the basis for determining if conditions change or get worse.

It is recommended that the first 6 steps will have expert assistance, but local teams can undertake subsequent monitoring and scoring.

The EHI scorecard

The EHI scorecard is designed for simplicity and robustness. Different teams should be able to reach similar scores. Team members do not require high levels of literacy, biological knowledge or statistical skills. The EHI scorecard is designed to match and augment the Management Effectiveness Tracking Tool (METT) being used in GEF Biodiversity projects and can be filled out at the same time.

6.2 EHI EVALUATION RESULTS

6.2.1 Altai Liangheyuan PNR

Name of Site: Altai Liangheyuan Nature Reserve	**Wetland Ecosystem Health Index (EHI) Score Sheet**			**Scored by (names): Altai, Ye'erbolati, Hadeguli, Wang Jingya**	**Date completed: Sep. 19, 2012**
Issue	**Criteria**	**Score:** tick only one box per question		**Comment/explanation**	**Target to improve?**
Component 1. Habitat Health Assessment					
Habitat connectivity	Habitats severely fragmented by inhospitable barriers	0		Historic gold mining blocked river course and wild animals' migration. In addition, barbed wire along the frontier boundary cut off migration routes for wild animals although there are a few unfenced sites reserved to allow animal's migration.	To restore river course, to study on the effects of barbed wire on wild animal and to re-enable migration routes for wild animal by coordinating with military command.
	Habitats fragmented but some connections or corridors remain	1			
	Habitats partly fragmented	2	2		
	Habitats enjoy good connectivity	3			
Habitat heterogeneity	Site composed of only one major habitat	0		The site is abundant with a range of habitats—forest, prairie, and wetlands (including peat lands, lakes, rivers, and marshes).	To improve conservation to retain original and primary habitats.
	Site contains only a small proportion of full range of regional wetland habitats	1			
	Site contains most of regional representative habitats	2			
	Site contains mosaic of all representative habitats of regional wetland type	3	3		
Original habitat diversity retained	Range of original habitats severely reduced by habitat losses and changes	0		Previous river gold-mining seriously destroyed river course per se as well as habitats along riverbanks. Overgrazing contributes to degradation and soil erosion of prairies.	To strictly prohibit any mining practices within the reserve, manage old mining sites by restore river course. To mitigate grazing pressure by dislocating herders.
	50-80% of original habitats still well represented	1	1		
	>80% of original habitats still well represented	2			
	Full range of original habitats all well represented	3			
Habitats degraded	Most habitats severely degraded in structure, composition or productivity	0		Overgrazing, illegal mining, and climate change collectively contribute to habitat degradation in the reserve.	To abate human-induced activities to improve their natural self-resilience of the site.
	Some habitats severely degraded	1	1+		
	Minor habitat degradation	2			
	All habitats in healthy natural condition	3			
Water pollution	Water toxic causing death of fish, mollusks and other biota, presence of toxic algae or plankton	0		Former illegal gold mining and other mining practices seriously destroyed	To ban illegal gold mining and control soil erosion.

	Water visibly dirty or smelly, surface scum visible	1		habitats in the reserve, which further resulted in soil erosion. The river gets muddy when it rain heavy or snow starts to melt in spring.	
	Slight discoloration, smell or cloudiness apparent	2	2+		
	Water remains clear and potable	3			
Sediment load	Water seriously loaded with erosion sediments	0		Soil erosion by water gets worse, in particular when it rains heavy or snow melts in spring	To control soil erosion by refraining various illegal mining practices.
	Water opaque, cannot see bottom of ponds, streams	1			
	Water fairly clear but contains significant sediment	2	2+		
	Sediment levels entirely normal	3			
Oxygen levels	Severe hypoxia kills fish and mollusks	0		The oxygen level in the site is close to normal status.	To manage soil erosion and maintain water quality to retain the current status.
	Some signs of hypoxia, fish gulping at surface	1			
	Oxygen levels close to natural original figures	2	2		
	Oxygen levels remain at natural healthy levels	3			
Water supply	Water supply and water table seriously modified and damaging ecological functions	0		Water conservation is weakening due to degraded vegetation, which further contributes to more frequent disasters, e.g., drought and flood.	To reinforce environmental conservation while implementing manually restoration projects to enhance the site's water conservation function.
	Water supply modified by major diversions, drainage or extractions	1			
	Water supply peaks (droughts and floods) exaggerated by regional changes in flow	2	2		
	Water supply remains in original seasonal pattern	3			
Physical disturbance (construction, fish traps, barrages, noisy activity)	Site is transformed by artificial developments, structures or disturbances	0		Original habitats largely retained and only a few buildings and roads developed in the site.	To control various development and construction activities within the site.
	Site faces much disturbance from construction and disturbance	1			
	Minor structures or disturbances only	2	2		
	Original physical state preserved	3			
Disaster damage	Ecology irreversibly modified by natural or artificial disaster	0		The site located in high altitude is naturally fragile and is difficult to restore.	To screen the site from any kind of development and destruction.
	Serious disasters frequent and ecological recovery period long	1	1		
	Severity and frequency of disasters increased through human activities but ecology shows high recovery rate	2			
	Frequency of disasters remains natural, capacity to recover remains high	3			
Design resilience (size,altitude,NS axis,lithology,dynamics ,multiple catchments)	Site is too small, isolated and homogeneous to offer ecological resilience	0		Similar to all sites at high altitude, the site is ecologically fragile and has a weak resilience due to severe natural conditions there.	To mitigate human activities.
	Site is naturally vulnerable to change	1			
	Site enjoys moderate resilience design	2	2		
	Site enjoys natural high resilience	3			
Sub-total of habitat health risks		**Sum score**	**20 (3 +)**	**% of total maximum 60.6%**	**Index (HI) =0.606**
Component 2. Species Health Assessment					
Health of target species	All target species show declines	0		Habitats damaged by human activities and poaching and resource harvest resulted in reduction of species	To improve conservation to restore a good environment.
	Most target species show declines	1	1		
	Some target species show declines	2			

	All target species stable or increasing	3		abundance.	
Health of vertebrate indicator species	All indicator species show declines	0		River gold mining destroyed habitats and overharvest contributed to the decrease of species abundance.	As above
	Most indicator species show declines	1	1		
	Some indicator species show declines	2			
	All indicator species stable or increasing	3			
Health of plant indicator species	All indicator species show declines	0		There is no evidence demonstrating that invertebrate species declines.	To further reinforce protection and monitoring.
	Most indicator species show declines	1			
	Some indicator species show declines	2			
	All indicator species stable or increasing	3	3		
Health of invertebrate indicator species	All indicator species show declines	0		Some forest provisions were exploitation in last century.	To further reinforce protection.
	Most indicator species show declines	1			
	Some indicator species show declines	2	2+		
	All indicator species stable or increasing	3			
Species diversity retained	Richness of faunal/floral communities irreversibly depleted	0		Flora and fauna with economic and/or medical values is increasingly decreasing due to overexploitation despite of strengthened conservation efforts. Poaching and illegal logging occasionally occurs in some area of the site.	To reinforce law enforcement.
	Significant gaps appearing in reporting of local species	1			
	Minor reductions in species richness noticed	2	2		
	Site retains full original species diversity with high proportion of locally potential species	3			
Highest trophic carnivores still present	No high trophic carnivores remain at site	0		All high trophic animals or original fauna structure still retain but their abundance gets decline.	To improve habitats for these species to increase their population size.
	Few carnivores remain at site	1			
	Some high trophic carnivores lost from local fauna	2			
	All high trophic carnivores or original fauna still present	3	3		
AIS resilience	AIS out of control and permanently replacing some local species	0		No invasive species has been recorded here (Please note that there is no specific research conducted yet).	To keep a close monitoring on AIS, including examining vehicles entering the reserve.
	AIS degrading ecosystem functions or displacing local species	1			
	Some AIS noticed at site but not seriously damaging ecosystem or local species	2			
	No AIS established in site	3	3		
Breeding/wintering success of target species	High mortality on wintering/breeding areas of site	0		Some herbivorous animals, e.g., red deer (*Cervus elaphus*) and ibex (*Capra ibex*) suffered from harsh winter due to combined pressures from frequent natural disasters and food shortage resulting from overgrazing and other reasons, e.g., climate change.	To reduce livestock numbers, and establish fodder feeding sites for herbivores to survive severe winter.
	Survival of some species a concern	1	1		
	Moderate survival	2			
	Key species all surviving well at site	3			
Key new species using site	Total species no. dropping over time	0		No new species recorded yet.	To conduct monitoring in the future.
	No new species recorded but species richness stable	1	1		
	Some new species (other than AIS) noted	2			
	No. of new colonizing species exceed local extinctions	3			
Economic harvest species (legal and	Uncontrolled overharvesting eliminating some species	0		The abundance of cold-water fish and plants with medical values go down due	To reinforce law enforcement and take *in-situ* conservation
	Harvesting results in serious declines in several species	1	1		

illegal)	Harvesting results in minor declines of some species	2		to feverish illegal collection stimulated by soaring market price.	measures.
	No harvesting, or harvesting appears entirely sustainable	3			
Mortality/disaster of key species (fires, droughts, floods, diseases)	Disasters have caused irreversible or long term declines to important species	0		A lot of red deer die of food shortage in 2001 due to serious snowstorm.	To protect habitats for animals while reinforce artificially rescue efforts.
	Disasters have caused serious damage to important species	1	1		
	Disasters cause minor damage to some species	2			
	No diseases, disasters in recent years or species recovery fast and complete	3			
Sub-total of species health risks		**Sum score**	**19(1 +)**	**% of total maximum 57.8%**	**Index (SI) = 0.578**
Component 3. Environmental Context Health Assessment					
Site boundaries and zones	Adequate boundaries not clearly marked or respected	0		The reserve was established in 2001 and has not upgraded to national-level reserve. The reserve reduced its size by 450000 ha in 2004. Now, the reserve has clearer boundary delineation but no boundary markers have been set up on the ground yet. And local stakeholders fully recognized the current boundary.	To strengthen promotion to inform local communities the boundary of the reserve. To set up boundary markers at some areas with controversy.
	Boundaries inadequate or not respected	1			
	Some boundaries marked, partially respected	2	2		
	Effective boundaries, zones in place and marked	3			
Legal framework	No legal protection for site	0		The reserve is being governed in line with applicable regulations, bylaws and laws. However due to understaffed and limited conservation efforts, the effects of law enforcement is still unsatisfactory.	To expand law enforcement.
	Weak legal protection or protection for only part of site	1			
	Legal status assured but some weaknesses remaining	2	2		
	Strong legal security and law enforcement procedures in place	3			
Tourism impacts	Tourism uncontrolled and causing serious damage and disturbance to site	0		There are two scenic sites within the site. In fact, these two scenic sites have not imposed significant influences to ecosystems of the site due to limited development.	To expand conservation efforts and strictly control tourism development.
	Some controls in place but tourism exceeds safe carrying capacity	1			
	Tourism controlled by causing some negative impacts	2	2		
	Tourism absent or well controlled and within safe limits	3			
Human resource use pressures	Pressure on natural resources of site out of control	0		Overgrazing and illegal mining have impacted the site significantly.	To ban mining and mitigate pressure from grazing.
	High levels of collection or use of renewable resources	1	1		
	Low levels of pressure for resources or land-use (e.g. grazing)	2			
	No human pressure on resources, or pressures now contained by alternative livelihood program	3			
Additional threats or stresses from external developments (existing or planned)	Water diversion plans, dams, drainage would completely change nature of the site	0		No external development exists in the site.	To continue to prevent external development from the site.
	External developments negatively affect the ecosystem of site	1			
	Low risk or low impacts can be absorbed by ecosystem	2			

	No threats from external developments	3	3		
Local community relations	Local community alienated and oppose establishment of protected area on site	0		The site financially benefits local people by hiring local herdsmen as conservation liaison to live monitoring conservation situation on site.	To promote the activities in the long run while tapping new initiatives.
	Local community accept existence of protected area but neutral and mostly not involved	1			
	Local community enjoy some benefits through employment or alternative livelihoods	2	2		
	Local communities strongly supportive; respect protected area and collaborate in protection, reporting work	3			
Sub-total of environmental context health risks		**Sum score**	**12**	**% of total maximum 66.7%**	**Index (CI) = 0.667**
Overall EHI score (HI+SI+CI)/3 = (0.606+0.578+0.667)/3=0.617		**Date baseline**		**Target identified for project**	**over 0.75**

6.2.2 Kekesu Wetland PNR

Name of Site: Kekesu Wetland Nature Reserve	**Wetland Ecosystem Health Index (EHI) Score sheet**			**Scored by (names): Jiang Jiajun**	**Date completed: Sep. 20, 2012**
Issue	**Criteria**	**Score:** tick only one box per question		**Comment/explanation**	**Target to improve?**
Component 1. Habitat Health Assessment					
Habitat connectivity	Habitats severely fragmented by inhospitable barriers	0		Natural dynamics of hydrological regime of the site has been altered due to the construction of dam, which contributes to the degradation of the site.	To dredge river course and restore the degraded wetlands by constructing a dam in the highland to reserve water for the site.
	Habitats fragmented but some connections or corridors remain	1	1		
	Habitats partly fragmented	2			
	Habitats enjoy good connectivity	3			
Habitat heterogeneity	Site composed of only one major habitat	0		The site is characterized by flooded marsh skirting with arid deserts and sparse riparian forests.	To reinforce conservation to retain original habitats.
	Site contains only a small proportion of full range of regional wetland habitats	1	1+		
	Site contains most of regional representative habitats	2			
	Site contains mosaic of all representative habitats of regional wetland type	3			

Original habitat diversity retained	Range of original habitats severely reduced by habitat losses and changes	0		The coverage of original habitats shrunk greatly although all original habitats still remain.	To abate ecological pressure transferring water to the site, conversing farmlands as wetlands, and reducing grazing intensity.
	50-80% of original habitats still well represented	1	1		
	>80% of original habitats still well represented	2			
	Full range of original habitats all well represented	3			
Habitats degraded	Most habitats severely degraded in structure, composition or productivity	0		The site has degraded due to overgrazing, wetland reclamation, and dam construction in the upstream of the wetland.	To improve ecological restoration.
	Some habitats severely degraded	1	1		
	Minor habitat degradation	2			
	All habitats in healthy natural condition	3			
Water pollution	Water toxic causing death of fish, mollusks and other biota, presence of toxic algae or plankton	0		No industrial pollution surrounding the site. The runoff of agricultural pesticides does impose some slight pollution to the site.	To promote the utilization of environmentally friendly pesticides.
	Water visibly dirty or smelly, surface scum visible	1			
	Slight discoloration, smell or cloudiness apparent	2	2+		
	Water remains clear and potable	3			
Sediment load	Water seriously loaded with erosion sediments	0		The water in the site seasonally and temporarily gets muddy when snow gets melting in spring and it rains heavy.	To prohibit illegal reclamation to reduce soil erosion.
	Water opaque, cannot see bottom of ponds, streams	1			
	Water fairly clear but contains significant sediment	2			
	Sediment levels entirely normal	3	3		
Oxygen levels	Severe hypoxia kills fish and mollusks	0		The water gets still due to the disconnection between the site with flow-in streams as well as internal fragmentation, which makes the oxygen level declines.	To transfer water into the site.
	Some signs of hypoxia, fish gulping at surface	1			
	Oxygen levels close to natural original figures	2	2		
	Oxygen levels remain at natural healthy levels	3			
Water supply	Water supply and water table seriously modified and damaging ecological functions	0		The site gets less water from upstream due to the construction of a reservoir there, which results in the shortage of water at the site.	To strengthen environmental conservation while conducting artificial restoration project to enhance water conservation function of the site, and artificially transfer water to the site.
	Water supply modified by major diversions, drainage or extractions	1			
	Water supply peaks (droughts and floods) exaggerated by regional changes in flow	2	2		
	Water supply remains in original seasonal pattern	3			
Physical disturbance (construction, fish traps, barrages, noisy activity)	Site is transformed by artificial developments, structures or disturbances	0		The site did not change too much except the existence of some historic buildings and hydrological facilities there.	To ban any construction activities from the site.
	Site faces much disturbance from construction and disturbance	1			
	Minor structures or disturbances only	2	2		
	Original physical state preserved	3			
Disaster damage	Ecology irreversibly modified by natural or artificial disaster	0		As a flooded wetland in the arid ecosystem, the site is naturally fragile and is difficult to restore once destroyed. Drought increased through human activities (e.g., the dam construction).	To strictly prohibit any kinds of development and destructive activities.
	Serious disasters frequent and ecological recovery period long	1	1		
	Severity and frequency of disasters increased through human activities but ecology shows high recovery rate	2			
	Frequency of disasters remains natural, capacity to recover remains high	3			

Design resilience (size, altitude, NS axis,lithology,dynamics ,multiple catchments)	Site is too small, isolated and homogeneous to offer ecological resilience	0		Lying in fragile arid ecosystem, the site is fragile and has a low resilience. In addition, the site lives with intensive human activities surrounding it. Water shortage makes the site is radically degrading.	To restore the resilience of the site by restoring and retaining its natural status.
	Site is naturally vulnerable to change	1			
	Site enjoys moderate resilience design	2	2		
	Site enjoys natural high resilience	3			
Sub-total of habitat health risks		**Sum score**	**18 (2+)**	**% of total maximum % 54.5%**	**Index (HI) =0.545**
Component 2. Species Health Assessment					
Health of target species	All target species show declines	0		General species declines due to habitat damage and overharvest of freshwater wildlife.	To restrict anthropogenic destruction to restore the ecological environment.
	Most target species show declines	1	1		
	Some target species show declines	2			
	All target species stable or increasing	3			
Health of vertebrate indicator species	All indicator species show declines	0		Species generally goes down due to overharvest.	To reinforce conservation while restore a good ecological environment.
	Most indicator species show declines	1	1		
	Some indicator species show declines	2			
	All indicator species stable or increasing	3			
Health of invertebrate indicator species	All indicator species show declines	0		Species generally declines due to lower water levels.	To restore ecological environment.
	Most indicator species show declines	1			
	Some indicator species show declines	2	2		
	All indicator species stable or increasing	3			
Health of plant indicator species	All indicator species show declines	0		Illegal collection of plants and decreased water level collectively result in the decrease of abundance of aquatic/herbal plants with economic values.	To expand conservation efforts and restore ecological environment.
	Most indicator species show declines	1			
	Some indicator species show declines	2	2+		
	All indicator species stable or increasing	3			
Species diversity retained	Richness of faunal/floral communities irreversibly depleted	0		Some rare aquatic species is increasingly reducing and even local extinct. Up to now, illegal harvest (including poaching) still occurs in the site.	To reinforce conservation efforts and restore flood dynamics through artificially adjusting water levels.
	Significant gaps appearing in reporting of local species	1	1		
	Minor reductions in species richness noticed	2			
	Site retains full original species diversity with high proportion of locally potential species	3			
Highest trophic carnivores still present	No high trophic carnivores remain at site	0	0	High trophic carnivores still remain at the site.	To promote wildlife conservation while restoring suitable habitats for wildlife.
	Few carnivores remain at site	1			
	Some high trophic carnivores lost from local fauna	2			
	All high trophic carnivores or original fauna still present	3	3		
AIS resilience	AIS out of control and permanently replacing some local species	0		No AIS recorded (note that the reserve has limited knowledge relating AIS and there is no any specific surveys conducted. The score might be overestimated).	To conduct monitoring and prevent the invasion of AIS.
	AIS degrading ecosystem functions or displacing local species	1			
	Some AIS noticed at site but not seriously damaging ecosystem or local species	2			
	No AIS established in site	3	3		

Breeding/wintering success of target species	High mortality on wintering/breeding areas of site	0		The site worries about water birds' survival in winter for the reason that the degraded and dwindled wetlands contribute to food shortage. In addition, the altered hydrological regime makes fishes lose their suitable hatching ground too.	To reduce grazing intensity and implement artificial feeding project, if appropriate. To transfer water to restore degraded wetlands.
	Survival of some species a concern	1	1		
	Moderate survival	2			
	Key species all surviving well at site	3			
Key new species using site	Total species no. dropping over time	0		No new species recorded.	To put more efforts on monitoring.
	No new species recorded but species richness stable	1	1		
	Some new species (other than AIS) noted	2			
	No. of new colonizing species exceed local extinctions	3			
Economic harvest species (legal and illegal)	Uncontrolled overharvesting eliminating some species	0		Illegal harvest and fishing activities still prevail in the site, which contributes to the decrease of abundance of species with economic values.	To reinforce law enforcement and take *in-situ* conservation measures.
	Harvesting results in serious declines in several species	1	1		
	Harvesting results in minor declines of some species	2			
	No harvesting, or harvesting appears entirely sustainable	3			
Mortality/disaster of key species (fires, droughts, floods, diseases)	Disasters have caused irreversible or long term declines to important species	0		Drought deteriorated the degradation of the site and influences the breeding of aquatic species (including water birds) and their survival to some extent.	To protect wildlife's habitats as well as enhance manual-intervention rescue measures.
	Disasters have caused serious damage to important species	1			
	Disasters cause minor damage to some species	2	2		
	No diseases, disasters in recent years or species recovery fast and complete	3			
Sub-total of species health risks		**Sum score**	**18**	**% of total maximum 54.5%**	**Index (SI) = 0.545**
Component 3. Environmental Context Health Assessment					
Site boundaries and zones	Adequate boundaries not clearly marked or respected	0		The site lies at the transitional region between farming and ranching. The boundary of the site is used to be ignored by local communities and other stakeholders.	To reinforce communication with local communities and other stakeholders and enhance relevant promotion.
	Boundaries inadequate or not respected	1			
	Some boundaries marked, partially respected	2	2		
	Effective boundaries, zones in place and marked	3			
Legal framework	No legal protection for site	0		The site is conserved by complying with applicable regulations and bylaws.	To reinforce law enforcement.
	Weak legal protection or protection for only part of site	1			
	Legal status assured but some weaknesses remaining	2	2		
	Strong legal security and law enforcement procedures in place	3			
Tourism impacts	Tourism uncontrolled and causing serious damage and disturbance to site	0		No tourism activities conducted now.	No plan to conduct tourism at the site.
	Some controls in place but tourism exceeds safe carrying capacity	1			
	Tourism controlled by causing some negative impacts	2	2		
	Tourism absent or well controlled and within safe limits	3			
Human resource use pressures	Pressure on natural resources of site out of control	0		Overgrazing, illegal reclamation, illegal harvest and exploitation activities result	To prohibit fishing and plants harvest, return farmlands to
	High levels of collection or use of renewable resources	1	1		

	Low levels of pressure for resources or land-use (e.g. grazing)	2		in decreased habitats and wetland coverage.	wetlands, and reduce grazing intensity.
	No human pressure on resources, or pressures now contained by alternative livelihood program	3			
Additional threats or stresses from external developments (existing or planned)	Water diversion plans, dams, drainage would completely change nature of the site	0		No development activity exists.	To track land use planning surrounding the areas and monitoring those land use that might impose negative impacts on the site.
	External developments negatively affect the ecosystem of site	1			
	Low risk or low impacts can be absorbed by ecosystem	2			
	No threats from external developments	3	3		
Local community relations	Local community alienated and oppose establishment of protected area on site	0		To work together with local communities to establish fire-prevention special force.	To consolidate cooperation to achieve mutual conservation.
	Local community accept existence of protected area but neutral and mostly not involved	1			
	Local community enjoy some benefits through employment or alternative livelihoods	2	2		
	Local communities strongly supportive; respect protected area and collaborate in protection, reporting work	3			
Sub-total of environmental context health risks		**Sum score**	**12**	**% of total maximum % 66.7%**	**Index (CI) =0.667**
Overall EHI score (HI+SI+CI)/3 = (0.545+0.545+0.667)/3=0.586		**Date baseline**		**Target identified for project**	**Over 0.75**

6.2.3 Buergen Beaver PNR

Name of Site: Buergen Beaver Nature Reserve	**Wetland Ecosystem Health Index (EHI) Score sheet**			**Scored by (names): Chen Peng**	**Date completed: Sep. 20, 2012**
Issue	**Criteria**	**Score:** tick only one box per question		**Comment/explanation**	**Target to improve?**
Component 1. Habitat Health Assessment					
Habitat connectivity	Habitats severely fragmented by inhospitable barriers	0		Due to intensive agricultural practices, vegetation in some patches of the site has been seriously degraded. To stop vegetation degradation, the site set up	To set aside migratory passes for animals at an interval of several kilometers along the rivers
	Habitats fragmented but some connections or corridors remain	1	1		
	Habitats partly fragmented	2			
	Habitats enjoy good connectivity	3			

				fence along the riparian region that blocks the movement of animals to some extent. In addition, one dam and two aqueducts in the upstream of the Bu'ergen River further contribute to cut off migration routes of freshwater animals, in particular river beaver and migratory fishes.	
Habitat heterogeneity	Site composed of only one major habitat	0		Typical riparian forests dominated by broadleaved trees and willows distribute along the Bu'ergen River, which provides a diverse of habitats for flora and fauna to inhabit.	To well protect extant habitats by strengthening conservation efforts.
	Site contains only a small proportion of full range of regional wetland habitats	1	1+		
	Site contains most of regional representative habitats	2			
	Site contains mosaic of all representative habitats of regional wetland type	3			
Original habitat diversity retained	Range of original habitats severely reduced by habitat losses and changes	0		Vegetation in some patches of the site has been seriously degraded due to intensive grazing in recent years.	To reinforce management and conservation efforts, launch the project of conversing farmlands to forest and/or wetlands, and reduce grazing intensity
	50-80% of original habitats still well represented	1	1		
	>80% of original habitats still well represented	2			
	Full range of original habitats all well represented	3			
Habitats degraded	Most habitats severely degraded in structure, composition or productivity	0		Vegetation in some patches of the site has been seriously degraded due to intensive agricultural practices in recent years.	To reduce intensiveness of agricultural practices in the site and implement artificial habitat restoration.
	Some habitats severely degraded	1	1		
	Minor habitat degradation	2			
	All habitats in healthy natural condition	3			
Water pollution	Water toxic causing death of fish, mollusks and other biota, presence of toxic algae or plankton	0		There is no any industrial pollution. The water is clean.	To restore vegetation to decrease soil erosion.
	Water visibly dirty or smelly, surface scum visible	1			
	Slight discoloration, smell or cloudiness apparent	2			
	Water remains clear and potable	3	3		
Sediment load	Water seriously loaded with erosion sediments	0		As an international river, Bu'ergen River is characterized by heavy sediment when it rains heavy seasonally or floods due to serious vegetation damage in the upper section of the river.	To restore vegetation to decrease soil erosion.
	Water opaque, cannot see bottom of ponds, streams	1			
	Water fairly clear but contains significant sediment	2	2		
	Sediment levels entirely normal	3			
Oxygen levels	Severe hypoxia kills fish and mollusks	0		The oxygen levels are at natural levels.	To further prevent any pollution from the site.
	Some signs of hypoxia, fish gulping at surface	1			
	Oxygen levels close to natural original figures	2			
	Oxygen levels remain at natural healthy levels	3	3		
Water supply	Water supply and water table seriously modified and damaging ecological functions	0		In recent years, intensive agricultural practices and dam construction seriously decrease the water volume of the river and even make the river dry in some seasons that agricultural practices take a	To manually establish overflowing weirs to keep water levels near beavers' dens.
	Water supply modified by major diversions, drainage or extractions	1	1		
	Water supply peaks (droughts and floods) exaggerated by	2			

	regional changes in flow			lot of water out of the river. The altered water supply influences the viability of beavers in the site.	
	Water supply remains in original seasonal pattern	3			
Physical disturbance (construction, fish traps, barrages, noisy activity)	Site is transformed by artificial developments, structures or disturbances	0		The surrounding areas of the site are populous and are heavily used by transportation activities. The one dam and two aqueducts in the upstream of the Bu'ergen River as well as the rapid development of the township place the site under increasing external pressure.	To reduce intensity of human activities in the site, set up informing/warning boards by roadsides and prohibit sound pollution, e.g., vehicle honking.
	Site faces much disturbance from construction and disturbance	1	1		
	Minor structures or disturbances only	2			
	Original physical state preserved	3			
Disaster damage	Ecology irreversibly modified by natural or artificial disaster	0		The site is more subjective to disasters due to vegetation damage. As a result, disasters are apt to influence the site more severe and soil erosion resulted from flood is prone to get worse.	To strengthen conservation and restore vegetation
	Serious disasters frequent and ecological recovery period long	1			
	Severity and frequency of disasters increased through human activities but ecology shows high recovery rate	2	2		
	Frequency of disasters remains natural, capacity to recover remains high	3			
Design resilience (size,altitude,NS axis,lithology,dynamics ,multiple catchments)	Site is too small, isolated and homogeneous to offer ecological resilience	0		Although the site has a weak resistance to various natural disasters and artificial impacts, the site can easily get recovered under a closure conservation fashion.	To strengthen conservation and restore vegetation
	Site is naturally vulnerable to change	1			
	Site enjoys moderate resilience design	2	2		
	Site enjoys natural high resilience	3			
Sub-total of habitat health risks		**Sum score**	**18**	**% of total maximum 54.5%**	**Index (HI) =0.545**
Component 2. Species Health Assessment					
Health of target species	All target species show declines	0		Target species generally declines. For instance, beaver families decreased from 36 in 1980s to 30 in 2003 due to habitation destruction and poaching.	To strengthen promotion efforts, reinforce law enforcement and restore destroyed habitats
	Most target species show declines	1			
	Some target species show declines	2	2		
	All target species stable or increasing	3			
Health of vertebrate indicator species	All indicator species show declines	0		Species generally goes down due to habitat damage and overgrazing.	Same as above.
	Most indicator species show declines	1			
	Some indicator species show declines	2	2		
	All indicator species stable or increasing	3			
Health of invertebrate indicator species	All indicator species show declines	0		No significant changes observed although the ecological environment has been damaged in the site.	Same as above
	Most indicator species show declines	1			
	Some indicator species show declines	2			
	All indicator species stable or increasing	3	3		
Health of plant indicator species	All indicator species show declines	0		Compared with those in 1980s, both plant species richness and their production have decreased by 30-40%.	To ban grazing while strengthen ecological conservation.
	Most indicator species show declines	1			
	Some indicator species show declines	2	2		
	All indicator species stable or increasing	3			
Species diversity	Richness of faunal/floral communities irreversibly depleted	0		Some species has significantly decreased	To strengthen promotion

retained	Significant gaps appearing in reporting of local species	1		due to altered habitats and overfishing.	efforts, reinforce law enforcement and restore destroyed habitats
	Minor reductions in species richness noticed	2	2		
	Site retains full original species diversity with high proportion of locally potential species	3			
Highest trophic carnivores still present	No high trophic carnivores remain at site	0		Some higher trophic carnivores, e.g., lynx and wolf, exist but their abundance significantly declined.	To reinforce conservation and restore habitats.
	Few carnivores remain at site	1	1		
	Some high trophic carnivores lost from local fauna	2			
	All high trophic carnivores or original fauna still present	3			
AIS resilience	AIS out of control and permanently replacing some local species	0		No AIS recorded (Note: the reserve has not conducted a comprehensive survey to address this issue, the score might be overestimated).	To reinforce monitoring while screening AIS from the site.
	AIS degrading ecosystem functions or displacing local species	1			
	Some AIS noticed at site but not seriously damaging ecosystem or local species	2			
	No AIS established in site	3	3		
Breeding/wintering success of target species	High mortality on wintering/breeding areas of site	0		The degraded ecological environment, altered hydrological regime, fragmented habitats as well as associated food shortage collectively make beavers in the site under a higher risk	To implement ecological restoration projects to improve habitats for beavers.
	Survival of some species a concern	1			
	Moderate survival	2	2		
	Key species all surviving well at site	3			
Key new species using site	Total species no. dropping over time	0		No new species recorded.	To expand monitoring efforts.
	No new species recorded but species richness stable	1	1		
	Some new species (other than AIS) noted	2			
	No. of new colonizing species exceed local extinctions	3			
Economic harvest species (legal and illegal)	Uncontrolled overharvesting eliminating some species	0		The abundance of fishes declined due to fish harvest in the site. In addition, poaching, fuel wood collection also contributes the decline of some other species in abundance.	To launch fish forbidding in the site while reinforce law enforcement on all illegal human activities in the site.
	Harvesting results in serious declines in several species	1			
	Harvesting results in minor declines of some species	2	2		
	No harvesting, or harvesting appears entirely sustainable	3			
Mortality/disaster of key species (fires, droughts, floods, diseases)	Disasters have caused irreversible or long term declines to important species	0		Drought imposes threats to habitats that beavers rely on to survive heavily.	To conduct intervention rescue to help injured animals to survive these disasters.
	Disasters have caused serious damage to important species	1			
	Disasters cause minor damage to some species	2	2		
	No diseases, disasters in recent years or species recovery fast and complete	3			
Sub-total of species health risks		**Sum score**	**22**	**% of total maximum 66.7%**	**Index (SI) =0.667**
Component 3. Environmental Context Health Assessment					
Site boundaries and zones	Adequate boundaries not clearly marked or respected	0		The site established boundary boards/markers at some areas of the site. However, for those areas without boundary markers, local people cannot	To strengthen conservation efforts and clearly mark the boundary of the site.
	Boundaries inadequate or not respected	1			
	Some boundaries marked, partially respected	2	2		
	Effective boundaries, zones in place and marked	3			

				identify the accurate boundary of the site.	
Legal framework	No legal protection for site	0		Relevant regulations and bylaws collectively provide a legal safeguard for the site. However, due to understaffing and limited conservation efforts, the effect of law enforcement is less satisfactory.	To strengthen law enforcement.
	Weak legal protection or protection for only part of site	1			
	Legal status assured but some weaknesses remaining	2	2		
	Strong legal security and law enforcement procedures in place	3			
Tourism impacts	Tourism uncontrolled and causing serious damage and disturbance to site	0		There exist no tourism in the site at all.	
	Some controls in place but tourism exceeds safe carrying capacity	1			
	Tourism controlled by causing some negative impacts	2			
	Tourism absent or well controlled and within safe limits	3	3		
Human resource use pressures	Pressure on natural resources of site out of control	0		Intensive agricultural practices do place damage to vegetation in the site. Some areas are facing high levels of pressure.	To reduce agriculture activities while consolidating conservation.
	High levels of collection or use of renewable resources	1	1		
	Low levels of pressure for resources or land-use (e.g. grazing)	2			
	No human pressure on resources, or pressures now contained by alternative livelihood program	3			
Additional threats or stresses from external developments (existing or planned)	Water diversion plans, dams, drainage would completely change nature of the site	0	0	The construction of one dam and two aqueducts flooded large region of the upstream of the river, which further destroyed the vegetation and habitats accordingly.	To restore vegetation via reforestation to reduce the detrimental consequences of these infrastructure projects.
	External developments negatively affect the ecosystem of site	1			
	Low risk or low impacts can be absorbed by ecosystem	2			
	No threats from external developments	3			
Local community relations	Local community alienated and oppose establishment of protected area on site	0		Local government keeps a good communication with the site. Any activities that might relate with the site, the local government will contact with the site to seek for their inputs. On the other hand, the site benefits the development of local economy to some extent.	To strengthen the communication with local government to better conserve the site by well balancing conservation and local economic development synchronously。
	Local community accept existence of protected area but neutral and mostly not involved	1			
	Local community enjoy some benefits through employment or alternative livelihoods	2	2		
	Local communities strongly supportive; respect protected area and collaborate in protection, reporting work	3			
Sub-total of environmental context health risks		**Sum score**	10	**% of total maximum 55.6%**	**Index (CI) = 0.556**
Overall EHI score (HI+SI+CI)/3 = (0.545+0.667+0.556)/3=0.59		**Date baseline**		**Sept 8, 2012** **Target identified for project**	**Over 0.70**

ANNEX7. Preliminary Economic Valuation of AMWL Biodiversity

Xinjiang Uyghur Autonomous Region (XUAR) covers 1,664,897km^2 and is the largest provincial level administrative unit in People's Republic of China (PRC), encompassing one sixth of the country's total land area. XUAR borders 8 countries - Mongolia, Russia, Kazakhstan, Kirghizstan, Tajikistan, Afghanistan, Pakistan and India. The region's population is around 20.5 million people, comprised of 55 different ethnic groups. The annual population growth rate is 16.8%, resulting mostly from in-migration to the region from other areas of China.

About 7% of the land is utilised for agriculture and Xinjiang is well known for its agricultural produce including grapes, melons, pears, cotton, wheat, silk, walnuts and sheep. The region also has large deposits of minerals and oil and provides natural gas to Shanghai via the national West-East Gas Pipeline. The oil and petrochemical sector accounts for 60% of the region's economy. Xinjiang holds an intermediate position in terms of its economic development score, ranking 13th of China's 31 provinces, autonomous regions and municipalities.

Altai prefecture has a population of 602,300, made up of 36 nationalities but with Kazaks accounting for just under half of the total population. According to the local government report in 2003, the total GDP of Altai Region is 3,918 million RMB, with agriculture including pasture husbandry, forestry and fishery contributing 948 million RMB to the total GDP. Tourism has developed over recent years; income from tourism in 2002 was about 210 million RMB.

Within XUAR, the Altai Mountains and Wetland Landscape (AMWL) is recognized as one of the country's 25 priority ecological function zones. It is particularly important as a source of water - the headwaters of the Ertix and Ulungur Rivers supply water to all of northern XUAR and the AMWL. The Ertix River also provides water to Kazakhstan and Siberia (Russia). The conservation of biodiversity and maintenance of ecological functions in the Altai Mountains and their associated wetlands are clearly of local, provincial, national and international significance.

The Government is investing US$ 25 million (2006-2014) in the Support Capacity Building and Innovations to Promote Green Development in China Project, with US$ 7.6 million co-financing from the UNDP; Xinjiang is one of the target provinces. The provincial level project, which started in 2009, aims to integrate poverty reduction and rural green economy development with an improved environment and capacity to adapt to climate change impacts. It supports the rehabilitation of ecosystems, the reduction of agro-GHG emissions, and the establishment of carbon trade and compensation schemes in the rural areas in the Xinjiang UAR. These investments aim to improve forest and wetland management at the site level, and to reward local communities for their efforts to reduce livestock and develop their capacity to benefit from conservation activities.

The main pressures facing the wetlands are summarized in Table 9 and include unsustainable mining, over-grazing, and unmanaged tourism activities. Table 10 provides a qualitative assessment of the ecosystem services provided by the wetlands in the Altai region. The qualitative assessment highlights the dependence of local communities on the sustainable provision of wetland ecosystem services (e.g., water, food, medicine, etc.) and also the high cultural significance of the area. The whole region has for centuries been home to Kazakh pastoralists and hence has a rich nomadic/pastoral culture. To date this practice has largely maintained a balance between livestock numbers and grassland productivity, biodiversity and resilience. In more recent times, local patterns of livestock grazing and especially the

availability of winter fodder have changed, leading in some situations to a dramatic increase in grazing pressure on grasslands; and in certain places to apparent over-grazing and degradation of natural resources. There are around 320,000 Kazakh people in the area. About 3 million livestock are grazed in AMWL, and over 3 million fish are harvested each year from Ulungur Lake.

A number of regulating services are also of high importance. The Altai Mountains and their associated wetland ecosystems provide important watershed protection functions, regulate water quality for key rivers and regulate climate. Over 90,000 ha of peatlands have been identified in the Altai Mountains, which contain up to 3,000 tonnes per ha, or an estimated total amount of 300 million tonnes of carbon (over 1 billion tonnes of carbon dioxide equivalent) – which has clear implications for the emission, maintenance or sequestration of GHGs, according to whether or not the peatlands of the AMWL are degraded, protected or restored in the future

Tourism is being promoted in the area. For example, a regional *Silk Route Tourism Plan* currently is being developed, which will highlight the Altai prefecture area based on its historic trade links and cultural affinities with Central Asia. The *Greater Kanas Scenic Area Tourism Plan* also is being developed.

Pressures on Wetland Resources in Xinjiang Uyghur Autonomous Region

Pressure	Description	Policy Driver / Context
Mining	Gold mining and other kinds of mining are resulting in habitat degradation and over-exploitation of natural resources	According to current policy, an environmental impact assessment must be undertaken before mining operations are approved, and restoration should be conducted during or after mining. However enforcement is low.
Livestock Over-grazing	Habitat degradation	Since 2000, policies such as a grazing ban and "balancing the grass and livestock" initiatives have been implemented, but the root-reasons for water and soil exploitation have not been addressed
Agricultural conversion	Conversion of wetland and range lands to agriculture. This is putting pressure on grazing areas and resulting in habitat degradation	
Water infrastructure development	Construction of dams and irrigation infrastructure, in support of the development of agriculture (crop farming) in the region, along the Ulungur River and Ertix River and their tributaries have damaged lower reaches of the rivers and changed river flow and flooding regimes – leading to habitat degradation and loss, and obstructing the migration of local fish species	During the construction of dams and irrigation infrastructure, ecological impacts are not seriously evaluated and considered.
Tourism development	Nearly 1 million tourists visited the Kanas NNR in 2011, placing great pressure on the environment and on the	Current policies encourage tourists

	management of the PA	
Illegal collection of NTPFs	Illegal timber harvesting and collection of NTFPs	Timber harvesting has been illegal since 1998, but still occurs on a small scale

Qualitative assessment of ecosystem services in Xinjiang Uyghur Autonomous Region

	Ecosystem Service	Significance[1]	Comment
Provisioning	Food	**	Local Kazah people's summer pasture; fishing in Wulungu Lake; croplands along Wulungu River and Ertix River
	Fibre/materials	*	
	Water	**	Critical important water resources not only for Altai but also for North Xinjiang
	Natural Medicines	**	Rich of Chinese and Kazah traditional herb medicine
	Biochemicals	?	
	Ornamental resources	**	
	Source of energy	*	Water energy and solar energy
	Transport	–	
Regulating	Regulation of GHGs	**	
	Micro-climatic stabilization	**	
	Water regulation	**	
	Shoreline stabilization (protection)	?	
	Aquifer recharge	*	
	Water purification	**	
	Waste management	?	
	Nutrient retention	**	
Cultural	Spiritual, religious and cultural heritage	**	
	Educational	**	
	Recreation and ecotourism	**	
	Landscape and amenity	**	
	Biodiversity non-use	**	

Code: '**' means that the service is important, '*' means that the service is provided, '-' means the service is not relevant at the site, and '?' means that there isn't enough information to determine whether the services is present or not, so its provision is uncertain.

ANNEX8.Environmentaland Social Screening Checklist

QUESTION 1:

Has a combined environmental and social assessment/review that covers the proposed project already been completed by implementing partners or donor(s)?

Select answer below and follow instructions:

X NO → Continue to Question 2 (do not fill out Table 1.1)

€ **YES** → No further environmental and social review is required if the existing documentation meets UNDP's quality assurance standards, and environmental and social management recommendations are integrated into the project. Therefore, you should undertake the following steps to complete the screening process:

1. Use Table 1.1 below to assess existing documentation. (It is recommended that this assessment be undertaken jointly by the Project Developer and other relevant Focal Points in the office or Bureau).
2. Ensure that the Project Document incorporates the recommendations made in the implementing partner's environmental and social review.
3. Summarize the relevant information contained in the implementing partner's environmental and social review in Annex A.2 of this Screening Template, selecting Category 1.
4. Submit Annex A to the PAC, along with other relevant documentation.

Note: Further guidance on the use of national systems for environmental and social assessment can be found in Annex B.

TABLE 1.1: CHECKLIST FOR APPRAISING QUALITY ASSURANCE OF EXISTING ENVIRONMENTAL AND SOCIAL ASSESSMENT	**Yes/No**
1. Does the assessment/review meet its terms of reference, both procedurally and substantively?	n/a
2. Does the assessment/review provide a satisfactory assessment of the proposed project?	n/a
3. Does the assessment/review contain the information required for decision-making?	n/a
4. Does the assessment/review describe specific environmental and social management measures (e.g. mitigation, monitoring, advocacy, and capacity development measures)?	n/a
5. Does the assessment/review identify capacity needs of the institutions responsible for implementing environmental and social management issues?	n/a
6. Was the assessment/review developed through a consultative process with strong stakeholder engagement, including the view of men and women?	n/a
7. Does the assessment/review assess the adequacy of the cost of and financing arrangements for environmental and social management issues?	n/a
Table 1.1 (continued) For any "no" answers, describe below how the issue has been or will be resolved (e.g. amendments made or supplemental review conducted).	
n/a	

QUESTION 2:

Do all outputs and activities described in the Project Document fall within the following categories?

- € Procurement (in which case UNDP's Procurement Ethics and Environmental Procurement Guide need to be complied with)
- € Report preparation
- € Training
- € Event/workshop/meeting/conference (refer to Green Meeting Guide)
- € Communication and dissemination of results

Select answer below and follow instructions:

X **NO**→ Continue to Question 3

€ **YES** → No further environmental and social review required. Complete Annex A.2, selecting Category 1, and submit the completed template (Annex A) to the PAC.

QUESTION 3:

Does the proposed project include activities and outputs that support *upstream* planning processes that potentially pose environmental and social impacts or are vulnerable to environmental and social change (refer to Table 3.1 for examples)?
(Note that *upstream* planning processes can occur at global, regional, national, local and sectoral levels)

Select the appropriate answer and follow instructions:

€ **NO** → Continue to Question 4.

X **YES**→Conduct the following steps to complete the screening process:

1. Adjust the project design as needed to incorporate UNDP support to the country(ies), to ensure that environmental and social issues are appropriately considered during the upstream planning process. Refer to Section 7 of this Guidance for elaboration of environmental and social mainstreaming services, tools, guidance and approaches that may be used.
2. Summarize environmental and social mainstreaming support in Annex A.2, Section C of the Screening Template and select "Category 2".
3. If the proposed project ONLY includes upstream planning processes then screening is complete, and you should submit the completed Environmental and Social Screening Template (Annex A) to the PAC. If downstream implementation activities are also included in the project then continue to Question 4.

TABLE 3. 1 EXAMPLES OF UPSTREAM PLANNING PROCESSES WITH POTENTIAL DOWNSTREAM ENVIRONMENTAL AND SOCIAL IMPACTS	Check appropriate box(es) below
1. Support for the elaboration or revision of **global- level** strategies, policies, plans, and programmes.	
2. Support for the elaboration or revision of **regional-level** strategies,	

policies and plans, and programmes.	X
3. Support for the elaboration or revisionof**national-level**strategies, policies, plans and programmes.	
4. Support for the elaboration or revision of **sub-national/local-level** strategies, polices, plans and programmes.	X

QUESTION 4:

Does the proposed project include the implementation of *downstream* activities that potentially pose environmental and social impacts or are vulnerable to environmental and social change?

To answer this question, you should first complete Table 4.1 by selecting appropriate answers. If you answer "No" or "Not Applicable" to all questions in Table 4.1 then the answer to Question 4 is "NO." If you answer "Yes" to any questions in Table 4.1 (even one "Yes" can indicated a significant issue that needs to be addressed through further review and management) then the answer to Question 4 is "YES":

€ **NO** → No further environmental and social review and management required for downstream activities. Complete Annex A.2 by selecting "Category 1", and submit the Environmental and Social Screening Template to the PAC.

X YES→ Conduct the following steps to complete the screening process:

1. Consult Section 8 of this Guidance, to determine the extent of further environmental and social review and management that might be required for the project.
2. Revise the Project Document to incorporate environmental and social management measures. Where further environmental and social review and management activity cannot be undertaken prior to the PAC, a plan for undertaking such review and management activity within an acceptable period of time, post-PAC approval (e.g. as the first phase of the project) should be outlined in Annex A.2.
3. Select "Category 3" in Annex A.2, and submit the completed Environmental and Social Screening Template (Annex A) and relevant documentation to the PAC.

TABLE 4.1: ADDITIONAL SCREENING QUESTIONS TO DETERMINE THE NEED AND POSSIBLE EXTENT OF FURTHER ENVIRONMENTAL AND SOCIAL REVIEW AND MANAGEMENT		
1.	**Biodiversity and Natural Resources**	**Answer** (Yes/No/ Not Appl.)
1.1	Would the proposed project result in the conversion or degradation of modified habitat, natural habitat or critical habitat?	No
1.2	Are any development activities proposed within a legally protected area (e.g. natural reserve, national park) for the protection or conservation of biodiversity?	No
1.3	Would the proposed project pose a risk of introducing invasive alien	No

TABLE 4.1:	ADDITIONAL SCREENING QUESTIONS TO DETERMINE THE NEED AND POSSIBLE EXTENT OF FURTHER ENVIRONMENTAL AND SOCIAL REVIEW AND MANAGEMENT	
	species?	
1.4	Does the project involve natural forest harvesting or plantation development without an independent forest certification system for sustainable forest management?	No
1.5	Does the project involve the production and harvesting of fish populations or other aquatic species without an accepted system of independent certification to ensure sustainability?	No
1.6	Does the project involve significant extraction, diversion or containment of surface or ground water?	No
1.7	Does the project pose a risk of degrading soils?	No
2.	**Pollution**	**Answer** (Yes/No/ Not Appl.)
2.1	Would the proposed project result in the release of pollutants to the environment due to routine or non-routine circumstances with the potential for adverse local, regional, and transboundary impacts?	No
2.2	Would the proposed project result in the generation of waste that cannot be recovered, reused, or disposed of in an environmentally and socially sound manner?	No
2.3	Will the proposed project involve the manufacture, trade, release, and/or use of chemicals and hazardous materials subject to international action bans or phase-outs?	No
2.4	Is there a potential for the release, in the environment, of hazardous materials resulting from their production, transportation, handling, storage and use for project activities?	No
2.5	Will the proposed project involve the application of pesticides that have a known negative effect on the environment or human health?	No
3.	**Climate Change**	
3.1	Will the proposed project result in significantgreenhouse gas emissions?	No
3.2	Is the proposed project likely to directly or indirectly increase environmental and social vulnerability to climate change now or in the future (also known as maladaptive practices)? You can refer to the additional	No

TABLE 4.1: ADDITIONAL SCREENING QUESTIONS TO DETERMINE THE NEED AND POSSIBLE EXTENT OF FURTHER ENVIRONMENTAL AND SOCIAL REVIEW AND MANAGEMENT	
guidance in Annex C to help you answer this question.	
4. Social Equity and Equality	**Answer** (Yes/No/ Not Appl.)
4.1 Would the proposed project have environmental and social impacts that could affect indigenous people or other vulnerable groups?	Yes
4.2 Is the project likely to significantly impact gender equality and women's empowerment?	Yes
4.3 Is the proposed project likely to directly or indirectly increase social inequalities now or in the future?	No
4.4 Will the proposed project have variable impacts on women and men, different ethnic groups, social classes?	No
4.5 Have there been challenges in engaging women and other certain key groups of stakeholders in the project design process?	No
4.6 Will the project have specific human rights implications for vulnerable groups?	No
5. Demographics	
5.1 Is the project likely to result in a substantial influx of people into the affected community(ies)?	No
5.2 Would the proposed project result in substantial voluntary or involuntary resettlement of populations?	No
5.3 Would the proposed project lead to significant population density increase which could affect the environmental and social sustainability of the project?	No
6. Culture	
6.1 Is the project likely to significantly affect the cultural traditions of affected communities, including gender-based roles?	No
6.2 Will the proposed project result in physical interventions (during construction or implementation) that would affect areas that have known physical or cultural significance to indigenous groups and other communities with settled recognized cultural claims?	No

TABLE 4.1: ADDITIONAL SCREENING QUESTIONS TO DETERMINE THE NEED AND POSSIBLE EXTENT OF FURTHER ENVIRONMENTAL AND SOCIAL REVIEW AND MANAGEMENT	
6.3 Would the proposed project produce a physical "splintering" of a community?	No
7. Health and Safety	
7.1 Would the proposed project be susceptible to or lead to increased vulnerability to earthquakes, subsidence, landslides, erosion, flooding or extreme climatic conditions?	No
7.2 Will the project result in increased health risks as a result of a change in living and working conditions?In particular, will it have the potential to lead to an increase in HIV/AIDS infection?	No
7.3 Will the proposed project require additional health services including testing?	No
8. Socio-Economics	
8.1 Is the proposed project likely to have impacts that could affect women's and men's ability to use, develop and protect natural resources and other natural capital assets?	Yes
8.2 Is the proposed project likely to significantly affect land tenure arrangements and/or traditional cultural ownership patterns?	Yes
8.3 Is the proposed project likely to negatively affect the income levels or employment opportunities of vulnerable groups?	No
9. Cumulative and/or Secondary Impacts	**Answer** (Yes/No/ Not Appl.)
9.1 Is the proposed project location subject to currently approved land use plans (e.g. roads, settlements) which could affect the environmental and social sustainability of the project?	No
9.2 Would the proposed project result in secondary or consequential development which could lead to environmental and social effects, or would it have potential to generate cumulative impacts with other known existing or planned activities in the area?	No

ENVIRONMENTAL AND SOCIAL SCREENING SUMMARY
(to be filled in after the Environmental and Social Screening Checklist has been completed)

Name of Proposed Project: Strengthening the management effectiveness of the protected area landscape in Altai Mountains and Wetlands

A. Environmental and Social Screening Outcome

Select from the following:

€ Category 1. No further action is needed

€ Category 2. Further review and management is needed. There are possible environmental and social benefits, impacts, and/or risks associated with the project (or specific project component), but these are predominantly indirect or very long-term and so extremely difficult or impossible to directly identify and assess.

X **Category 3**. Further review and management is needed, and it is possible to identify these with a reasonable degree of certainty. If Category 3, select one or more of the following sub-categories:

X **Category 3a**:Impacts and risks are limited in scale and can be identified with a reasonable degree of certainty and can often be handled through application of standard best practice, but require some minimal or targeted further review and assessment to identify and evaluate whether there is a need for a full environmental and social assessment (in which case the project would move to Category 3b).

€ Category 3b: Impacts and risks may well be significant, and so full environmental and social assessment is required. In these cases, a scoping exercise will need to be conducted to identify the level and approach of assessment that is most appropriate.

B. Environmental and Social Issues(for projects requiring further environmental and social review and management)

In this section, you should list the key potential environmental and social issues raised by this project. This might include both environmental and social opportunities that could be seized on to strengthen the project, as well as risks that need to be managed. You should use the answers you provided in Table 4.1 as the basis for this summary, as well as any further review and management that is conducted.

The project is well conceived and planned, and through the project formulation process has already addressed all identified potential social and environmental concerns.

The project explicitly aims to achieve overall positive environmental benefits with respect to environmental quality, ecosystem integrity and biodiversity conservation in order to achieve global environmental benefits. Only one concern was raised during the project formulation phase, concerning a technical matter for wetland restoration; but this has been adequately resolved (it is now recognized that artificially raising the water table in a unique *palsa* wetland formation, through construction of a levee dam, would threaten local ecological integrity; 1.1) and it is therefore agreed that the project will not include support for this 'construction' activity. In addition, all restoration-oriented activities under this project will undergo anindependent review through a formal environmental impact assessment. No other environmental concern has been raised.

As for potential social impacts, the primary issue to consider is that of changing livelihoods; both changes occurring as a result of regional socio-economic developments and

governmentdevelopment (and conservation) policies etc., and changes that can more directly be attributed to the project. The basic rationale for the suggested changes is sound – i.e., to diversify local communities' economies (in order to make them less dependent on natural resources, especially in the context of climate change) and also to reduce livestock pressures on ecologically fragile grasslands and wetlands (see 4.1). However social aspects of changing livelihoods, as well as traditions (6.1), must remain in center view through the lifespan of the project. It is equally important that any new livelihood option, e.g. ecotourism, not be taken as a full alternative livelihood but rather as a complementary income stream for local communities (8.1), one of several concurrent economic activities.

In order to avoid or mitigate negative social impacts, the project document has indicated that planning for these situations should identify existing land tenure and uses (8.2) and potential social impacts, and to negotiate fair and equitable settlements (see 4.2, 4.3, 4.4, 6.1 and 8.1) – this will be achieved in this project through the process of developing a co-management framework in the Liangheyuan NR area. It also should be noted that the project specifically seeks to promulgate a more participatory approach to conservation at multiple levels and will seek to build local capacities and stakeholder involvement. Land use arrangementswill be affected by the project, however such changes are meant specifically as positive contributions, increasing the level of local people's participation in decision-making and natural resource management (4.1, 6.1 and 8.1). The project will thus introduce a sense of empowerment to local residents, rather than antagonize communities. The governance component of the project also deals in an area that has potential risks, but these risks are considered to be small as they are mitigated through the project's chosen strategic approach, which seeks to increase respect for and collaboration with local Kazakh people and communities.

Several other unique opportunities also are present in the project, which have been highlighted through this screening checklist. For example, with protection of wetlands including large areas of peatland, GHGs are *not* released into the atmosphere; more positively, effective restoration of peatland will in fact increase levels of carbon sequestration in the area (3.1). Consideration of connectivity issues between protected areas in the development of a PA network, including the international context, equally supports regional adaptation to the potential of climate change by allowing movement of animal populations, changes in plant distributions, etc. Local people's resilience to climate change also will be strengthened through diversification of their economic livelihoods, thereby reducing their dependence on uncertain natural resources (3.2). Finally, from a social perspective, gender equality is supported through several mechanisms introduced through the project such as the development of co-management, enhanced local governance, etc. (4,2). Economic disparities will be minimized as well with the creation or development of new livelihood options (e.g., ecotourism) that adopt a *community-based* strategy, including *inter alia* the development of local herders' cooperatives and trust funds and a variety of business associations (4.3). Tourism can equally help promote a greater sense of pride in cultural traditions (6.1) as has been demonstrated in other projects in Mongolia.

C. Next Steps(for projects requiring further environmental and social review and management):

In this section, you should summarize actions that will be taken to deal with the above-listed issues. If your project has Category 2 or 3 components, then appropriate next steps will likely involve further environmental

and social review and management, and the outcomes of this work should also be summarized here. Relevant guidance should be obtained from Section 7 for Category 2, and Section 8 for Category 3.

As the identified environmental and social impacts are largely positive or can readily be addressed with an application of "best management practices" (and minor adjustments to the Project Document), this project falls within Category 3a, and no additional review is required.

Specifically, with regard to wetland restoration activities already proposed, or that may be proposed in the future in the context of the project, a detailed environmental impact assessmentwill be carried out as part of the project activity. Social impacts that may negatively affect local people and communities already have been noted – whether these are their socio-economic situation, degree of involvement in the planning and decision-making processes, or personal sense of well-being – and accordingly, mitigating project elements have been included during the project formulation phase. Special attention has been given to matters of local governance, socio-economic equity, and gender. Therefore, no further "next steps" are required.

In summary, based on all the above considerations, it is hereby confirmed that all the necessary environmental and social reviews have been made, and project management has been modified (as per the Project Document) to reflect the identified needs or concerns.

D. Sign Off

Project Manager  **Date** Jan. 30 2013

PAC **Date**

Programme Manager **Date**

ANNEX9.Profilesof PAs and Biodiversity in AMWL

9.1 Description of AMWL Geography, Biodiversity and PA System

The **Altai Mountains and Wetlands Landscape** (AMWL) includes the Altai Mountains and the watersheds of Ertix River and Ulungur River, which flow from the Altai Mountains. From East to West, the main tributaries of Ulungur River include Buergen River, Chaganguole River and Qingerli River and the main tributaries of Ertix River include Ku-Ertix River, Ka-Ertix River, Kala-Ertix River, Kelan River, Buerqin River, Haba River and Bieliezeke River (Table 17).AMWL includes Habahe county, Buerqin county, Altai city, half of Fuhai County, half of Fuyun county and 2/3 of Qinghe county. The area of AMWL is about 7.33 million ha, 62% of the land area of Altai Prefecture. AMWL has the largest forest resource and water resource in Xinjiang; even in North China. The forest growing stock in AMWL is about 40% of the total in Xinjiang. Surface water and surface runoff in AMWL is 13% and 14% of the provincial total, respectively.

Ulungur River, the largest inland river in Junggar Basin, originates from the South slope of the East Altai Mountain and flows into the small Jili Lake, and then flows into the larger Ulungur Lake (also known as Fuhai Lake, as it is situated in Fuhai County). Ulungur Lake is one of the top ten fresh water lakes in China, and the second largest lake in Xinjiang with area of 918 km^2. The major vegetation type along Ulungur River is river valley Salicaceous forest. The dominant species are a variety of willows including *Salix turanica* and *Salix caspica* (there are around 10 species in total) and poplars such as *Populus laurifolia*. There are 22 fish species, among which are 7 native species. Siberian dace (*Leuciscus baicalensis*) and perch (*Perca fluviatilus*) used to be the dominant local fish species in the Ulungur River and in Ulungur Lake, accounting for about 80% and 10% of the total production, respectively. However after the introduction of Pond Smelt (*Hypomesus olidus*), which became the dominant species around 1995 (now accounting for about 60% of the total fish production), Siberian dace and Perch have become endangered and their production decreased to less than 1 percent of fishery off-take. As major habitat engineers, the endemic beaver (*Castor fiber birulai*)isa keystone species in the Ulungur River ecosystem. The population of beavers has decreased much, from around 700 in 1989 to a current population of around 350 individuals. Habitat loss and fragmentation due of wetland reclamation, dam construction and overgrazing are the main threats to beavers. Buergen Natural Reserve along Buergen River is the only nature reserve along Ulungur River and its tributaries. In 2010, the Ministry of Agriculture ratified the establishment of the *Ulungur Lake Endemic Fish National Fishery Germplasm Resources PA*, for the protection of the native fish in Ulungur Lake. In 2012, the SFA aproved Ulungur Lake as pilot National Wetland Park.

Ertix River flows from the South slope of the middle and western parts of the Altai Mountains, and flows through Kazakhstan and Russia to the Arctic Ocean. The major vegetationtype along Ertix River is also river valley salicaceous forest. There are more than 10 species of poplars such as *Populus jrtyschensis*, *Populus laurifolia*, *Populus nigra*, *Populus alba* and *Populus canescene*. This region is regarded as the poplars' gene pool. There are 35 species of fish in the Ertix River, among which are 23 native and 12 alien (introduced) fish species. Local species such as *Rutilus rutilus* and *Esox Lucius* used to constitute the main fish catch species, however they have now decreased to less than 10%. There are 2 NRs along Ertix River: Kekesu NR and Keketuohai NR. There are also national wetland and forest parks, such as the Wuqilike National Wetland Park, Kelan River National Wetland Park, Fuhai-Wenquan National Forest Park, Baihaba National Forest Park, Habahe White Birch National Forest Park and Jiadengyu National Forest Park.

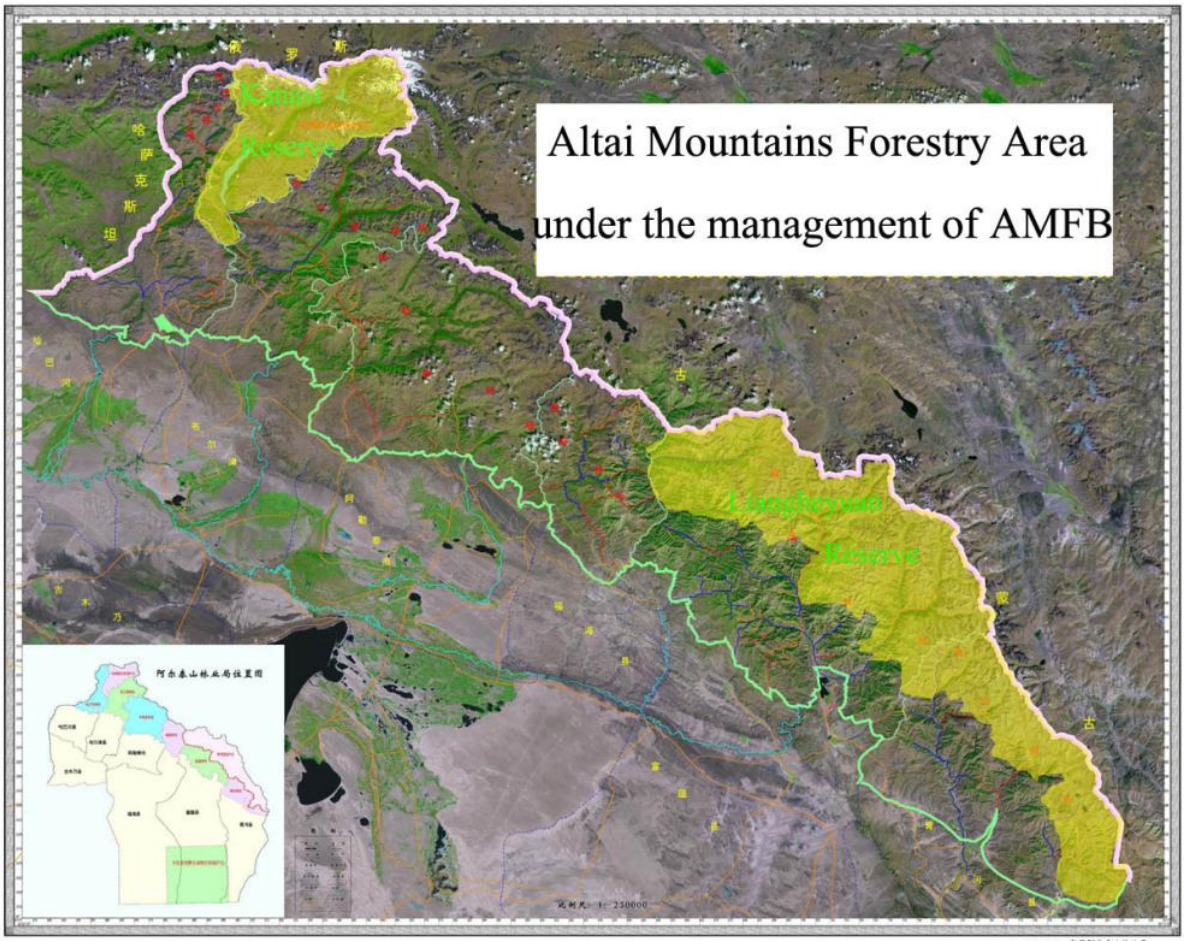
Table 18. Main rivers in AMWL.

Rivers	Watershed counties/city	Catchment area (km^2)	Annual Runoff (10^8m^3)
Ku-ertix	Fuyun County	1,965	7.00
Ka-ertix	Fuyun County	2,494	7.71
Kala-ertix	Fuyun and Fuhai Counties	6,082	17.90
Kelan	Altai City	1,655	6.02
Burqin	Burqin County	8,422	41.68
Haba	Habahe County	6,111	21.31
Bieliezeke	Haba County	927	2.24
Total Ertix	Fuyun, Fuhai, Burqin, Habahe and Altai city	29,524	106.02
Total Ulungur	Qinghe, Fuyun and Fuhai	13,654	10.33

Source: Altai Prefecture Annals, 2004.

The source areas of the Ertix and Ulungur Rivers are in the Altai Mountains, regarded as the *Altai Mountains Forestry Area* (AMFA) under the management of Altai Mountains Forestry Bureau (AMFB). The total area of AMFA is 2.74 million ha, or about 38% of AMWL, including 1,335,293 ha of natural forest now managed as part of the national Natural Forest Protection Plan (NFPP) in the second phase of NFPP, which extends from 2011 to 2020.

From a biodiversity conservation perspective, the *Altai Mountains NFPP Area* is the largest PA in AMWL, and it is under the management of AMFB. There are 2 Nature Reserves in AMFA (a subset of AMWL): Kanas National Nature Reserve, and Liangheyuan Nature Reserve. Several national wetland parks and forest parks are also included within the Altai Mountains NFPP Area: Wuqilike National Wetland Park, Kelan River National Wetland Park,Fuhai-Wenquan National Forest Park, Baihaba National Forest Park, and Jiadengyu National Forest Park.



新疆阿尔泰山林业局天保工程专用图（一）

9.2 Nature Reserve in AMWL

9.2.1 Liangheyuan Provincial Nature Reserve

Liangheyuan NR was established in 2001 for the purpose of protecting the headwater areas of the Ulungur and Ertix Rivers. In 2004, the western part of Liangheyuan NR (in the upper reaches of the Kala Ertix River in Fuhai County,rich in mineral resources) was carved out of the original NR area for local economic development purposes, and the area of Liangheyuan NR decreased from 1,130,000 hectares to 680,776 hectares.[37] The adjusted Liangheyuan NR now covers the upper branches of Ulungur River including Chaganguole River and Tsingerli River in Qinghe County – where the Chinese beaver is distributed – and the eastern upper branches of Ertix River including Ku-Ertix River, Ka-Ertix River and Zhuo-Ertix River in Fuyun County.Early on, the Liangheyuan NR was managed directly by Altai Mountains Forestry Bureau(AMFB), which is responsible for management of Altai Mountain forests. Later, the*Liangheyuan NR Management Bureau* was established as a special section of AMFB. Liangheyuan NR comprises the summer pastures for local Kazakh nomads in Qinghe County and Fuyun County. Mining, especially gold mining along rivers such as the Zhuo-Ertix River and its Kuermutu tributary, and over-grazing such as in Sandaohaizi wetland area, are the main threats to Liangheyuan NR. Through the field survey conducted in July 2012 (during PPG phase), it wasfound that the upper reaches of the Kala-Ertix River in Fuhai County, which was removed from the Liangheyuan NR in 2004, is critically important for the integrity of Liangheyuan headwater and its biodiversity conservation. While Liangheyuan NR is a member of the China's Man & Biosphere (MAB) PA network, it is not yet certified as World Biosphere Reserve by UNESCO.

9.2.2 Kanas National Nature Reserve

Kanas NR was established in 1980 as a provincial NR, and promoted to National NR in 1986. In 2001, Kanas was elected as "4A" category of Tourism Scenic Spot. In 2003, Kanas was named as National Geological Park and National Forest Park. Kanas NNR is situated in the upper reaches of Kanas River including Kanas Lake, and encompasses the main distribution area of glaciers in the Altai Mountains. More than 70% of the glacier in the Altai Mountain in China are distributed in Kanas NNR. Currently, management of Kanas NNR is under the supervision of the *Kanas Scenic Spot Management Committee* of Altai Prefecture Government. Tourism in the areahas become a significant challenge for the management of Kanas NNR. In 2011, more than 900,000 tourists visited Kanas NNR.

9.2.3Buergen Beaver Nature Reserve

Buergen Beaver NR was established in 1980 in order to protect the Chinese sub-species of the Eurasian beaver and its habitat, including Buergen River and its riparian forest. The NR covers the whole Buergen River, about 50km in length in China, along which a 1km width is included in the reserve. According to a survey conducted in 1990, there were 30 families with 126 beavers in NR, about 18% of the estimated total population in China. According to a survery conducted in 2005 and 2006, a population of around 90 beavers was estimated to live in Buergen NR. Habitat degradation and fragmentation are the main threats. In 1995, Qinghe County set up the "One Dam, Two Water Channels" project in the upper reasches of Burgen Reserve, which completely blocks the interaction (connectivity) of beavers in Mongolia and China. In addition, the "One Dam, Two Water Channels" project leads not only to habitat loss in the upper reaches of the Buergen Beaver NR, but also water sparsity and changes in

[37] This decrease in NR area – from 2001 to 2004 – accounts for the decrease in AMWL PA area, which may be noted between the earlier project PIF document and the present (extended) project document.

natural floodingrhythmes, which are the main root-causes of habitat degradation in lower reaches of the river. Habitat conversion to cropland and overgrazing along the Buergen River, which comprises the winter pasture area for local Kazakh nomads, are other reasons for degradation and loss of habitat in Buergen NR. The management of Buergen Beaver NR is under the supervision of Altai Forestry Bureau (AFB), administrated by Altai Government and supervised by XFD.

9.2.4 Kekesu Wetlands Nature Reserve

Kekesu NR was established in 2001 for the protection of the important river mouth wetland where the Kelan River joins the Ertix River. It is the most important wetland in the Ertix River watershed for migratory fishes and birds. The wide shallow water full of reeds and other grass is the main spawning area for fish species in the Ertix River, whichcome up from the lower reaches in the spring time. Alarge overflow dam is planned, with the aim to raise water levels in the wetland. However this overflow dam might block the migration and reproduction of fish from the river's lower reaches; such a dam also could lead to backflow of the Ertix River into the wetland, which might criticlly disrupt ecological balance of the Kekesu wetland ecosystem. Careful investigation and evaluation must therefore be conducted before implementation of the overflow dam project. The Kekesu Wetland NR is under the supervision of AFB.

9.2.5 Keketuohai Nature Reserve

The Ertix River Keketuohai NR was established in 2005 for protection of the Ertix River wetland ecosystem near the Kazakhstan border, and to help protect rare and endangered species such as Black Stork (*Ciconia nigra*), White Stork (*Ciconia ciconia*) and the otter (*Lutra lutra lutra*). It is the only PA along the Ertix River in China. Keketuohai NR is under the supervision of AFB.

Other protected areas in Altai Prefecture include:

9.2.6 Jingtasi Rangland Nature Reserve

This NR was established in 1986 by agriculture authorities for protection of montane rangelands.

9.2.7 Wulungu Lake Endemic Fish NationalFishery Germplasm Resources PA

Established by the Ministry of Agriculturein 2010, this national PA aims to protect native fish species in Ulungur Lake. The total area of the PA is 3,000 ha. The local management authority is the Fuhai County Fishery Administration Station.

9.2.8 Kalamaili Ungulate Nature Reserve

Kalamaili Ungulat NR was established in 1982 for the protection of ungulatespecies such as the Asiatic wild ass (*Equus hemionus*), Goitred gazelle (*Gazella subgutturosa*), Argali (*Ovis ammon*), etc. Kalamaili Ungulate NR is the largest PA in northern Xinjiang, with an total area of 1,589,958 ha, located south of the Ulungur River.

More information about these protected areas is included in Table 19 below.

Table 19. Main Nature Reserves / Protected Areas in the Altai Mountains Region of Xinjiang, China.

Nature Reserve	**Area** (ha)	**Main purpose** (object of protection)	**Year est.**	**Management authority**	**Main threats**	**Annual budget (US$)**	**Number of staff**
* Liangheyuan Provincial NR	680,776	Forests, flora and fauna, wetlands	2001	Forestry	Overgrazing, gold mining, fencing, water utilization, climate change	Operational (excl. salaries): US$ 62,794 Project or other supplementary: US$ 5,218,210	50 permanent 5 seasonal
* Kekesu Wetland Provincial NR	30,667	Wetlands, plant and animal resources	2001	Forestry	Overgrazing, altered hydrological regime, agricultural reclamation	Operational (excl. salaries): US$ 5,000 Project or other supplementary: US$ 403,000	12 permanent 5 seasonal
*Buergen Beaver Provincial NR	5,000	Beavers and their habitat	1980	Forestry	Destruction of riparian vegetation, overgrazing, dam construction and water resource utilization	Operational (excl. salaries): US$ 11,928 Project or other supplementary: US$ 4,708	10 permanent 7 seasonal
* Kanas (Hanasi) National NR	220,162	Forest ecosystems and natural landscapes	1980	Forestry	Mass tourism and infrastructure,overgrazing	Operational (excl. salaries): US$ 602,826 Project or other supplementary: US$ 828,885	345 full-time 152 seasonal
* Ertix River (Erqisihe) Keketuohai Wetland Provincial NR	99,040	River, lake, swamp wetlands flora and fauna	2005	Forestry	Mining pollution, development, overgrazing, desertification	Operational (excl. salaries): US$ 23,000 Project or other supplementary: US$ $0	5 permanent 5 seasonal
Jingtasi Mountain Grassland Provincial NR	56,700	Grassland ecosystems	1986	Agriculture	Overgrazing		7 staff
* UlungurLake Fishery Germplasm Resources PA	3,000	Native fish	2010	Agriculture	ecies (e.g., pond smelt, *Hypomesus olidus*), overfishing, altered hydrological regime		
Kalamaili Ungulate Provincial NR	1,346,420	Ungulates and the rangeland	1982	Forestry	Mining, road infrastructure, petrochemical exploration		

*Indicates NRs that consist of predominately wetland ecosystems, or that have significant wetlands within their boundaries

9.3 Wildlife Species in AMWL

There are 325 species of terrestrial vertebrates in AMWL, including 14 species listed nationally as Class I protected species and 56 species listed as Class II protected species as showed in Table 20. There are around 70 species of wetland birds and 27 species of Falconiformes.

Table 20. Vertebrate species in AMWL.

Category	Mammals	Birds	Reptiles	Amphibians	Fish
Species No.	62	251	10	2	35
Category I for National focal protection	5	9			
Category II for National focal protection	12	44			

There are 35 species of fish, among which 23 species are native fish and 12 are introduced alien species. The presence of alien invasive species of fish has become a big problem for native fish. The introduction of pond smelt (*Hypomesus olidus*) in 1991 has endangered native fish species including perch (*Perca fluviatilis*) and Siberian dace (*Leuciscus baicalensis*). Before introduction of pond smelt, Siberian dace and perch were the dominant species in Ulungur River and Ulungur Lake, which accounted for about 80% and 10% of the total production, respectively. However, after the introduction of pond smelt, the latter has taken over since 1995 and now constitutes about 60% of the total fishery production. At the same time, the production of Siberian dace and perch has decreased to less than 1% since 1995.

Butterflies are another colorful group of species in AWML. There are 186 species of butterflies recorded in the Altai Mountains, among which the Apollo butterfly is listed as a Category II species for national protection.

Key wildlife species present in AMWL, with protection category (Class I and Class II, according to national classification) are presented below. Chinese, English and Latin names are included.

Table 21. ***Endangered wildlife of AMWL***

Code	Chinese name	English name	Latin name	National protection status (Class I or II)
MAMMALS				
1	豺	Red dog	*Cuon alpinus*	II
2	棕熊	Brown bear	*Ursus arctos*	II
3	石貂	Stone marten	*Martes foina*	II
4	紫貂	Sable	*Martes zibellina*	I
5	狼獾/貂熊	Wolverine	*Gulo gulo*	I
6	水獭	Common otter	*Lutra lutra*	II
7	草原斑猫	African wild cat	*Felis libyca*	II
8	兔狲	Pallas's cat	*Felis manul*	II
9	猞猁	Lynx	*Felis lynx*	II
10	雪豹	Snow leopard	*Panthera unicia*	I
11	原麝	Siberian musk deer	*Moschus moschiferus*	II
12	马鹿	Red deer	*Cervus elaphus*	II

13	驼鹿	Moose	*Alces alces*	II
14	北山羊	Ibex	*Capra ibex*	I
15	盘羊	Argali	*Ovis ammon*	II
16	雪兔	Arctic hare	*Lepus timidus*	II
17	河狸	Beaver	*Castor fiber birulai*	I
18	林睡鼠	Forest dormouse	*Dryomys nitedula*	Very rare and endangered
KEY BIRDS				
19	卷羽鹈鹕	Dalmatian pelican	*Pelecanus crispus*	II
20	白鹳	White stork	*Ciconia ciconia*	I
21	黑鹳	Black stork	*Ciconia nigra*	I
22	大天鹅	Whooper swan	*Cygnus cygnus*	II
23	黑耳鸢	Black-eared kite	*Milvus lineatus*	II
24	苍鹰	Northern gosharwk	*Accipiter gentilis*	II
25	雀鹰	Eurasian sparrowhawk	*Accipiter nisus*	II
26	褐耳鹰	Shikra	*Accipiter badius*	II
27	棕尾鵟	Long legged buzzard	*Buteo rufinus*	II
28	大鵟	Upland buzzard	*Buteo hemilasius*	II
29	普通鵟	Common buzzard	*Buteo buteo*	II
30	毛脚鵟	Rough-legged buzzard	*Buteo lagopus*	II
31	金雕	Golden eagle	*Aquila chrysaetos*	I
32	白肩雕	Imperial eagle	*Aquila heliaca*	I
33	草原雕	Steppe eagle	*Aquila nipalensis*	II
34	小雕/靴隼雕	Booted eagle	*Hieraaetus pennatus*	II
35	玉带海雕	Pallas's fish eagle	*Haliaeetus leucoryphus*	II
36	乌雕	Greater spotted eagle	*Aquila clanga*	II
37	秃鹫	Cinereous vulture	*Aegypius monachus*	II
38	兀鹫	Eurasian griffon	*Gyps fulvus*	II
39	胡兀鹫	Lammergeier	*Gypaetus barbatus*	I
40	白尾鹞	Hen harrier	*Circus cyaneus*	II
41	白头鹞	Eurasian marsh harrier	*Circus aeruginosus*	II
42	鹗	Osprey	*Pandion haliaetus*	II
43	猎隼	Saker Falcon	*Falco cherrug*	II
44	游隼	Peregrine falcon	*Falco peregrinus*	II
45	燕隼	Eurasian hobby	*Falco subbuteo*	II
46	黄爪隼	Lesser kestrel	*Falco naumanni*	II
47	矛隼	Gyr falcon	*Falco rusticolus*	II
48	红隼	Common kestrel	*Falco tinnunculus*	II

49	红脚隼	Red-footed falcon	*Falco vespertinus*	II
50	角䴙䴘	Horned grebe	*Podiceps auritus*	II
51	（西方）松鸡	Western capercaillie	*Tetrao urogallus*	II
52	黑琴鸡	Black grouse	*Tetrao tetrix*	II
53	岩雷鸟	Pock ptarmigan	*Lagopus mutus*	II
54	花尾榛鸡	Hazel grouse	*Tetrastes bonasia*	II
55	阿勒泰雪鸡	Altai snowcock	*Tetraogallus altaicus*	II
56	蓑羽鹤	Demoiselle crane	*Grus virgo*	II
57	灰鹤	Common crane	*Grus grus*	II
58	黑颈鹤	Black-necked crane	*Grus nigricollis*	I
59	长脚秧鸡	Corn crake	*Crex crex*	II
60	大鸨	Great bustard	*Otis tarda*	I
61	波斑鸨	McQueen's bustard	*Chlamydotis macqueeni*	I
62	黑腹沙鸡	Black-bellied sandgrouse	*Pterocles orientalis*	II
63	黄喉蜂虎	European Bee-eater	*Merops apiaster*	Rare and endangered and mainly distributed in Altai in China
64	雕鸮	Eurasian eagle owl	*Bubo bubo*	II
65	纵纹腹小鸮	Little owl	*Athene noctua*	II
66	长耳鸮	Long-eared owl	*Asio otus*	II
67	短耳鸮	Short-eared owl	*Asio flammeus*	II
68	鬼鸮	Boreal owl	*Aegolius funereus*	II
69	雪鸮	Snow owl	*Nyctea scandiaca*	II
70	花头鸺鹠	Eurasian pygmy owl	*Glaucidium passerinum*	II
71	长尾林鸮	Ural owl	*Strix uralensis*	II
72	红角鸮	Eurasian Scops Owl	*Otus scops*	II
73	白冠攀雀	White-crowned penduline tit	*Remiz coronatus*	Used to be common species but currently become rare
74	河乌	White-throated dipper	*Cinclus cinclus*	Used to be common species but currently become rare
75	黑百灵	Black lark	*Melanocorypha yeltoniensis*	Very rare and mainly distributed in Altai in China
KEY REPTILES				
76	极北蝰	Viper	*Vipera berus*	Rare and endangered
77	胎生蜥蜴	Viviparous lizard	*Lacerta vivipara*	Mainly distributed in AMWL
78	新疆鬣蜥 / 新疆岩蜥	Xinjiang rock agama	*Agama stoliczkana*	Endemic species in Xinjiang
KEY AMPHIBIANS				

79	阿勒泰林蛙	Altai brown frog	*Rana altaica*	Endemic species and rare and endangered
KEY FISH				
80	哲罗鲑/大红鱼	Siberian Taimen	*Hucho taimen*	Rare and endangered
81	北鲑	Inconnu	*Stenodus leucichthys*	Critical endangered or extinct
82	北极茴鱼	Arctic grayling	*Thymallus arcticus arcticus*	Endemic to Ertix River and endangered
83	阿勒泰杜父鱼	Altai sculpins	*Cottus sibiricus*	Endemic to upper reaches of Ertix which is rare and endangered
INSECTS				
84	阿波罗绢蝶	Apollo butterfly	*Parnassius apollo*	II

9.4 Wildlife of Special Interest

Moose (*Alces alces*): There is Mongolia town called "Han Da Ga Te" in the East of Altai City. "Han Da Han" is the Mongolia name of Moose, and "Te" means a place in Mongolia. "Han De Ga Te" means a place where moose range over. Scientists and Kanas Nature Reserve did a lot of efforts for the survey of Moose but did not found them. In 1994, Kanas Nature Reserve finally caught a Moose and confirmed that there were Moose in Altai Prefecture. Later, there is no further information about moose.

Otter (*Lutra lutra lutra*): Otter used to be widely distributed in the rivers in Altai. Since 1980s, it has become very rare. In 2010, Altai custom seized 32 otter skins. Recently, Ertix River Keketuohai Wetland NR found a dead Otter in Habahe River. There is no other information about Otter in Altai.

Beaver (*Castor fiber birulai*): The sub-species of *Castor fiber birulai* is only distributed in Ulungur River and its tributaries such as the Buergen River (including its upper reaches in Mongolia), Qinggeli River and Chaganguole River. The population of beavers decreased much, from around 700 in 1989 to current around 350 individuals. Habitat loss and fragmentation are the main threats to beavers.

Mink: During the quick survey in July 2012, we found 5 minks along the Kala Ertix River. Because they ran away very fast, we could not identify which species they were. From pictures we took, they were black and like minks. Are they local European Minks living the Ertix River but not yet identified by scientists? Or are they are just alien species of American Minks released from captive breeding in 20th century and adapted to the local habitat? Further investigation is needed to identify the species and confirm the situation.

Altai Brown Frog (*Rana altaica*): This endemic frog in the Altai region is becoming rare and endangered. There is no information about the living situation. Habitat loss and degradation are the main threats. It is suitable indicator species for EHI monitoring.

Apollo butterfly (*Parnassius apollo*): In China, the Apollo butterfly is only distributed in Xinjiang, and the Altai Mountains are its main range. It is listed as Category II National focal protection species; it also is on the IUCN Red List of threatened animals. The caterpillars of Apollo feed mainly on stonecrop (*sedum* species). The Apollo butterfly is identified as an important indicator species for EHI and climate change monitoring.

Siberian taimen (*Hucho taimen*): The taimen used to be widely distributed in rivers and lakes in the Altai area, however it has become rare and is now a critically endangered species.

Arctic grayling (*Thymallus arcticus*): Arctic grayling is still a common fish in the rivers in Altai. It has been identified as a suitable indicator species for EHI monitoring.

ANNEX10.Resultsfrom the project scorecards

10.1 BD-1 Tracking Tool (METT and Financial Sustainability Scorecard)

*Full Tracking Tool is annexed as an excel file.

METT Section One Data:

Name of reviewers completing tracking tool and completion dates

	Name	Title	Agency
CEO Endorsement Feb. 2013	Lucy Yu	Programme Consultant	
Project Mid-term			
Final Evaluation/project completion			

Project coverage in hectares

Targets and Timeframe	**Foreseen at project start (ha)**	**Achievement at Mid-term Evaluation of Project (ha)**	**Achievement at Final Evaluation of Project (ha)**
A. Total Extent in hectares of protected areas targeted by the project by WWF Terrestrial MHTs			
Temperate broadleaf and mixed forests (temperate, humid)	395,420		
Temperate coniferous forests (temperate, humid to semi-humid)	65,300		
Temperate grasslands, savannas, and shrublands (temperate, semi-arid)	149,957		
Montane grasslands and shrublands (alpine or montane climate)	10,551,435		
Deserts and xeric shrub lands (temperate to tropical, arid)	9,773,387		
Sub-total	**20,935,499**		
B. Total Extent in hectares of protected areas targeted by the project by WWF Freshwater MHTs			
B.1 By freshwater MHTs			
Xeric freshwaters and endorheic (closed) basins	981,190		
Temperate upland rivers	1,035,645		
Sub-total	**2,016,835**		
Grand Total	**22,952,334**		

10.2 UNDP CAPACITY SCORECARDS

10.2.1*Xinjiang Forestry Department (XFD)*

Strategic Area of Support	Issue	Outcome Indicators	Score:		Evaluative Comments
1. Capacity to conceptualize and formulate policies, legislations, strategies and programmes	1. The protected area agenda is being effectively championed / driven forward	There is essentially no protected area agenda;	0	**2**	Xinjiang formulate nature reserve (NR) development plans at an interval of five years and submit to relevant central governmental agencies for approval. Central government will integrate provincial-level NR plan into the national NR plan. Since developing nature reserve development plan involves a great deal of resources inputs (human, material and financial resources), it needs all relevant governmental agencies to make more commitment to do this.
		There are some persons or institutions actively pursuing a protected area agenda but they have little effect or influence;	1		
		There are a number of protected area champions that drive the protected area agenda, but more is needed;	2		
		There are an adequate number of able "champions" and "leaders" effectively driving forwards a protected area agenda	3		
	2. There is a strong and clear legal mandate for the establishment and management of protected areas	There is no legal framework for protected areas;	0	**3**	At the national level, China enacted Wildlife Conservation Law, Regulations on Nature Reserve Conservation in China, and other regulations and bylaws. At the provincial-level, Xinjiang Uyghur Autonomous Region (XUAR) also developed corresponding regulations and bylaws in line with the national-level ones to provide more practically legal guidance according to XUAR's context. XUAR newly approved Regulations on Wetland Conservation in XUAR started to take effect from Oct. 1, 2012.
		There is a partial legal framework for protected areas but it has many inadequacies;	1		
		There is a reasonable legal framework for protected areas but it has a few weaknesses and gaps;	2		
		There is a strong and clear legal mandate for the establishment and management of protected areas	3		
	3. There is an institution or institutions responsible for protected areas able to strategize and plan.	Protected area institutions have no plans or strategies;	0	**2**	Almost all nature reserves in Xinjiang have established independent management authorities.
		Protected area institutions do have strategies and plans, but these are old and no longer up to date or were prepared in a totally top-down fashion;	1		
		Protected area institutions have some sort of mechanism to update their strategies and plans, but this is irregular or is done in a largely top-down fashion without proper consultation;	2		
		Protected area institutions have relevant, participatorially prepared, regularly updated strategies and plans	3		
2. Capacity to implement policies, legislation,	4. There are adequate skills for protected area planning and	There is a general lack of planning and management skills;	0	**2**	Under the support from the Central Government and XUAR Government, both staff skills and equipment for NRs have been ameliorated and improved in recent years. NR planning and their implementation still need
		Some skills exist but in largely insufficient quantities to guarantee effective planning and management;	1		

Strategic Area of Support	Issue	Outcome Indicators	Score:		Evaluative Comments
strategies and programmes	management	Necessary skills for effective protected area management and planning do exist but are stretched and not easily available;	2		to be enhanced.
		Adequate quantities of the full range of skills necessary for effective protected area planning and management are easily available	3		
	5. There are protected area systems	No or very few protected area exist and they cover only a small portion of the habitats and ecosystems;	0	**3**	The existing PA system in Xinjiang has covered all key ecoregions in XUAR. By 2011, Xinjiang has 27 nature reserves covering 2,184,119,900 ha land areas, which places 13.15% lands in Xinjiang under conservation. The NR network preserves splendid landscapes, endangered species (flora and fauna), grasslands, arid ecosystems and wetlands in Xinjiang. The NR system provides a safer refuge network for many unique landscape and ecosystem and endemic species. XUAR is also piloting wetland park system in four lacustrine wetlands, which further expand the PA network.
		Protected area system is patchy both in number and geographical coverage and has many gaps in terms of representativeness;	1		
		Protected area system is covering a reasonably representative sample of the major habitats and ecosystems, but still presents some gaps and not all elements are of viable size;	2		
		The protected areas includes viable representative examples of all the major habitats and ecosystems of appropriate geographical scale	3		
	6. There is a fully transparent oversight authority (there are fully transparent oversight authorities) for the protected areas institutions	There is no oversight at all of protected area institutions;	0	**3**	NR management authorities are supervised and administrated by higher relevant governmental agencies, including finance, compliance, procuratorate, and auditing sectors, under full transparency.
		There is some oversight, but only indirectly and in a non-transparent manner;	1		
		There is a reasonable oversight mechanism in place providing for regular review but lacks in transparency (e.g. is not independent, or is internalized) ;	2		
		There is a fully transparent oversight authority for the protected areas institutions	3		
	7. Protected area institutions are effectively led	Protected area institutions have a total lack of leadership;	0	**2**	PA management authorities have required leadership but need being fully staffed.
		Protected area institutions exist but leadership is weak and provides little guidance;	1		
		Some protected area institutions have reasonably strong leadership but there is still need for improvement;	2		
		Protected area institutions are effectively led	3		
	8. Protected areas have regularly updated, participatorially	Protected areas have no management plans;	0	**1**	PA management plans have well considered the demands of conservation targets by being in line with PAs' conservation objectives and their management responsibilities. However, these plans are scarcely
		Some protected areas have up-to-date management plans but they are typically not comprehensive and were not participatorially prepared;	1		

Strategic Area of Support	Issue	Outcome Indicators	Score:		Evaluative Comments
	prepared, comprehensive management plans	Most Protected Areas have management plans though some are old, not participatorially prepared or are less than comprehensive;	2		involving the needs of stakeholders, which hampers their implementation a lot.
		Every protected area has a regularly updated, participatorially prepared, comprehensive management plan	3		
	9. Human resources are well qualified and motivated	Human resources are poorly qualified and unmotivated;	0	**2**	PA staff is generally poorly paid. Their working conditions are getting better gradually. Most NRs have established their own incentive mechanisms and have started to recruit high-quality talents.
		Human resources qualification is spotty, with some well qualified, but many only poorly and in general unmotivated;	1		
		HR in general reasonably qualified, but many lack in motivation, or those that are motivated are not sufficiently qualified;	2		
		Human resources are well qualified and motivated.	3		
	10. Management plans are implemented in a timely manner effectively achieving their objectives	There is very little implementation of management plans;	0	**2**	NRs generally implement their management plans. However, some identified activities in management plans would be postponed due to complicated reasons, e.g., fund insufficient, unsound conservation activities.
		Management plans are poorly implemented and their objectives are rarely met;	1		
		Management plans are usually implemented in a timely manner, though delays typically occur and some objectives are not met;	2		
		Management plans are implemented in a timely manner effectively achieving their objectives	3		
	11. Protected area institutions are able to adequately mobilize sufficient quantity of funding, human and material resources to effectively implement their mandate	Protected area institutions typically are severely underfunded and have no capacity to mobilize sufficient resources;	0	**1**	PA management authorities can receive funds from several channels, including central, provincial, city and county finance sectors. PA management authorities have their independent accounting unit, which ensures PA management authorities to mobilize available resources to manage PAs effectively. However, available fund and human resources are much less than their actual needs.
		Protected area institutions have some funding and are able to mobilize some human and material resources but not enough to effectively implement their mandate;	1		
		Protected area institutions have reasonable capacity to mobilize funding or other resources but not always in sufficient quantities for fully effective implementation of their mandate;	2		
		Protected area institutions are able to adequately mobilize sufficient quantity of funding, human and material resources to effectively implement their mandate	3		
	12. Protected area institutions are	While the protected area institution exists it has no management;	0	**2**	PA management authorities can manage their PAs by abiding by applicable laws, regulations, bylaws and

Strategic Area of Support	Issue	Outcome Indicators	Score:		Evaluative Comments
	effectively managed, efficiently deploying their human, financial and other resources to the best effect	Institutional management is largely ineffective and does not deploy efficiently the resources at its disposal;	1		policies and their management performance is fair. In terms of staffing, they still need approvals from higher administrative agencies.
		The institution(s) is (are) reasonably managed, but not always in a fully effective manner and at times does not deploy its resources in the most efficient way;	2		
		The protected area institution is effectively managed, efficiently deploying its human, financial and other resources to the best effect	3		
	13. Protected area institutions are highly transparent, fully audited, and publicly accountable	Protected area institutions totally untransparent, not being held accountable and not audited;	0	**2**	PA management authorities are requested to adopt finance auditing and conservation accountability systems to keep their transparent financially and functionally.
		Protected area institutions are not transparent but are occasionally audited without being held publicly accountable;	1		
		Protected area institutions are regularly audited and there is a fair degree of public accountability but the system is not fully transparent;	2		
		The Protected area institutions are highly transparent, fully audited, and publicly accountable	3		
	14. There are legally designated protected area institutions with the authority to carry out their mandate	There is no lead institution or agency with a clear mandate or responsibility for protected areas;	0	**2**	Like other areas in China, several governmental sectors manage PAs within their jurisdictions that have overlapping. Different sectors cannot effectively collaborate with each other in dealing with some issues and events due to sector interest conflicts, unclear definition of their responsibilities, and limited communication.
		There are one or more institutions or agencies dealing with protected areas but roles and responsibilities are unclear and there are gaps and overlaps in the arrangements;	1		
		There are one or more institutions or agencies dealing with protected areas, the responsibilities of each are fairly clearly defined, but there are still some gaps and overlaps;	2		
		Protected Area institutions have clear legal and institutional mandates and the necessary authority to carry this out	3		
	15. Protected areas are effectively protected	No enforcement of regulations is taking place;	0	**2**	To enact any PA-related regulation or bylaws, all relevant governmental sectors are requested to be consulted and are responsible for review and comment the regulation or bylaws to ensure their full involvement. By doing so helps the follow-up law implementation. PA regulations are regularly enforced
		Some enforcement of regulations but largely ineffective and external threats remain active;	1		
		Protected area regulations are regularly enforced but are not fully effective and external threats are reduced but not eliminated;	2		

Strategic Area of Support	Issue	Outcome Indicators	Score:		Evaluative Comments
		Protected Area regulations are highly effectively enforced and all external threats are negated	3		but not effectively effective given massive pressure from local economic development in some NRs.
	16. Individuals are able to advance and develop professionally	No career tracks are developed and no training opportunities are provided;	0	**2**	PA staff cannot be trained systematically in accordance with their responsibilities. Usually, PA staff passively takes limited training chances indiscriminately and PA managers have the last word in determining training participants.
		Career tracks are weak and training possibilities are few and not managed transparently;	1		
		Clear career tracks developed and training available; HR management however has inadequate performance measurement system;	2		
		Individuals are able to advance and develop professionally	3		
	17. Individuals are appropriately skilled for their jobs	Skills of individuals do not match job requirements;	0	**1**	PA team in XUAR has a comparatively low skills and capacities.
		Individuals have some or poor skills for their jobs;	1		
		Individuals are reasonably skilled but could further improve for optimum match with job requirement;	2		
		Individuals are appropriately skilled for their jobs	3		
	18. Individuals are highly motivated	No motivation at all;	0	**2**	As mentioned above, some PAs have established their incentive mechanism based on their own situation.
		Motivation uneven, some are but most are not;	1		
		Many individuals are motivated but not all;	2		
		Individuals are highly motivated	3		
	19. There are appropriate systems of training, mentoring, and learning in place to maintain a continuous flow of new staff	No mechanisms exist;	0	**1**	Xinjiang Forestry Department has their training and learning plans that need to be consolidated and enhanced if budget are sufficient enough.
		Some mechanisms exist but unable to develop enough and unable to provide the full range of skills needed;	1		
		Mechanisms generally exist to develop skilled professionals, but either not enough of them or unable to cover the full range of skills required;	2		
		There are mechanisms for developing adequate numbers of the full range of highly skilled protected area professionals	3		
3. Capacity to engage and build consensus among all stakeholders	20. Protected areas have the political commitment they require	There is no political will at all, or worse, the prevailing political will runs counter to the interests of protected areas;	0	**1**	PAs have certain level of political wills to be loyalty to PAs' ultimate objectives. However, if there are any serious conflicts between conservation and resources exploitation to stimulate economic development, PAs is subject to step backand usually comprise under strong pressure from local government.
		Some political will exists, but is not strong enough to make a difference;	1		
		Reasonable political will exists, but is not always strong enough to fully support protected areas;	2		

Strategic Area of Support	Issue	Outcome Indicators	Score:		Evaluative Comments
		There are very high levels of political will to support protected areas	3		
	21. Protected areas have the public support they require	The public has little interest in protected areas and there is no significant lobby for protected areas;	0	**1**	PAs collaborate with media, university and other partners to do promotion except doing some site-level environmental promotion by themselves.
		There is limited support for protected areas;	1		
		There is general public support for protected areas and there are various lobby groups such as environmental NGO's strongly pushing them;	2		
		There is tremendous public support in the country for protected areas	3		
	22. Protected area institutions are mission oriented	Institutional mission not defined;	0	**2**	PA institutional mission have not being recognized internally and externally, which contributes to the ineffective management of PAs in the region.
		Institutional mission poorly defined and generally not known and internalized at all levels;	1		
		Institutional mission well defined and internalized but not fully embraced;	2		
		Institutional missions are fully internalized and embraced	3		
	23. Protected area institutions can establish the partnerships needed to achieve their objectives	Protected area institutions operate in isolation;	0	**2**	There exists some ad-hoc cooperation with some UN agencies and domestic universities. The partnership with these organizations should be consolidated and improved. On the other hand, PA institutes should establish a wider partnership with relevant governmental agencies, private sectors (miners) and local communities to win their stronger support.
		Some partnerships in place but significant gaps and existing partnerships achieve little;	1		
		Many partnerships in place with a wide range of agencies, NGOs etc, but there are some gaps, partnerships are not always effective and do not always enable efficient achievement of objectives;	2		
		Protected area institutions establish effective partnerships with other agencies and institutions, including provincial and local governments, NGO's and the private sector to enable achievement of objectives in an efficient and effective manner	3		
	24. Individuals carry appropriate values, integrity and attitudes	Individuals carry negative attitude;	0	**2**	Most staff works in a positive attitude while some staff cannot pull their weight fully due to limited skills, complaints about underpaid and severe working environment.
		Some individuals have notion of appropriate attitudes and display integrity, but most don't;	1		
		Many individuals carry appropriate values and integrity, but not all;	2		
		Individuals carry appropriate values, integrity and attitudes	3		
4. Capacity to	25. Protected area	Information is virtually lacking;	0	**1**	PA institutions have very limited information with poor

Strategic Area of Support	Issue	Outcome Indicators	Score:		Evaluative Comments
mobilize information and knowledge	institutions have the information they need to develop and monitor strategies and action plans for the management of the protected area system	Some information exists, but is of poor quality, is of limited usefulness, or is very difficult to access;	1		quality to support their making decisions or monitoring conservation success due to limited budget, limited capacities to collect data, and lack of relevant mechanism as well as platform (database) to encourage data sharing and management.
		Much information is easily available and mostly of good quality, but there remain some gaps in quality, coverage and availability;	2		
		Protected area institutions have the information they need to develop and monitor strategies and action plans for the management of the protected area system	3		
	26. Protected area institutions have the information needed to do their work	Information is virtually lacking;	0	**1**	Limited information sharing exists. Even some information shared, the shared information is usually out-of-date and has very limited values for reference.
		Some information exists, but is of poor quality and of limited usefulness and difficult to access;	1		
		Much information is readily available, mostly of good quality, but there remain some gaps both in quality and quantity;	2		
		Adequate quantities of high quality up to date information for protected area planning, management and monitoring is widely and easily available	3		
	27. Individuals working with protected areas work effectively together as a team	Individuals work in isolation and don't interact;	0	**2**	PA staff does their assignments well but need more collaboration and cooperation.
		Individuals interact in limited way and sometimes in teams but this is rarely effective and functional;	1		
		Individuals interact regularly and form teams, but this is not always fully effective or functional;	2		
		Individuals interact effectively and form functional teams	3		
5. Capacity to monitor, evaluate, report and learn	28. Protected area policy is continually reviewed and updated	There is no policy or it is old and not reviewed regularly;	0	**1**	Policies are reviewed periodically although the review results might not be well feed back into follow-up work.
		Policy is only reviewed at irregular intervals;	1		
		Policy is reviewed regularly but not annually;	2		
		National protected areas policy is reviewed annually	3		
	29. Society monitors the state of protected areas	There is no dialogue at all;	0	**1**	Some PA institutions and XFD publicize PA management via website and other traditional media, e.g., newspaper. PA institutions should involve a wide range of public through a diverse dialogue mechanism, e.g., open day, specific promotion campaign and etc.
		There is some dialogue going on, but not in the wider public and restricted to specialized circles;	1		
		There is a reasonably open public dialogue going on but certain issues remain taboo;	2		
		There is an open and transparent public dialogue about the state of the protected areas	3		
	30. Institutions are highly adaptive,	Institutions resist change;	0	**2**	PA institutions can make corresponding change in line with the change of relevant national policies.
		Institutions do change but only very slowly;	1		

Strategic Area of Support	Issue	Outcome Indicators	Score:		Evaluative Comments
	responding effectively and immediately to change	Institutions tend to adapt in response to change but not always very effectively or with some delay;	2		
		Institutions are highly adaptive, responding effectively and immediately to change	3		
	31. Institutions have effective internal mechanisms for monitoring, evaluation, reporting and learning	There are no mechanisms for monitoring, evaluation, reporting or learning;	0	**2**	Both PA institutions and their staff are evaluated annually.
		There are some mechanisms for monitoring, evaluation, reporting and learning but they are limited and weak;	1		
		Reasonable mechanisms for monitoring, evaluation, reporting and learning are in place but are not as strong or comprehensive as they could be;	2		
		Institutions have effective internal mechanisms for monitoring, evaluation, reporting and learning	3		
	32. Individuals are adaptive and continue to learn	There is no measurement of performance or adaptive feedback;	0	**2**	Staff's performance will be evaluated and recorded at least once every year.
		Performance is irregularly and poorly measured and there is little use of feedback;	1		
		There is significant measurement of performance and some feedback but this is not as thorough or comprehensive as it might be;	2		
		Performance is effectively measured and adaptive feedback utilized	3		
TOTAL SCORE			**96**	**57**	
				59%	

10.2.2*Xinjiang Water Resources Department (XWRD)*

Strategic Area of Support	Issue	Outcome Indicators	Score:		Evaluative Comments
1. Capacity to conceptualize and formulate policies, legislations, strategies and programmes	1. The protected area agenda is being effectively championed / driven forward	There is essentially no protected area agenda;	0	**1**	Xinjiang Water Resources Department (XWRD) has paid high concern to PA conservation. XWRD has actively support XEPD to formulate PA plan and has actively reinforced to transfer waters for certain PAs. However, such efforts cannot meet management demands of PAs.
		There are some persons or institutions actively pursuing a protected area agenda but they have little effect or influence;	1		
		There are a number of protected area champions that drive the protected area agenda, but more is needed;	2		
		There are an adequate number of able "champions" and "leaders" effectively driving forwards a protected area agenda	3		
	2. There is a strong and clear legal mandate for the establishment and management of protected areas	There is no legal framework for protected areas;	0	**2**	There are some regulations and bylaws to support PA administration, e.g., Regulations on Nature Reserve Conservation. The current legal framework is generally sound although some improvements are necessary.
		There is a partial legal framework for protected areas but it has many inadequacies;	1		
		There is a reasonable legal framework for protected areas but it has a few weaknesses and gaps;	2		
		There is a strong and clear legal mandate for the establishment and management of protected areas	3		
	3. There is an institution or institutions responsible for protected areas able to strategize and plan.	Protected area institutions have no plans or strategies;	0	**2**	PAs drew their management strategies and plans in accordance to applicable regulations and policies when proposing to establish their PAs on site. However, these strategies and plans have never been updated once PAs were established on the ground.
		Protected area institutions do have strategies and plans, but these are old and no longer up to date or were prepared in a totally top-down fashion;	1		
		Protected area institutions have some sort of mechanism to update their strategies and plans, but this is irregular or is done in a largely top-down fashion without proper consultation;	2		
		Protected area institutions have relevant, participatorially prepared, regularly updated strategies and plans	3		
2. Capacity to implement	4. There are adequate skills for	There is a general lack of planning and management skills;	0	**2**	Different PA management authorities enable to manage their PAs with their skills and knowledge.

Strategic Area of Support	Issue	Outcome Indicators	Score:		Evaluative Comments
policies, legislation, strategies and programmes	protected area planning and management	Some skills exist but in largely insufficient quantities to guarantee effective planning and management;	1		However, due to the shortage of coordination and cooperation, it is difficult for PAs to pursue all skills that they require to conduct a better management.
		Necessary skills for effective protected area management and planning do exist but are stretched and not easily available;	2		
		Adequate quantities of the full range of skills necessary for effective protected area planning and management are easily available	3		
	5. There are protected area systems	No or very few protected area exist and they cover only a small portion of the habitats and ecosystems;	0	**2**	XWRD does not govern PAs directly but manage some elements of PAs, e.g., transferring water. XWRD plays an important role in PAs management directly and indirectly, in particular wetland PAs.
		Protected area system is patchy both in number and geographical coverage and has many gaps in terms of representativeness;	1		
		Protected area system is covering a reasonably representative sample of the major habitats and ecosystems, but still presents some gaps and not all elements are of viable size;	2		
		The protected areas includes viable representative examples of all the major habitats and ecosystems of appropriate geographical scale	3		
	6. There is a fully transparent oversight authority (there are fully transparent oversight authorities) for the protected areas institutions	There is no oversight at all of protected area institutions;	0	**2**	PA management authorities fulfill their responsibilities under the mutual and transparent superintendence of higher administrative management agencies, including financial, discipline and so on.
		There is some oversight, but only indirectly and in a non-transparent manner;	1		
		There is a reasonable oversight mechanism in place providing for regular review but lacks in transparency (e.g. is not independent, or is internalized) ;	2		
		There is a fully transparent oversight authority for the protected areas institutions	3		
	7. Protected area institutions are effectively led	Protected area institutions have a total lack of leadership;	0	**2**	PA management authorities have certain leadership but are understaffed.
		Protected area institutions exist but leadership is weak and provides little guidance;	1		

Strategic Area of Support	Issue	Outcome Indicators	Score:		Evaluative Comments
		Some protected area institutions have reasonably strong leadership but there is still need for improvement;	2		
		Protected area institutions are effectively led	3		
	8. Protected areas have regularly updated, participatorially prepared, comprehensive management plans	Protected areas have no management plans;	0	**2**	Most PAs has their management plans that need to be updated more frequently and more comprehensive.
		Some protected areas have up-to-date management plans but they are typically not comprehensive and were not participatorially prepared;	1		
		Most Protected Areas have management plans though some are old, not participatorially prepared or are less than comprehensive;	2		
		Every protected area has a regularly updated, participatorially prepared, comprehensive management plan	3		
	9. Human resources are well qualified and motivated	Human resources are poorly qualified and unmotivated;	0	**1**	It is hard for PAs to recruit higher talents due to a combined of constraints of PAs, e.g., underpaid, harsh working environment, heavy workload and accountabilities as well as lack of appropriate incentive mechanism.
		Human resources qualification is spotty, with some well qualified, but many only poorly and in general unmotivated;	1		
		HR in general reasonably qualified, but many lack in motivation, or those that are motivated are not sufficiently qualified;	2		
		Human resources are well qualified and motivated.	3		
	10. Management plans are implemented in a timely manner effectively achieving their objectives	There is very little implementation of management plans;	0	**2**	There is no any monitoring protocol to assess whether master plans are fully implemented or not.
		Management plans are poorly implemented and their objectives are rarely met;	1		
		Management plans are usually implemented in a timely manner, though delays typically occur and some objectives are not met;	2		
		Management plans are implemented in a timely manner effectively achieving their objectives	3		
	11. Protected area institutions are able to adequately	Protected area institutions typically are severely underfunded and have no capacity to mobilize sufficient resources;	0	**2**	PAs can receive certain budget from central and XUAR provincial government financial sectors. PA management agencies have relatively independent

Strategic Area of Support	Issue	Outcome Indicators	Score:		Evaluative Comments
	mobilize sufficient quantity of funding, human and material resources to effectively implement their mandate	Protected area institutions have some funding and are able to mobilize some human and material resources but not enough to effectively implement their mandate;	1		power to mobilize human and material resources. However, given the size and scale of their coverage and staffing, such budget level is far from their actual needs.
		Protected area institutions have reasonable capacity to mobilize funding or other resources but not always in sufficient quantities for fully effective implementation of their mandate;	2		
		Protected area institutions are able to adequately mobilize sufficient quantity of funding, human and material resources to effectively implement their mandate	3		
	12. Protected area institutions are effectively managed, efficiently deploying their human, financial and other resources to the best effect	While the protected area institution exists it has no management;	0	**2**	PAs can manage their lands by strictly complying with applicable regulations and policies.
		Institutional management is largely ineffective and does not deploy efficiently the resources at its disposal;	1		
		The institution(s) is (are) reasonably managed, but not always in a fully effective manner and at times does not deploy its resources in the most efficient way;	2		
		The protected area institution is effectively managed, efficiently deploying its human, financial and other resources to the best effect	3		
	13. Protected area institutions are highly transparent, fully audited, and publicly accountable	Protected area institutions totally untransparent, not being held accountable and not audited;	0	**2**	PAs are audited in line with applicable national and sub-national policies and administrative measures.
		Protected area institutions are not transparent but are occasionally audited without being held publicly accountable;	1		
		Protected area institutions are regularly audited and there is a fair degree of public accountability but the system is not fully transparent;	2		
		The Protected area institutions are highly transparent, fully audited, and publicly accountable	3		
	14. There are legally designated	There is no lead institution or agency with a clear mandate or responsibility for protected areas;	0	**2**	Various PA management authorities fulfill their functions according to their assignment but are

Strategic Area of Support	Issue	Outcome Indicators	Score:		Evaluative Comments
	protected area institutions with the authority to carry out their mandate	There are one or more institutions or agencies dealing with protected areas but roles and responsibilities are unclear and there are gaps and overlaps in the arrangements;	1		difficult to reach real consensus to safeguard their own interests.
		There are one or more institutions or agencies dealing with protected areas, the responsibilities of each are fairly clearly defined, but there are still some gaps and overlaps;	2		
		Protected Area institutions have clear legal and institutional mandates and the necessary authority to carry this out	3		
	15. Protected areas are effectively protected	No enforcement of regulations is taking place;	0	**2**	All relevant stakeholders are consulted when formulating or revising any regulations and laws, which removes barriers for follow-up implementation.
		Some enforcement of regulations but largely ineffective and external threats remain active;	1		
		Protected area regulations are regularly enforced but are not fully effective and external threats are reduced but not eliminated;	2		
		Protected Area regulations are highly effectively enforced and all external threats are negated	3		
	16. Individuals are able to advance and develop professionally	No career tracks are developed and no training opportunities are provided;	0	**2**	Individuals can reach certain training opportunities but there is less linkage with the performance evaluation results.
		Career tracks are weak and training possibilities are few and not managed transparently;	1		
		Clear career tracks developed and training available; HR management however has inadequate performance measurement system;	2		
		Individuals are able to advance and develop professionally	3		
	17. Individuals are appropriately skilled for their jobs	Skills of individuals do not match job requirements;	0	**2**	In general, the competencies of PA staff are comparatively low and need to be improved.
		Individuals have some or poor skills for their jobs;	1		
		Individuals are reasonably skilled but could further improve for optimum match with job requirement;	2		
		Individuals are appropriately skilled for their jobs	3		
	18. Individuals are	No motivation at all;	0	**2**	Most staff is well motivated.

Strategic Area of Support	Issue	Outcome Indicators	Score:		Evaluative Comments
	highly motivated	Motivation uneven, some are but most are not;	1		
		Many individuals are motivated but not all;	2		
		Individuals are highly motivated	3		
	19. There are appropriate systems of training, mentoring, and learning in place to maintain a continuous flow of new staff	No mechanisms exist;	0	**2**	The trainings they received do not well match with their needs.
		Some mechanisms exist but unable to develop enough and unable to provide the full range of skills needed;	1		
		Mechanisms generally exist to develop skilled professionals, but either not enough of them or unable to cover the full range of skills required;	2		
		There are mechanisms for developing adequate numbers of the full range of highly skilled protected area professionals	3		
3. Capacity to engage and build consensus among all stakeholders	20. Protected areas have the political commitment they require	There is no political will at all, or worse, the prevailing political will runs counter to the interests of protected areas;	0	**2**	PAs have a certain level of political will that is subjective to strong pressure from local economic development.
		Some political will exists, but is not strong enough to make a difference;	1		
		Reasonable political will exists, but is not always strong enough to fully support protected areas;	2		
		There are very high levels of political will to support protected areas	3		
	21. Protected areas have the public support they require	The public has little interest in protected areas and there is no significant lobby for protected areas;	0	**2**	Public support PAs to some extent, in particular those who benefit from the existence of PAs.
		There is limited support for protected areas;	1		
		There is general public support for protected areas and there are various lobby groups such as environmental NGO's strongly pushing them;	2		
		There is tremendous public support in the country for protected areas	3		
	22. Protected area institutions are mission oriented	Institutional mission not defined;	0	**2**	The mission of PAs' management authorities have not been understood fully by the pubic due to insufficient campaign efforts.
		Institutional mission poorly defined and generally not known and internalized at all levels;	1		
		Institutional mission well defined and internalized but not fully embraced;	2		

Strategic Area of Support	Issue	Outcome Indicators	Score:		Evaluative Comments
		Institutional missions are fully internalized and embraced	3		
	23. Protected area institutions can establish the partnerships needed to achieve their objectives	Protected area institutions operate in isolation;	0	**2**	Given the significance of XWRD in water management, in particular for wetland management, the XWRD and its subordinated sectors have established a wide partnership with PAs but they still need to communicate frequently and effectively to ensure PAs needs in water supply and their significance in water conservation are well recognized and considered.
		Some partnerships in place but significant gaps and existing partnerships achieve little;	1		
		Many partnerships in place with a wide range of agencies, NGOs etc, but there are some gaps, partnerships are not always effective and do not always enable efficient achievement of objectives;	2		
		Protected area institutions establish effective partnerships with other agencies and institutions, including provincial and local governments, NGO's and the private sector to enable achievement of objectives in an efficient and effective manner	3		
	24. Individuals carry appropriate values, integrity and attitudes	Individuals carry negative attitude;	0	**2**	Although some staff treats their work in a negative attitude, most staff works hard with a positive ethnic.
		Some individuals have notion of appropriate attitudes and display integrity, but most don't;	1		
		Many individuals carry appropriate values and integrity, but not all;	2		
		Individuals carry appropriate values, integrity and attitudes	3		
4. Capacity to mobilize information and knowledge	25. Protected area institutions have the information they need to develop and monitor strategies and action plans for the management of the protected area system	Information is virtually lacking;	0	**1**	Different agencies scarcely share their information with each other although the information is outdated and less valuable.
		Some information exists, but is of poor quality, is of limited usefulness, or is very difficult to access;	1		
		Much information is easily available and mostly of good quality, but there remain some gaps in quality, coverage and availability;	2		
		Protected area institutions have the information they need to develop and monitor strategies and action plans for the management of the protected area system	3		
	26. Protected area institutions have the information needed	Information is virtually lacking;	0	**1**	PA information did not share among different PA management institutions. Publicly accessible information need to be updated.
		Some information exists, but is of poor quality and of limited usefulness and difficult to access;	1		

Strategic Area of Support	Issue	Outcome Indicators	Score:		Evaluative Comments
	to do their work	Much information is readily available, mostly of good quality, but there remain some gaps both in quality and quantity;	2		
		Adequate quantities of high quality up to date information for protected area planning, management and monitoring is widely and easily available	3		
	27. Individuals working with protected areas work effectively together as a team	Individuals work in isolation and don't interact;	0	**2**	Staff can work well as a team but clear task assignment and responsibilities identification should be improved.
		Individuals interact in limited way and sometimes in teams but this is rarely effective and functional;	1		
		Individuals interact regularly and form teams, but this is not always fully effective or functional;	2		
		Individuals interact effectively and form functional teams	3		
5. Capacity to monitor, evaluate, report and learn	28. Protected area policy is continually reviewed and updated	There is no policy or it is old and not reviewed regularly;	0	**1**	Updating or revising policies would put into relevant government agencies' agenda when these policies are out-of-date.
		Policy is only reviewed at irregular intervals;	1		
		Policy is reviewed regularly but not annually;	2		
		National protected areas policy is reviewed annually	3		
	29. Society monitors the state of protected areas	There is no dialogue at all;	0	**2**	The public understands the management of PAs via dialogues between PA management authorities and their higher administrative agencies.
		There is some dialogue going on, but not in the wider public and restricted to specialized circles;	1		
		There is a reasonably open public dialogue going on but certain issues remain taboo;	2		
		There is an open and transparent public dialogue about the state of the protected areas	3		
	30. Institutions are highly adaptive, responding effectively and immediately to change	Institutions resist change;	0	**2**	Management authorities are used to make an adjustment in accordance to relevant governmental policies.
		Institutions do change but only very slowly;	1		
		Institutions tend to adapt in response to change but not always very effectively or with some delay;	2		
		Institutions are highly adaptive, responding effectively and immediately to change	3		

Strategic Area of Support	Issue	Outcome Indicators	Score:		Evaluative Comments
	31. Institutions have effective internal mechanisms for monitoring, evaluation, reporting and learning	There are no mechanisms for monitoring, evaluation, reporting or learning;	0	**2**	Only virtual assessment on staff and institutional performance are conducted.
		There are some mechanisms for monitoring, evaluation, reporting and learning but they are limited and weak;	1		
		Reasonable mechanisms for monitoring, evaluation, reporting and learning are in place but are not as strong or comprehensive as they could be;	2		
		Institutions have effective internal mechanisms for monitoring, evaluation, reporting and learning	3		
	32. Individuals are adaptive and continue to learn	There is no measurement of performance or adaptive feedback;	0	**1**	There is no any written feedback on staff's performance.
		Performance is irregularly and poorly measured and there is little use of feedback;	1		
		There is significant measurement of performance and some feedback but this is not as thorough or comprehensive as it might be;	2		
		Performance is effectively measured and adaptive feedback utilized	3		
TOTAL SCORE			**96**	**58**	
				60%	

10.2.3*Xinjiang Environmental Protection Department (XEPD)*

Strategic Area of Support	Issue	Outcome Indicators	Score:		Evaluative Comments
1. Capacity to conceptualize and formulate policies, legislations, strategies and programmes	1. The protected area agenda is being effectively championed / driven forward	There is essentially no protected area agenda;	0	**2**	There is no an overall development plan for the PA system in Xinjiang Uyghur Autonomous Region (XUAR) although all national-level and a few sub-national-level nature reserves (NR) drew up their master plans.
		There are some persons or institutions actively pursuing a protected area agenda but they have little effect or influence;	1		
		There are a number of protected area champions that drive the protected area agenda, but more is needed;	2		
		There are an adequate number of able "champions" and "leaders" effectively driving forwards a protected area agenda	3		
	2. There is a strong and clear legal mandate for the establishment and management of protected areas	There is no legal framework for protected areas;	0	**3**	Regulations on Nature Reserve Conservation in China and provincial-level Administrative Regulations on Nature reserve Conservation in XUAR collectively provide legal safeguard for PA network in the region.
		There is a partial legal framework for protected areas but it has many inadequacies;	1		
		There is a reasonable legal framework for protected areas but it has a few weaknesses and gaps;	2		
		There is a strong and clear legal mandate for the establishment and management of protected areas	3		
	3. There is an institution or institutions responsible for protected areas able to strategize and plan.	Protected area institutions have no plans or strategies;	0	**3**	PAs developed management strategies and plans when legal establishing PAs on the ground. Unfortunately, these management strategies and plans are usually set aside on the shelf once a PA is established.
		Protected area institutions do have strategies and plans, but these are old and no longer up to date or were prepared in a totally top-down fashion;	1		
		Protected area institutions have some sort of mechanism to update their strategies and plans, but this is irregular or is done in a largely top-down fashion without proper consultation;	2		
		Protected area institutions have relevant, participatorially prepared, regularly updated strategies and plans	3		
2. Capacity to implement	4. There are adequate skills for	There is a general lack of planning and management skills;	0	**2**	Although all PA management agencies qualify themselves for PA management, they cannot

Strategic Area of Support	Issue	Outcome Indicators	Score:		Evaluative Comments
policies, legislation, strategies and programmes	protected area planning and management	Some skills exist but in largely insufficient quantities to guarantee effective planning and management;	1		collaborate with each other to formulate an integrated plan for PA network in the region.
		Necessary skills for effective protected area management and planning do exist but are stretched and not easily available;	2		
		Adequate quantities of the full range of skills necessary for effective protected area planning and management are easily available	3		
	5. There are protected area systems	No or very few protected area exist and they cover only a small portion of the habitats and ecosystems;	0	**2**	The existing PA network in XUAR encompassing 28 nature reserves (including provincial and national-level NRs) covers approximate 13% of terrestrial lands in the region. Major habitats and ecosystems that wildlife relies on to survive are under protection of the system.
		Protected area system is patchy both in number and geographical coverage and has many gaps in terms of representativeness;	1		
		Protected area system is covering a reasonably representative sample of the major habitats and ecosystems, but still presents some gaps and not all elements are of viable size;	2		
		The protected areas includes viable representative examples of all the major habitats and ecosystems of appropriate geographical scale	3		
	6. There is a fully transparent oversight authority (there are fully transparent oversight authorities) for the protected areas institutions	There is no oversight at all of protected area institutions;	0	**2**	In XUAR, environmental protection, forestry, husbandries as well as agricultural sectors manage PAs or various elements of PAs according to their jurisdiction. Unfortunately, different sectors have no collaborative superintendence on PA administration.
		There is some oversight, but only indirectly and in a non-transparent manner;	1		
		There is a reasonable oversight mechanism in place providing for regular review but lacks in transparency (e.g. is not independent, or is internalized) ;	2		
		There is a fully transparent oversight authority for the protected areas institutions	3		
	7. Protected area institutions are effectively led	Protected area institutions have a total lack of leadership;	0	2	Although PA institutions are well-established, their competencies are very limited to fully fulfill their responsibilities.
		Protected area institutions exist but leadership is weak and provides little guidance;	1		

Strategic Area of Support	Issue	Outcome Indicators	Score:		Evaluative Comments
		Some protected area institutions have reasonably strong leadership but there is still need for improvement;	2		
		Protected area institutions are effectively led	3		
	8. Protected areas have regularly updated, participatorially prepared, comprehensive management plans	Protected areas have no management plans;	0	2	Although many PAs established their master plan at the early stage of their establishment, they have not updated these plans at all. Therefore, the out-of-date plans could not guide PAs' management effectively.
		Some protected areas have up-to-date management plans but they are typically not comprehensive and were not participatorially prepared;	1		
		Most Protected Areas have management plans though some are old, not participatorially prepared or are less than comprehensive;	2		
		Every protected area has a regularly updated, participatorially prepared, comprehensive management plan	3		
	9. Human resources are well qualified and motivated	Human resources are poorly qualified and unmotivated;	0	**2**	Although PA management bureaus organized their management team, most team members have no professional background and rarely obtain opportunities for further education to improve their skills and knowledge.
		Human resources qualification is spotty, with some well qualified, but many only poorly and in general unmotivated;	1		
		HR in general reasonably qualified, but many lack in motivation, or those that are motivated are not sufficiently qualified;	2		
		Human resources are well qualified and motivated.	3		
	10. Management plans are implemented in a timely manner effectively achieving their objectives	There is very little implementation of management plans;	0	**2**	Master plans cannot be implemented well mainly due to fund shortage.
		Management plans are poorly implemented and their objectives are rarely met;	1		
		Management plans are usually implemented in a timely manner, though delays typically occur and some objectives are not met;	2		
		Management plans are implemented in a timely manner effectively achieving their objectives	3		
	11. Protected area institutions are able to adequately	Protected area institutions typically are severely underfunded and have no capacity to mobilize sufficient resources;	0	**1**	PA management agencies can receive certain amount of funds that can merely cover employees' salary and fringe. Both central governmental agencies and

Strategic Area of Support	Issue	Outcome Indicators	Score:		Evaluative Comments
	mobilize sufficient quantity of funding, human and material resources to effectively implement their mandate	Protected area institutions have some funding and are able to mobilize some human and material resources but not enough to effectively implement their mandate;	1		XUAR governmental agencies have not set up any special funds for PAs. Therefore, PAs suffer from fund shortage. There is no exception to XUAR.
		Protected area institutions have reasonable capacity to mobilize funding or other resources but not always in sufficient quantities for fully effective implementation of their mandate;	2		
		Protected area institutions are able to adequately mobilize sufficient quantity of funding, human and material resources to effectively implement their mandate	3		
	12. Protected area institutions are effectively managed, efficiently deploying their human, financial and other resources to the best effect	While the protected area institution exists it has no management;	0	**2**	The number and overall competency of staff of most PAs in XUAR cannot ensure an effective management of these PAs. Despite of this, PA management bureaus can still maximally administer their PAs by complying with applicable regulations and policies within their capacities. Any activities relating allocating and exploiting resources in PAs should report to higher administration authorities for review and approval.
		Institutional management is largely ineffective and does not deploy efficiently the resources at its disposal;	1		
		The institution(s) is (are) reasonably managed, but not always in a fully effective manner and at times does not deploy its resources in the most efficient way;	2		
		The protected area institution is effectively managed, efficiently deploying its human, financial and other resources to the best effect	3		
	13. Protected area institutions are highly transparent, fully audited, and publicly accountable	Protected area institutions totally untransparent, not being held accountable and not audited;	0	**1**	PA management authorities frequently do auditing. There exists sort of accountability mechanism, however, some large-size project funded by central governmental sectors need to be managed in a more transparent fashion.
		Protected area institutions are not transparent but are occasionally audited without being held publicly accountable;	1		
		Protected area institutions are regularly audited and there is a fair degree of public accountability but the system is not fully transparent;	2		
		The Protected area institutions are highly transparent, fully audited, and publicly accountable	3		
	14. There are legally designated	There is no lead institution or agency with a clear mandate or responsibility for protected areas;	0	**2**	Although environmental protection sectors are empowered to management PAs in as a general sector,

Strategic Area of Support	Issue	Outcome Indicators	Score:		Evaluative Comments
	protected area institutions with the authority to carry out their mandate	There are one or more institutions or agencies dealing with protected areas but roles and responsibilities are unclear and there are gaps and overlaps in the arrangements;	1		there lack of national or provincial-level practical measures, policies and regulations and well-proven mode to demonstrate how to embody this in practice.
		There are one or more institutions or agencies dealing with protected areas, the responsibilities of each are fairly clearly defined, but there are still some gaps and overlaps;	2		
		Protected Area institutions have clear legal and institutional mandates and the necessary authority to carry this out	3		
	15. Protected areas are effectively protected	No enforcement of regulations is taking place;	0	**2**	Although PAs have clear boundaries, the integrity and intactness of these PAs are under question. In addition, their identified key conservation targets are comparatively single without full considering all ecological elements.
		Some enforcement of regulations but largely ineffective and external threats remain active;	1		
		Protected area regulations are regularly enforced but are not fully effective and external threats are reduced but not eliminated;	2		
		Protected Area regulations are highly effectively enforced and all external threats are negated	3		
	16. Individuals are able to advance and develop professionally	No career tracks are developed and no training opportunities are provided;	0	**1**	Staff of PAs needs to improve their professional quality and knowledge. At the same time, higher PA administrative agencies did not do a good job in organizing training and exchanging best experiences and lessons.
		Career tracks are weak and training possibilities are few and not managed transparently;	1		
		Clear career tracks developed and training available; HR management however has inadequate performance measurement system;	2		
		Individuals are able to advance and develop professionally	3		
	17. Individuals are appropriately skilled for their jobs	Skills of individuals do not match job requirements;	0	**2**	In general, the competency level of staff in PAs is comparatively low and should be further improved to fulfill their responsibilities.
		Individuals have some or poor skills for their jobs;	1		
		Individuals are reasonably skilled but could further improve for optimum match with job requirement;	2		
		Individuals are appropriately skilled for their jobs	3		
	18. Individuals are	No motivation at all;	0	**1**	There is no any incentive mechanism in place. A great

Strategic Area of Support	Issue	Outcome Indicators	Score:		Evaluative Comments
	highly motivated	Motivation uneven, some are but most are not;	1		deal of staff cannot be inspired or encouraged to trigger a better performance.
		Many individuals are motivated but not all;	2		
		Individuals are highly motivated	3		
	19. There are appropriate systems of training, mentoring, and learning in place to maintain a continuous flow of new staff	No mechanisms exist;	0		There lacks of any opportunity for systematic training and education.
		Some mechanisms exist but unable to develop enough and unable to provide the full range of skills needed;	1		
		Mechanisms generally exist to develop skilled professionals, but either not enough of them or unable to cover the full range of skills required;	2	**1**	
		There are mechanisms for developing adequate numbers of the full range of highly skilled protected area professionals	3		
3. Capacity to engage and build consensus among all stakeholders	20. Protected areas have the political commitment they require	There is no political will at all, or worse, the prevailing political will runs counter to the interests of protected areas;	0		Management authorities have certain political wills. However, when there are conflicts between PA management and local economic development, PA is always the side to make concession.
		Some political will exists, but is not strong enough to make a difference;	1	**1**	
		Reasonable political will exists, but is not always strong enough to fully support protected areas;	2		
		There are very high levels of political will to support protected areas	3		
	21. Protected areas have the public support they require	The public has little interest in protected areas and there is no significant lobby for protected areas;	0		In terms of popular PAs, local communities and the public invest strong support. On the contrary, local communities and public impose very limited support for those PAs with less popularity.
		There is limited support for protected areas;	1		
		There is general public support for protected areas and there are various lobby groups such as environmental NGO's strongly pushing them;	2	**1**	
		There is tremendous public support in the country for protected areas	3		
	22. Protected area institutions are mission oriented	Institutional mission not defined;	0		The mission of PA institutions is well defined but under implemented in practice.
		Institutional mission poorly defined and generally not known and internalized at all levels;	1	**1**	
		Institutional mission well defined and internalized but not fully embraced;	2		

Strategic Area of Support	Issue	Outcome Indicators	Score:		Evaluative Comments
		Institutional missions are fully internalized and embraced	3		
	23. Protected area institutions can establish the partnerships needed to achieve their objectives	Protected area institutions operate in isolation;	0	**0**	Most PA management agencies did not perform well in partnership due to unsound institutional structure.
		Some partnerships in place but significant gaps and existing partnerships achieve little;	1		
		Many partnerships in place with a wide range of agencies, NGOs etc, but there are some gaps, partnerships are not always effective and do not always enable efficient achievement of objectives;	2		
		Protected area institutions establish effective partnerships with other agencies and institutions, including provincial and local governments, NGO's and the private sector to enable achievement of objectives in an efficient and effective manner	3		
	24. Individuals carry appropriate values, integrity and attitudes	Individuals carry negative attitude;	0	**2**	In general, majority staff works hard while some staff treats their work negatively due to underpaid and harsh & difficult working environment.
		Some individuals have notion of appropriate attitudes and display integrity, but most don't;	1		
		Many individuals carry appropriate values and integrity, but not all;	2		
		Individuals carry appropriate values, integrity and attitudes	3		
4. Capacity to mobilize information and knowledge	25. Protected area institutions have the information they need to develop and monitor strategies and action plans for the management of the protected area system	Information is virtually lacking;	0	**2**	Since there are different sectors involved in PA management, they rarely share information by focusing on their own interests. Even so, for each sector, their available information is insufficient and out-of-date, which has little values in guiding PA management and decision-making.
		Some information exists, but is of poor quality, is of limited usefulness, or is very difficult to access;	1		
		Much information is easily available and mostly of good quality, but there remain some gaps in quality, coverage and availability;	2		
		Protected area institutions have the information they need to develop and monitor strategies and action plans for the management of the protected area system	3		
	26. Protected area institutions have the information needed	Information is virtually lacking;	0	**1**	Different PA management agencies have not share information with other. Publically accessible information is outdated and a lot of information that
		Some information exists, but is of poor quality and of limited usefulness and difficult to access;	1		

Strategic Area of Support	Issue	Outcome Indicators	Score:		Evaluative Comments
	to do their work	Much information is readily available, mostly of good quality, but there remain some gaps both in quality and quantity;	2		public cannot accessible despite of its poor quality. Lack of fund, limited competency of PA staff, and insufficient concerns from decision-makers mutually contribute to the consequence.
		Adequate quantities of high quality up to date information for protected area planning, management and monitoring is widely and easily available	3		
	27. Individuals working with protected areas work effectively together as a team	Individuals work in isolation and don't interact;	0	**2**	Colleagues work together to fulfill their own assignments instead of achieving a mutual mission/objective.
		Individuals interact in limited way and sometimes in teams but this is rarely effective and functional;	1		
		Individuals interact regularly and form teams, but this is not always fully effective or functional;	2		
		Individuals interact effectively and form functional teams	3		
5. Capacity to monitor, evaluate, report and learn	28. Protected area policy is continually reviewed and updated	There is no policy or it is old and not reviewed regularly;	0	**1**	Policies are usually proposed to be updated or abolished when these policies cannot meet the demands of PA management under new situations and circumstances.
		Policy is only reviewed at irregular intervals;	1		
		Policy is reviewed regularly but not annually;	2		
		National protected areas policy is reviewed annually	3		
	29. Society monitors the state of protected areas	There is no dialogue at all;	0	**2**	PAs have dialogue with the public via various medias. However, topics for discussion are very narrow, which makes the public has litter understanding of PAs.
		There is some dialogue going on, but not in the wider public and restricted to specialized circles;	1		
		There is a reasonably open public dialogue going on but certain issues remain taboo;	2		
		There is an open and transparent public dialogue about the state of the protected areas	3		
	30. Institutions are highly adaptive, responding effectively and immediately to change	Institutions resist change;	0	**1**	Due to deep-rooted institutional constraints, PA management agencies do not implement adaptive management. What's worse, some PA management agencies do not have a full understanding of their responsibilities and accountabilities at all.
		Institutions do change but only very slowly;	1		
		Institutions tend to adapt in response to change but not always very effectively or with some delay;	2		
		Institutions are highly adaptive, responding effectively and immediately to change	3		

Strategic Area of Support	Issue	Outcome Indicators	Score:		Evaluative Comments
	31. Institutions have effective internal mechanisms for monitoring, evaluation, reporting and learning	There are no mechanisms for monitoring, evaluation, reporting or learning;	0	**0**	PAs don't have the capacities to conduct monitoring and evaluation. Current reporting is quite ad hoc and non-systematic.
		There are some mechanisms for monitoring, evaluation, reporting and learning but they are limited and weak;	1		
		Reasonable mechanisms for monitoring, evaluation, reporting and learning are in place but are not as strong or comprehensive as they could be;	2		
		Institutions have effective internal mechanisms for monitoring, evaluation, reporting and learning	3		
	32. Individuals are adaptive and continue to learn	There is no measurement of performance or adaptive feedback;	0	**1**	There lacks opportunities for obtaining systematic training and education.
		Performance is irregularly and poorly measured and there is little use of feedback;	1		
		There is significant measurement of performance and some feedback but this is not as thorough or comprehensive as it might be;	2		
		Performance is effectively measured and adaptive feedback utilized	3		
TOTAL SCORE			**96**	**50**	
				52%	

ANNEX11.UNDP Direct Project Services (DPS) Letter of Agreement

STANDARD LETTER OF AGREEMENT BETWEEN
UNDP AND THE FORESTRY DEPARTMENT OF THE XINJIANG UYGUR AUTONOMUS REGION FOR THE PROVISION OF SUPPORT SERVICES

Dear Ms. Hou Cuihua,
Deputy Director General– Forestry Department of Xinjiang Uygur Autonomous Region

1. Reference is made to consultations between officials of the *Forestry Department of the Xinjiang Uygur Autonomous Region* (hereinafter referred to as "XFD") and officials of UNDP with respect to the provision of support services by the UNDP country office for the project. UNDP and XFD hereby agree that the UNDP country office may provide such support services at the request of XFD through its institution designated in the relevant project support document or project document, as described below.

2. The UNDP country office may provide support services for assistance with reporting requirements and direct payment. In providing such support services, the UNDP country office shall ensure that the capacity of XFD-designated institution is strengthened to enable it to carry out such activities directly. The costs incurred by the UNDP country office in providing such support services shall be recovered from the administrative budget of the office.

3. The UNDP country office may provide, at the request of XFD or its designated institutions, the following support services for the activities of the project:
(a) Identification and/or recruitment of project and programme personnel;
(b) Procurement of goods and services; and
(c) Other project related actions as needed and requested in addition to the country office's project oversight support covered under the GEF implementing Agency fee.

4. The procurement of goods and services and the recruitment of project personnel by the UNDP country office shall be in accordance with the UNDP regulations, rules, policies and procedures. Support services described in paragraph 3 above shall be detailed in an annex to the project support document or project document, in the form provided in the Attachment hereto. If the requirements for support services by the country office change during the life of a project, the annex to the project support document is revised with the mutual agreement of the UNDP Country Director and the designated institution.

5. The relevant provisions of the Standard Basic Assistance Agreement between the Government of China and the United Nations Development Programme in China signed on January 29 1979 (the "SBAA"), including the provisions on liability and privileges and immunities, shall apply to the provision of such support services. The Government shall retain overall responsibility for the nationally managed programme or project through its designated institution. The responsibility of the UNDP country office for the provision of the support services

ANNEX 12. Preliminary Scoping of Major Wetlands of Xinjiang and Their Potential for Inclusion in the PA System

Name	Prefecture/County/City	Size	PA Status	PA Potential
1. River Wetlands				
1.Ertix River	Fuyun County	4248 km	I NNR, 3PNR existing	Can add more
2.Ulungur River	Qinghe	37,800 sq. km.	2 existing PNRs	Can add more
3. Urasty River	Tacheng County	24 ha	town park	
4.Karamay River	Karamay City	8.5 km	scenic area	
5.Bortala River	Bortala	252 km, 15.9 sq. km.		
6.Yili River	Yili prefecture	350 km	6 NRs exist	Can add more
7. Kuytun River	Wusu City	360 km		
8. Manas River	Shehezi	190 km		
9. Urumqi River	Urumuqi	c. 100 km		Can be added
10. Daheyan River	Turpan	> 50 km		
11. Yiwu River	Yiwu County	>100 km		some potential
12. Kaidu River	Korla	560 km, 44,000 sq. km.	Bayanbaluke NNR and two other NR exist here	
13. Weigan River	Aksu	452 km, 69,000 sq. km.	one PNR exists	
14. Aksu River	Aksu	850 km, 50,000 sq. km.	Tomuerfeng NNR	could add more
15 Kezilesu River	Aksu	600 km		
16. Kashgar River	Kashgar	6 rivers, 64,500 sq. km.		has potential
17. Yarkant River	Kashgar and Artux	1078 km, 93,600 sq. km.		has big potential
18. Hotan River	Hotan	50,000 sq. km.		
19. Tarim River	Korla	144 rivers 1 million sq. km.	15 NRs totaling 180,000 sq. km. exist	
2. Lake Wetlands of Xinjiang				
1. Kanas Lake	Altay	45 sq. km.	NNR	
2. Ulungur and Jili Lakes	Altay	927 sq. km.		Should be added
3. Southeast Altay Mts.	Altay	35 sq km of lakes	2 NRs exist	focal demo area
4. Tianchi Lake	Fukang City	4.9 sq. km.	NNR	
5. Karamay Lake	Karamay	1 sq. km.	Scenic area	
6. Sayaram Lake	Bole City, Bortala	468 sq. km.	Scenic Area	should be added

7. Balikun Lake	Hami	128 sq. km.		has value
8. Weili District Lake group	Bayangolin	1000 sq. km. includes 25 lakes		should be added
9. Ayekeumu Lake district	Bayingolin`	570 sq.km.	inside NNR	
10. Aqikekule Lake district	Bayingolin	345 sq. km.	inside NNR	
11. Whale Lake district	Bayingolin	267 sq. km.	inside NNR	
12.Taitema Lake district	Bayingolin	1200 sq. km.		low value
13. Bosten Lake district	Korla	972 sq. km.		parts should be added
14. Aiximan Lake	Awati/Aksu	c.30 sq. km. 8 small lakes		some potential
15. Bulunkou Lake district	Kashgar	2000 sq. km.		could be added
16. Changhong Lake	Qiemo County	17 sq. km.		
17. Akesaiqin Lake	Hotan	158 sq. km.		some value
18. Erik lake	Karamay	51 sq. km.		
19. Manas Lake district	Karamay	dried up!		could be restored
20. Ebinur Lake	Bortala	1200 sq. km.	PNR	could be upgraded
21. Urumqi Salt Lake	Urumqi	23 sq. km. two lakes	possible scenic area	
22. Aydin Lake	Turpan	70 sq. km.	possible scenic area	
23. Lop Nur district	Bayingolin	12,500 sq. km.	all dried up! Part in NNR for camels	wetlands could be restored
24. Xiaorkule Lake	Atushi	45 sq. km.		all salt!
3. Marsh Wetlands in Xinjiang				
Altai Sedge Marsh				
1. Burqing River Rakorlor marsh	Altay	1532 ha		should be added
2. Sawur Mt. lowland Marsh	Altay	3471 ha		should be added
3. Hebuke Valley Lawulenggelie Marsh	Bursair	4772 ha		
Coniferous and Altai sedge marsh				
4. Zulumutai Marsh	Bayingolin	2988 ha		
5. Bayanbulak Marsh	Hejing County	90,900 ha	NNR	review zoning important
Reed marsh				
6. Ertix River Alahake Marsh	Alahake	30,580 ha	partly in PNR	needs review
7. Aksu marsh –Emin tributary	Tacheng	2324 ha		
8. Daquangou reservoir	Wesu City	1152 ha		some

Yaozhuangzi Marsh				potential
9. East Kuytun River lowland marsh	Wusu City	1420 ha		should be linked to Ebinur NR
10. Dahenyanzi River – Bortala Floodplain	Bortala	4280 ha		needs review
11. Yili Floodplain Yetong Marsh	Yining/ Yili	13004		some potential
12. Horgos River Floodplain Marsh	Yili	2400 ha	agricultural !	low potential
13. Gongnaisi River Floodplain Marsh	Yili	10,308 ha		some potential
14. Karakan Marsh	Yili	1844 ha		
15. Hutubi River Daquan Marsh	Changji	1240 ha		
16. Shihezi marshes	Shihezi City	2760 ha	agricultural	low potential
17. Bosten lake outlier lakes marshes	Bayingolin	28,000 ha		high potential
18. Konqi River Heshilike Marsh	Bayingolin	4348 ha		
19. Cherchen River Basinotah Marsh	Bayingolin	3704 ha		
20. Mzart River Tyrake marsh	Baicheng/Aksu	1,080 ha		some potential
21. Karadashdalyra River marsh	Hotan	3260 ha		some potential
Reed and Sedge Marsh				
22. Urasty Floodplain Marsh	Bayingolin	4964 ha		has potential
23. Tarim River and Kongqi River lowland Marsh	Bayingolin	1020 ha		has potential
Saline and Alkaline Marsh				
24. Chaiwobao lakeside marsh	Chaiwobao	500 ha		
25. Shanshan Qiketai Marsh	Turpan	3204 ha		has potential
26. Tuokexun Southern lake Marsh				
27. Huicheng- Wubao Marsh				
28. Turkule Marsh				
29. Arjin Mts Iqianbada River mud House Marsh				