ADB

Regional Flyway Initiative · Site Study

May 2026

RFI Priority Site · Uvs Lake

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Asian Development Bank

General Site Information

Country	Mongolia			
RFI Site Name	Uvs Lake			ID047
City/ Municipality, Province, Region	Tes, Davst, Malchin, Naranbulag, Tarialan, Sagil, and Borshoo Soum in Uvs Aimag			
Geographical coordinates	50.2 º N, 92.28 º E		Area	493,000 has
Key species	Dalmatian Pelican and at least 10 waterbird species with significant populations; Siberian Ibex and Argali			
Key habitats (biomes)	Saltwater lake, saline and freshwater marshland			
Key ecosystem services	Provisioning (fresh water) and regulating services (flood protection)			
Key drivers of change	Tourism, grazing and unsustainable use of water resources			
Conservation status (mark all that applies)	☐	Protected Area	☐	Flyway Network Site
	☐	Ramsar Site	☐	Others _____
IBA/ KBA name (and number) and other designations	Uvs Lake			
Management Stakeholders	MECC, Uvs Aimag government			
With management plan?				
Project concept themes	Tourism, rangeland and forest restoration. Site management and wildlife protection. Waste management (wastewater and solid waste)			
Length of project	10 years			
Sector/s	Tourism, agriculture (livestock management)			
No. of potential beneficiaries				
Indigenous Peoples	☐	No	☒	Yes, Tuvan, Khoton and Kazakh
Anticipated Implementation Risks	Increased regulation on tourism and access to water resources may impact some communities.			
Estimated Project Budget (US$)	47,100,000			
Potential Source/s of Financing	☐	Loan (to be identified)	☐	Private Sector (to be identified)
	☐	Grant (to be identified)	☐	Public-Private Partnership (to be identified)

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Abbreviations

ADB	Asian Development Bank
AWC	Asian Waterbird Census
CAF	Central Asian Flyway
CSR	Conservation Status Review
DMC	Developing Member Country
EAAFP	East Asian-Australasian Flyway Partnership
IBA	Important Bird and Biodiversity Area
IUCN	International Union for the Conservation of Nature
KBA	Key Biodiversity Area
MECC	Ministry of Environment and Climate Change
MCST	Ministry of Culture, Sports, Tourism, and Youth
MOFALI	Ministry of Food, Agriculture, and Light Industry
NGO	Non-governmental Organization
NP	National Park
NR	Nature Reserve
NUM	National University of Mongolia
RBA	River Basin Authority
RFI	Regional Flyway Initiative
SPA	Strictly Protected Area
TESSA	Toolkit for Ecosystem Services Assessment
USD	United States Dollars
WMBD	World Migratory Bird Day
WSCC	Wildlife Science and Conservation Center Mongolia

Executive Summary

Uvs Lake is located in the far north-west of Mongolia in Uvs Aimag bordering Russia to the north, approximately 1,590 km west of Ulaanbaatar. Uvs Lake lies at an elevation of 758–908 m asl. and covers an area in excess of 400,000 ha, with the entire lake basin surrounded by the Mongolian Altai to the west, the Tagna Mountains to the north, the Khangai mountains to the east and Khan-Khukhii Mountain to the south. As a result of its geography in western Mongolia, Uvs Lake is located largely within the Central Asian Flyway (CAF), and only marginally overlaps with the East Asian-Australasian Flyway. The site is significant in the lifecycle and migration of 12 waterbird species occurring regularly at levels >1% of the regional population, including; Dalmatian Pelican *Pelecanus crispus* (NT) and Northern Lapwing *Vanellus vanellus* (NT). In addition, smaller numbers of 18 globally threatened or near threatened bird species are known from the locality, including: White-headed Duck *Oxyura leucocephala* (EN), Swan Goose *Anser cygnoides* (EN), Pallas's Fish-eagle *Haliaeetus leucoryphus* (EN), and Great Bustard *Otis tarda* (EN). Jurisdictionally, Uvs Lake Strictly Protected Area is managed by the Uvs Lake SPA Administration in Ulaangom County and is part of a transboundary UNESCO World Heritage Site shared between Mongolia and Russia, the Uvs Nuur Basin.

The issues affecting Uvs Lake are multiple, involving a combination of both manmade and natural effects. Though primarily these are the result of human activities, the changing climate also has impacted the lake, reducing glacial coverage in the surrounding alpine landscape, while the lake surface has shrunk by more than 145 km^2 in the past decade. Historical deforestation has reduced tree cover, creating grasslands whilst existing grassland have become increasingly denuded. Land degradation here has been accelerated by wind driven erosion and an increase in unpaved roads in the landscape. Although traditionally grazed by local herders, grasslands in the Uvs Lake Basin have been overgrazed. The expansion of tourism around Uvs Lake has benefited the local economy but puts increased pressure on the lake and upland ecosystems, through land degradation, reduced inflow from rivers into Uvs Lake and increased water pollution.

Key priorities for the improving management of the Uvs Lake Basin the strengthening of site management and zonation, in alignment with the site's recognition as a UNESCO World Heritage Site. There is scope for an integrated water management approach to ensure ecological function is maintained, although this will need to extend beyond the site boundaries into the catchment and several rivers draining into the lake in the Uvs Lake Basin. Other interventions needed for the site includes reducing and managing the impacts from grazing, regulating unpaved roads (in part through the creation of a formal road network) and regulating mass tourism. Especially sensitive and degraded rangeland will need to be restored, with an expansion of windbreaks to limit the impact of aeolian erosion. Wildlife protection and monitoring efforts can be scaled up from increasing local community participation.

1. Background of the Regional Flyway Initiative

In July 2021, the Asian Development Bank made a commitment to develop a long-term Regional Flyway Initiative (RFI) in the East-Asian Australasian Flyway (EAAF) (Sovereign Project 55056-001) to protect and restore priority wetland ecosystems and the associated ecosystem services they provide in the EAAF, the most threatened migratory bird flyway globally. The Initiative is slated for implementation in nine ADB developing member countries (DMCs) in East, South and Southeast Asia: Mongolia, People's Republic of China (PRC), Bangladesh, Viet Nam, Cambodia, Philippines, Thailand, Malaysia and Indonesia. In 2023, the geographic scope of the RFI was further extended to two DMCs in Southeast Asia and the Pacific respectively, Lao PDR and Papua New Guinea.

The primary aim of the RFI is to enhance and expand the existing efforts in conserving and managing wetlands of the highest priority for migratory birds within the EAAF through innovative loan and grant financing, and at scale. Consultations and analyses over the development period help identify key interventions to strengthen the management of wetlands, enabling the implementation of nature-based solutions while strengthening biodiversity protection. Over time, the RFI seeks to leverage collaborative opportunities by developing partnerships among important stakeholders including national governments, civil society organizations, communities, regional organizations like the East Asian-Australasian Flyway Partnership (EAAFP), development agencies, the private sector, and other relevant entities.

Through the RFI Technical Assistance (TA) implemented over the RFI's development phase from 2021 to 2024, BirdLife International takes the lead in providing and coordinating technical support for development of the RFI. This is carried out in collaboration with the EAAFP and a consortium of international non-governmental organizations including Wetlands International and the Paulson Institute, as well as two universities, namely the University of Southampton, UK and the National University of Singapore. Over the development phase, the TA team undertook a site selection analysis to identify priority wetland sites in all 10 countries based on recent bird data benchmarked against internationally accepted criteria under the Convention on Wetlands of International Importance (or Ramsar Convention), EAAFP Flyway Network Sites and Important Bird and Biodiversity Areas (IBAs). The team further developed ecosystem services profiles for prioritized wetlands using a multi-pronged approach used the TESSA ecosystem services assessment tool, and data-driven modelling of water-based ecosystem services and stored carbon.

In Mongolia, a total of 48 wetland sites were initially assessed through published data in the Mongolia IBA Inventory (see Batbayar & Tseevenmyadag 2005), a review of the peer-reviewed literature, and consultations with technical experts. Of these, a total of (12) wetlands were ranked, defined and identified to be RFI priority sites on the basis that they support more than 1% the flyway population of at least one EAAF migratory waterbird species. Four (4) of the RFI wetland sites identified lie with the Amur-Heilongjiang Basin in eastern Mongolia, most notably a cluster of sites around Dornod and Sukhbaatar provinces, including Mongol Daguur SPA, Khurkh-Khuiten, Buir and Tashgain Tavan lakes. Two of the RFI sites, including Terkhiin Tsagaan and Ogii Lakes lie within the catchment of the Yenisey River, with outflows into the Selenge River. The remaining wetlands identified are endorheic lakes in the Altai or Gobi region. At least 48 EAAF species exceeded the 1% threshold at the site level in Mongolia, including nearly the entire breeding and staging population of the Swan Goose (Batbayar et al. 2013; Damba et al. 2021).

2. Site profile of Uvs Lake

Location: Uvs Lake is a large upland lake situated in far western Mongolia, in Uvs *Aimag*, with seven s*oums* located within 10 to 60 km from the lake. It lies 1,592 km to the west of Ulaanbaatar City, and about 30 km to the east of Ulaangom town, the provincial capital of Uvs Province. The Uvs Lake Basin is surrounded by the Mongolian Altai in the west, Tagna Mountain in the north, the Khangai Mountain range in the east and Khan-Khukhii Mountain in the south.

Area: 493,000 Ha (Birdlife 2025)

Altitude: 758–908 m asl.

Geographical coordinates: 50.2 º N, 92.28 º E

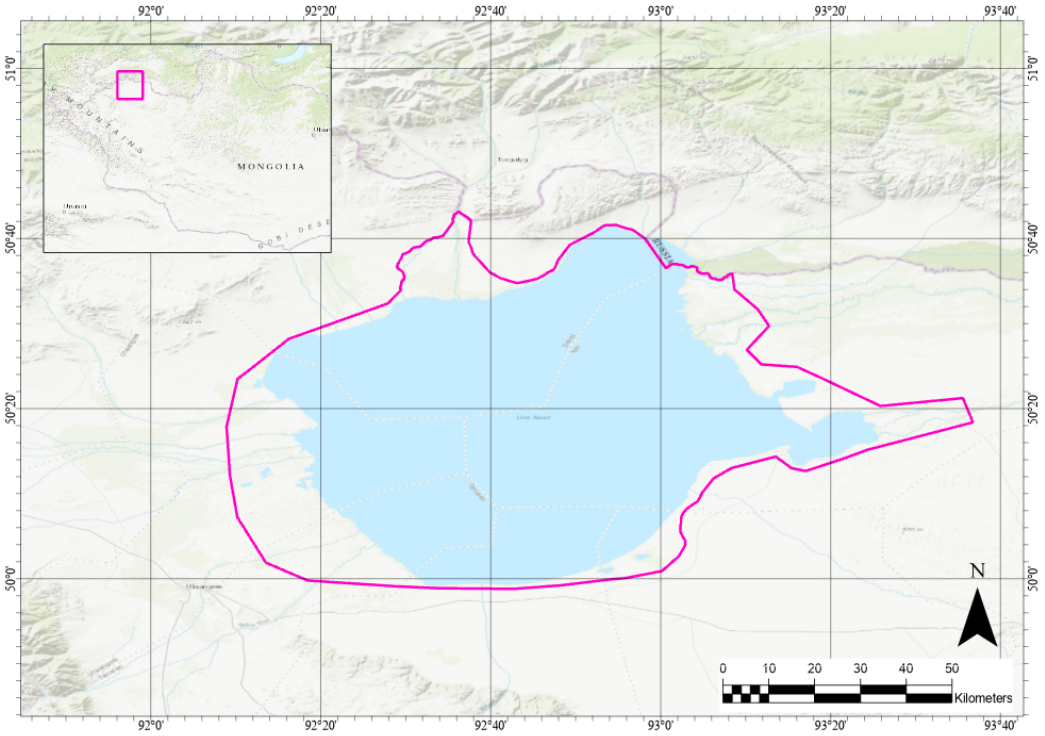

Figure 1. Map of Uvs Lake Strictly Protected Area (SPA), showing its location on the international border with the Russian Federation, in north-west Mongolia (Map: Evelyn Pina Covarrubias).

Description of site: Uvs Lake lies within an inter-montane basin with large areas of sand dunes, at the northernmost limit of the Gobi region. It is the largest saltwater lake in Mongolia, with a length of 84 km and a width of 79 km, and an average depth of 11.9 m. The lake has no outlets, but its inflow comes from the several small rivers, the Kharkhiraa, Khondlon Sagil, Borsoo, Khandgait, Torkhilog, Tes and Nariin, which originate from the Khangai and Kharkhiraa-Turgen Mountains. There are many small pools around

the lake, which used to be important feeding and breeding areas for waterbirds, but many of these have dried out through drought. The rivers are associated with large areas of saline and freshwater marshland to the northeast and west of the Uvs Lake, with extensive reedbeds and willows and young deciduous trees growing along the freshwater Tes and Torkhilog rivers, wetland habitats which provide significant nesting and feeding areas for numerous migratory waterbird species. The wetlands around Uvs Lake are surrounded by arid desert steppe landscapes

Site administration, management and land tenure: Uvs Lake Basin Strictly Protected Area (SPA) was established by the Mongolian Government in 1993, covering four specific areas: Uvs Lake, Mount Turgen, Mount Tsagaan Shuvuut, and a sand dune named Altan Els. Uvs Lake was nominated as a UNESCO Biosphere Reserve in 1997, it was inscribed as a natural World Heritage Site in 2003, designated as a Ramsar site in 2003, as an IBA in 2009 and as an EAAFP Flyway Network Site in 2016. Uvs Lake and the surrounding area are state owned, and under the jurisdiction of Uvs Lake SPA Administration, Ulaangom County of Uvs Province, in the Ministry of Environment and Climate Change (MECC).

Social and economic values: The main land use at the site is livestock grazing, by local nomadic families that live around the lake basin all year around and use parts of the wetland for pastureland, livestock watering and collection of hay for winter feed. They breed free ranging livestock and use traditional herding practices that are sympathetic to nature, but there is some overgrazing of pastureland by livestock which is having a negative impact on the environment, and some willow trees along the riverbanks have been cut by herders for fuel, impacts noted by Purevdori *et al.* (2029). There are some very small-scale irrigated areas used for agriculture along the Kharkhiraa, Turgen and Sagil rivers. Uvs Lake has good potential for the development of ecotourism, and a recreation area has been set up on the southwest side of the lake for camping, picnics and swimming. An interesting aspect of the region is that a large variety of ethnic groups live there and form a multicultural society. The lake belongs to the internal drainage basin in Mongolia and is therefore of fundamental importance for the ground water recharge of the area.

3. Biodiversity value of Uvs Lake

3.1. Key habitats

Uvs Lake is the largest saltwater lake in Mongolia, with a length of 84 km and a width of 79 km, and an average depth of 11.9 m. The lake has no outlets but its inflow comes from the several small rivers that are associated with large areas of saline and freshwater marshland to the northeast and west of the Uvs Lake, with extensive reedbeds and willows and young deciduous trees growing along the freshwater Tes and Torkhilog rivers, wetland habitats which provide significant nesting and feeding areas for numerous migratory waterbird species.

3.2. Importance of Uvs Lake for migratory waterbird species

Uvs Lake was selected as a candidate RFI site because the available evidence showed that it supports internationally important populations of the migratory waterbirds listed in the species table below, defined as those species which have exceeded the 1% population estimates from the Conservation Status Review (CSR1) (Mundkur and Langendoen 2022). The data used was this assessment was compiled from Batbayar and Tseveenmyadag (2009), together with the available count data from the peer-reviewed literature (e.g. Davaasuren 2018; Galtbalt et al. 2022). A review of the candidate RFI sites was conducted by panels of national and international (EAAFP, Wetlands International and BirdLife) ornithological experts.

Table 1. List of migratory species (based on the EAAFP list of species) with globally significant congregations at Uvs Lake.

Species name	IUCN	CSR1 score
Eurasian Spoonbill *Platalea leucorodia*	LC	>1%
Great Crested Grebe *Podiceps cristatus*	LC	>1%
Dalmatian Pelican *Pelecanus crispus*	NT	>1%
Great Cormorant *Phalacrocorax carbo*	LC	>1%
Greylag Goose *Anser anser*	LC	>1%
Ruddy Shelduck *Tadorna ferruginea*	LC	>1%
Common Goldeneye *Bucephala clangula*	LC	>1%
Common Crane *Grus grus*	LC	>1%
Eurasian Coot *Fulica atra*	LC	>1%
Little Ringed Plover *Charadrius dubius*	LC	>1%
Northern Lapwing *Vanellus vanellus*	NT	>1%
Pallas's Gull *Larus ichthyaetus*	LC	>1%

Uvs Lake supports populations of the globally threatened and near threatened species, including, White-headed Duck *Oxyura leucocephala* (EN), Common Pochard *Aythya ferina* (VU), Swan Goose *Anser cygnoid* (EN), White-naped Crane *Grus vipio* (VU), Eurasian Curlew *Numenius arquata* (NT), Ruddy Turnstone *Arenaria interpres* (NT), Red Knot *Calidris canutus* (NT), Curlew Sandpiper *Calidris ferruginea* (VU), Red-necked Stint *Calidris ruficollis* (NT), Dunlin *Calidris alpina* (NT), Grey Plover *Pluvialis squatarola* (VU) and Relict Gull *Larus relictus* (VU). Historically Siberian Crane *Grus leucogeranus* (CR) was known from the area (Archimaeva-Ozerskaya and Zabelin, 2010) but there are no recent records.

3.3. Other notable biodiversity

In addition to the waterbirds, Uvs Lake support a small population of the globally threatened Pallas's Fish Eagle *Haliaeetus leucoryphus* (EN), as well as Greater Spotted Eagle *Clanga clanga* (VU), Eastern Imperial Eagle *Aquila heliaca* (VU) and Great Bustard *Otis tarda* (EN). The Asian Houbara Bustard *Chlamydotis macqueenii* (VU) has been proved to breed at the site (Purev-Ochir et al. 2025). Several fish species endemic to Mongolia, including Warpachowsk *Oreoleuciscus pewzowi*, Potanin's Osman *O. potanini*, Small Osman *O. humilis* and Mongolian Grayling *Thymallus brevirostrus* are also known from the lake.

4. Ecosystem services

4.1. Ecosystem services provided by Uvs Lake

The Uvs Lake landscape encompasses diverse wetland habitats and provides a variety of ecosystem services (Figure 2), including provisioning and regulating services that are vital to communities within the site (Table 2). The results from the RFI workshop[1] highlight the top ecosystem services provided by the site, emphasizing their essential and non-substitutable nature (Table 2). These provisioning service (fresh water) and regulating services (air quality regulation; global climate regulation; flood hazard regulation; and water purification and waste treatment) are considered essential or non-substitutable. All services are benefitting the communities within the site. Regulating services such as air quality regulation, global climate regulation, and water purification and waste treatment are benefiting the communities adjacent to the site. Global climate regulating service is the only benefit that is felt by the communities distant from the site.

[1] Asian Development Bank. (2024, November 28-29). *Mongolia: Wetland Ecosystem Services Workshop* [Workshop]. Mongolia https://events.development.asia/learning-events/mongolia-wetland-ecosystem-services-workshop

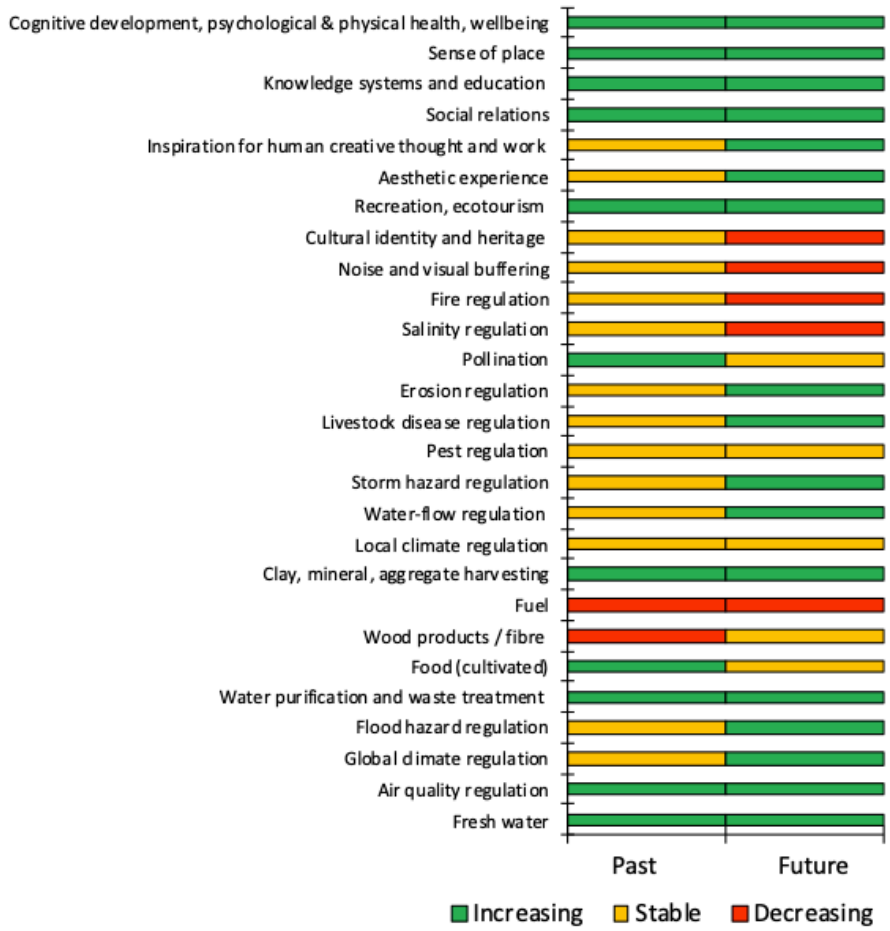

Figure 2. List of ecosystem services provided by Uvs Lake, as identified through stakeholder consultation at the Regional Flyway Initiative workshop.

Table 2. List of top ecosystem services provided by Uvs Lake.

Ecosystem services	Essential or non-substitutable	Benefits to communities			Change	
		Within the site	Adjacent to the site	Distant to the site	Past	Future
Provisioning services						
Fresh water		✓			Increase	Increase
Regulating services						
Air quality regulation		✓	✓		Increase	Increase
Global climate regulation	Yes	✓	✓	✓	No change	Increase
Flood hazard regulation	Yes	✓			No change	Increase
Water purification and waste treatment		✓	✓		Increase	Increase

4.2. Global climate regulating services

While there is no definitive national average specifically for peatlands, Mongolian peatlands are estimated to store between 100 and 150 tonnes C ha^{-1}, although the value is likely variable depending on peat depth, degradation status, and landscape type (Government of Mongolia, 2018). Therefore, carbon stored in the peatlands of Uvs Lake (19,720 ha of forested and non-forested peatlands) is estimated to range from 1,972,000 to 2,958,000 tonnes C.

4.3. Flood mitigation services

No data available.

5. Drivers of change and their potential impacts on Uvs Lake

5.1. Current drivers of change and their level of impact

Stakeholders from the RFI workshop[2] identified 20 drivers of change impacting Uvs Lake and their corresponding levels of impact on the wetland site (see Table 3). High-impact drivers include desertification, and droughts. A medium impact is associated with droughts; habitat shifting and alteration; invasive animal species; livestock farming and grazing; logging and timber harvesting; roads and railroads; and temperature extremes.

Table 3. Drivers of change and their potential impact on the integrity of Uvs Lake based on consultations with stakeholders.

Driver of change	Impact
Desertification	High
Drought conditions	
Droughts	Medium
Habitat shifting and alteration	
Invasive animal species	
Livestock farming and grazing	
Logging and timber harvesting	
Roads and railroads	
Temperature extremes	
Annual and perennial non-timber crop production	Low
Household sewage and urban wastewater from outside the wetland site	
Housing and settlement	
Mining and quarrying	
Natural deterioration of important cultural wetland site values	
Other 'edge effects' that degrade the wetland site values	
Ports with large scale loading and unloading of goods	
Recreational activities and tourism	
Storm and flooding	
Tourism and recreation infrastructure	
Utility and service lines	

Jamsran et al. (2019) showed that since 1995 forest cover in the landscape has decreased by approximately 24% being converted to grassland, often through illegal logging, forest fire and pest damage. As a result of climate change, glaciated areas have become open water, and grasslands have transitioned to bare land. They also highlight the expansion of sand in the period 1995-2015 from approximately 65 km^2 to 318.33 km^2. The causes being a combination of human activities e.g. logging and grazing coupled with natural effects e.g. wind erosion and climate change.

[2] Asian Development Bank. (2024, November 28-29). *Mongolia: Wetland Ecosystem Services Workshop* [Workshop]. Mongolia https://events.development.asia/learning-events/mongolia-wetland-ecosystem-services-workshop

Water management in the catchment also has been implicated in changes to the lake (Walther et al. 2020), with upstream water extraction, livestock grazing, lack of adequate facilities to manage wastewater were all raised as issues to maintain the lakes condition.

5.2. Potential alternative state of Uvs Lake under current drivers of change

Stakeholders at the RFI workshop[3] defined the most plausible future alternative state (scenario) for the site up to 2035 and converted this scenario into a net change in the cover of different of wetland habitats within this site (current habitat cover vs. future alternative cover; see Figure 3). This future scenario assumes that the current drivers of change affecting the site and the existing management practices is expected to remain unchanged.

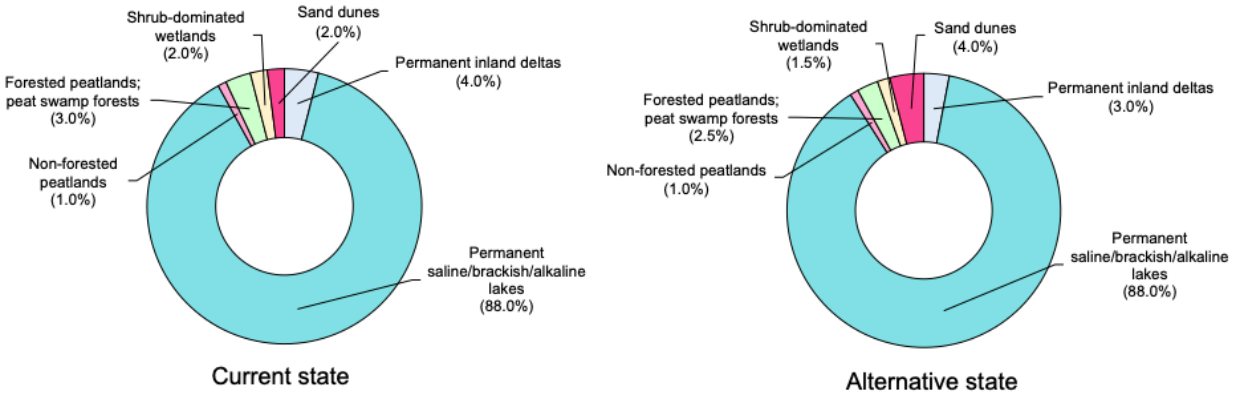

Figure 3. The proportional change in the extent of different habitat types between the current and alternative states of Uvs Lake.

5.3. Expected changes in the ecosystem services of Uvs Lake

Stakeholders at the RFI workshop[4] assessed future trends in the ecosystem services provided by Uvs Lake. Based on their local knowledge, they documented whether these services are expected to increase, decrease, or remain unchanged by 2035, assuming the current drivers of change affecting the site and the current interventions remain unchanged. Figure 2 and Table 2 show the provisioning of fresh water and regulating services – air quality regulation, and water purification and waste treatment – have increased in the past and are expected to continue increasing in the future. Regulating services such as global climate regulation and flood hazard regulation have remained constant in the past but are expected to increase in the future.

[3] Asian Development Bank. (2024, November 28-29). *Mongolia: Wetland Ecosystem Services Workshop* [Workshop]. Mongolia https://events.development.asia/learning-events/mongolia-wetland-ecosystem-services-workshop

[4] Asian Development Bank. (2024, November 28-29). *Mongolia: Wetland Ecosystem Services Workshop* [Workshop]. Mongolia https://events.development.asia/learning-events/mongolia-wetland-ecosystem-services-workshop

Mongolia experienced a 7% decline in mean rainfall from 1940-2005, and over the same period average annual temperatures rose by 2.4°C, though anecdotal evidence suggests an increase in thunderstorms and high intensity rain events (World Bank Group 2021). Climate models suggest that under all emissions scenarios that Mongolia will warm more than the global average, and most models agree that there is likely to me a small increase in annual precipitation, with an increase in the intensity of extreme weather events (World Bank Group 2021). There is a strong likelihood of the increase of drought events and in recent history the extent of surface water, nationwide lake area shrank by around 7% over the 2000-2025 period, a trend which has been noticed since at least 1974. Freshwater lakes and rivers in central and western Mongolia are fed by glacial meltwater from the Mongolian Altai. However glacial cover in the Mongolian Altai is estimated to have reduced by 30% between 1940-2011 (World Bank Group 2021) and glacial coverage in the Uvs Lake basin showed a considerable change, declining from 79.53 km^2 in 1995 to 29.97 km^2 in 2015, with the rate of decline estimated at an average of −44.5 ± 13.2% (Jamsran et al. 2019). Uvs Lake is estimated to have lost 145.3 km^2 of its surface area between 2010 and 2015 (Orkhonselenge et al. 2022).

6. Capacity gaps and needs for the management of Uvs Lake

Six stakeholder groups were identified as important to the management of the Uvs Lake wetland ecosystems. Of immediate importance are stakeholders in the national and local governments who have jurisdiction over the management of the lake resources, tourism camp operators, and local herding communities who directly benefit from the lake.

Table 4. Stakeholder capacity needs at Uvs Lake.

Stakeholder group	Current role in wetland management (Positive or Negative)	Possible future role in wetland management	Current capacity for sustainable wetland management	Capacity development needed to improve wetland management	Form of capacity development (e.g. training, organizational strengthening etc.)
MECC	Government policy and coordination	Organize and integrated policymaking	Medium	-	Improve existing human resources for site management
Uvs Province, aimag government	Coordinate policies with other government bodies	Coordinate policies across different government levels	Medium	Strengthen aimag level policy framework for wetland and water resources management	Human resources and financing
Protected Area Administration	PA law enforcement	Adapting protection and management approaches and improving them	Good	Strengthen the implementation of the regulatory framework on-site	Human resources and financing
Herding households	Grazing activities and led to land degradation	Pastureland management	Good	Awareness of policy advocacy for site management	Awareness of wetlands and biodiversity
Tourism operators	Currently a negative impact on the habitats and ecosystem	Habitat protection	Medium???	Sustainable tourism management plan and code of conduct.	Develop Tourism management body for local oversight. Provide

Stakeholder group	Current role in wetland management (Positive or Negative)	Possible future role in wetland management	Current capacity for sustainable wetland management	Capacity development needed to improve wetland management	Form of capacity development (e.g. training, organizational strengthening etc.)
					training to tourism operators
Development and conservation projects/programmes	Improve regulatory framework and management	Climate adaptation and mitigation	Good	Support and strengthen implementation of projects and initiatives	Provide training to target groups

7. Opportunities for RFI interventions

7.1. Recommended Interventions

Diverse issues affecting Uvs Lake and the surrounding landscapes, comparable to other wetland ecosystems in western Mongolia that are not part of any river basin. Walther et al. (2020) noted the increasing pressure on pastures surrounding the lake as a result of livestock breeding near the lake, withdrawal of water from rivers draining into the lake for irrigation and increasing tourism infrastructure with insufficient wastewater management needs to be better managed and regulated. In the long-term climate change is expected to result in increased drying of the lake (see Jamsran et al. 2019). At the local level, stakeholders consulted, validated the main threats to Uvs Lake, which relate to the need for improved site management, water resource management, unregulated tourism (including off-road trails, with increases the risk of land degradation and desertification), livestock, land clearance, and vegetation collection.

Interventions at Uvs Lake should focus on regulating human activities to reduce their impact, to protect ecological function and to restore degraded habitat. Improved and integrated water management across the wider landscape will be critical to maintaining water flows into the lake system and the ecological function of the system. This can be achieved through protecting inflows from the main rivers draining into the lake. Desertification in the rangeland around the lake can partly be addressed through planting windbreaks, managing and reducing the unpaved road network, managing grazing and habitat restoration. Proposed interventions identified here are focused on improving the management of the site through zonation, grazing control and habitat restoration, in line with management plans developed for

UNESCO property. Livelihoods are considered and there is a need to regulate unmanaged growth of local tourism at the edges of the lake.

Table 5. List of proposed interventions for Uvs Lake and possible project indicators

Intervention	Outcome	Indicators	Cost (USD)	Timeframe	Potential Stakeholders
Component 1. Strengthening site management and protection of the Uvs Lake SPA and the surrounding lake basin (and upland) landscape					
Undertake scoping study of existing interventions and threats at Uvs Lake and surrounding landscapes including targeted assessment on long-term threats (from climate change, hydropower, overgrazing, tourism expansion and fisheries).	Assessment and scoping guidance to provide basis for proposed RFI interventions. Threats faced by the lake ecosystem better understood, and potential interventions identified.	Assessment report with key threats identified and recommendations for improved management published and disseminated to key stakeholders. Number of stakeholder meetings conducted in the scoping study. Number of stakeholder groups engaged in the scoping study, ensuring a participatory assessment of existing interventions and threats.	100,000	3 years	MECC Tes, Davst, Malchin, Naranbulag, Tarialan, Sagil, and Borshoo soum Uvs aimag Administration Uvs Lake Protected Area Administration ADB
Strengthen site management of Uvs Lake including the update of a comprehensive management and zonation plan, in line with UNESCO site standards	Uvs Lake is better managed through the development of the site management plan, and zonation plan defines sensitive areas where grazing activities	Site management plan over short to medium-term developed, in consultation with key stakeholders, including communities inside the site through participatory	200,000	2 years	MECC Tes, Davst, Malchin, Naranbulag, Tarialan, Sagil, and Borshoo soum Uvs aimag Administration

Intervention	Outcome	Indicators	Cost (USD)	Timeframe	Potential Stakeholders
	is excluded, or highly regulated	mapping developed. Number of stakeholder consultation meetings organized with local government and herding households in all four soums (at least 200 households) Number of meetings and workshops to strengthen engagement local stakeholders for participatory mapping for zonation, understand local livelihood needs, and engage national stakeholders. Management plan for Uvs Lake expanded through participatory processes involving and represented households within site.			Uvs Lake Protected Area Administration Conservation organizations Research organizations UNESCO Ramsar Convention
Develop and implement an integrated water management plan for Uvs Lake and the catchment rivers that drain into the lake	Uvs Lake is better management through the development of a water management plan with inputs from local stakeholders to regulate water	Plan developed to restore degraded riparian vegetation in the catchment zone of the lake system. At least 20 km of riparian corridors	1,000,000	5 years	MECC Uvs aimag Administration Tes, Davst, Malchin, Naranbulag,

Intervention	Outcome	Indicators	Cost (USD)	Timeframe	Potential Stakeholders
	use around the lake. Riparian corridors along the main rivers that feed the lake / wetland system restored.	restored with tree species (*Populus* spp.) Number of local actors involved in water resource planning and use to understand local water demand. Number of workshops and meetings organized for all soums. Number of activities identified in the water management plan implemented.			Tarialan, Sagil, and Borshoo soum Uvs Lake SPA and biosphere administration Local community groups
Component 2. Expand grassland and vegetation management and restoration in the Uvs Lake landscapes (linked to component 1)					
Undertake a comprehensive assessment of grazing pressure, vegetation cutting, road network and degradation in Uvs Lake and the landscape immediately surrounding the key lake systems. Assessment to include mapping of sensitive areas and hotspots of nutrient pollution.	Uvs Lake is better management through the development of a roadmap and action plan for grassland restoration activities and grazing management guided by remote sensing and participatory mapping of overgrazed areas, map of hotspots of overgrazing and water pollution (from animal waste), and grassland/ vegetation	Map of grassland/ vegetation degradation in Uvs Lake RFI site produced. Action plan for grassland restoration activities drafted guided by remote sensing, participatory mapping of overgrazed areas, and grassland/ vegetation degradation maps of Uvs Lake, and hotspot mapping of overgrazing and water pollution	100,000	2 years	MECC Uvs aimag Administration Uvs Lake SPA and biosphere administration Research organizations (e.g. universities) Conservation organizations

Intervention	Outcome	Indicators	Cost (USD)	Timeframe	Potential Stakeholders
	degradation map of Uvs Lake.	(from animal waste) Number of stakeholder groups engaged, targeting the local government and herding households (about 500 households) Number of meetings and workshops organized to strengthen engagement local stakeholders for participatory mapping for zonation, understand local livelihood needs, and engage national stakeholders.			
Restore degraded and overgrazed/ over-exploited areas of grassland / alpine vegetation, including forests (e.g. juniper forests) (see also component 4 on grazing management, and sustainable herding practices)	Degraded areas of steppe grassland / vegetation damaged resulting from overgrazing restored.	Nurseries for vegetation restoration established. At least two pilot plots for grassland restoration established, with grazing exclusion structures and signage in place. At least 1,000 ha of grassland and 500 ha of forests restored over a five-year period.	1,000,000	5 years	

Intervention	Outcome	Indicators	Cost (USD)	Timeframe	Potential Stakeholders
Reduce land degradation from informal roads (from offroad driving)	Impact from offroad driving reduced by 20% against baselines within 3 years. Degraded areas of steppe grassland / vegetation damaged resulting from overgrazing restored.	Action plan (as part of larger site management plan) produced to address unpaved road plan to address land degradation. Number of stakeholders engaged in the action planning activities Number of stakeholder consultation meetings organized Number of community groups engaged in restoration activities Area of damaged by overgrazing	100,000	2 years	MECC Uvs aimag Administration Uvs Lake SPA and biosphere administration Research organizations (e.g. universities) Tourism operators Community groups
Component 3. Strengthen the monitoring and management of wildlife in Uvs Lake.					
Strengthen the wildlife protection and enforcement at Uvs Lake.	Improved wildlife protection and enforcement through co-management framework, increased patrol and enforcement efforts for landscape, wildlife protection and encroachment activities, and increased	Co-management framework with local communities developed. Number of households (target of at least 50% households in site) engaged and actively participating in co-management activities. Training program and modules on	200,000	10 years	MECC Uvs aimag Administration Tes, Davst, Malchin, Naranbulag, Tarialan, Sagil, and Borshoo soum

Intervention	Outcome	Indicators	Cost (USD)	Timeframe	Potential Stakeholders
	capacity of local rangers	patrol and enforcement and using SMART approaches developed. Number of training activities conducted Number of local rangers trained on patrolling and enforcement.			Uvs Lake SPA and biosphere administration Research and conservation organizations, including WSCC Mongolia Community groups
Strengthen biodiversity and wetland monitoring, with a focus on waterbird and large mammal species.	Better monitoring of biodiversity and wetland ecosystems in the landscape through a locally engaged biodiversity monitoring program and increased awareness of globally threatened species in the landscape amongst local households.	Monitoring mechanism for the site established Number of monitoring activities conducted using the established biodiversity and wetland monitoring scheme. A locally led conservation group organized Number of awareness-raising activities (including workshops and WMBD activities) on importance of nature protection, with a focus on charismatic bird species, implemented targeting at least 200 households	100,000	5 years	

Intervention	Outcome	Indicators	Cost (USD)	Timeframe	Potential Stakeholders
		Number of stakeholder groups engaged in the awareness-raising activities.			
Scale up research on biodiversity and ecology to support evidence base for management plan development (see component 1, 2)	Uvs Lake is better managed through improved understanding of migratory species movements (and movement ecology), strengthened local research capacity on wetland and lentic ecology, and cross-border cooperation on biodiversity and ecological monitoring with Russia (Tuva Republic) strengthened through bilateral and UNESCO frameworks. Long-term data on changes in landscape and wetland quality to guide site management cycle.	Training programmes (including workshops) on grassland and wetland ecology, with a focus on charismatic bird and wildlife species developed Number of training activities implemented Number of stakeholders (target of at least 20 local people and site managers) trained. Number of published research reflecting improved knowledge of landscape and regional connectivity of migratory bird populations. At least one workshop or meeting at year for cross-border training and experience sharing.	500,000	3 years	MECC Uvs Lake SPA and biosphere administration Community groups Research organizations (universities) and NGOs

Intervention	Outcome	Indicators	Cost (USD)	Timeframe	Potential Stakeholders
Component 4. Stronger regulation of (mass) tourism infrastructure					
Improve regulation on tourism development in Uvs Lake	Habitat degradation caused by tourism activities in the landscape reduced through improved local capacity for sustainable tourism activities, licensing and regulatory mechanisms strengthened for medium and small tourism operators, guidelines and code of conduct for tourism operators including a permit / license system, and microfinance mechanisms	Provincial-level tourism regulations. plans and strategies updated in coordination with MCST, MECC, aimag government and relevant tourism stakeholders. Guidance for sustainable tourism activities developed and disseminated. Number of stakeholder groups engaged in the development of the tourism regulations. Number of compliant stakeholders (i.e., tourism operators) to the developed guidelines for tourism operators. Training programme on sustainable tourism developed. Number of training activities to strengthen local capacity for sustainable specialized tourism	500,000	3 years	MCST MECC Uvs aimag Administration Tes, Davst, Malchin, Naranbulag, Tarialan, Sagil, and Borshoo soum Uvs Lake SPA and biosphere administration Tourism operators Community groups

Intervention	Outcome	Indicators	Cost (USD)	Timeframe	Potential Stakeholders
		Number of target stakeholders trained on sustainable tourism (200 people, from at least 20 operators trained) Microfinance schemes established to provide loans to small tourism businesses to improve sustainability and reduce impact. At least 50 households benefit from benefits and income from tourism (through frameworks such as revolving and community funds)			

Intervention	Outcome	Indicators	Cost (USD)	Timeframe	Potential Stakeholders
Strengthen the capacity of local communities and businesses for nature-based tourism.	Impact of habitat degradation caused by tourism activities in the landscape reduced through increased local capacity of local communities and businesses for nature-based tourism.	Nature-based tourism strategy and business plans and packages on specialized wildlife/nature tourism developed. Number of piloted business plans with tourism operators (including international bird and wildlife tour companies) Framework for benefits-sharing from nature-based tourism enhanced for households in Uvs Lake. Training program on nature-based tourism developed Number of stakeholders trained on tourist management	300,000	5 years	
Upgrade tourism infrastructure to reduce and mitigate impacts of mass tourism to Uvs Lake and surrounding arid landscapes	Impact of habitat degradation caused by tourism activities in the landscape reduced through well-regulated road network, tourism facilities, and waste management activities.	Road network plan developed with local stakeholders. 200 km of formal roads established and marked (including for wildlife crossings) Number of waste management and connectivity facilities developed	8,000,000	3 years	MCST Uvs aimag Administration Tes, Davst, Malchin, Naranbulag, Tarialan, Sagil, and Borshoo soum

Intervention	Outcome	Indicators	Cost (USD)	Timeframe	Potential Stakeholders
		in with the goal or a well-regulated tourism. Number of stakeholders engaged in sustainable tourism-related activities Number of stakeholder groups engaged in the upgrading of tourism infrastructure and local planning Number of people benefiting from the upgraded tourism infrastructure Volume of solid and liquid waste managed.			Tourism operators
Component 5. Strengthening sustainable, community-based management in Uvs Lake and adjacent areas to address over-grazing (see also Components 1 and 2)					
Strengthen the local capacity in sustainable rangeland management, and management of livestock	Improved conditions at Uvs Lake against baselines (reduced organic waste pollution from livestock waste) Improved condition of grassland (pasture) in Uvs Lake (in zoned areas) and	Number of stakeholder consultation meetings organized, targeting at least 50 households. Number of meetings and workshops to engage local people on rangeland management,	500,000	5 years	MOFALI MECC Uvs aimag Administration Tes, Davst, Malchin, Naranbulag, Tarialan, Sagil, and Borshoo soum

Intervention	Outcome	Indicators	Cost (USD)	Timeframe	Potential Stakeholders
	adjacent landscapes against baselines.	sustainable grazing practices Training programmes focusing on community-based rangeland management, including livestock grazing regimes (e.g. rotational grazing) established. At least 200 households at Uvs Lake and the surrounding landscapes trained with sustainable rangeland management and herding practices. Number of trained stakeholders adopting sustainable rangeland management and herding practices			Uvs Lake SPA and biosphere administration Community groups Conservation organizations International development agencies
Scale up of sustainable rangeland use/grazing activities to strengthen the resilience of herding households.	Improved condition of grassland in degraded areas around Uvs Lake (in zoned areas) and adjacent landscapes against baselines through microfinance mechanism (for local loans and grants),	Number of stakeholder consultation meetings organized, targeting 500 households. Number of exchange visits for herding households to other landscapes with good grazing and livestock	500,000	5 years	MOFALI Uvs aimag Administration Tes, Davst, Malchin, Naranbulag, Tarialan, Sagil, and Borshoo soum Community groups

Intervention	Outcome	Indicators	Cost (USD)	Timeframe	Potential Stakeholders
	incentives (and compliance mechanisms) for best practices in grazing and rangeland management, and benchmarking visits.	management in place. Microfinancing mechanism established 300 households benefiting from small grants and microloans on animal husbandry and livestock management practices. Incentives (and compliance mechanisms) for best practices in grazing and rangeland management created. Number of stakeholders trained and engaged who adopted sustainable rangeland use/ grazing activities			Conservation organizations International development agencies
Total investment for 10 years			47,100,000		

7.2. Potential Financing

The estimated project cost is USD 47,100,000 over a 10-year period. This project supports the development of plans for site management, zonation, nature-based tourism strategy, and creation of a co-management framework, training programs on patrol and enforcement, biodiversity monitoring, nature-based tourism, community-based rangeland management, and solid waste management,

establishment of infrastructure for tourism and waste management, and creation of microfinance mechanisms.

7.3. Proposed Institutional Arrangements

The proposed project is expected to be implemented over a period of over a period of 10 years, with the main project components focusing on expanding management of Uvs Lake, regulation of mass tourism, biodiversity monitoring, enhancing rangeland and grazing management practices (led by MECC, MOFALI and MCST and the provincial government). Conservation and research organizations such as the Wildlife Science and Conservation Center Mongolia can be expected to play a major supporting and technical role in the project.

7.4. Project Beneficiaries

This proposed project is expected to undertake activities to promote gender inclusion and participation in livelihood activities, through capacity building activities for local households. Minority communities that are expected to benefit from the project including Tuvan, Khoton and Kazakh communities living in the wider Uvs basin landscape.

7.5. Anticipated Implementation Risks

Environment: Nature-based tourism has been identified as a key project concept theme. The proposed interventions include establishing tourism infrastructure to improve the tourism experience at Uvs Lake. Building these infrastructures, however, would generate noise that may disturb wildlife. Moreover, increasing tourism activities bring other human-induced impact, such as waste pollution. Planning with stakeholders, particularly tourism operators, is critical before any infrastructure development or tourism management.

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Annex 1. Supplementary information on flood mitigation services

Table A1. Key habitat types in Uvs Lake based on stakeholder-based assessment at the Regional Flyway Initiative workshop in November 2024.

Habitat type	Current state		Alternative state (2035)	
	Area (ha)	Cover (%)	Area (ha)	Cover (%)
Permanent inland deltas	19743.3	4.0	14807.5	3.0
Permanent saline/brackish/alkaline lakes	434352.3	88.0	434352.3	88.0
Non-forested peatlands	4935.8	1.0	4935.8	1.0
Forested peatlands; peat swamp forests	14807.5	3.0	12339.6	2.5
Shrub-dominated wetlands	9871.6	2.0	7403.7	1.5
Sand dunes	9871.6	2.0	19743.3	4.0
Total	493,582.2	100.0	493,582.2	100.00