



ADAPTATION FUND

AFB/PPRC.2/9
September 10, 2010

Adaptation Fund Board
Project and Programme Review Committee
Second Meeting
Bonn, September 15, 2010

PROPOSAL FOR MONGOLIA

I. Background

1. The Operational Policies and Guidelines for Parties to Access Resources from the Adaptation Fund, adopted by the Adaptation Fund Board, state in paragraph 41 that regular adaptation project and programme proposals, i.e. those that request funding exceeding US\$ 1 million, would undergo either a one-step, or a two-step approval process. In case of the one-step process, the proponent would directly submit a fully-developed project proposal. In the two-step process, the proponent would first submit a brief project concept, which would be reviewed by the Project and Programme Review Committee (PPRC) and would have to receive the approval by the Board. In the second step, the fully-developed project/programme document would be reviewed by the PPRC, and would finally require Board's approval.

2. The Templates Approved by the Adaptation Fund Board (Operational Policies and Guidelines for Parties to Access Resources from the Adaptation Fund, Annex 3) do not include a separate template for project and programme concepts but provide that these are to be submitted using the project and programme proposal template. The section on Adaptation Fund Project Review Criteria states:

For regular projects using the two-step approval process, only the first four criteria will be applied when reviewing the 1st step for regular project concept. In addition, the information provided in the 1st step approval process with respect to the review criteria for the regular project concept could be less detailed than the information in the request for approval template submitted at the 2nd step approval process. Furthermore, a final project document is required for regular projects for the 2nd step approval, in addition to the approval template.

3. The first four criteria mentioned above are:

1. Country Eligibility,
2. Project Eligibility,
3. Resource Availability, and
4. Eligibility of NIE/MIE.

4. Based on the Adaptation Fund Board Decision B.9/2, the first call for project and programme proposals was issued and an invitation letter to eligible Parties to submit project and programme proposals to the Adaptation Fund was sent out on April 8, 2010.

5. According to the paragraph 41 of the operational policies and guidelines, a project or programme proposal needs to be received by the secretariat not less than seven weeks before a Board meeting, in order to be considered by the Board in that meeting.

6. The following project concept titled "Ecosystem Based Adaptation Approach to Maintaining Water Security in Critical Water Catchments in Mongolia" was submitted by the United Nations Development Programme (UNDP), which is a Multilateral Implementing Entity of the Adaptation Fund. This is the first submission of this proposal. It was received by the secretariat in time to be considered in the 11th Adaptation Fund Board meeting. The secretariat carried out a technical review of the project concept, assigned to it the diary number AFB/MIE/Water/2010/3, and filled in a review sheet.

7. In accordance with a request to the secretariat made by the Adaptation Fund Board in its 10th meeting, the secretariat shared this review sheet with the UNDP, and offered it the

opportunity of providing responses before the review sheet was sent to the Project and Programme Committee of the Adaptation Fund.

8. The secretariat is submitting to the Project and Programme Review Committee the summary of the project, prepared by the secretariat, in Annex 1. The secretariat is also submitting to the Committee the technical review sheet and the responses provided by the UNDP, and a revised proposal as confidential documents.

Project Summary

Mongolia – Ecosystem Based Adaptation Approach to Maintaining Water Security in Critical Water Catchments in Mongolia.

Implementing Entity: *UNDP*. Executing Entities: *Ministry of Nature, Environment and Tourism*

Project execution cost: USD 500,000

Total project cost (execution included): 5,000,000

UNDP management fee: USD 500,000 (10%)

Total amount of financing requested: USD 5,500,000

Co-funding by Government of Mongolia (in kind): USD 5,000,000

Co-funding by UNDP Mongolia: USD 500,000

Project Background and Context: Mongolia is highly vulnerable to climate change due to its geographic location, fragile ecosystems and socioeconomic conditions. An increase in the frequency of extreme weather and climatic events is expected including flash floods, heavy snowfalls and snowstorms, spring sandstorms, droughts and dzuds (extremely snowy winters in which livestock are unable to find fodder through the snow cover, and large numbers of animals die due to starvation and the cold). The impacts of climate change on Mongolia's water resources are expected to be severe as well. Changes in spatial and temporal precipitation patterns and ambient air temperatures and humidity, coupled with melting of glaciers and permafrost are likely to severely affect the hydrological regime. The impacts of climate change on communities in Mongolia are likely to be exacerbated by human-induced threats including overgrazing, inappropriate development of farmland, and the activities of the mining industry. The proposed project will target the Altai Mountains and Great Lakes Basin (GLB) and the Eastern Steppe of Mongolia, which are considered to be areas with the highest risks in terms of the vulnerability of the downstream population to water scarcity induced by climate change. The project objective is to internalize climate change risks into water provisioning services supplied by these regions.

Component 1: Integrated landscape-level land use and water resource planning system in the Altai Mountains/GLB and Eastern Steppe landscapes established, aiming at reducing vulnerability of communities to climate change impacts (USD 800,000)

The expected outcomes of this component include the factoring of ecosystem resilience into land use and water resource planning and management at the landscape level as well as the practice of evidence-based decision making through improved knowledge and understanding on ecosystem dynamics and resilience. The expected outputs include the development of strategic environmental assessments for target landscapes to document threats to ecosystem function and resilience from various structure, the development of integrated landscape-level land use and water plans, a cost-benefit analysis for different climate change sensitive management measures, and the development of incentive measures for local governments and communities to improve water and land resource management.

Component 2: Ecosystem-based adaptation approach to maintaining water security under conditions of climate change demonstrated in the Altai/GLB and Eastern Steppe Landscapes (USD 3,650,000)

The expected outcome of this component is the implementation of an integrated landscape-level land use and water resource planning system in two target landscapes. The expected outputs include the protection and/or restoring of critical ecosystems to maintain ecosystem resilience for water provisioning under conditions of a changing climate and the enhancement of adaptive

capacity of vulnerable communities and resource users with their active participation to manage uncertainty of climate change impacts.

Component 3: Systemic and institutional capacity of government and communities and strengthened to plan, monitor, and enforce the climate resilient land use management system in critical watersheds (USD 550,000)

The expected outcomes of this component are the mainstreaming of the ecosystem-based adaptation approach in the country's adaptation framework and related sector policies as well as the understanding and change of behavior by decision makers, local communities and the general public towards maintaining ecosystem resilience to reduce their vulnerability to climate change. The expected outputs include the mainstreaming of an ecosystem-based adaptation approach in the national adaptation planning and implementation mechanisms, the creation/enhancement of institutional mechanisms for supporting the internalization of climate change risks in land and water resource management plans in the landscapes, and the development and agreement of the government of a plan for up-scaling best practices.



PROJECT/PROGRAMME PROPOSAL

■ PART I: PROJECT/PROGRAMME INFORMATION

PROJECT/PROGRAMME CATEGORY:	Regular Project
COUNTRY/IES:	Mongolia
TITLE OF PROJECT/PROGRAMME:	Ecosystem Based Adaptation Approach to Maintaining Water Security in Critical Water Catchments in Mongolia (UNDP PIMS 4505)
TYPE OF IMPLEMENTING ENTITY:	MIE
IMPLEMENTING ENTITY:	United Nations Development Programme
EXECUTING ENTITY/IES:	Ministry of Nature, Environment and Tourism
AMOUNT OF FINANCING REQUESTED:	US\$ 5,500,000 (in U.S Dollars Equivalent)

■ PROJECT / PROGRAMME BACKGROUND AND CONTEXT:

Environmental and Socioeconomic Context

Mongolia is one of the largest countries in the world, covering 1.564 million square kilometers. It is one of the World's most sparsely populated countries with an estimated total population of just 2.8 million, equating to an average of just 1.5 persons per square km. The country's extreme continental climate is characterised by long and cold winters, dry and hot summers, low precipitation, high temperature fluctuations and an average of 260 sunny days per year. The annual mean air temperature for Mongolia is 0.7°C. Mongolia is a water scarce country. The country is classified as semi-arid to hyper-arid, with precipitation ranging between 50-400 mm. Approximately 90% of the precipitation evaporates and only 10% forms surface runoff, partially recharging the ground water aquifers. The total amount of water resources is estimated at 599 km³, composed mainly of water stored in lakes (500 km³), glaciers (62.9 km³) and surface and underground water sources (34.6 km³). 85% of these water resources are freshwater stores.

Traditionally, Mongolia has been an agricultural country and the sector still plays a significant role in the national economy, employing 40% of the labour force, producing 22.8% of GDP and 14% of export earnings (2009). Livestock husbandry has provided the principal source of livelihoods for centuries. Approximately 75% of the country's territory is covered by steppe grasslands used for pasture. In spite of extensive land resources and large numbers of livestock, agricultural productivity remains low due to a very short growing season, animal bio-capacity and lack of water. The mining industry is making an increasing contribution to the country's economy. In 2007, the mining sector accounted for 20% of GDP and 69% of exports.

In spite of economic growth in the last few years, a staggering 35% of Mongolia's population subsists below the poverty line. About 43% of the rural population is classified as living in deep poverty and the majority of herding communities are subsistence pastoralists with less than 200

animals. Extreme climatic events and growing climate disasters challenge the basic survival of these people, while slowing the country's economic growth. Approximately 57% of the population resides in urban areas. Internal migration of rural residents to cities, especially within the last 10 years, has increased after the severe *dzuds*¹ of 2000-2003, during which 15% of animals were lost. More recently, the dzud in the winter of 2009-2010 affected 50-70% of the total territory of Mongolia and caused a loss of 8 million livestock, leaving 8,710 herder households without any animals. This is expected to further accelerate migration to cities.

Problem Statement: Vulnerability of Water and Land Resources to Climate Change

Mongolia is highly vulnerable to climate change due to its geographic location, fragile ecosystems and socioeconomic conditions². For the period spanning 1940 to 2007, the annual mean air temperature increased by approximately 2.14⁰C (three times higher than the global average increase). Warming is projected to further increase by 5⁰C by the end of the 21st century.³ Average annual precipitation has decreased by 7 percent between 1940 and 2007. In particular, the amount of precipitation has decreased during the summer months. There is an increasing tendency for precipitation to fall in short heavy bursts, instead of several moderate ones. It is projected that precipitation will decrease in the short term by 4 percent between 2010 and 2039. It is then projected to increase from 2040 to 2080 but with greater geographical variability and most models predict that increases will tend to occur in the cold season.⁴

An increase in the frequency of extreme weather and climatic events is expected. These includes flash floods, heavy snowfalls and snow storms, spring sandstorms, droughts and dzuds. The incidence and severity of drought has increased significantly in Mongolia over the last 60 years. Mongolia experienced extreme droughts in consecutive summers during 1999-2002, which were followed by severe dzuds in winter, resulting in the loss of millions of livestock.

The impacts of climate change on Mongolia's water resources are expected to be severe. Increasing temperature and heat waves are likely to increase surface evaporation leading to dessication of soils. Desertification is likely to increase, already evidenced by the expansion of the Gobi desert. Barren areas have increased by 46% during the period 1992-2002. A national vegetation zone study using biomass and dryness indices, has estimated that the Gobi desert is likely to expand northwards by 350-450 km by 2070.⁵ A desertification impact assessment has shown that grassland productivity has fallen by 20-30% during the past 40 years.⁶ It is also estimated that climate change will lead to a further decrease in pasture biomass by 6 – 37.2% in the forest-steppe and steppe region by 2080, thus increasing vulnerability of the livestock sector.⁷

Changes in spatial and temporal precipitation patterns and ambient air temperatures and humidity, coupled with melting of glaciers and permafrost are likely to severely affect the hydrological regime. There have already been noticeable changes in river flow patterns

¹ *Dzud* is a Mongolian term for a harsh winter with long lasting or frequent snowfall combined with cold winds and extreme low temperatures. With climate change, occurrence of Dzud is becoming more frequent and its intensity greater. Combined with prolonged summer drought, the impact on livestock has been devastating in recent years.

² Government of Mongolia, 2007, Assessments of Impacts and Adaptations to Climate Change (AIACC)

³ Ministry of Nature, Environment and Tourism, 2009, Mongolia: Assessment Report on Climate Change (MARCC). The projection is based on the HadCM3 model using SRES A2 scenario.

⁴ See footnote 3.

⁵ Government of Mongolia, 2009, National Study for Climate Risk Management and Action Plan of Mongolia

⁶ Bolortsetseg, B. 2002. Impact of recent and past climate change on rangeland productivity in Mongolia: Potential Impacts of Climate Change, Vulnerability and Adaptation Assessment for Grassland Ecosystem and Livestock Sector in Mongolia project. AIACC.

⁷ AIACC, 2007, Government of Mongolia

stimulated by factors such as changes in rainfall regimes and the formation of ice on rivers and lakes (including the timing of ice formation and melt, and the thickness of the ice). It is predicted that the river flow will increase in mountainous regions until 2050 as a result of glacier melt. However a decrease in streamflows in other steppe and desert regions is likely during this period and all regions will suffer a decrease in stream flow after 2050. Even though some increase in water flow is expected in the short term as a result of climate change induced glacial melt, the availability of water is expected to nevertheless decline owing to an increase in surface evaporation rates.⁸ Furthermore, advancing desertification and land degradation, including degradation of wetlands, and loss of land cover, are expected to reduce soil infiltration rates for water, and adversely affect the land's water storage and aquifer recharge capacity.

The impacts of climate change on Mongolian communities is likely to be exacerbated by a number of other human-induced threats to the environment. During the last 50 years, human activities have significantly affected landscapes, and the ecosystem functions that underpin their water provisioning services. These include: overgrazing, especially around settlement areas and water points; impacts resulting from inappropriate development of farm land; and the activities of the mining industry. The resilience of the steppe ecosystem is being challenged by factors including overgrazing, soil and water pollution with organic matter and irresponsible mining practices.

In Mongolia, crop farming is mainly non-irrigated and the vast majority of livestock husbandry is based on a nomadic pastoralism paradigm. Overall the agricultural sector is totally dependent on the ecosystem's ability to provide water retention, quantity and quality regulation and reticulation services. This makes the maintenance of ecosystem functions and water provisioning services absolutely critical for the survival of communities. There is an urgent need to improve the capacity of natural ecosystems to regulate water baseflows in critical water catchments, including storage of water falling in heavy rainfall episodes in wetlands and aquifers.

Focus Areas: Threatened Water Provisioning Capacity of Ecosystems in Watershed Landscapes

The proposed project will target the **Altai Mountains and Great Lakes Basin (GLB)** and the **Eastern Steppe** of Mongolia. Together with the Khangai Mountains, these two distinct landscapes are critical water catchments, which are the headwaters of 70% of the country's water resources. Their importance will increase as the climate changes. The two landscapes straddle five out of the thirteen critical watershed areas in Mongolia, namely the Uvs Lake Basin, Khovd River Basin, the Kherlen River Basin, the Onon/Yoroo and Khalkh River Basins.

The two watersheds comprise various forest and steppe ecosystems⁹, including high Alpine belt, Taiga belt, mountain forest steppe, steppe and desert steppe. There are areas with glaciers, wetlands, riparian zones, forests and grasslands—all playing a vital role in watershed regulation.

⁸ MARCC, 2009

⁹ Steppe ecosystems of Mongolia are renowned around the world for their wilderness qualities. The steppe habitats host a large population of small and large mammals and migratory birds.



Map: Target Landscapes

The Altai Mountain/GLB and Steppe landscapes are considered to be areas with the highest risks in terms of the vulnerability of the downstream population to water scarcity induced by climate change.¹⁰ Short and medium term hazards such as dzud, temperature rise and drought are projected to pose significant risks to human livelihoods. A conjunction effect is at play whereby climate change is projected to contribute to the loss of permafrost and glaciers that are critical to maintaining water security, change the distribution, timing and intensity of rainfall, resulting in shifts in natural vegetation zones and increase in the incidence of wildfires in forest-steppe areas – all adversely affecting the hydrology of catchment areas; the resilience of the ecosystems to withstand these pressures is being undermined by land and wetland degradation, retarding water infiltration into soils, storage capacity in wetlands and ground water recharge. These pressures are collectively expected to worsen the problem of water scarcity, increasing the vulnerability of rural populations and decreasing their capacity to adapt to climate change.

The table below provides key information on the physical and socioeconomic context and the vulnerability of the water and land resources in each landscape.

	Altai Mountains and Great Lakes Basin	Eastern Steppe
Ecosystems and Hydrology	The Altai Mountains occupy approximately 700,000 sq.km in Mongolia, Russia and China with many peaks rising over 4,000 meters. The region encapsulates a wide range of sub-ecosystems, such as dry steppe, desert steppe, forest high mountain steppe, Alpine meadows, high mountain tundra with glaciers and snow caps, rivers, lakes and riparian forests. The adjoining GLB contains Central Asia's most important wetlands, featuring a series of large lakes: the Uvs, Khyargas,	The Eastern Steppe Landscape occupies approximately 250,000 sq.km., bordered by Russia in the north and China in the east and south. The Khentii Mountains range, origin of the main rivers in the region and one of three main mountain ranges of the country, is partially included here. The Eastern Steppe represents three distinct ecoregions: the Trans-Baikal conifer forest to a small part, the Daurian forest steppe

¹⁰ The Climate Risk Management Strategy, commissioned by the Government of Mongolia in 2009

	<p>Khar-Uus, Khar, Airag and Shargiin Tsagaan, as well as boasting some of the last remaining vast reed beds in central Asia. The average amount of annually renewed surface water in the GLB alone is estimated to be one third of Mongolia's total renewable water resources.¹¹ The lakes are enclosed systems (not draining to an ocean) and therefore the hydrological regime depends entirely on the functional integrity of ecosystems. The rivers in Mongolian Altai receive 50-70% of their water from snow and ice melt, and flow into the GLB.</p>	<p>(approximately 15%) and the Mongolian-Manchurian grassland zone with dry steppe, moderately dry steppe and moist lowland meadow steppe (over 60%). Rivers in this landscape are mainly fed by rainfall (60%) and to a lesser extent by mountain snow melt. They drain to the Pacific Ocean through China. Surface water network is scarce in this landscape, compared to the GLB. Water provisioning services within this mostly fragile steppe ecosystem is very crucial. The largest lake in this landscape is Buir Lake on the border with China.</p>
<p>Socio-economic context and land uses</p>	<p>The population of the three main Provinces (Aimags) in the landscape - Khovd, Uvs and Bayan-Ulgii, is about 270,000.</p> <p>The main land use in the area is livestock husbandry. Mining for coal, gold and tungsten plays a major role in the regional economy. There is limited crop and vegetable farming along water courses. Manufacturing and tourism are becoming a prominent part of the economy.</p> <p>There are networks of protected areas accounting for over 15% of the Altai landscape alone. Major lakes in the great lake basin are also within the protected areas, however the level of protection and management is generally weak. Critical ecosystems for water provisioning purposes such as alpine bogs and marshes currently have sub-optimal protection.</p>	<p>The population in the three Aimags that have jurisdiction over the Eastern Steppe Landscape (Dornod, Khentii and Sukhbaatar) is 200,000.</p> <p>With approximately 4 million livestock in the region, the main land use type is livestock husbandry, followed by mining and small scale farming. Economic development policies in the region concentrate on intensified livestock farming, cropland development, oil, coal and other mineral exploitation and infrastructure development to support extraction in the area, including the construction of the Millennium Road and railroad eastwards to connect with China, Russia and further to North Korea.</p>
<p>Non-climate pressure and threats to water and land resources in the landscapes</p>	<p>The major threats to ecosystems and ecosystem functions critical to water supply and quality regulation are overgrazing by excessive numbers of livestock, soil and water pollution with organic matter and irresponsible mining practices (66 mining licenses have been issued). As an enclosed basin, the Great Lakes Basin is more prone to water quality deterioration and flood hazards. Large-scale hydropower plants are planned or already under construction without necessarily due ecosystem consideration. Old and ineffective irrigation systems exist for farming, causing a significant reduction in the drainage capacity of the region</p>	<p>Oil (resources estimated at 100 Mln. Barrels), coal and other mineral exploitation and infrastructure development to support extractive industries (road, railroads, bridges and pipelines) is threatening to fragment the grassland (and leading to population migration—which will put further stress on water resources). Livestock grazing over the carrying capacity of the land poses additional pressure on the steppe ecosystem, and is further amplified by highly contagious disease such as foot-and-mouth disease. Overharvesting of wildlife for meat and skins, in addition to uncontrolled fishing in Buir Lake near the Chinese border, is a serious threat to biodiversity. Moreover, the Eastern Steppe region is highly prone to natural and human-set fires that occur, quite often across the border, every year. Yet, the steppe ecosystem is classified as fire-dependent for enhancing productivity and regeneration.</p>
<p>Climate Change induced threats to water and</p>	<p>The increase in annual mean temperature is expected to be pronounced (3-6°C). Associated with warming, evapotranspiration will increase significantly (10 times more than precipitation increase in the region), dominating the water balance.</p>	<p>Temperature increase is not as pronounced as in the GLB region, while warming by 6°C is the most hazardous event in the Khentii Mountains. Water resources in the Khentii Mountain region and the Kherlen, Onon, Khalkh, Ulz and Balj Rivers, is</p>

11 Myagmarjav, B. and Davaa, G. (eds), (1999): Surface water of Mongolia. Interpress publishing

<p>land resources in the landscape</p>	<p>Since 1940, the duration of stable snow cover in the mountainous areas has been reduced by 30%. There is a high chance that the glaciers with a depth of around 50m h will completely melt away by 2040 and glaciers 300 m in depth will be gone by 2090.</p> <p>Climate change impacts are expected to cause a major shift in the amount of renewable water resources and in the area's hydrological regime. Water resources in some rivers will increase until 2050 due to glacier melt and will significantly decrease thereafter. There will be increasing variability in the frequency and magnitude of high and low flows, which may additionally be already disturbed and destabilised by non-climatic pressures. With accelerated land degradation (reduction in soil cover and degradation of wetlands), the capacity of soils to absorb and retain water and recharge aquifers will be severely affected. This in turn will negatively affect pasture production capacity, threatening the livelihoods of livestock herders. The climate change induced threats, combined with non-climatic threats will seriously compromise the ecosystems' ability to adapt and recover and continue to provide necessary water provisioning functions.</p>	<p>expected to increase in the short term due to glacier melt and permafrost retreat.</p> <p>Climate vulnerabilities in the region are felt through increased desertification, reduced agricultural productivity (low biocapacity of livestock and crop yield), frequency of drought, dzud disasters and wind/sand (yellow dust) storms. As the river waters in the Eastern Steppe are fed by rainfall, with the air temperature increase, the river runoff will be decreased by 15-30%.</p> <p>Because of the decline in spring precipitation, the occurrence of forest and steppe fire and its recurrence has increased tremendously, causing millions of dollars worth of damage in addition to the environmental and human losses. Intensification of El Nino or Southern Fluctuation is believed to influence wildfire fire occurrence. Increased occurrence of wildfires will result in further losses of ground cover, with adverse impacts on the hydrology.</p>
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Given the above, the long term solution to the problem lies in internalizing climate change risks into water and land resource management—in order to secure the water provisioning services supplied by the mountain and steppe ecosystems of Altai Mountain / GLB and Eastern Steppe landscapes. This will in turn reduce the vulnerability of communities to increasing water scarcity induced by climate change. A key challenge is to remove existing barriers to ensure that climate risk considerations become an integral part of land and water resource planning and management. This need provides the entry point for this project.

Barriers to Addressing the Climate Change-Induced Problems

The Government of Mongolia and its partners have been making substantial efforts to reduce existing threats to the environment. There has also been remarkable progress in developing a national framework for climate change mitigation and adaptation responses, including the establishment of the National Climate Change Committee chaired by the Ministry of Nature, Environment and Tourism (MNET). However, barriers exist which prevent the Government and communities from addressing the climate change-induced problems – i.e. decreasing ecosystem functions and ability to continue to provide water and land resources to sustain livelihoods.

Firstly, ecosystem resilience to climate change is not factored into land use planning and development activities in different economic sectors including agriculture, mining, energy, and infrastructure. Land use decisions are made primarily with a view to optimising yields and incomes, and not for optimising ecosystem functions under a changing climate whether they are provisioning of water, soil productivity or food, or climate regulation. Consequently, land use planning tends to lack an overarching focus on maintaining ecosystem functions as climate changes at the landscape level—critical to the hydrological functioning of the catchments. At local level, rangelands are primarily managed for pastoralism without consideration for long-term ecosystem resilience. As such, past and on-going support programmes and projects to

improve rural livelihoods have not incorporated climate change resilience aspects in their activities.

Secondly, despite the growing understanding and evidence that maintenance of ecosystem services plays a major role in mitigating climate change and in assisting human societies to adapt to its impacts, national and local mitigation and adaptation frameworks have heretofore paid inadequate attention to ecosystem based adaptation approaches. There needs to be a paradigm shift to ensure that the very foundation of human livelihood - ecosystems and their services - is sufficiently resilient in order to enable communities to adapt to climate change.

The weak institutional capacity of government and communities is another critical barrier. There is a notable lack of capacity to plan, monitor and enforce climate resilient land use management systems at both national and local levels.

Underlying reasons for the above barriers are knowledge barriers, or insufficient awareness on climate change impacts and the necessity of addressing ecosystem resilience as part of the adaptation framework. These are related to an insufficient knowledge base pertaining to ecosystem dynamics under conditions of climate change, threshold (tipping points) and values, cumulative impacts of different land and water use, as well as impacts of development activities.

Furthermore, limited experience in ecological restoration work in Mongolia and sub-optimal availability of knowledge that has been accumulated in other countries hinders testing and application of ecosystem based adaptation measures in areas where restoration is required.

■ PROJECT / PROGRAMME OBJECTIVES:

Project Objective: *is to internalise climate change risks into water provisioning services supplied by the mountain and steppe ecosystems of Altai Mountain / Great Lake Basin and Eastern Steppe landscapes.*

The proposed project will contribute to the implementation of national policies and programmes and will assist Mongolia to meet its obligations under UNFCCC. The project responds to the Adaptation Fund's objective 2 - "Increase adaptive capacity to respond to the impacts of climate change, including variability at local and national level". More specifically, it will contribute to outcome 2.3 - "Increased ecosystem resilience in response to climate change and variability-induced stress" in the strategic results framework of the Adaptation Fund.

Project Strategy: In order to remove the aforementioned barriers, the project will apply the principles of Ecosystem-based Adaptation (EbA) with a specific focus on increasing climate change resilience at a landscape level in order to maintain the water provisioning services of steppe and associated ecosystems. EbA identifies and implements a range of strategies for the management and restoration of ecosystems to ensure that they continue to provide the ecosystem services that will enable people to adapt to the impacts of climate change. This strategy is based on the notion that societal adaptation cannot be achieved without ensuring the continued provision of ecosystem services and without using their potential to deal with new problem situations. Two landscapes, including major basin areas, are targeted in order to maintain larger scale resilience, which provides larger and stronger buffers against climate change induced pressure. By maintaining large-scale resilience, the flow of ecosystem services is secured and irreversible ecosystem regime shifts are avoided. Because climate change is a primary driver in irreversible hydrological regime shifts, it is important to build landscape-level adaptation measures and climate-resilience principles into water and land resource planning.

■ PROJECT / PROGRAMME COMPONENTS AND FINANCING:

The following table describes indicative outputs and outcomes. During the project formulation phase, a thorough baseline study will be conducted. This will involve collation of more detailed information on water and land resource situations in the target landscapes, a scientific literature review and the identification of knowledge gaps. It will also include determination of key ecosystem variables, identification/verification of site specific drivers that cause negative impacts, and feasible ecosystem based adaptation response measures.

PROJECT COMPONENTS	EXPECTED CONCRETE OUTPUTS	EXPECTED OUTCOMES	AMOUNT (US\$)
1. Integrated landscape-level land use and water resource planning system in the Altai Mountains/GLB and Eastern Steppe landscapes established, aimed at reducing vulnerability of communities to climate change impacts	<p>1.1 Strategic environmental assessment, including climate change considerations, conducted for target landscapes to document threats to ecosystem function and resilience from various sectors including livestock husbandry, agriculture, mining, and infrastructure, and provide recommendations for avoiding and mitigating impacts.</p> <p>1.2 Integrated landscape-level land use and water resource plans developed, explicitly aiming at enhancing ecosystem resilience and functions under conditions of a changing climate, building on existing land and water use systems as appropriate.</p> <p>1.3 Cost benefits evaluated for different climate change sensitive management measures to enhance the water provisioning services of ecosystems and structural measures (ecologically friendly water harvesting techniques)</p> <p>1.4 Incentive measures developed for local governments and communities to improve water and land resource management</p>	<p>Ecosystem resilience factored into land use and water resource planning and management at the landscape level</p> <p>Evidence-based decision making practiced through improved knowledge and understanding on ecosystem dynamics and resilience and impact of different land uses at the landscape level</p>	800,000
2. Ecosystem-based adaptation approach to maintaining water security under conditions of climate change demonstrated in the Altai/GLB and Eastern Steppe Landscapes	<p>2.1 Critical ecosystems protected and/or restored to maintain ecosystem resilience for water provisioning under conditions of a changing climate</p> <p>Activities could include:</p> <ul style="list-style-type: none"> - Restoration of forest, steppe and alpine ecosystems to enhance water- soil infiltration and water storage capacities in aquifers and wetlands -Restoration of wetlands, through the removal of alien species and reduction in abstraction measures to maintain storage capacities -Integrated management of wildfires in forest-steppe and steppe ecosystems to reduce the impact of fire disturbance on hydrological functions - Expansion of protected areas to maintain functional connectivity across the landscapes to increase climate change resilience <p>2.2 Adaptive capacity of vulnerable communities and resource users enhanced with their active participation to manage uncertainty of climate change impacts</p> <p>Activities could include :</p> <ul style="list-style-type: none"> - Demonstration of internalisation of climate change risks into community-based integrated water management - Demonstration of climate change resilience based pasture management – rotational grazing, avoidance of overstocking, grass seed bank establishment, integration with traditional mobile pastoral 	<p>Integrated landscape-level land use and water resource planning system implemented in two target landscapes, demonstrating increase in ecosystem resilience and increased adaptation capacity of resource users</p>	3,650,000

	use to maintain soil cover and maximise water-soil infiltration rates - Rehabilitation of wells and old water collecting reservoirs and establishment of climate adapting water harvesting (snow and glacier melt from Altai Mountains and flood waters) structures -Renovation of irrigation systems and water harvesting structures to demonstrate best water use practices for crop / vegetable farming. Likelihood of expected changes in flow for irrigation will be taken into account		
3. Systemic and institutional capacity of government and communities strengthened to plan, monitor and enforce the climate resilient land use management system in critical watersheds	3.1 Ecosystem-based adaptation approach mainstreamed in the national adaptation planning and implementation mechanisms, as well as related sector policies including water, energy, agriculture and mining sectors 3.2 Institutional mechanisms created/enhanced for supporting the internalisation of climate change risks in land and water resource management plan in the landscapes 3.3 Plan for up-scaling of best practices developed and agreed by the Government	Ecosystem-based adaptation approach mainstreamed in the country's adaptation framework and related sector policies Decision makers, local communities and general public understand and change behaviour towards maintaining ecosystem resilience to reduce their vulnerability to climate change.	550,000
4. Project/Programme Execution cost (including M&E costs)			500,000
5. Total Project/Programme Cost			5,000,000
6. Project Cycle Management Fee charged by the Implementing Entity			500,000
GRAND TOTAL			5,500,000
Amount of Financing Requested			5,500,000
Co-funding by Government of Mongolia (in-kind)			5,000,000¹²
Co-funding by UNDP Mongolia			500,000

■ PROJECTED CALENDAR:

Indicate the dates of the following milestones for the proposed project/programme

MILESTONES	EXPECTED DATES
Start of Project/Programme Implementation	April, 2011
Mid-term Review (if planned)	September, 2013
Project/Programme Closing	April, 2016
Terminal Evaluation	February, 2016

¹² The in-kind government financing represents government's budgets to be spent in line with the proposed project objective, including climate change, water resources and pasture management.

■ PART II: PROJECT JUSTIFICATION

A. Project Components

Component 1: . Integrated landscape-level land use and water resource planning system in the Altai Mountains/GLB and Eastern Steppe landscapes established, aimed at reducing vulnerability of communities to climate change impacts

This project component responds to the need for developing an integrated land use and water resource planning system in the two target landscapes, which aims to ensure that ecosystem resilience is factored into land use and water resource planning and management. A landscape approach will be employed based on resilience principles, which promotes maintenance of larger scale resilience of ecosystems given the complexity and dynamic nature of ecosystems and their services and in the context of a changing climate. It is critical to maintain landscape scale heterogeneity and capture environmental gradients, and retain spatial patchiness and landscape pattern variability in order that communities reliant on such services are better able to manage their land use practices to accommodate the uncertainties that arise with climate change.

In preparation for the landscape-level plan development, strategic environmental assessments, focused on climate change impacts, will be carried out to further existing knowledge related to the ecological, environmental and socioeconomic impacts of policies, and various subsistence, economic and development activities. The assessment will focus on documenting threats to ecosystem function and resilience from climate change as well as various sectors including agriculture, mining and infrastructure, and provide recommendations for avoiding and mitigating impacts.

In support of the action plans for the integrated landscape-level land use and water resource plans, costs and benefits will be evaluated for different climate change sensitive management measures to identify and enhance ecosystems' water provisioning services as well as ecologically friendly water harvesting techniques. Incentive measures for local communities and governments will be explored to improve water and land resource management as per the landscape level plan, drawing lessons from past and ongoing initiatives here and elsewhere.

Component 2: Ecosystem-based adaptation approach to maintaining water security under conditions of climate change demonstrated in the Altai/GLB and Eastern Steppe Landscapes

In support of the implementation of the landscape level plans and different adaptation measures identified in Component 1, an ecosystem-based adaptation approach will be demonstrated through concrete actions in the target landscapes aiming to increase ecosystem resilience and the adaptation capacity of resource users to adapt to climate change impacts. Demonstration activities will address both the supply and demand sides of the water provisioning ecosystem services. On the supply side, based on climate change resilience principles, activities are envisaged to include restoration of ecosystems including forest, steppe and Alpine ecosystems through measures such as introduction of native species, the eradication of invasives, and the restoration of native disturbance regimes, to enhance water-soil infiltration and water storage capacities in aquifers and wetlands. Wetlands will be restored through the removal of alien species and reduction in abstraction rates to maintain water storage capacities. In areas with increasing fire hazards, such as forest steppe and steppe, integrated management of wildfires will be supported to reduce the impacts of fire disturbance on hydrological functions. The

protected areas will be expanded with climate risk considerations and/or the management of watershed protected areas will be strengthened, to maintain functional connectivity across the landscapes, to protect riparian areas, water sources, natural springs and wetlands, in order for them to be resilient in the context of a changing climate.

Demonstration activities that address the demand side of resource users are expected to include demonstration of community-based integrated water management and climate change resilience based pasture management. These could include reducing grazing pressure on pastureland through rotational grazing, reducing stocking rates with resilience objectives (rather than only for maximising livestock productivity), and grass seed bank establishment to preserve certain areas of grassland areas for seed dispersal to encourage regeneration under changing climatic conditions. Other measures could include fodder production using local plant species that are more resilient to climate change, promotion of traditional ecosystem friendly practices and protection of riverbanks and headwaters at the upper reaches of the Altai/GLB landscape. Incentive measures for adaptation and community based water harvesting and other measures to increase water use efficiency will also be supported to enable communities to better manage uncertainty of climate change impacts. In line with the National Programme on Water, and as part of the community adaptation measures, a number of small and medium scale snow and rain water harvesting structures and groundwater wells will be established and heads of the natural springs will be protected at target sites. The demonstration project design and implementation will be done with the full involvement of groups of primary resource users

Component 3: Systemic and institutional capacity of government and communities strengthened to plan, monitor and enforce the climate resilient land use management system in critical watersheds

The component will address the institutional capacity deficiency of governments and communities to plan and implement climate resilient land use management systems. This component will also address the need for mainstreaming the ecosystem-based adaptation approach in the national and local level adaptation planning and implementation framework, as well as in related sector policies. Working closely with the National Climate Change Committee, the project will promote coordination of adaptation efforts in Mongolia. In close collaboration with the national and local governments and communities, and building on existing institutional mechanisms such as river basin councils, the project will support development/strengthening of necessary institutional mechanisms to support internalising climate change risks into landscape-level plans for the target landscapes.

This component will also have a strong knowledge management component. The project will act as the knowledge window for the government and resource users regarding the ecosystem based adaptation approach, bringing in international experiences and accrued knowledge to Mongolia. Awareness raising activities targeting the decision makers and local communities will be an integral part of the knowledge component. Furthermore, lessons learned and best practices demonstrated by the project will be shared in line with the knowledge management and communication plan prepared during the first year of the project. Data collected and analyzed through the project will feed into the National Geo-information System at <http://geodata.mne-ngic.mn/>. Towards the end of its implementation period, the project will develop a plan to disseminate project results and upscale best practices. The plan will be agreed by central and local Governments for ensuring sustainability and replication of best practices to adjacent administrative units.

B. Economic, Social and Environmental Benefit

The EbA has a number of co-benefits including income generation, contributing towards climate change mitigation, poverty reduction and biodiversity conservation etc. EbA will help humans to adapt to a changing climate. Climate resilient ecosystems will more able to resist and recover from climate disturbances – thus continuing to provide ecosystem services that will allow people to adapt to climate change. Given the significant economic value of ecosystems in Mongolia¹³, the project will bring about long-term economic and financial benefits to economic sectors that depend on water availability. The project's EbA approach will benefit local communities vulnerable to climate change, particularly the low-income population engaged in nomadic livestock husbandry and arable farming, who are totally dependent on ecosystem services.

The main beneficiaries of the project will be the national and local governments as well as a population of over 200,000 vulnerable rural community members in the two landscapes who will derive sustained benefits from resilient ecosystems and their services. The project will give priority to the most vulnerable communities, particularly those who have lost most of their livestock during the harsh winter of 2009. A gender balanced approach will be taken and inclusion of female-headed households will be encouraged in demonstration activities. Selection of the communities will be based on criteria such as the poverty rate and degree of local natural resource degradation, including pasture/land, water and forest, as well as biodiversity.

With the integrated and holistic approach of adaptation, the equilibrium dynamics of ecosystems and their functions and services will be achieved. Without the proposed interventions, resource degradation will further continue to cause loss of ecosystem services, a decrease in vegetation density and available biomass, soil erosion through wind and associated dust storms that also affect neighbouring countries. Further benefits of the project interventions include enhancement of carbon sinks through improved grassland ecosystem stability and productivity.

C. Cost-effectiveness

To date, many adaptation response measures in Mongolia have been site specific. They tend to be ad-hoc small scale interventions supported by different organisations and donors, with little consideration for the need for EbA measures for increasing ecosystem resilience in response to climate change. These fragmented responses may address an issue or yield an impact in a given locality or sector. However, without due consideration and action with regard to ecosystem resilience to climate change, the outputs and impacts of isolated actions will be unsustainable. Moreover, isolated adaptation actions may transfer externalities or restrict options elsewhere. This is particularly true for a landscape that includes critical watersheds with vulnerable populations dependent on crucial ecosystem services. With this fragmented approach, opportunities for mainstreaming climate change risks into normative frameworks – a cost-effective way to achieve changes in natural resource management sectors – will be missed. Required capacities for maintaining ecosystem resilience will not be nurtured and tools for EbA will not be accessed and utilized, creating constraints to the identification, prioritisation and implementation of adaptation response measures. Therefore in the absence of support by the Adaptation Fund, a continuation of a range of largely short-term, fragmented responses will be the alternative for Mongolia - a country with such high levels of vulnerability.

The approach proposed by this project provides an integrated package of measures that will

¹³ For example, the Economics of Ecosystems and Biodiversity study on climate change issues (2009) estimates that the value of ecosystem services of tropical forests for water provisioning to be US\$ 143-411 per hectare per year. It also estimates that the water flow regulation services of tropical forests to be worth US\$ 1,360 – 5,235 per hectare per annum.

effectively generate the necessary systemic and institutional capacities, tools and information for sound decision-making and actions for integrated water and land resource planning and management which fully internalize climate risks. Simultaneously, the project will demonstrate a range of EbA approaches to address both the supply and demand sides of water resource management.

Furthermore, the project is considered cost effective because its core strategy integrates two cost effective approaches, namely, EbA to address climate change impacts and the stimulation of community participation. EbA is generally considered to be a cost-effective approach compared with engineered or structural approaches, given its long-term impacts and social and economic co-benefits. The services provided by ecosystems can contribute significantly and cost-effectively to efforts to adapt to unavoidable climate change. Investment in restoring or conserving ecological infrastructure which delivers ecosystem services can significantly enhance agricultural sustainability, improve freshwater supplies, reduce the impacts of natural hazards and extreme weather events.¹⁴ Such investment can also improve skills and create decent jobs in poor communities.

The participatory approach of the project centres on involving local people in: managing natural resources, meeting social needs (e.g., maintaining local culture, increasing opportunities for income generation, and improving health and well-being), lowering management costs, and sustaining outcomes over time. Implementing demonstration activities through community groups would be cost effective when compared to implementation by project staff. The project will also take a cost effective facilitation approach for empowerment of local actors on participatory approaches in decision making over resources by training local resource personnel.

In addition, the project will apply the best practices identified by a number of past and on-going projects with regard to technology related interventions, as well as establishing community organisations, and strengthening co-management and local governance. At the operational level – employment of UNDP’s competitive procedures for procurement will assure value-for-money. Proposed demonstration interventions will be implemented in close coordination with the GEF – Small Grant Programme (SGP) funding community-initiated conservation efforts within the region.

During the formulation of the project document, a more detailed cost effectiveness analysis will be made, comparing the proposed resource allocation with measurable outcomes to other possible options, in order to validate costs, benefits and project effectiveness.

D. National and Sub-National Priorities

The proposed project is fully consistent with Mongolia’s National development policies and programmes as reflected in the MDG-based Comprehensive National Development Strategy, the Government Plan of Action, the UNFCCC-National Action Plan (NAP) that has just been updated for approval, and the National Biodiversity Strategy and Action Plan. More specifically, the project will contribute to the implementation of the following policies and programmes:

National level:

- Mongolian MDG, Goal 7: “Ensure Environmental Sustainability”.
- MDG-based National Development Strategy, 2005:

¹⁴ Climate Change Issue Update, 2009, The Economics of Ecosystems and Biodiversity

- Section 3.5. Priority areas - “Create a sustainable environment for development by promoting capacities and measures on adaptation to climate change, halting imbalances in the country’s ecosystems and protecting them”.
- Strategic objective 6 - Promote capacity to adapt to climate change and desertification, to reduce their negative impacts.
- NAP CC draft update, 2010:
 - Section 3.2.1. Develop and implement river basin management plans
 - Section 3.2.3. Expand initiatives for ponds and small basins for harvesting rain and snowmelt waters.
 - Section 3.2.6. Implement measures for reducing pasture degradation, coping with desertification and increasing carbon sequestration
 - Section 3.2.8. Support conserving biodiversity vulnerable to climate change
- National Programme on Water, updated and approved, 2010:
 - Section 3.2.10. Determine impacts of climate change and land use to the water ecosystem in large river basins, ecosystem biological indicators and monitor according to the international standards
 - Section 3.3.10. Increase the number of snow and rainwater harvesting structures for farming purposes (By 2021, water harvesting structures will be established at 130 locations and put under utilization).
- NAP for Combating Desertification, updated and approved in 2010:
- State policy on herders, 2010,
 1. Items 3.2.12-3.2.17 for improved preparedness to natural disasters and climate-related emergencies.

Local level:

- Altai Mountains Biodiversity Conservation Strategy
- Eastern Steppe Biodiversity Conservation Strategy

E. Technical Viability

All UNDP supported donor funded projects are required to follow the mandatory requirements outlined in the UNDP Programme and Operational Policies and Procedures (UNDP POPP). This includes the requirement that all UNDP development solutions must always reflect local circumstances and aspirations and draw upon national actors and capabilities.

In addition, all UNDP supported donor funded projects are appraised before approval. During appraisal, appropriate UNDP representatives and stakeholders ensure that the project has been designed with a clear focus on agreed results. The appraisal is conducted through the formal meeting of the Project Appraisal Committee (PAC) established by the UNDP Resident Representative. The PAC representatives are independent in that they should not have participated in the formulation of the project and should have no vested interest in the approval of the project. Appraisal is based on a detailed quality programming checklist which ensures, amongst other issues, that necessary safeguards have been addressed and incorporated into the project design

In addition, the proposed interventions will adhere to the national technical standards that are in force. Particularly those relating to the snow and rain water harvesting structures. Their feasibility and designs will follow the relevant Building Codes, Norms and Standards and will undergo the set procedures for scrutiny in order to get official approvals.

F. Chances of Duplication

A review of on-going projects shows that there is no duplication of the proposed project with other funding sources. There are several projects aiming to improve the livelihood of livestock herders and landscape conservation planning. In support of the Government policies and programmes on climate change adaptation, several external partners are planning initiatives in relation to the subject. However, none has the explicit focus on maintaining the resilience of ecosystems as an adaptation measure. During the full project formulation process, all stakeholders including donor funded projects will be consulted, in order to avoid any potential duplication of efforts and geographical coverage, and to ensure synergy between the ongoing initiatives and the proposed project. In many cases, the project is expected to complement ongoing initiatives by bringing in the EbA approach to enhance ecosystem resilience.

The proposed project will build on the experiences and lessons learned from past and on-going initiatives that are addressing certain elements of the ecosystem-based adaptation and catalyse them into a larger-scale resilience approach.

Table 2: Relevant Ongoing and Upcoming Initiatives in Mongolia

Project & Funding Institution	Objective	Potential Synergies
Ongoing Projects		
WWF – Sustainable Water Management as a Climate Change Adaptation Strategy in Western Mongolia (2008-2009)	To ensure the ecological integrity of the Khovd River Basin and the sustainable management of its water and related resources as a climate change adaptation strategy in western Mongolia	A fully participatory and holistic approach of the project for Khovd River water management involving all key stakeholders and interests (herding, agriculture, industry, production of hydropower etc). Best practices in scientific data collection, development of Integrated River Basin Management Plan will be replicated through the proposed project.
The Nature Conservancy (2006 –till date)	Conservation of grasslands of Eastern Steppe and development of conservation plan with the key stakeholders	Wealth of data and information on the Eastern Steppe biodiversity and ecosystems, and tested methodology in development by design approach.
UNDP/The Netherlands/SDC– Sustainable Land Management for Combating Desertification (2008-2012)	To combat land degradation and desertification in Mongolia in order to protect and restore ecosystems and essential ecosystem services so that they are key to reducing poverty.	Proposed project will build on the best practices and lessons learned of the community-based pasture/land management approach.
UNDP/GEF/The Netherlands - Community-based Conservation of Biological Diversity in the Mountain Landscapes of Mongolia's Altai Sayan Eco-region (2004-2011)	To ensure the long-term conservation of the biodiversity of Mongolia's Altai-Sayan region by mitigating threats and encourage sustainable resource use practices by local communities	Successes and lessons in community-based biodiversity conservation approach. Data and information accumulated for the ecology and sector information in the Altai Mountain Landscape. Environment Units that were established in local government to support herder groups will be a useful vehicle for herder support activities in Altai Mountain region.
SDC “Green Gold” – Mongolian Pasture Ecosystem Management Programme (2002-2009, with next phase starting)	To strengthen the self-reliance of poor and vulnerable herders and to improve their livelihoods through more productive and sustainable use of pastures in Mongolia	During the project preparation phase, successes will be explored in applying the concept of territory-based pasture user groups responsible for formulating and implementing a pasture co-management plan. Geographically the target sites are different from the proposed project.
WB – Sustainable Livelihood Programme Phase 2	To enhance livelihood security and sustainability by scaling up institutional	Strengthening of local government institutional capacity for pasture planning and management as

Project & Funding Institution	Objective	Potential Synergies
	mechanisms that reduces the vulnerability of rural communities.	a part of strategy to prepare for and respond to pastoral risks.
Upcoming projects		
IFAD/GEF - Mongolia Livestock Adaptation Project (2011-2016)	Empowering poor rural population to achieve higher incomes through sustainable improvements in their livelihoods, through a) Market development; b) Pasture management and c) climate change adaptation.	Mobilising community self-help groups and pasture herder groups for improving pasture management and resilience will be fully complementary to the proposed project interventions, although geographical focus is totally different.

G. Learning and Knowledge Management

Component 3 of the project has a strong knowledge management subcomponent. The project will act as the knowledge window for the government, resource users and the general public regarding the ecosystem based adaptation approach, bringing in international experiences to Mongolia. Awareness raising activities targeting the decision makers and local communities will be an integral part of the knowledge component. Furthermore, lessons learned and best practices demonstrated by the project will be shared in line with the knowledge management plan prepared during the first year of the project.

The project will promote knowledge sharing and coordination among practitioners through two mechanisms, namely: (a) Technical Working Group: a knowledge sharing and coordination platform for the climate change adaptation initiatives established with the representation of Government, external partners, academia, NGOs and CSOs; and (b) the National Climate Change Committee, a broader policy level coordination mechanism.

Inter-community learning and dissemination of knowledge and experience will be fostered through experience sharing exchanges as per dissemination plan. Workshops will be organised at both provincial and central levels, in order to disseminate findings and lessons learnt from pilot initiatives that will yield policy briefs to decision makers. The project will produce information materials in a form of brochures introducing the ecosystem-based adaptation approach. In addition to regular information dissemination and experience sharing through various media (print, radio, TV etc.), project inception and closing workshops will be organised with a strong media presence and a joint project terminal report will be produced and disseminated to stakeholders.

H. Stakeholder Consultation and Participation

The scope of this initiative was defined in close consultation with the relevant officials at the MNET through meetings, including the Designated National Authority for the Adaptation Fund and the operational focal points for UNFCCC, UNCCD and GEF, as well as other external partners. The initiative is based on analysis and recommendations of a number of official reports and studies such as the Mongolia: Assessment Report on Climate Change 2009 and the National strategy for Climate Risk Management and Adaptation Plan of Mongolia that were finalised after thorough stakeholder consultation processes.

During the formulation of the full project document, further consultation will be carried out with the stakeholders to define details of the project, including a logical framework workshop to prepare results and resources framework with full participation of stakeholders. In addition to

the local communities/resource users as beneficiaries, the following stakeholders have been identified. The list and their roles will be consolidated during the project formulation process.

Table 3. Project stakeholders

Stakeholder	Anticipated roles
Government entities	
Ministry of Nature, Environment and Tourism	Overall conservation of nature and implementing UNCCD. It is Project implementing partner and its implementing agencies , Water Agency, Forest Agency, Specially Protected Area Administration will be main counterparts
Ministry of Food, Agriculture and Light Industry	Main counterpart for pastureland management issues
Ministry of Mineral Resources and Energy	Main counterpart for mining and energy issues
Local Government	Provides implementation support at the local level and ensures mainstreaming of local level policies
Administration for Land Affairs, Construction, Geodesy and Cartography	Main partner in land use planning and management.
State Specialized Inspection Agency	Advising on and supporting enforceability aspects of legislations
River Basin Councils	Partner in ensuring water management and conservation activities are in line with watershed/basin management plans
Academia	
Mongolian Academy of Science and its research institutes	Institutes of Geo-ecology, Biology and Institute of Meteorology and Hydrology are partners in baseline and feasibility studies and continued monitoring of indicators
NGO and private sector	
National Meteorology Association	Potential partner in studies and developing land use and watershed management planning at a landscape level
National media	Information dissemination
Donors and NGOs	
IFAD, World Bank, Swiss Agency for Development and Cooperation, The Nature Conservancy, Wildlife Conservation Society, World Wildlife Fund	Technical inputs into the project formulation and implementation, Ensuring complementarities and synergies with activities of other on-going and future projects

I. Funding Justification

The following section is a summary of the baseline and additionality reasoning for each project component. They will be further expanded and articulated in the full project proposal submitted for final approval by the Adaptation Fund. The proposal will outline baseline development activities that are currently financed out of government funds and traditional ODA and the value added to those outcomes that are to be financed with resources from the Adaptation Fund

Component 1: Integrated landscape-level land use and water resource planning system in the Altai Mountains/GLB and Eastern Steppe landscapes established, aimed at reducing vulnerability of communities to climate change impacts

Baseline (without AF Resources)

In Mongolia, different government ministries have jurisdiction over certain aspects of water and land resources management. For example, the MNET is responsible for conservation of the resources and the Ministry of Agriculture, Food and Light Industry is responsible for rural water supply and agricultural development. Ministry of Roads, Transportation, Construction and Urban Development is responsible for land use planning. In the absence of this proposed project, water resource planning and management will remain fragmented and largely focused on resource allocation, water saving measures, water quality and sanitation issues, and a water resource conservation component does not include consideration of climate change risks and comprehensive measures for enhancing ecosystem resilience. Similarly, land-use planning is

production oriented aiming to develop agriculture, mining and other industries and urban areas, and focuses on smaller areas without taking a landscape-level approach that would allow for the creation of a balanced mosaic of protection, management and restoration that enhances the climate change resilience of ecosystems, as well as providing ecological, economic and social benefits. Climate risks will not be internalized in land use management, increasing the likelihood of ecosystems being degraded to a point where they are no longer resilient to climate change. Pasture resources will be managed to maximize livestock production over a short horizon, without consideration of the need to also manage these areas to maintain water provisioning services under conditions of climate change, or to deal with the attendant uncertainty.

Additionality (with AF Resources)

The project's contribution will be to add the necessary climate change layer to land-use and water resource planning and management systems in the two landscapes. A landscape approach will be employed based on climate change resilience principles, which promotes maintenance of larger scale resilience of ecosystems given the complexity and dynamic nature of ecosystems and their services. Climate resilience will be mainstreamed into landscape level strategic environmental assessments, which is expected to yield much needed detailed information on threats to ecosystem functions and resilience from climate change as well as various sectors including agriculture, mining and infrastructure, and recommended actions for avoiding and mitigating impacts. In support of action plans for integrated landscape-level land use and water resource management, costs and benefits will be evaluated for different climate change sensitive management measures to identify and enhance ecosystems' water provisioning services and adapt water harvesting techniques. Through these interventions, the project will ensure that ecosystem resilience is factored into land use and water resource planning and management. Furthermore, it will also enable evidence-based decision making practices through improved knowledge and understanding on ecosystem dynamics and resilience, as well as the compound impact of different land uses and climate change.

Component 2: Ecosystem-based adaptation approach to maintaining water security under conditions of climate change demonstrated in the Altai/GLB and Eastern Steppe Landscapes

Baseline (without AF Resources)

As described in previous sections, the water and land resources in the Altai Mountain / GLB and Eastern Steppe landscapes are extremely vulnerable to the projected impacts of climate change. Under the business as usual scenario, only fragmented and ad-hoc response measures are likely to be taken. Individual efforts aimed at improving range management will seek to maximize productivity for livestock production or increasing the preparedness of herders for disaster such as dzud. Water management support will mainly deal with the demand side, focusing on increasing water availability at settlements, herding areas, and for agricultural and industrial uses, rather than maintaining the water provisioning services of ecosystems under climate change. Land resource management issues will not be addressed in an integrated manner, with full recognition of the complexity of interaction between different biotic and non-biotic elements of ecosystems.

Additionality (with AF Resources)

This proposed project will demonstrate an EbA approach to enhance ecosystems' resilience in the two landscapes so that they will be able to provide a continuous supply of water resources while providing for economic activities. A range of restoration and other ecosystem resilience enhancing interventions will be identified, and will be implemented. This will include ecosystem

restoration efforts to enhance water-soil infiltration rates in sensitive catchment areas and water storage capacities in wetlands, developing capacities to manage climate change induced wildfires that destroy ground cover and undermine watershed integrity, adaptive community based management of grazing lands and wetlands, and rehabilitation of wells and development of climate adapted water harvesting structures. Each of these activities has been selected based on an assessment of the gaps in knowhow and management practice that are impeding adaptation.

Component 3: Systemic and institutional capacity of government and communities strengthened to plan, monitor and enforce the climate resilient land use management system in critical watersheds

Baseline (without AF Resources)

Since Mongolia ratified the Kyoto Protocol in 1993, the government has taken considerable steps towards the implementation of the UNFCCC, by accomplishing the required commitments such as the Initial National Communication and Technology Needs Assessment. There has been a growing awareness amongst the decision-makers and government officials that climate change risks to Mongolia are very high and that this is an issue that significantly affects almost all sectors of the national economy and human and animal life, as well as the ecosystems that support life. There is a good awareness about the need for comprehensive adaptation measures that will be required to reduce negative impacts of climate change. The 14-year Comprehensive National Development Strategy of Mongolia approved by the Parliament in 2008 is anchored on the Millennium Development Goals (MDGs). One of the six objectives refers to “*promote capacity to adapt to climate change and desertification, to reduce their negative impacts.*” Under this policy framework, the National Action Programme for Climate Change is currently being finalized. Although the importance of ensuring ecological balance is recognized, the current adaptation framework in the county has placed insufficient emphasis on the essential role of EbA in the country’s adaptation efforts. Concrete methodologies and actions for the EbA approach are also lacking.

Given that different government agencies are responsible for different aspects of land use and water resource management, tackling these issues under the conditions of climate change would require a coordinated approach of governmental institutions, as well as donors, NGOs and key stakeholder groups on the river basin level. Without the project intervention, the government’s institutional capacity for planning and implementing EbA as part of the nation’s adaptation framework will remain insufficient at the national and local levels with limited access to tools and information for internalizing climate change risks into land-use and water resource planning. Adaptation actions will remain fragmented and uncoordinated. No systematic knowledge management system with adequate EbA elements will be developed and instituted. Up-scaling of best practices will therefore be unlikely to happen.

Additionality (with AF Resources)

With the Adaptation Fund’s support, EbA will be mainstreamed in the country’s adaptation framework and related sector policies. Decision makers, local communities and the general public will have a good understanding of the urgent necessity for taking comprehensive adaptation measures which combine different approaches including engineered and technologically oriented adaptation options, early warning systems, insurance schemes and EbA, significantly increasing the possibility of Mongolia to succeed in its adaptation efforts. Institutional mechanisms will also be strengthened in support of internalisation of climate change risks in land and water resource management plans and activities. The strong knowledge management element of the proposed project will make global and regional tools

and resources related to EbA available to Mongolia, as well as support the country to develop its own materials related to EbA methodologies and experiences and increase uptake of the knowledge in other landscapes that are not the target of intervention under this project.

PART III: IMPLEMENTATION ARRANGEMENTS

A. Adequacy of Project Management Arrangements

Upon the request of the Government of Mongolia, UNDP will be the Multilateral Implementing Agency (MIE) for this project. The Project will therefore be implemented following UNDP's **National Execution Modality (NEX)**. The designated Implementing Partner of the project will be the Ministry of Nature, Environment and Tourism (MNET). MNET is responsible for implementing UNFCCC and water resource management and will hold the responsibility of the senior supplier. MNET is ultimately responsible for the timely delivery of inputs and outputs and for coordination of all other Responsible parties including other line ministries, relevant agencies, and local government Authorities. The MNET will appoint the **National Project Director**,

The Project Board (PB) is responsible for making management decisions for the project and plays a critical role in project monitoring and evaluations by quality assuring these processes and products, and using evaluations for performance improvement, accountability and learning. The PB will be composed of designated senior-level representatives of MNET, Ministry of Food and Agriculture, UNDP and local Governor's offices.

Project assurance - UNDP Mongolia will support project implementation by assisting in monitoring project budgets and expenditures, recruiting and contracting project personnel and consultant services, subcontracting and procuring equipment. The UNDP Mongolia will also monitor the project implementation and achievement of the project outcomes/outputs and ensure the efficient use of donor funds through an assigned Programme Officer in the Country Office in Ulaanbaatar.

Project Manager – (PM). He/she will be a national professional designated for the duration of the project. The PM's prime responsibility is to ensure that the project produces the results specified in the project document to the required standard of quality and within the specified constraints of time and cost.

Project-Support - PM will be supported by a core technical and support staff forming the **Project Implementation Unit (PIU)** located at the MNET to execute the project activities, including day-to-day operations of the project, and the overall operational and financial management and reporting. At the target demonstration sites, local coordinators will be recruited.

B. Measures for financial and project risk management.

During the development of the project document, the risks will be further analysed and elaborated in a risk log.

Table 4. Risks and risk management

No	Type	Description	Comments	Rating
1	Institutional	Policy makers prioritize economic benefits over sustainable and resilient ecosystems	Project will also build capacity of the relevant national stakeholders at central and local levels. Moreover, awareness raising activities will be implemented at the target sites to convince and change behavior of the local communities towards sustainable resources utilisation.	Medium
2	Environmental	Extreme natural disasters affect confidence of local community to adaptation measures	As a part of adaptation measures, the project will apply a proven approach of community-based disaster risk management, thus reducing the vulnerability of communities to natural disasters. The primary units will be the herder groups or community organisations joining the efforts. Local level demonstrations will provide incentives for the local communities to cooperate towards a long-term resilience.	Medium
3	Environmental/ Social	Adaptation measures increase inequity	The project will ensure that the adaptation measures are gender sensitive and demonstration at the local level that they do not limit the participation of women and the disabled as beneficiaries.	Low

C. Monitoring and Evaluation

The monitoring and evaluation (M&E) scheme will be applied in accordance with the established UNDP procedures throughout the project lifetime. As an implementing partner, MNET, together with the UNDP Country office in Mongolia will ensure the timeliness and quality of the project implementation. The M&E plan will be implemented as proposed in Table 5. Technical guidance and oversight will be also provided from the UNDP's Regional Bureau for Asia Pacific, as well as the Project Board (PB).

Project start: A *Project Inception Workshop (IW)* will be held within the first 3 months of project start with those with assigned roles in the project management, AF, UNDP CO and where appropriate/feasible, regional technical advisors as well as other stakeholders. The IW is crucial to building ownership for the project results and to plan the first year annual work plan.

Annual Progress Report: An Annual Progress Report (APR) shall be prepared by the Project Manager, shared with the Project Board and submitted to the Donor. The APR will be prepared with progresses against set goals, objectives and targets, lessons learned, risk management and detailed financial disbursements.

Mid-term of the project cycle: The project will undergo an independent Mid-Term Evaluation (MTE) at the mid-point of project implementation (June 2013). The MTE will determine progress being made toward 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. The findings of this review will be incorporated as recommendations for enhanced implementation during the final half of the project's term.

Periodic Monitoring through site visits: UNDP CO will conduct visits to project sites based on the agreed schedule in the project's Annual Work Plan to assess, at first hand, project progress. Other members of the PB may also join these visits.

Project Closure: An independent Final Evaluation will take place 3 months prior to the final PB meeting and will be undertaken. The final evaluation will focus on the delivery of the project's results as initially planned and as corrected after the mid-term evaluation, if any such correction takes place. The final evaluation will look at impact and sustainability of results, including the contribution to capacity development and the achievement of global environmental benefits/goals.

Table 5. Monitoring and evaluation plan of the proposed project

Type of M&E activity	Responsible Parties	Budget US\$	Time frame
Inception Workshop and Report	<ul style="list-style-type: none"> ▪ Project Manager ▪ UNDP CO, RBAP, AF 	3,000	Within first two months of project start up
Measurement of Means of Verification for Project Progress on <i>output and implementation</i>	<ul style="list-style-type: none"> ▪ Oversight by Project Manager ▪ Project team 	n.a	Annually prior to ARR/PIR and to the definition of annual work plans
ARR/PIR	<ul style="list-style-type: none"> ▪ Project manager and team ▪ UNDP CO 	0	Annually
Periodic status/ progress reports	<ul style="list-style-type: none"> ▪ Project manager and team 	0	Quarterly/ Annually
Mid-term Evaluation	<ul style="list-style-type: none"> ▪ Project manager and team ▪ UNDP CO ▪ UNDP RBAP ▪ External Consultants (i.e. evaluation team) 	25,000	2013
Final Evaluation	<ul style="list-style-type: none"> ▪ Project team, ▪ UNDP CO ▪ External Consultants (i.e. evaluation team) 	25,000	2015, at least three months before the end of project implementation
NEX Audit	<ul style="list-style-type: none"> ▪ UNDP CO ▪ Project manager and team 	2,000	Bi-annual
Visits to field sites	<ul style="list-style-type: none"> ▪ UNDP CO ▪ Government representatives ▪ Project Unit ▪ UNDP RBAP 	20,000	Yearly
TOTAL indicative COST		US\$ 75,000	

Note: The costs indicated here do not include the costs associated with UNDP staff. Those UNDP related costs are covered by the MIE fee.

D. Project Logical Framework Analysis

Detailed results framework with SMART indicators, their baseline and targets will be prepared during the preparation of the full Project Document to be submitted to the Adaptation Fund for approval.


■ PART IV: ENDORSEMENT BY GOVERNMENT AND CERTIFICATION BY THE IMPLEMENTING ENTITY

A. RECORD OF ENDORSEMENT ON BEHALF OF THE GOVERNMENT

The proposed project is in line with Government of Mongolia’s policies and priorities. Hence it has been endorsed with the approval of competent authority. A copy of the endorsement letter is attached.

Damdin Dagvadorj Special Envoy for Climate Change Ministry of Nature, Environment and Tourism Government of Mongolia	Date: July 17, 2010
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B. IMPLEMENTING ENTITY CERTIFICATION

I certify that this proposal has been prepared in accordance with guidelines provided by the Adaptation Fund Board, and prevailing National Development and Adaptation Plans and subject to the approval by the Adaptation Fund Board, understands that the Implementing Entity will be fully (legally and financially) responsible for the implementation of this project/programme.	
 John Hough Officer-In-Charge Environmental Finance UNDP Implementing Entity Coordinator	
Date: July 26, 2010	Tel. and email: +1-212-906-5560 john.hough@undp.org
Project Contact Person: Midori Paxton	
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