G-1-20R

AFoCO Project Document

Project code	*AFoCO/039/2023*

Project Profile			
Project Title	Forest restoration demonstration through high capacity tree nursery establishment and capacity building in support to Billion Tree National Movement (BTNM) in Mongolia		
Project Duration	Estimated start date: April 2023 Estimated end date: December 2025		
Implementing Agency	National Forest Agency of Mongolia		
Participating Country(ies)	Mongolia, Republic of Korea		
Project Site (Province/District level)	Project site 1. Bayan-Uul soum, Dornod aimag, Northeastern Khentii, Mongolia Project site 2. Deendiin valley, Ulaanbaatar city, Mongolia		
Project Objectives	1. Establishment of mechanized nursery for forest restoration; 2. Capacity building of frontline forestry staff and communities on forest restoration; 3. Soil erosion control and water conservation, and contribute to income generation of participating communities.		
Primary Priority Area	☐ 1. Initiating customized restoration & reforestation models		
Secondary Priority Areas	☐ 4. Local livelihood improvement & community-based small enterprise development		
Budget and Source of Finance	Total: US$ __		
	AFoCO: US$ KRW 1,129,611,280**, equivalent** to USD 999,656 @ 1USD=KRW1,130		
	National: US$ _____ (In-cash)		
	National: US$ _____(In-kind)		
	Others: US$ _____ (to be specified)		
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Summary

The rapid deforestation and forest degradation caused by anthropogenic disturbances has become one of the most pressing issues in Mongolia over the past years, which has affected the microclimate of the region. Continuous loss of forest cover has led to changes in land use and land degradation in the former forest regions of the country. Among the northern boreal forest regions in Mongolia, the relatively accelerated trend of deforestation in the eastern Khentii mountains has resulted in the loss of forest cover, soil erosion, reduction of forest economic value, and household income of forest communities besides the increase in greenhouse gas emission.

According to the 2020 National Forest Statistics of the Forest Research and Development Center of Mongolia, the forested land in Ereen Mountain Range is 90,960 ha, whereas the non-forested land, which has been degraded due to repeated forest fires, pests and diseases, unsustainable forest management accounts for about 148,205 ha. The data illustrates that human-caused forest fires are the main drivers for forest degradation and deforestation in the region. In the Eastern Khentii Mountain itself, there are about 55,000 hectares of degraded forest land, which needs to be restored for preventing further degradation and land use change. However, the restoration activities are constrained by the limited number of forest seedlings and saplings due to fewer nurseries or due to lack of nurseries with advanced technologies for producing good seedlings. There is also the limited capacity of the staff to manage the nursery and carry out plantation and this has led to the failure of plantations.

In the current scenario, due to inadequate seedling production and lack of capacity, reforestation activities in the region have been very limited , and the survival of planted forests remains at a very low rate. Therefore, it has been of paramount importance that Mongolia focuses on establishing advanced tree nurseries at the target sites and initiate reforestation in 120 ha of the degraded and deforested area as a demonstration through this project in the Ereen Mountain Range at the northeastern part of Mongolia, due to the fact that the region has high social, ecological and economic values.

The main impacts to be achieved through this project is to acquire the required capacities for the relevant officials and communities in carrying our reforestation activities besides the establishment of advanced nurseries to produce mass seedlings in the local area. Through this project with AFoCO, Mongolia wishes to transfer and adopt the modern mechanized nursery technology based on the experiences from Republic of Korea (ROK) to enhance the reforestation of degraded and deforested areas in the eastern Khentii mountains of northern Mongolia and aspire to achieve similar results like that of the ROK forest reforestation programs.

The main objectives of this project are to
1) Establish mechanized nursery for mass seedling production required for pine forest restoration
2 Conduct capacity-building activities for the frontline forestry staff and communities on forest restoration.
3) Implement programs to prevent or mitigate soil erosion and water conservation.
4) Enhance communities livelihood through alternative income generating opportunities.

Further, the project will disseminate the project experiences and lessons learned to ensure replication of similar ideas on restoring other degraded lands in the country and also sustain the activities after project completion. The overall duration of the project will be three years, and the successful implementation of this project will be ensured by the Implementing Agency with the active participation and cooperation with local forest communities, local forestry units and local government of Bayan-Uul village of Dornod province.

Section A. Project Context

1. Background

A total of forest land in Mongolia accounts for about 12.25 million hectares, which is approximately 7.8% of the country's total land area, whereas non-forest land, which are areas that have been deforested due to various disturbances, such as forestry and non-forestry operations, overgrazing, overexploitation for fuelwood and timber, repeated fires and attacks by insects and diseases, constitute approximately 3% of the country's total territory. There are two types of forest in Mongolia, the northern boreal forests accounting for about 85% of the national forest estate, and southern saxaul forests accounting for 15% spread across the southern Gobi Desert and desert steppe regions.

The targeted project site identified for establishing the tree nurseries and conducting capacity-building programs is located in the northeastern part of the country that covers degraded forest land across Ereen Mountain Range. The forests of northern Mongolia not only provide resources such as timber and firewood, but also ecosystem services that are relevant to the well-being of the whole country, such as water purification and retention, erosion control, and biodiversity (Krasnoshhekov 2001; Tsogt et al. 2018; Government of Mongolia 2018). However, nearly 80% of Mongolian territory is exposed to desertification and land degradation (Bulgan et al. 2013). From 2001 to 2020, Mongolia has lost its tree cover at the rate of 60,000 ha per year resulting in 11% decrease in forest cover. The underlying cause of deforestation is over-extraction of forest resources, land conversion, natural disasters such as forest fires, pests and pathogen outbreaks due to climate change, and limited capacities and investment in sustainable management and reforestation activities. With the constant increase in forest loss and increasing utilization pressure (Tsogtbaatar 2004; Hansen et al. 2013; Government of Mongolia 2018), sustainable forest management practices in Mongolia is at stake. Concerned Authorities often fail to consider science-based standards (Oyunsanaa 2011). In correlation with increasing drought frequency during the growing period, climate change impacts are likely to be most drastic in the forest-steppe, where conditions may become unsuitable for tree growth (Angerer et al. 2008). The northern part of Mongolia is an extreme and marginal habitat for trees, and even minor changes in temperature and water availability may lead to significant changes in forest cover. One of the dominant tree species in the project site is the Siberian larch *(Larix sibirica* Ledeb.*),* and it has been observed by Dulamsuren et al. (2011) and Kansaritoreh et al. (2018) that the growth declined since the 1950s. In addition, a number of recent studies have evaluated that a slight increase in temperature or decrease in precipitation shows negative effects on the growth performance of certain tree species, including the Scots pine (*Pinus sylvestris*), and birch (*Betula platyphylla*), which are one of the dominant species that grow at the project site.

The Multi-Purpose National Forest Inventory statistics (2016) has reported that more than 55,000 ha of area needs to be restored in the Ereen Mountain Range of Mongolia. This area has seen very limited restoration activities over the past years, and is more susceptible to anthropogenic impacts than other forested regions. Frequent cross-border and local forest fire is the main cause behind the rapid deforestation rate in the area followed by limited capacities for seedling production and tree planting to undertake reforestation programs. The existing small-scale forest nurseries do not have the capacity to produce and supply the required number of tree saplings to undertake reforestation activities.

To tackle these challenges, sustainable forest management practices is important not just to address several of Mongolia's development challenges, but also to promote green development and deliver Sustainable Development Goals and international targets with the aims to maintain the economic, social, and environmental value of all types of forests for the benefit of the present and future generations. Additionally, there is a needs to have a significant shift in the practices that have driven the current decline in the forest economic growth model and to transition to nature-positive economic development models. Immediate actions are needed now as the world engages in post-COVID-19 economic recovery, to ensure that our nature and forest become more resilent and sustainable

ecological and economic pathways are mmaintained and enhanced.

The government has set a number of targets in its sectoral policy documents that addresses the deforestation and land degradation challenges, and to support the development of forestry sector. The Vision-2050 long-term development policy of Mongolia and the State Policy on Forest 2015-2030 highlights the aim to increase the forest cover to 9% of the country's total territory by 2030.Hence, this project proposal is aimed to contribute to the national targets, while also ensuring compliance to international agreements and treaties.

Further, the project will also consider adopting the most recent science-based standards and practices to achieve the desired result set in the project objectives and targets.Through this project, the Mongolian government plans to establish advanced tree nurseries and intend to successfully create a drought-resistant reforestation model in the eastern Khentii in the next phase of the project, and plant Scots pine (*Pinus sylvestris L.)* and Siberian larch (*Larix sibirica Ledeb.*), which are the most promising tree species that can survive and grow well in the targeted area. Several studies related to development of seedling production and reforestation technology for Scots pine and Siberian larch in the eastern Khentii mountains were carried out during in 2010. The results of the assessments showed the importance of propagation of containerized seedlings in forest nursery to improve reforestation success and recommended the usage of high-quality coniferous tree seeds originating from the eastern Khentii region for seedling production.

2. Conformity with AFoCO's Objectives and Strategic Priorities

The main objectives of this project are aligned with AFoCO's Strategic Priorities in all respects and contribute in achieving the global goal of increasing forest cover by up to 3% worldwide, implementing Paris Agreement on climate change, particularly in pursuit of policy approaches for adaptation in the forestry sector, and improving local livelihood and incomes through forestry-related activities. In addition, the project will also build and strengthen partnerships between AFoCO, government organizations of Mongolia, local government, forest units, forest user groups and NGOs in collaborating to achieve the common goal of contributing to international and national treaties and agreements.

Further, the project is closely related to Priority Areas 1 and 4 of AFoCO Strategic Plan (2019-2023) as explained below:

a) Priority Area 1: Initiating customized restoration and reforestation models. The project will establish an advanced tree nurseries to reforest and restore degraded forests through active and passive measures using the smart tree nursery system of Republic of Korea. The project target site is in urgent need of restoration to its former state and is considered one of the Mongolia's top priority vast areas to conduct forest restoration and afforestation activities. Thus, the project objective is evidently aligned with AFoCO's top priority in initiating reforestation and restoration of degraded forests. In accordance with the mission of AFoCO, as part of the project, we seek to strengthen regional cooperation in forestry by transforming well-adaptable planting technology developed by domestic and foreign scientists for similar environmental conditions. Moreover, the project output involves capacity-building activities such as training courses in seedling production and tree planting for the targeted stakeholders.

b) Priority Area 4: Local livelihood improvement and community-based enterprise development. The implementation of this project will be an important contribution to reducing unemployment and contribute to income generation. This will be achieved by involving the local community in tree nursery establishment activities, thus improving the livelihood by providing income from the seedlings production to the local people. Upon the completion of the project, enhanced tree nurseries, will continue to support the communities in term of employment and income

generating activities which can be correlated with AFoCO's aim in supporting local livelihood and community based enterprise development. Moreover, the co-existence of the local community and the restored forests will be an essential part of sustainable development goals.

3. Regionality

The project outcomes can address the issues appropriately and effectively in the Central Asian region at certain extent, as the forest ecosystem of the project target site is similar to various regions of the Central Asian countries' ecosystem. The project's target area is located in the eastern tip of the northern boreal forest distribution in Mongolia. The forests in Central Asia and Mongolia occur similarly along climatic and altitudinal gradients from the boreal forest margins and lowland plains in the north, and spruce, pine, or larch forests in the upper reaches of several mountain ranges, to the semi-arid woodlands and saxaul forests of desert margins. The main drivers of deforestation are also similar, such as over-grazing, fire, illegal logging, and exploitive harvesting of non-timber forest products, which not only results in reducing forest cover, but also degrading the remaining forests (Kleine et al., 2009).

The mountains of Eastern Khentii have seen very limited restoration activities in the past, and are more susceptible to anthropogenic impacts than other forest regions. The very slow rate of forest restoration in degraded and deforested areas, caused by frequent cross-border and local fires, resulted in converting the existing forest ecosystems into non-forested areas. The Multi-Purpose National Forest Inventory (2016) has reported that more than 55,000 ha of the area needs to be restored in eastern Khentii mountains.

The successful implementation of the project will play an important role in halting the deforestation rate, reforestation of the deforested area of eastern Khentii mountains, and sustaining the forest ecosystem functionality and biodiversity conservation in similar regions of the country. In addition, the experience and lessons learned from the creation of a drought-resistant reforestation model in the eastern Khentii mountain, which borders the Central Asian dry steppe can be introduced into reforestation activities not only in the eastern Khentii mountains but also in similar boreal forest regions in the Central Asian countries.

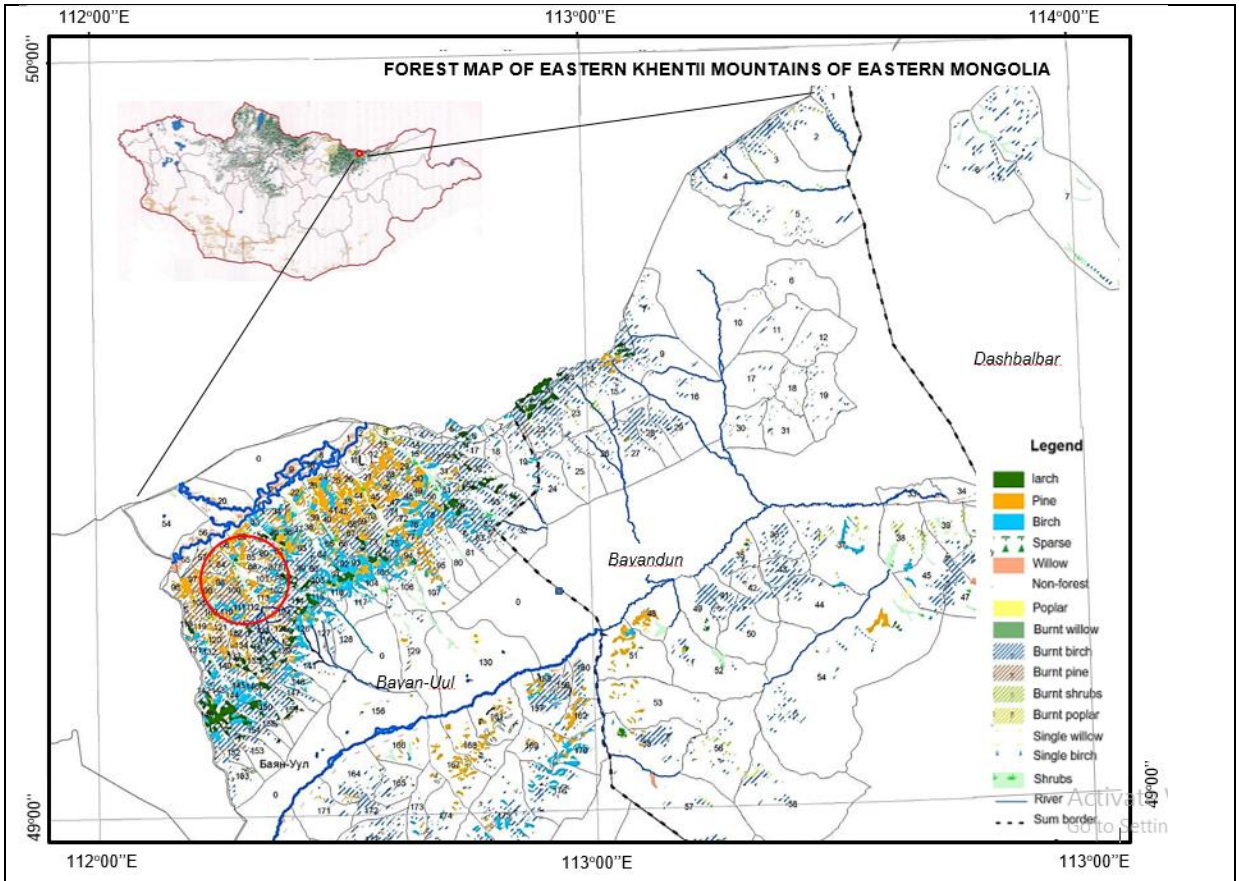
4. Information on Project Site

4.1. Geographic information

(A map of the project site location will be included.)

Geographically, the target area is located in the eastern Khentii mountains of northern Mongolia (49°50' and 50°00'N, 112°00' 113°00'E), and is considered as the southeastern end of the country's northern boreal forests. Therefore, these forests border the Central Asian dry steppe. The elevation of the project sites ranges from 650 to 1650 masl. The whole mountain range covers the territory of three soums of Khentii aimag and one soum of Dornod aimag. The project site administratively refers to the territory of Bayan-Uul soum of Dornod province. It has been founded in 1932. Bayan-Uul soum has a total area of 5623 km^2 and the elevation ranges from 650 to 1650 masl. The site is located 840 km from Ulaanbaatar capital city and 180 km from the province center – Choibalsan city. The center of the soum is Javartkhoshuu.

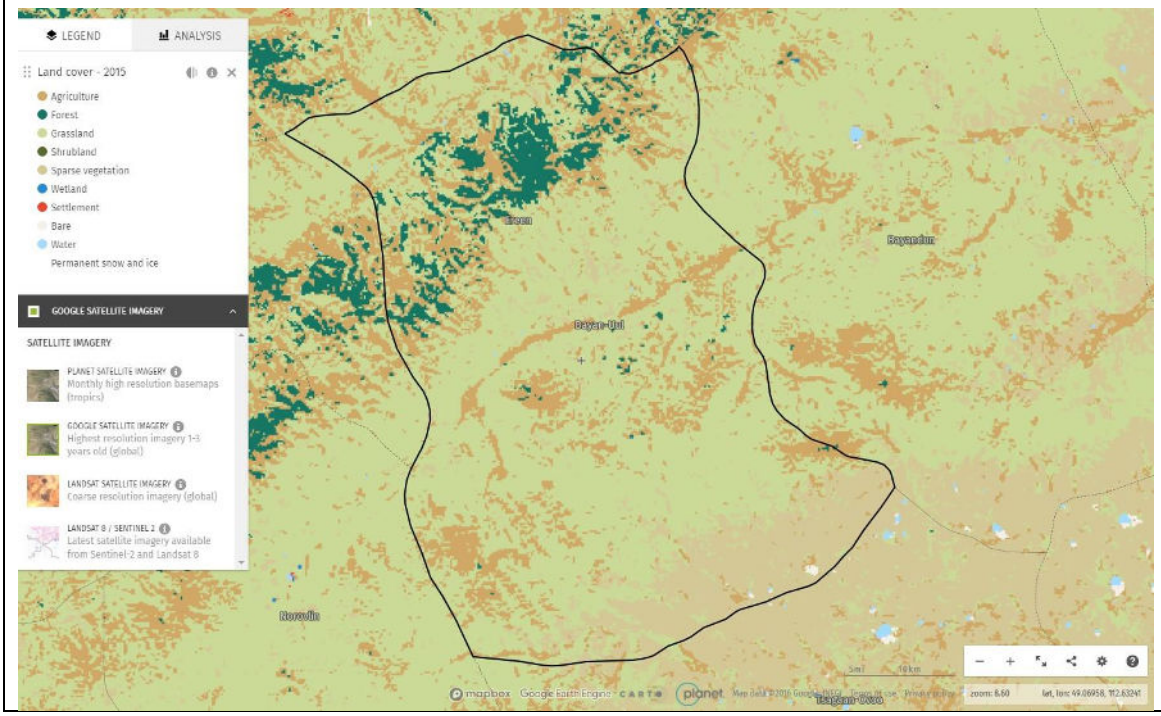
Figure 1. Geographical and forest cover map of Ereen Mountain Range in Bayan-Uul soum, Dornod province, Mongolia



A set of simplified classes, based on the IPCC (agriculture, forest, grassland, wetland, settlement, shrub land, sparse vegetation, bare area, water, and permanent ice and snow) is shown on the below map.

Figure 2. Land cover map of Ereen Mountain Range in Bayan-Uul soum, Dornod province, Mongolia

(Source: ESA Climate Change Initiative, Land Cover - led by UCLouvain. “2015 global land cover.”)



4.2. Environmental information

According to the updated world map of the Koppen–Geiger climate classification, the region lies within the transition climatic zone between a cool continental climate and a cold semi-arid climate, with small pockets exhibiting a temperate continental climate. The mean temperature for the vegetation period in the region averages 13.2-21.7°C, and the annual rainfall amounts to 249.8 mm with a precipitation peak between June and August. The dry season extends from March to June in spring and from August to October in autumn. The soil in the project sites is mainly of Haplic Arenosols developed from sandy sediments, characterized by relatively good water retention and is poorly vegetated. Soil texture is similar throughout the forest stand.

In species composition, *Pinus sylvestris L, Larix sibirica Ledeb.* and *Betula platyphilla L*. are the dominant tree species and play an important role in ecosystem sustainability by conserving the biodiversity, soils, soil permafrost and sustaining the water regime. But, the frequent severe fires and highly intensive logging in the region continue to result in the reduction in forest resources and rapid deforestation.

4.3. Socio-Economic information

Bayan-Uul village of Dornod province has a territory of 5633 ha land area and borders with Russian Federation in the north, and Bayan-Dun and Dadal villages in the east, south and west, respectively. The population of this village is 4,500 people. The main source of livelihood for local residents living in Bayan-Uul village are the nomadic livestock husbandry and utilization of timber and non-timber forest resources. There are deposits of colored metal, fluorspar, coal, and crystal, as well as precious stones, such as turquoise, azure, jade, copper, blue stone, fossil wood, magnesite, moly betides, red marble and red granite.

According to recent statistics, more than 65000 of cattle were registered. The Ulhan border checkpoint provides good cross-border trade opportunities for the local population. Among the legal entities operating in Bayan-Uul village are three registered logging companies and 19 forest user groups. As most of the territory of Bayan-Uul village is covered by forest land, there exists a forest resource-dependent livelihood and lifestyle. However, the high density of livestock and a limited pastureland area threatens the existing forest ecosystems, more precisely, the forest restoration programs and overall forest health.

5. Stakeholder Analysis

Table 1. Stakeholder analysis table

Stakeholder group	Characteristics	Problems, needs, interests	Potential benefits	Involvement in the project
Primary stakeholders				
National Forestry Agency	Forestry Agency is responsible for country level forest policy, coordination and implementation of sustainable forest management in the national level.	Lack of tree nurseries capacity, strengthening the activities in combating deforestation, forest degradation, and forest	Establishment of advanced tree nurseries in eastern region of the country, a total of 100 ha and 20 ha of deforested area will be restored, and capacity for	Provision with co-financing, coordination, management and support the successful implementation of the reforestation project.

		landscape restoration in northeastern part of Mongolia.	forest restoration will be built in the Khentii forest region.	
Local Government and Administration of “Onon-Balj” National Park	The local government is the main partner of the PIA to make appropriate decisions regarding legal acts and human resources at the soum level	Reducing and combating existing unemployment, poverty, deforestation and environmental degradation	Implementation of the project will contribute to reduction of unemployment and livelihood improvement by involving local community members in reforestation activities and building capacity at the local level.	The local government will adopt the necessary acts related to the forest conservation and facilitate the restored forest for acquisition of local protected area matters. The local government will coordinate the labor force needed for the project implementation.
Forest unit of Bayan-Uul soum, Dornod province	The forest unit is the main body responsible for implementing the decision adopted by the Government of Mongolia in the field of forestry at the local level.	Inadequacy of financial resources for restoration activities due to limited government resources in relation to national priorities other than forestry; Lack of technical resources to apply forest restoration and rehabilitation programs. Forest unit is keen to improve the productivity of forestlands for economic benefits and at the same time protection of the forest.	Advanced tree nurseries; Improved seedling production and reforestation capacity, which create the basis for further intensive silvicultural management in the region; Human resource development; Reverse the process of forest degradation.	Forest unit will be involved in identifying the problem at the local level, selecting the specific reforestation area on-site, capacity building trainings, nursery establishment, managing the FUGs and provide on-site operational management. In short, they will be involved in planning, implementation and monitoring of the changes following the project interventions.

Forest user groups (FUGs)	A total of 19 FUGs are operating and protecting the forest altogether in Bayan-Uul soum.	Lack of income opportunity from the forests due to forest degradation. Increasing use of forest resources impacting on the availability of timber and NTFPs; Lack of resources to apply forest rehabilitation programs; Lack of advanced capacity building trainings and technical experience in forest restoration and rehabilitation activities.	Contribution of the project to reducing unemployment and poverty by providing temporary jobs; Improved capacity in seedling production; Increased productivity of the forest; CF is well protected ensuring long-term benefits for local communities; Increased household income through access to more forest products from the new nursery and services; Reverse the process of forest degradation.	FUG members can participate in all activities of the project, including seedling production, capacity building activities, and tree planting.
Local Communities (unemployed herders and farmers)	According to statistics, there are 2600 unemployed residents in Bayan-Uul soum of Dornod province. Most of them include nomadic herders who tend livestock husbandry as the main source of livelihood for rural people in Mongolia.	Poverty and unemployment in remote rural area due to less developed infrastructure; Inadequate income from farming products and limited market.	Increase in household income and employment opportunities to be involved in tree nursery establishment activities. Gained knowledge, experience and more appreciation in conserving the forests.	Involvement and participation in reforestation activities, such as the seedling production, tree planting, and maintenance of forest plantations.
Secondary stakeholders				
Universities and research institutes	Researchers from universities experienced in	Reforestation initiatives and researches in	The implementation of the project will	Qualified institutions will be hired as

		forest restoration techniques and soil studies provide relevant projects or organizations with science based standards in managing the forests.	eastern Khentii mountains of northern Mongolia are very limited.	provide scientists with the opportunity to conduct and develop regional-specific reforestation technology in the target area.	project consultants. Scientists will provide the IA with recommendation for selecting a site for reforestation, and on-site soil preparation and planting technology.
	Private sectors and non-government organizations (NGOs)	Private sectors and NGOs work independently. They will be hired as supply and/or service providers throughout the project implementation period following the relevant laws and regulations.	Lack of financial resources and limited participation in sustainable forest management implementation.	Financial resources for various services (software, human resources, nursery products, etc.,)	They will operate and provide services according to the contracted rights and responsibilities.

6. Gender Analysis and Mainstreaming

The rapid deforestation and forest degradation caused by anthropogenic disturbances became one of the most pressing issues in Mongolia for the past years, which is affecting the microclimate of the region. It has resulted in major loss and degradation of approximately 60,000 ha per year over the last decade. Continuous loss of forest cover leads to changes in land use and land degradation in the former forest regions of the country. Among the northern boreal forest regions in Mongolia, the relatively accelerated trend of deforestation in the Ereen Mountain Range massively resulted in the loss of country's total forested area, soil erosion, reduction of forest economic value and household income of forest communities and increased GHG emission.

The degraded forest land in Ereen mountain is characterized by its lack of forest vegetation, low soil fertility, poor soil structure, soil erosion, recurrent fire and increased susceptibility of fire, a lack of suitable micro-habitants for seed germination or establishment. The persistent physical, chemical and biological limitations found in degraded forest lands create barriers to natural forest regeneration; an accurate assessment of these factors is key in determining which rehabilitation interventions will be necessary, based on the objectives of the intervention, the landscape context and the available resources.

Currently, due to the human impacts, the biodiversity resources including the endangered conifer tree species, Krylov's pine, Daurian larch and Chekanovsky's larch found in Ereen mountain are declining in a rapid pace. Although there has been initiatives to strengthen the capacity of the local communities in developing commitment to the forest protection and restoration, there has been some direct and indirect constraints that inhibited the proper management of the forests, including lack of high capacity tree nurseries in the local level, shortage of financial sources to invest in forests for government, private

sectors, cooperatives and forest user group activities, and insufficient technical skills and capacities at the local level for forest management planning and forest mapping.

The major fundamental problem to conduct reforestation and forest restoration in the degraded forests of Ereen Mountain Range is the absence of high-capacity tree nurseries, and lack of capacity in sustainable operation of the tree nurseries. This has been proven by the forestry administration capacity assessment survey conducted at the national level, within the framework of national program on forestry sector development in Mongolia. The assessment survey covered diverse questionnaires to find out the current capacity and performance of forest communities, status of their tree nurseries and barriers they confronted to have good work performance.

The forest community responses were relatively similar to each other. Studies have shown that there are 223 tree nurseries, and 23,627,087 number of seedlings and saplings in total as of April 2022 in Mongolia. Out of which, 44 are state-funded nurseries and have 1,541,200 number of seedlings and saplings, whereas 179 are private nurseries, which have 22,085,887 number seedlings and saplings in all regions of Mongolia. Current Seed Production Areas (SPAs) are located respectively in Uvgudiin Uvur, Narsan Bulag in Bayan-Uul soum of Dornod aimag. In soum level, 10 tonn cones and 100 kg pine seeds are collected. Current tree nursery produces 70-80,000 seedlings. If Bayan-Uul forest unit collects the cones, they collect approximately 1 tonn cones.

According to the assessment results, inter-soum forest unit in Dornod province stated that their current tree nurseries were outdated and out-of-service to grow sufficient seedlings and saplings to conduct reforestation in the degraded areas as well as to generate revenues from selling them. Currently, there is only two tree nurseries in Bayan-Uul soum of Dornod province. The tree nurseries cover 2.5 ha of area, and one of them produces 250,000 seedlings and saplings, whereas the other one has absence of a deep well and has a weak capacity to grow 172,300 seedlings and saplings. The respondents stated that due to lack of technical equipment and necessary tools, the production has decreased significantly for the past few years.

One of the underlying causes for the mentioned problems are lack of human resources and professional staff in charge of forestry issues in the responsible administrations such as Bureau of Environment and Tourism, inter-soum forest units, forest user groups and professional forest enterprises. To date, there is only one forestry specialist working at the Bureau of Environment and Tourism, and only five people working at the forest unit, who are the head, two forest engineers, one finance officer and a driver. Due to the limited budget, the local government couldn't hire any contracted staff to let them support the tree nursery operations in Bayan-Uul soum. Moreover, the high turnover issues in the administration every four years of political party election period affects the work performance and stable operation of the tree nurseries. The frequent replacement of heads by non-professionals makes it difficult for the forest engineers to explain their work from the beginning and let the head understand their work within short period of time.

In addition, capacity building activities and trainings for the relevant officials are not organized regularly and the quality is inefficient. When asked whether the forest communities required capacity building trainings, all the forestry officers of the administration stated that they needed regular training on plantation of tree seeds, seedlings and saplings, establish a tree nursery and assist in afforestation and natural regeneration in the first place. In Dornod province, trainings or events were organized only 1-2 times per year. However, due to the COVID-19 situation, all the participatory meetings and capacity building trainings were prohibited to be organized at the local level. Therefore, this has become a major issue for the new coming officials to learn more about the tree plantation and sustainable operation of tree nurseries.

Cooperation within local forestry administrations is a necessary measure for forestry development. In Bayan-Uul soum of Dornod province, the forest management plan is expiring in 2022, but the new

updated plan hasn't been developed yet. This is a major problem to carry out sustainable forest management in the future and this issue is related to weak cooperation and participation of forest administrations. Due to having lack of official trainings or meetings held in local level, the participation of local government, forest unit, forest user groups and other stakeholders decline. This leads to delay in discussion meetings, revision of documents and approval process at the local government.

Another major problem is poor investment in forest restoration related activities in Ereen Mountain Range. Up to date, forestry investment is the weakest it has been in years, and there hasn't been any forestry projects and programs implemented in Bayan-Uul soum of Dornod province for the past decades.The government highlighted that it is necessary to increase the financing efforts and investment in forest restoration related activities as the site has high social, economic and environmental values in the country.

Section B. Rationale and Objectives

1. Problem Tree

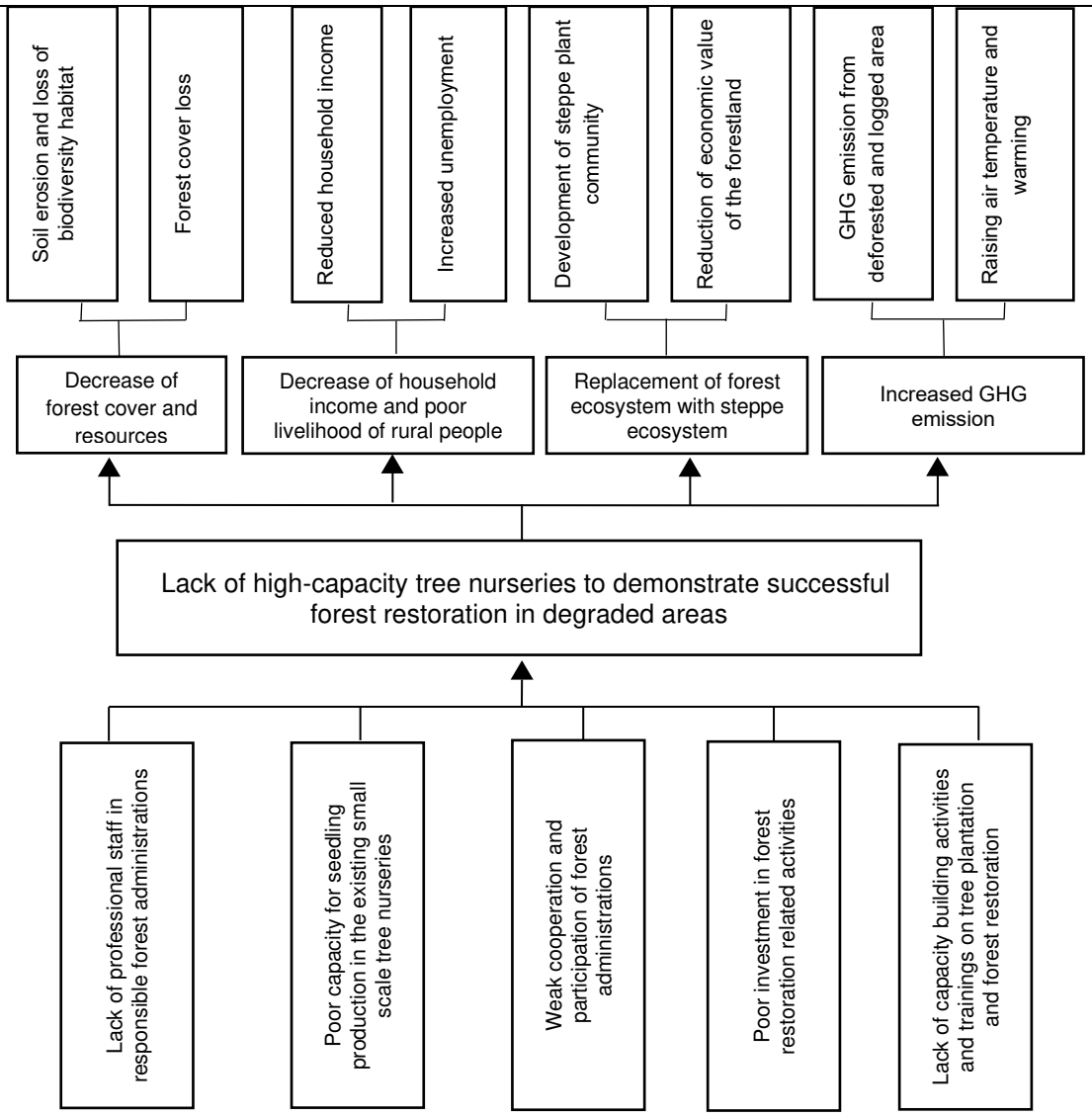


Figure: Problem Tree

2. Problem Description

The rapid deforestation and forest degradation caused by anthropogenic disturbances is the one of the most pressing issues in Mongolia for the past years, which is affecting the microclimate of the region. It has resulted in major loss and degradation of approximately 60,000 ha of forest per year over the last decade. Continuous loss of forest cover leads to changes in land use and land degradation in the former forest regions of the country. Among the northern boreal forest regions in Mongolia, the relatively accelerated trend of deforestation in the Ereen Mountain Range has massively resulted in the loss of country's total forested area, soil erosion, reduction of forest economic value and household income of forest communities and increased GHG emission.

The degraded forest land in Ereen mountain is characterized by its lack of forest vegetation, low soil

fertility, poor soil structure, soil erosion, recurrent fire and increased susceptibility of fire, alack of suitable micro-habitants for seed germination or establishment. The persistent physical, chemical and biological limitations found in degraded forest lands create barriers to natural forest regeneration; an accurate assessment of these factors is key in determining which rehabilitation interventions will be necessary, based on the objectives of the intervention, the landscape context and the available resources.

Currently, due to the human impacts, the biodiversity resources including the endangered conifer tree species, Krylov's pine, Daurian larch and Chekanovsky's larch found in Ereen mountain are declining in a rapid pace. Although there has been initiatives to strengthen the capacity of the local communities in developing commitment to the forest protection and restoration, there has been some direct and indirect constraints that inhibited the proper management of the forests, including lack of high capacity tree nurseries in the local level, shortage of financial sources to invest in forests for government, private sectors, cooperatives and forest user group activities, and insufficient technical skills and capacities at the local level for forest management planning and forest mapping.

The major fundamental problem to conduct reforestation and forest restoration in the degraded forests of Ereen Mountain Range is the absence of high-capacity tree nurseries, and lack of capacity in sustainable operation of the tree nurseries. This has been proven by the forestry administration capacity assessment survey conducted at the national level, within the framework of national program on forestry sector development in Mongolia. The assessment survey covered diverse questionnaires to find out the current capacity and performance of forest communities, status of their tree nurseries and barriers they confronted to have good work performance.

The forest community responses were relatively similar to each other. Studies have shown that there are 223 tree nurseries, and 23,627,087 number of seedlings and saplings in total as of April 2022 in Mongolia. Out of which, 44 are state-funded nurseries and have 1,541,200 number of seedlings and saplings, whereas 179 are private nurseries, which have 22,085,887 number seedlings and saplings in all regions of Mongolia. Current Seed Production Areas (SPAs) are located respectively in Uvgudiin Uvur, Narsan Bulag in Bayan-Uul soum of Dornod aimag. In soum level, 10 tonn cones and 100 kg pine seeds are collected. Current tree nursery produces 70-80,000 seedlings. If Bayan-Uul forest unit collects the cones, they collect approximately 1 tonn cones.

According to the assessment results, inter-soum forest unit in Dornod province stated that their current tree nurseries were outdated and out-of-service to grow sufficient seedlings and saplings to conduct reforestation in the degraded areas as well as to generate revenues from selling them. Currently, there is only two tree nurseries in Bayan-Uul soum of Dornod province. The tree nurseries cover 2.5 ha of area, and one of them produces 250,000 seedlings and saplings, whereas the other one has absence of a deep well and has a weak capacity to grow 172,300 seedlings and saplings. The respondents stated that due to lack of technical equipment and necessary tools, the production has decreased significantly in the past few years.

One of the underlying causes for the mentioned problems are lack of human resources and professional staff in charge of forestry issues in the responsible administrations such as Bureau of Environment and Tourism, inter-soum forest units, forest user groups and professional forest enterprises. To date, there is only one forestry specialist working at the Bureau of Environment and Tourism, and only five people working at the forest unit, who are the head, two forest engineers, one finance officer and a driver. Due to the limited budget, the local government couldn’t hire any contract staff to support the tree nursery operations in Bayan-Uul soum. Moreover, the high turnover issues in the administration every four years of political party election period affects the work performance and stable operation of the tree nurseries. The frequent replacement of heads by non-professionals makes it difficult for the forest engineers to explain their work from the beginning and let the head understand their work within short

period of time.

In addition, capacity building activities and trainings for the relevant officials are not organized regularly and the quality is inefficient. When asked whether the forest communities required capacity building trainings, all the forestry officers of the administration stated that they needed regular training on plantation of tree seeds, seedlings and saplings, establish a tree nursery and assist in afforestation and natural regeneration in the first place. In Dornod province, trainings or events were organized only 1-2 times per year. However, due to the COVID-19 situation, all the participatory meetings and capacity building trainings were prohibited to be organized at the local level. Therefore, this has become a major issue for the new coming officials to learn more about the tree plantation and sustainable operation of tree nurseries.

Cooperation within local forestry administrations is a necessary measure for forestry development. In Bayan-Uul soum of Dornod province, the forest management plan is expiring in 2022, and the new updated plan hasn't been developed yet. This is a major problem to carry out sustainable forest management in the future and this issue is related to weak cooperation and participation of forest administrations. Due to lack of official trainings or meetings at the local level, the participation from the local government, forest unit, forest user groups and other stakeholders has declined in the recent times which has often resulted in the delay in discussion meetings, revision of documents and approval process at the local government.

Another major problem is poor investment in forest restoration related activities in Ereen Mountain Range. Until now, forestry investment has been very limited, and there hasn't been any forestry projects and programs implemented in Bayan-Uul soum of Dornod province for the past decades.The government highlighted that it is necessary to increase the financing efforts and investment in forest restoration related activities as these site has high social, economic and environmental values in the country.

3. Logical Framework Matrix

Table 2. Logical framework matrix

Output/ Activities	Narrative	Objectively Verifiable Indicators (OVIs)	Means of Verification (MoV)	Important Assumptions
Goal: To Increase Mongolia's forest coverage from 7.8% to 9% through customized reforestation and forest restoration programs to ensure continuous ecosystem services for the benefit of local people and national development				
Objective 1: To increase the success rate of customized reforestation and forest restoration programs in the project sites				
Output 1: Tree nurseries are established and seedling production is increased in the existing small nurseries				
Activity 1.1.	Prepare designs and cost estimates for construction of tree nurseries	3 tree nursery design plans by when	Nursery design plans Maps Progress report Photos	The most suitable land for nursery construction is available and identified. Local community fully participate in the nursery construction, management and protection measures. Local government and MUB supports the establishment of tree nurseries at the target sites
Activity 1.2.	Establish new tree nurseries in Ereen Mountain Range	1 new tree nursery in Ereen Mountain Range by when	Tree nurseries Photo recording Progress reports	
Activity 1.3.	Expand one of the the existing small nurseries in the Ereen region	1 expanded tree nursery at the Ereen Mountain Range by when	Tree nurseries Photo recording Progress reports	
Activity 1.4.	Establish new tree nurseries in Deendiin Valley	1 new tree nursery at the Deendiin Valley by when	Tree nurseries Photo recording Progress reports	
Activity 1.5.	Purchase container (as a warehouse purpose)	2 container purchased nearby the tree nurseries by when	Warehouse Photo recording Progress reports	
Output 2: Capacity building trainings conducted for seedling production, tree planting, forest cleaning and forest protection measures to improve the survival and growth performance of plantations				

Activity 2.1.	Conduct training on seedling propagation techniques, nursery maintenance, reforestation techniques and field practices, and Application of GIS and RS tools for data management	2 training organized by when	Participants list Training evaluation form	There are qualified experts who are willing to provide training to the local community. The forest units and FUGs will actively participate in the assessment and further trainings. PIU and experts will conduct the training. Local government will assist in training preparation. Local community will actively participate in the training. Training modules and capacity building plans align with the local community's needs.
Activity 2.2.	Conduct training and demonstration on forest cleaning for the local communities (cleaning of logging residuals and other natural or anthropogenic disturbances)	2 training organized by when	Participants list Training agenda Training report	Experts are available to provide professional advice. Local community actively participate in the training. Optimal conditions for soil preparation created. Local government provide necessary permits. Local community actively participate in forest cleaning activities.
Activity 2.3.	Conduct training and demonstration on forest protection measures from disturbances (fires, pests and diseases)	3 training and demonstration conducted by when	Progress report Monitoring report Photo recording	Forest plantations are preserved.
Activity 2.4.	Conduct training on patrolling (including use of equipment and standards)	1 training organized by when	Participants list Training agenda Training report	Local community actively participates in the training and learns the standards.
Output 3: Forest restoration plans developed for the Ereen Mountain Range and Deendiin Valley				

Activity 3.1.	Conduct baseline survey on socio-economic conditions of the population managing the local forests	2 baseline research and survey conducted by when	Research and survey report	Geospatial information is available and accessible. Local community is willing to participate in collecting baseline Information.
Activity 3.2.	Develop detailed map of the forest restoration areas based on collected data	2 maps developed by when	Map with coordinates	Experts are available to develop the map. The map is aligned with the prioritized area for forest restoration.
Activity 3.3.	Prepare forest management/restoration plan and business plan for a period of 10 years for the 2 project sites	1)3 consultation meetings 2) 2 forest management/ restoration plans 3) 10 annual restoration plans that include the duration of project implementation 4) 2 business plans developed by when	Meeting minutes Forest restoration plan for a period of 10 years with the annual plan Business plans	Local community participate in the resource mapping and visioning The identification of tree/plant species and planting sites will follow the criteria set forth in Appendix 1. These criteria will also form part in the forest restoration plan. The experts will have sufficient knowledge on current situation and modern technology.
Activity 3.4.	Presentation/handling of the forest management/restoration plan to local government and MUB	2 meeting report/minutes 2 news article posted on local government website by when	Meeting minutes Photo recording Local government website article	Local government supports and approves the plan. Local community commits to follow the plan accordingly.
Objective 2: To increase the restored forest fund as a demonstration in the project target sites				
Output 4: Reforestation and restoration of 100 ha of area in the Ereen Mountain Range and 20 ha of area in Deendiin Valley				
Activity 4.1.	Reforestation and plantation establishment at the Ereen Mountain Range	100 ha restored and reforested by when	Map of the restored and reforested land Progress reports Photo recording	Local community actively participate in forest restoration and reforestation activities. Local government will coordinate the labor forces and facilitate the restored forest for acquisition of local protected areas.

Activity 4.2.	Reforestation and plantation establishment at the Deendiin Valley	20 ha restored and reforested by when	Map of restored and reforested land Progress reports Photo recording	Community actively participate in forest restoration and reforestation activities. MUB will coordinate the labor forces.
Activity 4.3.	Seed collection and preparation for planting	A total of 50 kg seeds was collected for seedling production by when	Progress reports Photo recording	Sustainable seedling production and seed sources provided
Objective 3: To disseminate the project experiences and lessons learned, and increase public awareness on reforestation programs				
Output 5: Knowledge and lessons learned about the impacts of forest restoration on socioeconomic and environment are documented and shared				
Activity 5.1.	Produce a guideline on establishing advanced tree nursery techniques to sustain the activities after project completion	1 guideline book on forest restoration techniques by when	Guideline book	Guideline book follows the best practices and lessons learned from the project
Activity 5.2.	Support research activities by involving university students and/or young researchers	1) 3 university students supported 2) 3 publications (journal article/ newspaper and or website article/ research report/ thesis) developed by when	Contracts/MoU with the students and the IA Drafted/submitted/published article/report	University students/ researchers are interested in forest restoration
Activity 5.3.	Develop extension materials (leaflets, posters, and TV adverstiment) for showcasing the project impacts and sharing lesson learned	1) 2 leaflets 2) 2 poster 3) 1 TV advertisement on project implementation/lessons learned by when	Leaflets Posters Video of the TV advertisement	Experts are available to develop the extension materials. Stakeholders are interested in learning from the project and distributing the materials during special events.
Activity 5.4.	Develop a policy brief containing the lessons learned and policy recommendations to improve forest restoration in degraded areas	1 policy brief containing lessons learned and policy recommendations to the proponent government organization by when	Policy brief	Experts are available to develop the policy brief. Proponent government organization is willing to adopt the policy in the near future.

Activity 5.5.	Organize webinar for the project	3 webinars organized by when	Webinar report List of participants Photo recordings	Experts are available to provide professional advice. Stakeholders actively participate in the webinar.
A. Project management activities				
A1. Project startup phase				
A1.1.	Establish the PIU office	1 equipped office by when	Fully equipped office room	The office is provided by country's in-kind contribution. (equipments???)
A1.2.	Develop ToRs for the PIU team members and conduct in-house consultation on establishment of the PIU	1) 4 ToRs 2) 4 officers (NPC, AFO, M&E, Local Coordinator) by when	ToRs Contracted officers Internal plans	High qualified and proactive team hired. PIU learns AFoCO guidelines, templates and necessary requirements for the project implementation. PIU develops necessary internal plans accordingly (project implementation plan, communication plan, reporting plan, stakeholder engagement plan, information management plan, etc.,)
A2. Project inception phase				
A2.2.	Establish the Project Steering Committee (PSC)	1 PSC establishment order by when	PSC establishment order with list of members PSC member notice email	Project will be ready to operate.

A2.3.	Organize project inception workshop	1 inception workshop involving all the stakeholders organizedby when	Inception workshop agenda Participants list Inception workshop report	Stakeholders support the project and actively engage during the workshop. Local government and communities are well aware of the project implementation in the region.
A3. Project implementation phase				
A3.1.	Coordinate the Project Steering Committee meeting	4 mid-year and annual PSC meeting by when	Meeting minutes/report Photo recording	Stakeholders support the project and actively engage during the meeting to improve the outcomes.
A3.2.	Project monitoring and annual performance evaluation (midterm and annual)	12 seasonal M&E meeting by when	Meeting minutes/report Photo recording	Stakeholders support the project and actively engage during the meeting to improve the outcomes.
A3.3.	AFoCO training in RETC	1 training organized by when	Training report Photo recording	Local government and local community actively engage in the training and learn best practices from other countries.
A4. Project closure				
A4.1.	Finalize all reports and documents (project outputs)	Finalized report and consolidated documents derived during the project implementation phase by when	Final reports and consolidated documents of the project	All the documents derived during the project will be organized and consolidated for archiving.
A4.2.	Conduct terminal evaluation	1 evaluation report by when	Evaluation report	Project will be evaluated by relevant officials.
A4.3.	Develop final project report	1 final report by when	Final report	All the evaluation will be conducted and final report summarizes the project.
A4.4.	Financial auditing	1 auditing report by when	Auditing report	All the financial documents will be audited by relevant authority.

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	A4.5.	Organize project closing workshop	1 closing workshop by when	Workshop report List of participants Photo recordings	Stakeholders actively engage in the closing workshop. Local community share their experience during the project implementation and the benefits they gained.	

4. Perceived Project Impacts

a) Impacts at the Outcome level

- Successful implementation of the project would help the Mongolian government in achieving its goal of increasing forest coverage and restoring the degraded areas in the project sites.

- Establishment of drought-resistant forest in the restored area

- Contributing to national and international forestry policy is a predominant means by which the project contributes impact that reduces deforestation and forest degradation. Many of the other impact pathways intersect with and are influenced by policy changes on deforestation and afforestation measures.
- Reforestation research activities led by relevant scientists with established positive relationships with decision-makers are more likely to contribute to policy outcomes. Positive pre-existing relationships supported knowledge-sharing and trust in research outputs to support their uptake and use within national policy. The credibility of project's research will also contribute to convincing decision-makers to integrate research findings into forestry policy and make deforestation and forest degradation issues of higher priority in certain regions, not limited to project target areas.

b) Impacts at the Output level

- Providing national and international policymakers with knowledge and training through collaborative processes strengthened the capacities of policymakers to implement sustainable change in forestry areas. For example, engaging forestry community workers and decision-makers in multi-stakeholder dialogues to identify policy priorities, responsibilities, and implementation methods served to build coalitions, and ensured research outputs were appropriate for use and aligned with government/political concerns. Continuing to support the community foresters and providing ongoing training will also increase the likelihood of policy-change in line with reforestation research outputs.
- Forestry policy outcomes rely on the continuous promotion and use of project outputs by institutions and decision-makers to influence legislation and regulations on deforestation and forest degradation. This is supported via ongoing institutional and individual relationships with government actors and local forest units which are stronger in some geographies than in others. Long-term funding of donors provides the required base for the development and maintenance of such continuous relationships.

c) Impacts at the Activity level

- Local community engagement, participatory activities, and presenting knowledge in ways that are appropriate for the target audience will increase the utility of the project process and project outputs for smallholders and communities to build understanding and apply in their local context. Participation in the research process and capacity- building through knowledge sharing will be an effective means to empower communities and smallholders to sustainably manage their forest lands and conduct reforestation and participate in policy/decision-making discussions. Partnerships with communities and smallholders, and supporting the improvement of available infrastructure will support the uptake of research outputs and the formalization of project recommendations into practice after the project ends.

Section C. Description of Project Interventions

1. Work Plan and Schedule

Expected Output and Activity of the Year	Performance Indicator	Responsible Person/ Body	Monthly Plan and Budget Allocation by Quarter (USD)												Remarks
			Year 1				Year 2				Year 3				
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
Objective 1: To increase the success rate of customized reforestation and forest restoration programs in the project sites															
Output 1: Tree nurseries are established and seedling production is increased in the existing small nurseries															
1.1. Prepare designs and cost estimates for the construction and expansion of tree nurseries	3 tree nursery design plans	IA and PIU													
1.2. Establish new tree nurseries in Ereen Mountain Range	1 new tree nursery in Ereen Mountain Range in 2-10 ha	IA and PIU													
1.3. Expand one of the the existing small nurseries in the Ereen region	1 expanded tree nursery at the Ereen Mountain Range	IA and PIU													
1.4. Establish new tree nurseries in Deendiin Valley	1 new tree nursery at the Deendiin Valley in 2-10 ha	IA and PIU													
1.5. Purchase container (as a warehouse purpose)	2 container purchased nearby the tree nurseries	IA and PIU													
Output 2: Capacity building trainings conducted for seedling production, tree planting, forest cleaning and forest protection measures to improve the survival and growth performance of plantations															
2.1. Conduct training on seedling propagation techniques nursery maintenance , reforestation techniques, and field practice, and Application of GIS and RS tools for data management	2 training	IA and PIU													

2.2.Conduct training and demonstration on forest cleaning for the local communities (cleaning of logging residuals and other natural or anthropogenic disturbances)	2 training plan	IA and PIU													
2.3. Conduct training and demonstration on forest protection measures from disturbances (fires, pests and diseases)	3 training and demonstration	IA and PIU													
2.4. Conduct training on patrolling (including use of equipment and standards)	1 training	IA and PIU													
Output 3: Forest restoration plans developed for the Ereen Mountain Range and Deendiin Valley															
3.1. Conduct baseline survey on socio-economic conditions of the population managing the local forests	2 baseline research and survey	IA and PIU													
3.2. Develop detailed map of the forest restoration areas based on collected data	2 maps	IA and PIU													
3.3. Prepare forest management/restoration plan for a period of 10 years for the 2 project sites	3 consultation meetings 2 forest management/restoration plan 10 annual restoration plans that include the duration of project implementation 2 business plans	IA and PIU													
3.4. Presentation/handing over of the forest management/restoration plan to local government and MUB	2 meeting report/minutes 2 news article posted on local government website	IA and PIU													
Objective 2: To increase the restored forest fund as a demonstration in the project target sites															
Output 4: Reforestation and restoration of 100 ha of area in the Ereen Mountain Range and 20 ha of area in Deendiin Valley															

4.1. Reforestation and plantation establishment at the Ereen Mountain Range	100 ha restored and reforested	IA and PIU													
4.2. Reforestation and plantation establishment at the Deendiin Valley	20 ha restored and reforested	IA and PIU													
4.3. Seed collection and preparation for planting	A total of 50 kg seeds will be collected for seedling production	IA and PIU													
Objective 3: To disseminate the project experiences and lessons learned, and increase public awareness on reforestation programs															
Output 5: Knowledge and lessons learned about the impacts of forest restoration on socioeconomic and environment are documented and shared															
5.1. Produce a guideline on establishing advanced tree nursery techniques to sustain the activities after project completion	1 guideline book on forest restoration techniques	IA and PIU													
5.2. Support research activities by involving university students and/or young researchers	3 university students supported 3 publications (journal article/ newspaper and or website article/ research report/ thesis) developed	IA and PIU													
5.3. Develop extension materials (leaflets, posters, and TV adverstiment) for showcasing the project impacts and sharing lesson learned	2 leaflets 2 poster 1 TV advertisement on project implementation/lessons learned	IA and PIU													
5.4. Develop a policy brief containing the lessons learned and policy recommendations to improve forest restoration in degraded areas	1 policy brief containing lessons learned and policy recommendations to the proponent government organization.	IA and PIU													
5.5. Organize webinar for the project	3 webinars	IA and PIU													
A. Project management activities															

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A1. Project startup phase															
A1.1. Establish the Project Implementation Unit (PIU) office	1 equipped office	IA													
A1.2. Develop ToRs for the PIU team members and conduct in-house consultation on establishment of the PIU	4 ToRs 4 officers (NPC, AFO, M&E)	IA													
A2. Project inception phase															
A2.1. Establish the Project Steering Committee	1 PSC order	IA and PIU													
A2.2. Organize project inception workshop	1 inception workshop involving all the stakeholders	IA and PIU													
A3. Project implementation phase															
A3.1. Coordinate Project Steering Committee meeting	4 mid-year and annual PSC meeting	IA and PIU													
A3.2. Project monitoring and annual performance evaluation (midterm and annual)	12 seasonal M&E meeting	IA and PIU													
A3.3. AFoCO training in RETC	1 training	IA and PIU													
A4. Project closure															
A4.1. Finalize all reports and documents (project outputs)	Finalized report and consolidated documents derived during the project implementation phase	IA and PIU													
A4.2. Conduct terminal evaluation	1 evaluation report	IA and PIU													
A4.3. Develop final project report	1 final report	IA and PIU													
A4.4. Financial auditing	1 auditing report	IA and PIU													
A4.5. Organize project closing workshop	1 closing workshop	IA and PIU													

2. Budget (USD) Although the USD is calculated in this budge table, KRW amount will be applied based on the exchange rate (KRW1,130 per 1 USD) and approval from the 7th AFoCO Assembly.

Objective/ Output/ Activity	Unit Cost (USD)	Unit 1	Qty 1	Unit 2	Qty 2	Total Cost	Budget Allocation by Year (USD)			
							2023	2024	2025	Total Cost
Objective 1: To increase the success rate of customized reforestation and forest restoration programs in the project sites										
Output 1: Tree nurseries are established and seedling production is increased in the existing small nurseries										
1.1. Prepare designs and cost estimates for the construction and expansion of tree nurseries						5800		5800	0	5800
- Expert consultants	200	Person	1	Day	29	5800		5800	0	5800
1.2. Establish new tree nursery in Ereen Mountain Range	156,385	Complex	1		*1*	156,385		156,385	*0*	*156,385*
1.3. Expand one of the the existing small nursery in the Ereen region	59,200	Complex	1		1	59,200		59,200	-	*59,200*
1.4. Establish new tree nurseries in Ulziit, Tuv provience /reforestation at Deendiin Valley, Turgenii River/	74,785	Complex	1		1	74,785		74,785	0	*74,785*
Construction of deep wells /Bayan-uul, Dornod provience/	10,000	Lumpsum	1	Well	1	10,000		10,000	0	10,000

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Nursery metal fence /Bayan-Uul, Dornod provience/	27,600	Lumpsum	1	Well	1	27,600		27,600		27,600
Procurement of diesel Generator in case of emergency or electricity shortage/breakdown or until the power supply is restored	2,000	Pcs	1	Pcs	2	4,000		4,000	0	4,000
Site preparation, levelling	2,000	Lumpsum	1	Site	2	4,000		4,000	0	4,000
Greenhouse	4,500	Complex	8	Pcs	2	72,000		72,000	0	72,000
Watering system (fogging)	600	Complex	8	Pcs	2	9,600		9,600	0	9,600
Watering system (raining)	2,000	Complex	3	Pcs	2	12,000		12,000	0	12,000
Watering system (namiraa)	1,600	Complex	1	Pcs	2	3,200		3,200	0	3,200
Watering system (dropping)	6,000	Complex	1	Pcs	2	12,000		12,000	0	12,000
Cultivator	7,000	Complex	1	Pcs	2	14,000		14,000	0	14,000
Tractor /50 horse power/	15,000	Pcs	1	Pcs	3	45,000		45,000	0	45,000
Plough	2,000	Pcs	1	Pcs	2	4,000		4,000	0	4,000
Boric	2,100	Pcs	1	Pcs	2	4,200		4,200	0	4,200
Soil piling	1,500	Pcs	1	Pcs	2	3,000		3,000	0	3,000
Hole digger /will be mounted on the tractor/	8,000	Pcs	1	Pcs	2	16,000		16,000	0	16,000
Tree planter	7,000	Pcs	1	Pcs	2	14,000		14,000	0	14,000

Tree hole digger	2,000	Complex	1	Pcs	2	4,000		4,000	0	4,000
Tree hole digger /Hand drilling auger/	700	Complex	3	Pcs	2	4,200		4,200	0	4,200
Trailer	4,000	Pcs	1	Pcs	2	8,000		8,000	0	8,000
Billboard	200	Pcs	1	Pcs	3	600		600	0	600
Transportation	2	Km	840	Trip	4	6,720		6,720	0	6,720
Workers for nursery construction	35	Person	10	Day	35	12,250		12,250	0	12,250
1.5. Purchase container (as a warehouse purpose)						16,000		16,000	-	*16,000*
Purchase container with transportation cost	8,000	Container	1	Pcs	2	16,000		16,000	0	16,000
Sub-total (Output 1)						**312,170**	**0**	**312,170**	**0**	**312,170**
Output 2: Capacity building trainings conducted for seedling production, tree planting, forest cleaning and forest protection measures to improve the survival and growth performance of plantations										
2.1. Conduct training on seedling propagation techniques, nursery maintenance, reforestation techniques and field practice, Application of GIS and RS tools for data management						3,810	-	3,810	-	**3,810**
Expert consultants	200	Person	1	Day	10	2,000		2,000	0	2,000
DSA for government officials	35	Person	3	Day	2	210		210		210

Local community during the workshop	10	Person	15	Day	2	300		300		300
Assessment workshop venue, snacks and materials for the participants	500	Package	1	Day	2	1,000		1,000		1,000
Accommodation cost for project team during the field visit	15	Accomodation	10	Day	2	300		300		300
2.2. Conduct training and demonstration on forest cleaning for the local communities (cleaning of logging residuals and other natural or anthropogenic disturbances)						5,650	*0*	*5650*	*0*	*5650*
Trainers/facilitator/experts	200	Person	1	Day	5	1,000		*1000*		*1000*
Local community during the implementation at 2 project sites	10	Person	50	Day	5	2,500		*2500*		*2500*
Accommodation cost for participants during the field visit	15	Accomodation	2	Day	5	150		*150*		*150*
Venue, snacks and materials for the participants	500	Package	2	Day	2	2,000		*2000*		*2000*
2.3. Conduct training and demonstration on forest protection measures from disturbances (fires, pests and diseases)						60,400	-	60,400	-	60400
Demonstration and hand over protection tools and equipment	1	Lumpsum	1	pcs	1	60,400		60,400	0	60400

2.4. Conduct training on patrolling (including use of equipment and standards)						2,000	0	2000	0	2000
Trainers/facilitator/experts	200	Person	2	Day	5	2,000	*0*	*2000*		*2000*
Sub-total (Output 2)						**71,860**	**-**	**71860**	**0**	**71,860**
Output 3: Forest restoration plans developed for the Ereen Mountain Range and Deendiin Valley, Turgenii River										
3.1. Conduct baseline survey on socio-economic conditions of the population managing the local forests						3,000	-	*3000*	*0*	*3,000*
Expert consultants	200	Person	1	Day	15	3,000		3000		3,000
3.2. Develop detailed map of the forest restoration areas based on collected data						3,000	-	3000	0	3,000
Expert consultants	200	Person	1	Day	15	3,000		3000		3,000
3.3. Prepare forest management/restoration plan and business plan for a period of 10 years for the 2 project sites						7,300	*0*	*7300*	*0*	*7300*
Expert consultants	200	Person	1	Day	29	5800		*5800*		*5800*
Consultation meeting venue, snacks and materials for the participants	500	Package	3	Day	1	1,500		*1500*		*1500*

3.4. Presentation/handing over of the forest management/restoration plan to local government and MUB						1,200	*0*	*1200*	*0*	*1200*	
Meeting venue, snacks and materials for the stakeholders	600	Package	2	Day	1	1,200		*1200*		*1200*	
Sub-total (Output 3)						**14,500**	**-**	**14500**	**0**	**14,500**	
Total (Objective 1)						**398,530**	**-**	**398530**	**0**	**398,530**	
Objective 2: To increase the restored forest land as a demonstration in the project target sites											
Output 4: Reforestation and restoration of 100 ha of area in the Ereen Mountain Range and 20 ha of area in Deendiin Valley, Turgenii River											
4.1. Reforestation and plantation establishment at the Ereen Mountain Range						143,630	-	143,630	-	143,630	
Site demarcation	200	Lumpsum	1	Day	20	4,000		4,000		4,000	

Seedling purchase	0.34	Pcs	1	Pcs	200,000	68,000		68,000		68,000	
Transportation of seedlings to the planting sites	2	Km	840	Trip	6	10,080		10,080		10,080	
Fertilizer and fertilizer application	15	Lumpsum	5	Site	2	150		150		150	
Weeding	20	Lumpsum	5	Site	2	200		200		200	
Signboard	100	Pcs	1	Pcs	2	200		200		200	
Employment of plantation experts and workers	15	Person	100	Day	40	60,000		60,000		60,000	
Accommodation cost for participants during the field visit	20	Accomodation	5	Day	10	1,000		1,000		1,000	
4.2. Reforestation and plantation establishment at the at the Deendiin Valley, Turgenii River						51,150	-	51150	0	51,150	
Site demarcation	100	Lumpsum	1	Day	20	2,000		2,000		2,000	
Seedling purchase	0.34	Pcs	1	Pcs	35,000	11,900		11,900		11,900	
Transportation of seedlings to the planting sites	2	Km	100	Trip	2	400		400		400	

Fertilizer and fertilizer application	15	Lumpsum	10	Site	1	150		150		150	
Weeding	20	Lumpsum	10	Site	1	200		200		200	
Signboard	100	Pcs	1	Pcs	1	100		100		100	
Employment of plantation experts and workers	20	Person	30	Day	60	36,000		36,000		36,000	
Accommodation cost for participants during the field visit	20	Accomodation	2	Day	10	400		400		400	
4.3. Seed collection and preparation for planting						2,500	-	2500	0	2500	
Expert consultants	250	Person	1	Day	10	2,500		2500		2,500	
Sub-total (Output 4)						197,280	-	197280	0	197,280	
Total (Objective 2)						**197,280**	**-**	**197280**	0	**197,280**	
Objective 3: To disseminate the project experiences and lessons learned, and raise public awareness on reforestation											
Output 5: Knowledge and lessons learned about the impacts of forest restoration on social economic and environment are documented and shared											

5.1. Produce a guideline on establishing advanced tree nursery techniques to sustain the activities after project completion						4,500	0	4500	0	4500	
Expert consultants	200	Person	2	Day	10	4,000		*4000*		*4000*	
Editing and printing cost	1	Pcs	1	Pcs	500	500		500		500	
5.2. Support research activities by involving university students and/or young researchers						4,980	0	4980	0	4980	
DSA for three researchers	35	Person	3	Day	30	3,150		3150		3150	
Travel for three researchers	20	Person	3	Day	30	1,800		1800		1800	
Binding the reports/publication	1	Pcs	3	Pcs	10	30		30		30	
5.3. Develop extension materials (leaflets, posters, and TV adverstiment) for showcasing the project impacts and sharing lesson learned						6,500	0	6500	0	6500	
Experts to develop extension materials	200	Person	2	Day	10	4,000		4000		4000	
Editing and printing cost	1	Pcs	1	Pcs	500	500		500		500	

Experts to develop TV spot and broadcasting	1,000	Video clip	2			2,000		2000		2000	
5.4. Develop a policy brief containing the lessons learned and policy recommendations to improve forest restoration in degraded areas						6,100		6100		6100	
Expert consultants	200	Person	2	Day	15	6,000		*6000*		*6000*	
Editing and printing cost	1	Pcs	1	Pcs	100	100		100		*100*	
5.5. Organize webinar for the project		Package				10,200		10200		10200	
Employment experts	200	Person	5	Day	10	10,000		10000		10000	
Editing and printing cost of webinar series	1	Pcs	1	Pcs	200	200		200		200	
Sub-total (Output 5)						32,280	0	32280	0	32280	
Total (Objective 3)						32,280	0	32280	0		
Total direct cost						**628,090**					
Project management activities											
A1. Project startup phase						**243,000**	**-**	**169,400**	**73,600**	**243,000**	
National Project Coordinator	1666	Person	1	Months	27	45,000		25,000	20,000	45000	

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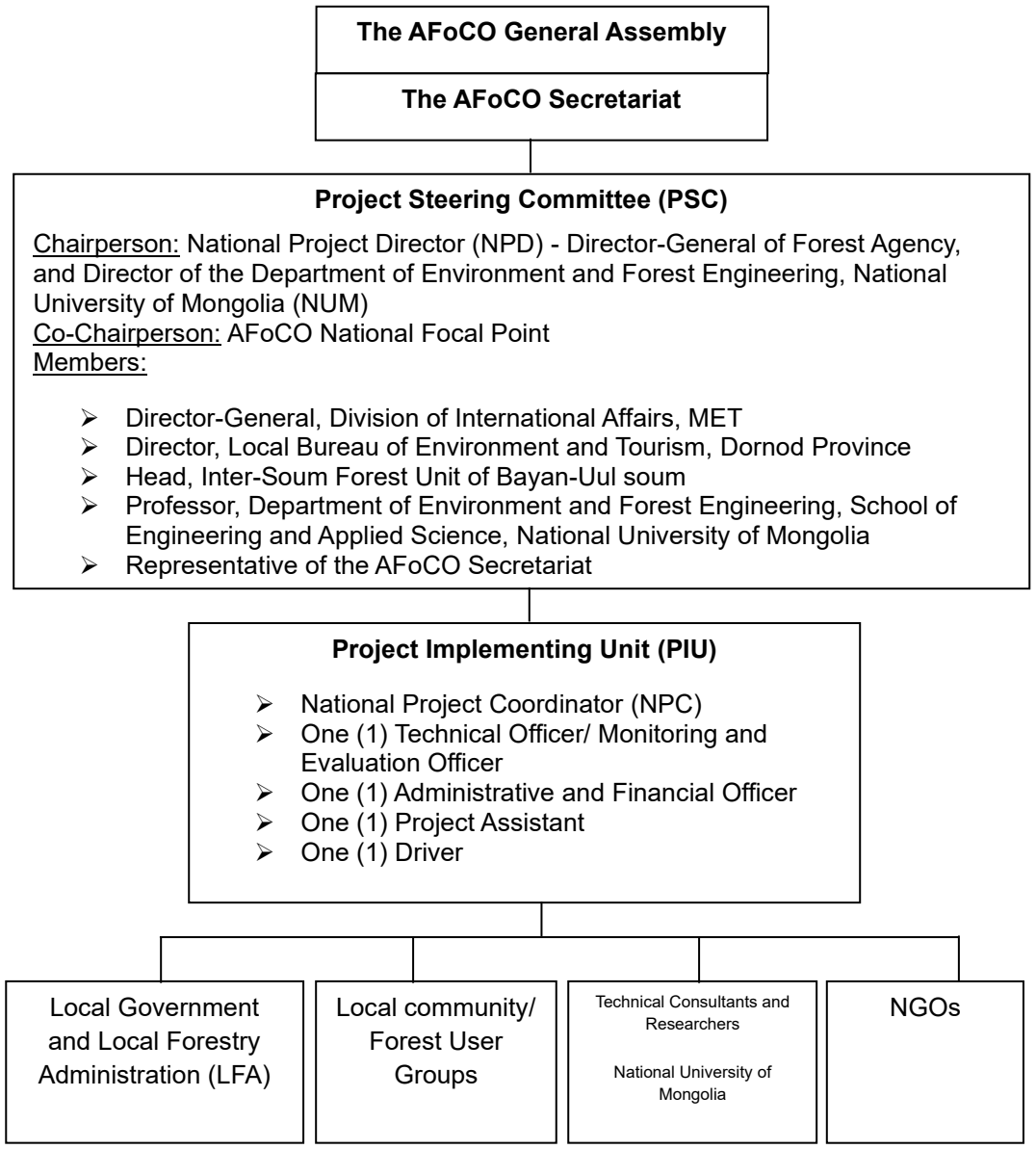
Administrative and Finance Officer	1000	Person	1	Months	25	25,000		13,000	12,000	25000	
Management and Evaluation Officer	1000	Person	1	Months	25	25,000		13000	12000	25000	
Project assistant	900	Person	1	Months	25	22,500		11,700	10,800	22500	
Driver, field manager	900	Person	1	Months	25	22,500		11,700	10,800	22500	
Project Management Cost	50,000	Pcs	1	Vehicle	1	50,000		50,000	0	50,000	
Office supplies	15,000	Lumpsum	1	Project sites	2	30,000		30000	0	30,000	
Fuel	14,000	Lumpsum	1	Car	1	14,000		9,000	5,000	14,000	
Coordination meetings	1,500	Package	3	Day	2	9,000		6000	3000	9000	
A2. Project inception phase						**3,050**	**-**	**3,050**	**-**	**3,050**	
Organize inception workshop	2,000	Package	1	Day	1	2,000		2000	0	2,000	
DSA for local participants	35	Person	10	Day	3	1,050		1050	0	1,050	
A3. Project implementation phase						**7,560**	**-**	**2,700**	**4,860**	**7,560**	
Monitoring and evaluation meeting	300	Package	12	Day	1	3,600	0	1800	1,800	3,600	

PSC meeting	300	Package	6	Day	1	1,800	0	900	900	1,800	
RETC training	35	Person	2	Day	4	280	0		280	280	
Domestic travel	10	Person	2	Day	4	80	0		80	80	
International airfare	900	Person	2	Round-trip	1	1,800	0	0	1,800	1,800	
A4. Project closure						**5,000**	**0**	**0**	**5,000**	**5,000**	
Auditing	3,000	Package	1	Time	1	3,000	0	0	3,000	3,000	
Project closing workshop	2,000	Package	1	Day	1	2,000	0	0	2,000	2,000	
Total indirect cost						**258,610**	**-**	**175,150**	**83,460**	**258,610**	
Total (direct and indirect cost)						**628,090**	**-**	**628,090**	**-**	**628,090**	
Program support (12% of subtotal)						**112,956**			**112,956**	**112,956**	
* Financial Regulations 3.4											
Grand total						**999,656**	**-**	**803,240**	**196,416**	**999,656**	

Section D. Project Implementation

1. Implementation Arrangement

Figure 4. Organizational chart



1. The **Implementing Agency (IA)** for this project is the National Forestry Agency of Mongolia. The Implementing Agency is responsible and accountable for managing this project, including the monitoring and evaluation of project interventions, achieving project outcomes, and for the effective use of AFoCO resources. The Implementing Agency is responsible for:

    - Approving and signing the annual work plan developed by the PIU and seek endorsement from the PSC
    - Approving and signing the combined delivery report at the end of the year; and,
    - Signing the financial report or the funding authorization and certificate of expenditures.

2. **Project Steering Committee (PSC)**, chaired by the Director-General of the Forest Agency (AFoCO's NFP) will provide strategic direction and guidance, policy support, and monitoring and evaluation of the project. The PSC will meet annually although ad hoc meetings may be convened on the request of the Chairperson. The PSC members comprises of the Director-General of the Division of International Affairs of MET, representative of local authority at community level, research institution, and the Project Coordinator as the PSC secretariat and a representative from AFoCO Secretariat. In order to ensure the ultimate accountability, PSC decisions should be made in accordance with standards that shall ensure management for development results, best value money, fairness, integrity, transparency and effective international competition. In case a consensus cannot be reached within the PSC, final decision shall rest with the AFoCO's National Focal Point in Mongolia. Specific responsibilities of the PSC include:

    - Provide overall guidance and direction to the project, ensuring it remains within any specified constraints;
    - Address project issues as raised by the NPC;
    - Provide guidance on new project risks, and agree on possible counter measures and management actions to address specific risks;
    - Review the project progress, and provide direction and recommendations to ensure that the agreed deliverables are produced satisfactorily according to plans;
    - Appraise the annual project implementation report, including the quality assessment rating report; make recommendations for the work plan;
    - Provide ad hoc direction and advice for exceptional situations when the NPC's tolerances are exceeded;
    - Establish and oversee the project's Grievance Mechanism, and regularly review complaints received by the NPC; and
    - Assess and decide to proceed on project changes through appropriate revisions.

3. There will be a single **Project Implementation Unit (PIU)**, located in Ulaanbaatar city, operating under the administrative authority of National Forest Agency (NFA), with responsibility for coordinating implementation and logistics. The PIU will be staffed by the following full time positions: a National Project Coordinator (NPC) appointed by NFA; a Technical Officer; an Administrative and Financial Officer; a Project Assistant; and a Driver will be hired by the NFA Working Group. In addition, the project will appoint Project Local Coordinator at the project target site. This decentralized local position will be hosted in the relevant local authority offices under co-financing. Office space and costs for the PIU (excluding daily office expenses, equipment and consumables) will be provided under co—financing from NFA.

4. **Local Government** will be involved with the project in planning, implementation and monitoring of all project activities, and, particularly, in the management of a tree nursery located at the project site. The head of the local government will be involved as a member of the PSC. One or two of its staff member will be involved as the project team members.

5. **Local Community** managing the forest will be involved in: 1) Identifying the problems, identifying and selecting tree species for planting, locations and methods for planting; 2) Capacity building on seedling production and forest restoration; 3) Establishment of nursery, production of seedlings and implementation of forest rehabilitation; and 4) Protection of the forest. In short, they will be involved in planning, implementation and monitoring of the changes following the project interventions. Local authorities at the commune level will provide assistance in combatting illegal activities in the local forests

and administrative supports.

The PIU will be supported by a range of **service providers and thematic consultants** including for gender and livelihoods issues. Lecturers and students from the National University of Mongolia will participate with the project in research activities.

2. Reporting and Monitoring Arrangements

Five types of reports will be submitted to AFoCO Secretariat during the project implementation period as follows:

No.	Report	Number	Deadlines for submission
1	Mid-year report	5	31 July
2	Annual progress report (APR)	3	31 January
3	Financial report, part of the APR	3	31 January
4	Auditing report	1	Three months after project completion
5	Project completion report	1	Three months after project completion

The PSC is responsible for project monitoring in accordance with Article 11.1, reviewing the progress of activities, and making necessary decisions for project implementation. The PSC meeting will be held at least once a year, preferably either in the second or fourth quarter of each year at least one month after annual monitoring is conducted under Article 11.

3. Environmental and Social Risk and Management

Potential Risk(s)	Mitigation Measures
Environmental Risks:	
Drought may show negative effect to seedling survival and growth.	• To avoid massive death of transplanted seedlings, dry-tolerant reforestation technique will be introduced tree planting activities.
In spring, the climate in Mongolia is characterized by dryness and there is a potential risk of forest fires.	• There is a need to implement the fire prevention measures during the dry period.
Grazing in reforested area can have a harmful effect on planted trees.	• To protect from livestock grazing, the reforested/restored area will be fenced
Management Risks:	
Coordination problems between participating stakeholders which influence the implementation of project activities.	• Clarify the responsibility, rights and interestof each participating agency; • Strengthen the communication between participating agencies; • Coordinate through PSC

	meetings and project-leading team.
Benefits from the forest are not fairly shared among participating community members	• The local community/governments shall develop internal rules and regulation stipulating how benefits will be fairly shared among the participating community members
Lack of technical capacity and strength at the project implementing agency, which might impact the project results	• The project will organize capacity building on key techniques to enhance technical knowledge and skill of the project team members; • Invite competent consultants to solve key technical challenges.
Unauthorized collection of timber and NTFPs and land encroachment in the community forest	• Ensure that the CF boundaries are clearly demarcated on the ground; • Erection of signposts/billboard; • Support regular forest patrolling in the community forest; • Building good relationship with local authorities and surrounding communities.
Local Forestry Administration and local authority are not fully collaborative with local community in combatting illegal activities in the CF	• Coordinate through PSC meetings and project leading team. The commune Chief and the Head of FA Inspectorate will be invited to sit as members of the PSC. • Provide supports in term of transportation and foods when they are requested for assistance.
Political risks:	
Restructuring government agencies depending on political decision is one of the potential risks.	• To avoid this risk the required provision should be included in MOU.

4. Sustainability Mechanism

The successful implementation of the project will play an important role in reducing further deforestation and the reforestation activites on the deforested area will ensure in. sustaining the forest ecosystem functionality, biodiversity conservation in the northeastern part of the country and combating desertification. The establishment of the advanced tree nurseries with Scots pine plantations will ensure the restoration of the degraded forested areas as a drought-resistant reforestation model and the lessons learned from the project in the Ereen mountain will be introduced into reforestation activities not only in the eastern Khentii mountains, but also in similar boreal forest regions of Mongolia and other Central Asian countries that have similar ecosystems.

Moreover, the project outcomes will significantly contribute to the National Targets, international commitments, and Landscape Partnership Asia (LPA) that directly and indirectly support forest

restoration and conservation measures, and climate change mitigation efforts including:

- Increase the area of forest cover to 9% of the country's total territory by 2030;
- The average area affected by forest fire shall be decreased by 70% in 2030;
- Forest ecosystem, biodiversity conservation and protection are improved;
- Greenhouse gas emissions from deforestation and forest degradation shall be reduced by 5% in 2030;
- Sustainable forest management shall be introduced to the Mongolian forest sector, qualitative advancement is made in forest conservation, sustainable use and restoration and ecologically beneficial healthy forest is established;
- Comprehensively restore 300,000 – 400,000 ha of degraded lands in pastures, mining, forested areas and agricultural lands.

A synergy between the project and Landscape Partnership Asia (LPA)'s vision in contributing to the forest restoration of 10 million hectares brought under integrated dryland and drought management by 2032.

One of the most important outcomes achieved from this project will be the development of ten-year restoration plan for the local community. The ten-year restoration plan will be developed for the long-term period and will include future financing options for sustainable operation of the tree nurseries. This will also include tapping on financing from investment funds, start-up capital and credits for the commercially viable and sustainable forest business approach of the state forest units. The focus will be to attract investment capital from domestic and international organization to finance the forest units, or cooperate with banks and other financing institutions to improve the tree nurseries established. Based on the ten-year restoration plan, the local forest units will incorporate the plan into their Sustainable Forest Management Plan that is approved by their Soum Governor. After the completion of the project, seedling cultivation and reforestation activities will be carried out stably in the future using the built capacity for seedling production and tree planting and their experiences. For further sustainable operation, the Government of Mongolia should improve financial support and provide opportunities for annual reforestation activities. However, on the basis of human resources and capacity during the project implementation, next steps or new forest restoration projects should be implemented.

Benefits would be provided to project beneficiaries in the form of emplpyment, whreby temporary and permanent jobs will be created in connection with the activities of forest nurseries and reforestation, and capacity building in seedling production and forest restoration in northeastern region of Mongolia. The main beneficiaries are listed below.

Direct beneficiaries:

- Forestry unit of Bayan-Uul soum, Dornod province. The forestry unit will collaborate with the implementing agency and local forest community in planning, implementation and monitoring of all project activities. Thus, the project will support the forest unit in professional human resources development and the local staffs' technical skills will be improved in seedling production and reforestation capacity, which will create the basis for further intensive silvicultural management in the region. They will also get the tree nurseries and will receive the ten-year restoration plan, which will support in development of their Sustainable Forest Management Plan in the future.

- Forest user groups. As the project will be providing temporary jobs for the local communities, the unemployment and poverty in the region will be reduced. The community will also receive improved capacity in seedling production for forest rehabilitation. Since the restored forest will be well protected, it ensures the long-term

benefits for local communities.

- Both Forestry Unit and the Forest user groups of Bayan-Uul soum, Dornod province will have secure market as the President's Billion tree campaign demands at least 130 million seedlings and saplings per year until 2030.

Indirect beneficiaries:

- National Forest Agency and Ministry of Environment and Tourism of Mongolia. As the project will increase the forestland through restoration at the Ereen Mountain, it will significantly contribute to the Mongolian government national target to increase the area of forest cover to 9% from 7.8% of the country's total territory by 2030.

- Universities, Research Institutes, NGOs. The implementation of the project will provide scientists and researchers with the opportunity to conduct and develop regional-specific reforestation technology in the target area. Moreover, as the institutes will include young researchers, the project will further improve their technical experience in forest restoration activities.

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