

Funding Proposal

FP154: Mongolia: Aimags and Soums Green Regional Development Investment Program (ASDIP)

Mongolia | Asian Development Bank (ADB) | Decision B.28/04

6 April 2021



**GREEN
CLIMATE
FUND**

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Note to Accredited Entities on the use of the funding proposal template

- Accredited Entities should provide summary information in the proposal with cross-reference to annexes such as feasibility studies, gender action plan, term sheet, etc.
- Accredited Entities should ensure that annexes provided are consistent with the details provided in the funding proposal. Updates to the funding proposal and/or annexes must be reflected in all relevant documents.
- The total number of pages for the funding proposal (excluding annexes) **should not exceed 60**. Proposals exceeding the prescribed length will not be assessed within the usual service standard time.
- The recommended font is Arial, size 11.
- Under the [GCF Information Disclosure Policy](#), project and programme funding proposals will be disclosed on the GCF website, simultaneous with the submission to the Board, subject to the redaction of any information that may not be disclosed pursuant to the IDP. Accredited Entities are asked to fill out information on disclosure in section G.4.

Please submit the completed proposal to:

fundingproposal@gcfund.org

Please use the following name convention for the file name:

“FP-[Accredited Entity Short Name]-[Country/Region]-[YYYY/MM/DD]”

A. PROJECT/PROGRAMME SUMMARY			
A.1. Project or programme	Programme	A.2. Public or private sector	Public
A.3. Request for Proposals (RFP)	Not applicable		
A.4. Result area(s)	<p>Check the applicable GCF result area(s) that the <u>overall</u> proposed project/programme targets. For each checked result area(s), indicate the estimated percentage of <u>GCF budget</u> devoted to it. The total of the percentages when summed should be 100%.</p>		
	<p>Mitigation: Reduced emissions from:</p> <p><input type="checkbox"/> Energy access and power generation:</p> <p><input type="checkbox"/> Low-emission transport:</p> <p><input checked="" type="checkbox"/> Buildings, cities, industries and appliances:</p> <p><input checked="" type="checkbox"/> Forestry and land use:</p> <p>Adaptation: Increased resilience of:</p> <p><input checked="" type="checkbox"/> Most vulnerable people, communities and regions:</p> <p><input checked="" type="checkbox"/> Health and well-being, and food and water security:</p> <p><input type="checkbox"/> Infrastructure and built environment:</p> <p><input checked="" type="checkbox"/> Ecosystem and ecosystem services:</p>	<p>GCF contribution:</p> <p><u>0%</u></p> <p><u>0%</u></p> <p><u>5%</u></p> <p><u>45%</u></p> <p><u>10%</u></p> <p><u>10%</u></p> <p><u>0%</u></p> <p><u>30%</u></p>	
A.5. Expected mitigation impact	112.40 million tCO ₂ e ¹	A.6. Expected adaptation impact	Direct beneficiaries: 552,300 Indirect beneficiaries 3.2 million
			Direct: 17.1%; indirect 100%
A.7. Total financing (GCF + co-finance)	<u>735 million</u> USD	A.9. Project size	Large (Over USD 250 million)
A.8. Total GCF funding requested	<u>175 million</u> USD		
A.10. Financial instrument(s) requested for the GCF funding	<p>Mark all that apply and provide total amounts. The sum of all total amounts should be consistent with A. 8.</p> <p><input checked="" type="checkbox"/> Grant <u>45 million USD</u> <input type="checkbox"/> Equity <u>0 USD</u></p> <p><input checked="" type="checkbox"/> Loan <u>130 million USD</u> <input type="checkbox"/> Results-based payment <u>0 USD</u></p> <p><input type="checkbox"/> Guarantee <u>0 USD</u></p>		
A.11. Implementation period	10 years	A.12. Total lifespan	40 years
A.13. Expected date of AE internal approval	5/28/2021	A.14. ESS category	B
A.15. Has this FP been submitted as a CN before?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	A.16. Has Readiness or PPF support been used to prepare this FP?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>

¹ This represents the net emission reductions, taking into accounts all sources of emission reductions and additional emissions. The latter represents emissions from the use use of infrastructure created by ASDIP, such as improved roads.

<p>A.17. Is this FP included in the entity work programme?</p>	<p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Part of ADB's Country Partnership Strategy and the Country Operations and Business Plan.</p>	<p>A.18. Is this FP included in the country programme?</p>	<p>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Aspects of it are included in the GCF country programme</p>
<p>A.19. Complementarity and coherence</p>	<p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> However, ASDIP is expected to be used to launch the Partnership for Low-Carbon and Climate-Resilient Rangeland Management in Asia, which will provide financing for low-carbon and climate-resilient rangeland management in Mongolia and Asia based on the mitigation results achieved. See Section B.6 and, in particular, Box 10.</p>		
<p>A.20. Executing Entity information</p>	<p>The Executing Entities of ASDIP is Government of Mongolia, represented by the Ministry of Finance, Ministry of Construction and Urban Development (MCUD), the Development Bank of Mongolia (DBM), and the Asset Management Company of Development Bank of Mongolia (AMC-DBM) acting on behalf of the Green Inclusive Regional Agribusiness Fund (GIRAF). More details are in B.4</p> <p>The main implementing entities are MCUD, Ministry of Food, Agriculture and Light Industry (MOFALI), and Asset Management Company of Development Bank of Mongolia (AMC-DBM).</p>		
<p>A.21. Executive summary (max. 750 words, approximately 1.5 pages)</p>			
<p>Rangelands are one of the world's predominant ecosystems, representing about 70% of the earth's land surface, excluding Antarctica. They offer a large mitigation potential through better rangeland management, estimated at 1.1 billion tCO₂/year globally. However, rangelands are vulnerable to climate change and unsustainable human activities, such as unsustainable animal husbandry or poor water management, especially in arid regions where rangelands can turn into a desert if not well-managed. Despite the large surface areas involved and the significant adaptation concerns and mitigation potentials, little climate finance support has so far been provided to better rangeland management.</p> <p>In Mongolia, rangelands are the most common land type, covering 82% of the country. Meanwhile, the livestock sector is vital to the Mongolian economy in terms of employment (representing about 25% of total employment) and its contribution of not less than 10% of GDP. Both are under severe threat of climate change, unsustainable rangeland and livestock management, and weak urban-rural linkages.</p> <p>As stated in the NDC of Mongolia, the annual mean air temperature over Mongolia has increased by 2.07°C from 1940 to 2014. The ten warmest years in the last 70 years have occurred after 1997. Impacts on precipitation are more uneven, with an overall trend towards a reduction in annual precipitation, especially in summer. However, evaporation has clearly increased and outpaces precipitation, causing water shortages and increased occurrences of drought. Climate projections show an intensification of these changes in the first half of the 21st century. Some of the key impacts and vulnerabilities are:</p> <ul style="list-style-type: none"> • Approximately 70% of pastoral land has degraded, while changing plant composition. • The winter dzud (heavy snow, cold waves, storms etc.) risk is likely to increase leading to more livestock losses which in return push herders to increase their herds size as resilience mechanism to compensate their losses. • The intensification of dry climatic conditions causes an increase of the frequency of forest and steppe fires. • The frequency of extreme weather phenomena has doubled in the last two decades. This is expected to increase by 23-60% by the middle of the century as compared to present conditions. 			

Number based on the GWPs of the second assessment report of the IPCC, which are the numbers Mongolia has used in its latest national communications. Based on the GWPs in the fifth assessment report of the IPCC, the emission reductions are 3.3 million tCO_{2e} higher. Throughout the remainder of the FP, the GWPs from the second assessment report have been used. Furthermore, we have used this net number for the calculation of key ratios in Section E of the funding proposal.

Climate change has reduced the productivity of rangelands, affected glacier-fed water regimes, and has increased exposure of herders and the animal husbandry sector to climate-related natural disasters. These issues have severely impacted herders as well as livestock productivity and quality, which were already significantly weakened by the collapse, since the 1990s, of the local livestock value chains and the urban productive and service functions delivered to the rural economy. Herders have increased their herds' size to unsustainable levels (70.97 million in 2019, compared to 25.86 million in 1990),² leading to overgrazing averages of 22.6% above the rangeland carrying capacity (27.4% in the three western *aimags*). Overgrazing severely degrades the rangelands, which aggravates herders' vulnerability, who then further increase the size of their herds as safety net.³ As a result, 70% of pastoral land has been degraded.⁴ This means both above- and below-ground biomass has been considerably reduced, and soil carbon is significantly below its capacity. Reversing the degradation and restoring the health of Mongolia's vast rangeland area offers a very large mitigation potential, estimated at over 440 million tCO₂ countrywide over a 20 years period.⁵

The Government of Mongolia is fully aware of the severity of the situation. It has set policies and objectives to reverse the current overgrazing trends and implement sustainable, climate-resilient rangeland management. Several important stand-alone initiatives from donors have also been implemented. However, those attempts have so far failed to reverse the exponential increase in the number of animals and overcome complex and interrelated barriers inherent in the livestock sector. Both aspects, resilience to climate change and mitigation of greenhouse gas emissions, require the grazing pressure on rangelands to be reduced by improving grazing methods and limiting the number of animals. A comprehensive approach at the territory level and included in a regional and national development strategy is required to achieve the desired adaptation and mitigation outcomes.

The Aimags and Soums Green Regional Development Investment Program (ASDIP) proposes a fundamental paradigm shift and transformative model to promote low-carbon, climate-resilient territorial development, and more efficient urban-rural linkages. ASDIP integrates climate issues within a territorial framework using a comprehensive, interlinked, and participatory approach, where urban and rural transformations are mutually reinforcing to achieve greater and more sustainable climate impacts, rangeland, and livestock are managed sustainably and well-equipped (*aimag* [province] and *soum* [subunit of an *aimag*]) centers become the anchors of climate-smart agribusinesses. These agribusinesses then constitute more diversified Low-carbon Climate-resilient Livestock Value Chains (LCLVCs) that promote sustainable, resilient, and high carbon sequestration management in Mongolia's rangeland. With an initial focus on Mongolia's western *aimags*, the program promotes climate finance and private sector investment mechanisms designed for sustainability and replicability across the country. For this, four transformative integrated interventions need to occur:

1. Revive aimag and soum centers into low-carbon climate-resilient urban settlements with improved living conditions and adequate infrastructures and services to anchor LCLVC investments at the point of need and provide adequate services to herders and cooperatives;
2. Introduce transformational low-carbon and climate-resilient rangeland management practices, with incentives, organizational structure, services, and transitional support for herders;
3. Provide innovative climate mitigation finance attractive for LCLVC investments to sustain herders low-carbon practices; and
4. Builds capacities and awareness to formulate and implement transformational low-carbon climate-resilient development plans and policy, and the knowledge and MRV system necessary for replication.

² http://1212.mn/stat.aspx?LIST_ID=976_L10_1

³ According to Mongolia's Third National Communication to the UNFCCC, the "[p]asture area which urgently requires recovering and enhancing is already exceeding 40% and for the recovery, it is necessary to regulate grazing intensity of pasture with its pasture and recovery capacity and to change of present pasture use practice. Moreover, the Third National Communication states that "76.8% of Mongolian territory has been affected by desertification and land degradation." Furthermore, the Action Plan of Mongolian Agenda for Sustainable Livestock of 8 June 2018 gives an estimate that 65% of the pastureland of Mongolia is degraded.

⁴ National data based on MOFALI National Livestock Program, 2017 and on NSO, 2017. Western region data based on MOFALI soum-level datasets provided by MOFALI.

⁵ See the Climate Change Assessment for details.

To achieve those four transformative strategic objectives, ASDIP will have four outputs. They will be delivered through a multitranche financing modality (MFF), sequenced into three tranches over a 10-year implementation period:

1. Climate-resilient, low-carbon, and attractive *aimag* and *soum* centers developed
2. Rangelands managed for climate-resilience, high carbon sequestration, and sustainable herding (including veterinary services, fodder production, certification, traceability)
3. Low-carbon and climate-resilient livestock value chains created and strengthened through accessible finance.
4. Capacity and policy reforms for low-carbon and climate-resilient agro-territorial development improved.

For its implementation ASDIP will establish a cross-sector and cross-governmental level implementation mechanism, and will leverage private sector funding, development funds, and climate investment funds. Given its high total investment costs compared to Mongolia's limited availability to provide financing, GCF funding is essential to enable the initial phase through grants and highly concessional loans. Consequently, GCF funding will enable the project to build and expand on existing foundations and create a transformative and innovative integrated model for low-carbon and climate-resilient rangeland and more effective rural-urban linkages, which can be scaled up and replicated within and outside of Mongolia.

ASDIP will deliver the following quantitative outcomes:

- **Climate mitigation impact:** 112.40 million tCO₂e in net GHG emission reductions, of which 94.05 million from carbon sequestered in the soil, 17.2 million tCO₂e emission reductions from avoided methane and nitrous oxide emissions, 4.6 million tCO₂e through GHG mitigation in urban areas, 0.49 million tCO₂e emission reductions through other non-agricultural investments, against which a total of 3.62 million in emissions from the construction and use of ASDIP investments.
- **Adaptation beneficiaries:** direct beneficiaries: 552,300 people, including about 54,000 vulnerable herder households, from improved climate resilience and environmental conditions in the targeted *aimags*; indirect beneficiaries 3.2 million.
- **Ecosystem restoration:** sustainable low-carbon management of an estimated 28.8 million hectares of rangeland in Mongolia.
- **Main socioeconomic and livelihood benefits:** ASDIP will promote low-carbon economic diversification and job creation. It will create about 11,400 green jobs through its three lending windows and guarantee component, creating in return more than 150,000 indirect jobs. The program is categorized by ADB as Effective Gender Mainstreaming (EGM).

B. PROJECT/PROGRAMME INFORMATION

B.1. Climate context (max. 1000 words, approximately 2 pages)

The climate change rationale of ASDIP focuses on climate change adaptation and mitigation (with supporting information and analyses below). For further details that are not covered in this section, please refer to Annex 15: Climate Change Assessment.

Global context

Rangelands are the world's predominant ecosystems, representing about 70% of the earth's land surface, excluding Antarctica. Rangeland degradation is a global challenge as rangelands account for a considerable carbon sink⁶ with the potential to increase sequestration to as much as 1.1 billion tons of carbon dioxide equivalent per year (tCO₂e/year).⁷ Despite these significant mitigation potentials, limited climate finance support has so far been provided to foster healthier rangeland management and implement an integrated model considering all the systemic urban and rural linkages to achieve sustainable rangeland management leading to climate resilience higher carbon sequestration. ASDIP is taking this approach through an innovative, transformational, and replicable combination of people, public, and private sector interventions paramount to creating long-term and sustainable adaptation and mitigation impacts. It aims to achieve considerable adaptation and mitigation results and demonstrate the significance of integrated adaptation and mitigation mechanisms, creating a highly relevant model for replication within Mongolia and beyond that addresses a huge climate change adaptation and mitigation opportunity that has received too little attention in the past. Below we elaborate first on climate adaptation and then discuss mitigation.

Climate change and adaptation challenges in Mongolia

Introduction: the main climate challenges for the animal husbandry sector

To provide focus on the discussion of climate change, it is useful to highlight the main mechanisms that according to literature and reports (such as the national communications to the UNFCCC) affect the livestock sector and rangeland management in Mongolia, before turning to quantitative data regarding observed climate change and climate change projections.

The climate change adaptation rationale of ASDIP is primarily based on observed and projected increases in (1) the occurrences of drought and (2) the frequency and severity of *dzud* events. Drought leads to a decrease of rangeland biomass productivity, which in turn leads to a reduction in output per animal in animal husbandry, whereas *dzuds*, which are a combination of summer drought followed by harsh winters (high snowfall and/or low temperatures), and which lead to increased livestock losses during winter. The climate changes that contribute to increasing *dzud* intensity and frequency, particularly increases in summer drought, also lead to other secondary effects:

- Reductions in the number and area of lakes which reduce access to water resources for livestock;
- Reduced vegetation and fodder available at the end of the summer and throughout the winter.

These increases in drought and consequent reductions in water and vegetation reduce livestock conditions by the end of summer, which increases the risk of mortality during the following winter. If the winter is harsh (either low temperatures or high snowfalls), then mortality is higher. The herders' wish to address these challenges is one of the factors behind unsustainable livestock practices, which increases the vulnerability to climate change (see Insert 1).

Insert 1. Climate change and unsustainable livestock practices

⁶ Estimates are 3.7 billion hectares (ha) of rangeland and rangeland globally contain 306–330 billion tC in organic form and 470–550 billion tC in inorganic form (about 20–25% of the global terrestrial carbon. See Kimble, J. M., Follett, R., and Lal, R. (2001). The characteristics and extent of US grazing lands. In 'The potential of US Grazing Lands to Sequester Carbon and Mitigate the Greenhouse Effect'. (Eds R. F. Follett, J. M. Kimble, and R. Lal.) pp. 3–19. CRC Press: Boca Raton, FL.

⁷ Lal, R. (2004). Soil carbon sequestration impacts on global climate change and food security. *Science* 304, 1623–1627.

Unsustainable livestock practices also contribute to land degradation and affect Mongolia's water resources, and are partly the result of climate change. Coping mechanisms, such as increasing the herd size to avoid a total loss during a *dzud*, have contributed to the growing number of livestock in Mongolia. The existence of such coping mechanisms is often mentioned by herders and experts in Mongolia but is also clearly visible in the statistics, which show that increases in herd size after a *dzud* period exceed previous growth rates. The climate change assessment (Annex 15) contains an extensive discussion of the period from 1990 until today, which breaks down into several periods defined around two major *dzuds*:

- 1990-1999: pre-*dzud* period. The average annual increase in animal numbers is 2.94% per year.
- 1999-2002: consecutive *dzud* periods, resulting in larger losses of animals
- 2002-2009: post-*dzud* recovery period. The average annual increase in animal numbers is 10.4% per year.
- 2009-2010: a major *dzud*, resulting in large animal losses.
- 2010-2019: post-*dzud* recovery period. The average annual increase in animal numbers is 10.4% per year.

The interpretation that the *dzud* leads to increases in herds as a coping mechanism is furthermore reinforced by data showing that the increase in animal populations is almost completely the result of increases in herd sizes per household. In the first recovery period (2002-2009), the number of households with herds dropped from 243,230 to 226,650, while the number of animals increased from 23.9 million to 44.0 million. In the second recovery period (2010-2019), the number of households with herds increased from 216,570 to 233,317, while the number of animals increased from 32.7 million to 71.0 million. Aggregating during the two periods, the number of households with herds increased by 167 (less than 0.1% from the 2002 level), while the number of animals increases by 58.4 million (244% of the 2002 level).

Climate change: the evidence base

The following climate change observations, projections, and direct impacts, further elaborated in Annex 15 Section X, illustrate Mongolia's vulnerability to climate change and especially the vulnerability of rangelands and the animal husbandry sector to droughts and *dzuds*.

As stated in the NDC of Mongolia, the annual mean air temperature over Mongolia has increased by 2.07°C from 1940 to 2014. The ten warmest years in the last 70 years have occurred after 1997. Annual and summer rainfall has decreased and is expected to continue to decrease, while winter snowfall has increased in places. Together these increases in summer drought and increasing winter snowfalls contribute to more extreme *dzud* events resulting in high livestock losses. Average annual precipitation (heavily concentrated in the April-September period) has decreased by 10% over the past 70 years, resulting in overall higher aridity, particularly during summer. This warming and drying trend has contributed to desertification in Mongolia, affecting 70% of the country's grasslands to varying degrees. The pastureland health and availability of biomass heavily affect the livestock and livelihoods of the over 288 thousand herders in Mongolia. Winter pasture yields and grazing capacity following a dry summer versus a relatively mild summer significantly affect animals' survival rates. Pasture biomass is expected to decrease significantly in all regions, especially in the forest-steppe and steppe regions⁸.

The area of glaciers has decreased by 30% over the last 70 years, leading to river runoff changes - expected to be lower in most Mongolia regions and higher in some mountain areas. Lake volumes are expected to change, with some rising due to glacier and permafrost melting, but mostly lowering or disappearing altogether.⁹ The latest study commissioned by the Ministry of Environment and Tourism (MET)/UNDP shows that the permafrost distribution shrunk by 5% in the last 20 years over the country's territory¹⁰.

General Circulation Models (GCM) forecast that Mongolia will be warmer by 2.56°C and 5.16°C by 2050 and 2090, respectively. Studies further suggest that for East Asia by the end of the century, 1-in-20-year maximum daily precipitation events are likely to become 1-in-4-year to 1-in-15-year events, and the 1-in-20-

⁸ MARCC (2014) Mongolia Second Assessment Report on Climate Change 2014. Minist. Environ. Green Dev. Mong. pp. 1-302.

⁹ <https://agupubs.onlinelibrary.wiley.com/doi/full/10.1002/2016GL072033>

¹⁰ Permafrost mapping in Mongolia, Insitute of Geoeecology, 2016

year hottest day will likely become 1-in-2-year or annual events.¹¹ While there may potentially be an overall increase in precipitation, this will be exceeded by increases in the evaporation rate¹², reducing water availability and subsequent water resources. According to downscaled projections (scenario RCP8.5) using a regional climate model (RegCM4)^{13 14}, Mongolia's annual mean temperature will be warmer by 1.1-1.5°C, 2.2-3.4°C, and 4.0-5.7°C by 2030, 2050, and 2080. Mean annual precipitation is projected to increase by 5.3-5.6%, 13.7-14.5%, and 25.8-32.1%, respectively, at the same time, though there is an accompanying projected 10-20% decrease in summer rainfall throughout central parts of Mongolia.

The projected decreases in summer rainfall and temperature increases (increasing aridity during summer) are consistent with observed trends in historical climate, both at the national level and in target aimags, where decreasing precipitation, increasing temperatures, and potential evapotranspiration during summer combined with increases in winter snowfall in the targeted aimags (Climate Change Assessment, Figures 12-16, 27-30) to increase the intensity of droughts and *dzuds* (Climate Change Assessment, Figures 31-34). These trends are consistent with downscaled projections using a regional climate model, which indicate increasing temperatures and decreasing precipitation during the summer season in the target *aimags* (Climate Change Assessment, Figures 55-58) and resulting increases in the intensity of droughts and *dzuds*.

Natural disasters also impact the country, including harsh winters, drought, snow and dust storms, flash floods, and both cold and heat waves, which take a heavy toll on livestock and rural livelihoods. The magnitude and frequency of natural disasters have nearly tripled due to climate change¹⁵ in the last decade. Studies indicate drought as the most serious extreme disaster affecting the country in the last 50 years, with an increasing trend in the area affected by drought between 1951 and 2012.¹⁶ Observations indicate that since 2000, summer droughts, which reduce pasture for livestock, are more frequently followed by harsh winters with heavy snowfalls and/or lower temperatures, the combination of which leads to *dzud* events. Since 1940, winter snowfall has increased by 22%, which, combined with increasing summer drought (reducing pastures), has led to a significant increase in *dzud* events since 1999 (Climate Change Assessment, Figure 34).

Because of these climate change threats, the livestock sector is affected in two major ways:

- The first, as noted above, is the increase in frequency and severity of natural disasters leading to livestock deaths. A recent IMF report¹⁷ notes that "*livestock herds living in degraded environments are less able to withstand climate shocks, leading to extreme losses of wealth (of up to an estimated 8-12 percent of GDP in a year) during harsh winters called 'dzuds'—that have grown in frequency (Government of Mongolia TNC report under the UNFCCC, page 205, 2018). Furthermore, our estimation results suggest that the combination of harsh winters and harsh summers strongly predicts adult livestock loss. On average, a 1 °C colder winter is associated with a 1.8 percentage point increase in adult livestock loss. In contrast, a 1°C warmer summer is associated with a 1.5 percentage points increase in the loss of adult livestock.*"
- The second impact is a reduction in rangeland and animal husbandry productivity. Animal weights and sizes have decreased in recent decades because of increased drought frequency and pasture production

¹¹ IPCC. 2012. Summary for Policymakers. In *Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation*. A Special Report of Working Groups I and II of the Intergovernmental Panel on Climate Change. Edited by C. B. Field et al. Cambridge, UK and New York: Cambridge University Press, 1–19 (Figure SPM.4A and SPM.4B).

¹² UNFCCC Third National Communication, 2018

¹³ Future projections of climate change over Mongolia is predicted using an ensemble mean of 10 Global Climate Models (GCMs). However, GCMs output (200km) have been downscaled to regional scale using Regional Climate Model (RCMs) similar to the CORDEX (Coordinated Downscaling Experiment, 50-60km) experiment, except down to a finer spatial resolution (30km). All climate change impact assessments on socio-economic sectors in the country were done based on these high resolution results during TNC (Third National Communication).

¹⁴ Third National Communication of Mongolia under UNFCCC, p.134-137, 2018

¹⁵ Mongolia SNC, Ministry of Nature and Environment, UNEP, 2010

¹⁶ Wang, L., Yao, Z-J., Jiang, L., Wang, R., Wu, S-S., & Liu, Z-F. (2016). Changes in Climate Extremes and Catastrophic Events in the Mongolian Plateau from 1951 to 2012. *Journal of Applied Meteorology and Climatology*, 55(5), 1169-1182. DOI: 10.1175/JAMC-D-14-0282.1

¹⁷ IMF (2019), Mongolia: Selected issues. *IMF Country Report No. 19/298*. This is a good source on the challenges facing the rangelands and animal husbandry sector of Mongolia independently confirming much of the analysis in this Climate Change Assessment.

decreases. Studies show that the summer-autumn weight of sheep will decline by 10-27% during 2011-2039 and 24-38% from the level of 1961-1990 in the forest-steppe and the steppe regions. See also the Insert 2 below for the conclusions from the Climate Change Assessment, covering both aspects.

Insert 2. Climate change and animal husbandry in Mongolia

Climate change will have a strong impact on animal husbandry, an important sector of the Mongolian economy and a source of employment for a large and vulnerable part of the Mongolian population. Projections show that the impact of drought and heat may result in over 30% loss of output in the main rangeland types and that the impact of drought and dzud on animal losses will dramatically increase, almost doubling the premature death rate by the end of the century from 4.0% (1991-2015) to 7.6%. Reducing animal numbers will have a major impact on feed availability (with moderate grazing rather than high grazing, projections show an increase of above-ground biomass rather than a decline) and improve the use of scarce resources, resulting in stronger animal entering the winter, which in itself will provide protection against the impact of dzud.

Source: Climate Change Assessment, Annex 15 to the FP, Insert 4, page 70.

Rangeland and livestock sector mitigation potential in Mongolia

In Mongolia, rangelands are the most common land type, covering 82% of the country. They are currently under severe threat because of the dramatic increase in livestock, unbalanced composition of herds with a high proportion of goats¹⁸, and poor rangeland management practices. Currently, overgrazing in Mongolia averages 22.6% above the rangeland carrying capacity (27.4% in the three western *aimags*), and as a result, approximately 70% of pastoral land has been degraded.¹⁹ This means both above- and below-ground biomass have been considerably reduced, and soil organic carbon is significantly below its capacity. It is estimated that because of this, the actual amount of carbon sequestered is 1.12 billion tCO₂e below potential sequestration. Thus, improving rangeland management offers huge mitigation prospects for Mongolia, estimated at over 440 million tCO₂ countrywide over a 20-years period (from soil carbon sequestration). ASDIP will achieve a significant part of this potential: 94 million tCO₂e over a 20-year period.

The proposed reduction in animal numbers, as the main direct measure to restore rangelands, leads to a reduction in the emissions of methane and nitrous oxide from the animal husbandry sector. Because of the large size of the animal husbandry sector and the significant absolute reduction in animal numbers, the climate change mitigation resulting from reduced methane and nitrous oxide emissions as a result of these measures is very significant, estimated at over 17 million tCO₂e over a 40-year period with a 20-year time horizon on the impact of animal reduction measures that are gradually phased in²⁰.

Baseline

The reduction of climate change vulnerability in the livestock sector, the reduction of the number of livestock, and promotion of sustainable rangeland management have all been long-standing priorities of the Government of Mongolia (GoM), articulated in its national sector policies (e.g., National Mongolian Livestock Program) and in the climate change submissions to the UNFCCC (e.g., Mongolia's NAMA submission of 2010, Mongolia's TNA report).²¹

¹⁸ Goats are the most destructive to rangelands but because of income from cashmere goats are now the most numerous animals. The Government is therefore recommending to increase the cattle number which is current representing a very low proportion (below 10%) to improve the herds composition

¹⁹ National data based on MOFALI National Livestock Program, 2017 and on NSO, 2017. Western region data based on MOFALI soum-level datasets provided by MOFALI.

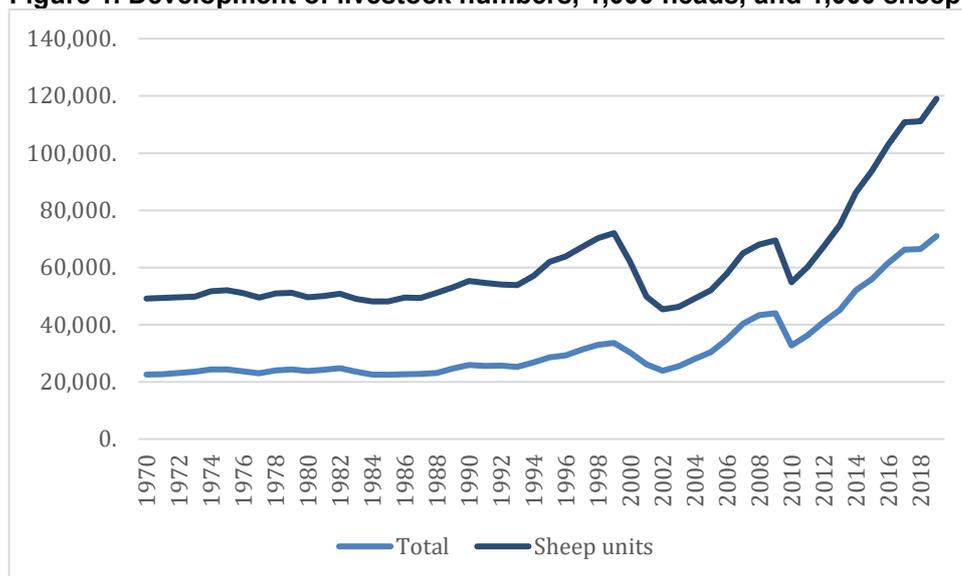
²⁰ See the Climate Change Assessment (Annex 15) for details on both soil carbon sequestration and reduce methane and nitrous oxide emission and Annex 17 for the emission reduction calculation spreadsheet.

²¹ See Annex 15, *Climate Change Assessment*, which incorporates the analysis "*Analysis of the livestock sector and the National Mongolian Livestock Program*" made in response to several iTAP questions and shared with iTAP, for a systematic discussion of the NMLP, other policies and the presentation of the animal husbandry and rangeland sectors in Mongolian submissions to the UNFCCC.

In the livestock sector, climate change adaptation and greenhouse gas mitigation both require a rationalization in the use of scarce resources (water and biomass from rangelands) where climate change exacerbates the scarcity. This requires, among others, a reduction in the number of animals combined with an increased output to herd ratio (animal productivity in what follows, it being understood that this refers to output divided by the total herd). Below we summarize the Mongolian experiences in reducing animal numbers, which shows that the baseline development for both mitigation and adaptation is worsening – increasing animal populations.²²

Figure 1 provides an overview of the development of livestock numbers between 1970 and 2019 (total numbers and in sheep head units). In the period 1970-1990, both the herd size and composition were more or less stable. In 1990, the total number of livestock (sheep, goats, horses, cattle, camels) was 25.86 million, with the composition sheep (58.3%), goats (19.8%), cattle (11.0%), horse (8.7%), and camels (2.1%).

Figure 1. Development of livestock numbers, 1,000 heads, and 1,000 sheep head units



After 1990, a period characterized by a rapid increase in the number of animals and changes in herd composition followed, interrupted only by major natural disasters (such as *dzud* periods), resulting in a large loss of animals during winter. By 2019, total animal numbers had increased to 70.97 million, at an animal growth rate of 9.0% (2010-2019). The composition had changed to sheep (45.5%), goat (41.2%), cattle (6.7%), horses (5.9%), and camels (0.7%), implying a slight correction relative to 2008 (decrease in the share of goats, increase in the share of large animals), although nowhere near to returning to the values of 1970-1990.

Table 1 provides an overview of the actual development of grazing pressure expressed in Sheep Head Units versus the targets implied in the National Mongolian Livestock Program (NMLP).

Table 1. NMLP targets in SHU and actual herd size.

Year	Actual herd size (SHU)	NMLP limit (SHU)	Actual growth rate	NMLP targeted growth rate
1970	49,117,142	-	1970-90: 0.60% p.a.	-
1980	49,578,630	-		-
1990	55,311,630	-	1990-99: 2.97% p.a.	-
1999	71,991,530	-		-
2002	45,351,020	-	2002-08: 6.98% p.a.	-

²² For details, see the Climate Change Assessment.

2008	67,995,460	Baseline 68 million ²³		-
2009	69,490,950	-		-
2010	54,821,380	-		-
2012	67,294,061	58,711,059	2012-19: 8.48% p.a.	2012-21: 3.45% p.a.
2015	93,766,491	66,453,709		
2019	118,987,533	-		
2021	140 million projected	79,696,314		

The rapid growth of animal husbandry since 2010 means that current numbers far exceed the targets in the NMLP. While the 2021 target of the NMLP is equal to 79.7 million SHU, the number in 2019 was 119.0 million, which exceeds the target by 49%. Moreover, the current rapid growth means that the total projected number for 2021 is 140 million SHU, exceeding the target by 75%. The animal reduction objectives of ASDIP are, therefore, clearly in line with the goals of the NMLP.

Table 2 provides an overview of the animal numbers per species. It provides data for 2012 and 2019, the annualized growth rate between 2012 and 2019, the projected number for 2021 (based on a constant annual growth rate), the targets for 2021, and the numbers in 2019 respectively projections for 2021, expressed as a percentage of the 2021 targets of the NMLP.

Table 2. NMLP targets and actual numbers per animal species.

Animal species	Actual number of animals (heads)		Growth rate p.a.	Projections	Target	Actual number as % of 2021 target	Projection as % of 2021 target
	2012	2019	2012-2019	2021	2021	2019	2021
Horse	2,330,428	4,214,818	8.83%	4,992,355	2,989,523	141%	167%
Cattle	2,584,621	4,753,192	9.09%	5,656,946	5,031,149	94%	112%
Camel	305,835	472,379	6.41%	534,853	328,118	144%	163%
Sheep	18,141,359	32,267,265	8.57%	38,037,951	16,442,378	196%	231%
Goat	17,558,672	29,261,661	7.57%	33,858,872	11,666,432	251%	290%
Total	40,920,915	70,969,315	8.18%	83,080,977	36,457,600	195%	228%

Table 2 clearly shows that by 2019, all animal population targets, except cattle, had surpassed the 2021 targets of the NMLP. The difference is especially remarkable for goats, with actual numbers exceeding the 2021 target by 150%. Table 2 also shows that if the trends continue to provide a projection for the actual numbers in 2021, all animal numbers will exceed the NMLP targets. This illustrates that the ASDIP objective of reducing animal numbers is fully in line with the NMLP²⁴.

The historical development of the animal numbers and herd composition summarized above²⁵ shows that Mongolia has not been successful in implementing these policy objectives and that without the ASDIP support, reduction in animal numbers and the mitigation benefits that in the absence of ASDIP are highly unlikely to be achieved. Therefore, the baseline is characterized by continuing increases in the number of animals, increasing emissions of N₂O and CH₄ from the animal husbandry sector, continued overgrazing, and loss of carbon sinks. This even though the Mongolian government is fully aware of the problem of overgrazing (currently, the number of animals is estimated to exceed carrying capacity with 25 million²⁶) and

²³ There is a slight deviation between the data used in the NMLP and the data available from NSO, probably due to later corrections in the latter. Based on the data in the NMLP, the baseline can be calculated as 68,130,983 SHU.

²⁴ One aspect is that in our projections, we have assumed an equal reduction in all animal numbers. The reason for this simplifying assumption was that market conditions and based on that, government priorities regarding herd composition may be subject to change. During actual implementation, reduction targets will be differentiated, under the constraint that both the reduction in grazing pressure and the CH₄ and N₂O emission reductions are at least as significant as currently projected.

²⁵ For a more in-depth treatment, see Annex 15, *Climate Change Assessment*, which incorporates the analysis “*Analysis of the livestock sector and the National Mongolian Livestock Program*”.

²⁶ See MOFALI (2018), *Action Plan of Mongolian Agenda for Sustainable Livestock*. Ministry of Food, Agriculture and Light Industry.

that the reduction of animal numbers continues to be a major objective of the Mongolian government²⁷. It should be noted that the past failure of the NMLP does not mean that ASDIP will fail. On the contrary: ASDIP has the resources behind it to provide comprehensive support and incentives for reductions in animal numbers (see Table 3) and is based on an interconnected set of interventions that address the problems of climate change adaptation and mitigation from all aspects. Finally, it should be noted that the historical increases in herd sizes reduce the rangeland productivity (for the general relationship between grazing regimes and rangeland productivity, see the Climate Change Assessment Section X.D) and hence reduce the availability of feed to animals, reducing their productivity and offsetting the increase in the number of animals, meaning that after a transitional phase, these increases in animal numbers do not lead to an increased income.

Project location

ASDIP Tranche 1 focuses on three western aimags, Bayan-Ulgii, Khovd, and Uvs (see Map 1 for the targeted aimag centers, soum centers, and intersoum centers of Tranche 1), each of which is highly dependent on the animal husbandry sector for employment (in the range of 38-51%). All these aimags have higher than average poverty incidence (see Section D.4), have significant on-going rangeland degradation, and provide sound pre-condition for the successful implementation of ASDIP mitigation objectives as herders have already been organized into PUGs in most of the three aimags by the SDC-supported "green gold project". It should be noted that later tranches will seek to build on activities of development partners to replicate the ASDIP activities in other aimags than those initially targeted – see later in Section B.1.

Uvs, Bayan-Ulgii, and Khovd aimags have fragile eco-systems relying on mountain pastureland, high mountain water flow, and oasis, making population and environment particularly vulnerable to climate change. Observed and projected climate change show an increased incidence of drought and an increased combination of drought in summer and harsh winter conditions with a deeper snow cover, *dzuds*. This means that rangeland and animal husbandry productivity has been declining and that *dzuds* are expected to result in increased losses of animals²⁸. Water resources are undergoing significant changes as permafrost and glaciers are melting, temperatures are increasing, and precipitation patterns change. These trends result in changes in glacier-fed water regimes of the water-dependent and vulnerable rural population and their livelihoods.²⁹ These changes result to (i) lack of water sources that prevent nomadic herders from moving from one pasture to another (which would have allowed rangeland to rest) contributing to pasture degradation; and (ii) change in water flow during peak season leading to higher erosion, riverbed damages, and flood events with increased rate and intensity. The rate of overgrazing is estimated at 27.4% in excess of the carrying capacity, which is 5 points higher than the national average. The climate change vulnerability indices classify Uvs and Khovd as "highly vulnerable" and Bayan-Ulgii as "vulnerable." Considering future changes in temperature, precipitation, and frequency of natural hazards show that all aimags will be categorized as highly and extremely vulnerable during 2046-2065 (see Annex 15 for details).

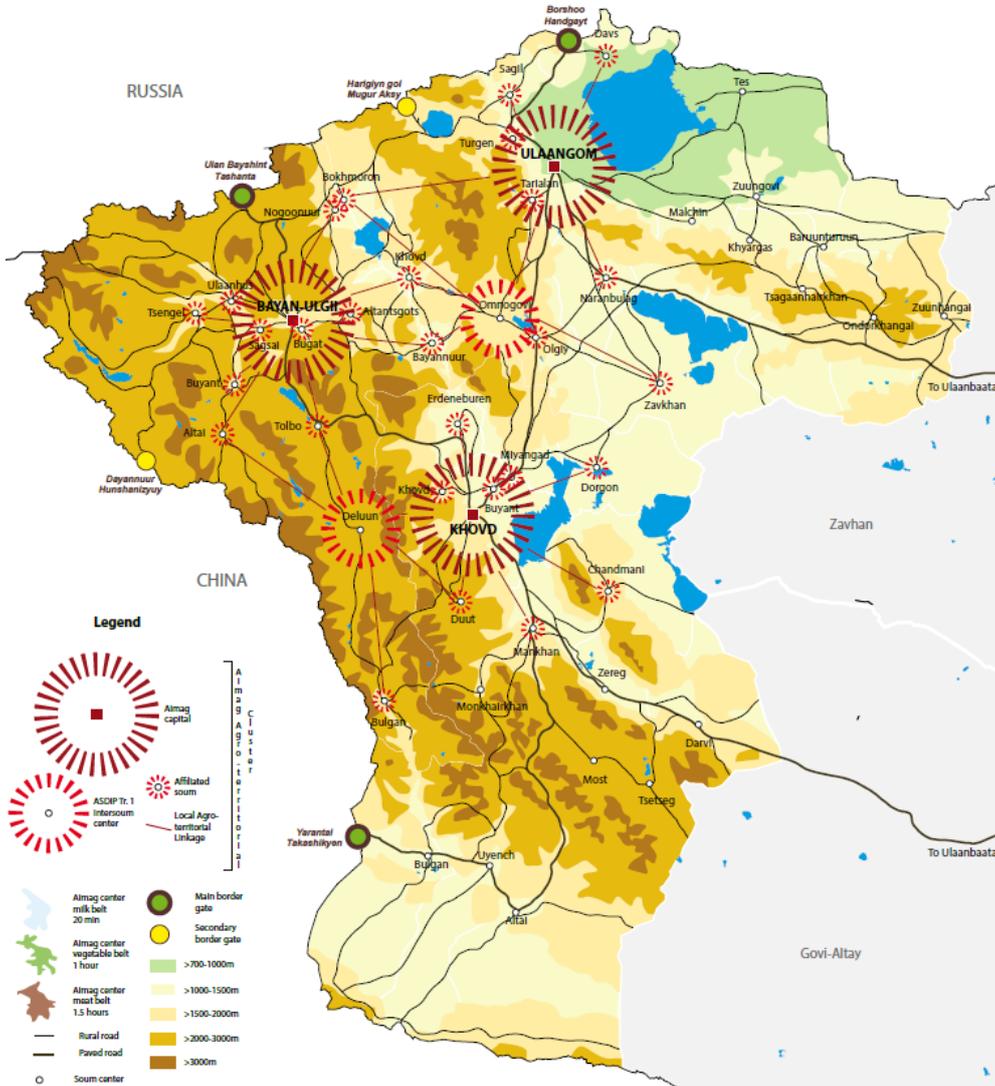
The lack of past investments and support, which especially focused on Aimags in Mongolia's central region, has left the three Western Aimags isolated and under-equipped, despite being of strategic importance as a western development corridor to balance the territorial development of the country. The prominence of their animal husbandry sector in employment structure (in the range of 38%–51%) and the livestock sector's potential, especially with the proximity of Central Asian countries and potential demand for green agri-business exportation. Finally, the three Western Aimags were the first targeted by Green Gold Project in its first phase (2006–2020), implementing advanced herder organization level, using PUG organization, and laying down a fundamental pre-condition for ASDIP to develop its integrated model.

²⁷ As described in a letter from MOFALI dated August 2020, the policy targets is to reduce the livestock number to 51.2 million heads (2019: 70.8 million) equivalent to 74 million sheep head units (2019: 119.0 million) by 2033 to maintain optimal carrying capacity of grazing land, and to reduce livestock sector emissions by 23.4% against baseline by 2030 (draft of the 2nd NDC of Mongolia).

²⁸ Annex 15, Climate Change Assessment, Sections X.E-X.G.

²⁹ The area covered by glaciers in Mongolia was around 535 square kilometer (km²) in 1940, decreasing to 470 km² in 1990, and latest estimates indicate that the glacier area stands at 375.4 km²; signifying that in past 30 years, glacier area in Mongolia decreased by 29.4% (G. Davaa et al).

Map 1. Tranche 1 project locations, ASDIP



Regarding the development of the number of livestock and its composition, the same general picture as before for Mongolia emerges for the aimags targeted in Tranche 1 (Bayan-Ulgii, Uvs, Khovd) and the main candidates for support in Tranches 2 and 3 (Dornod, Sukhbaatar, Govi-Altai, Zavkhan). See Figures 2a to 2g, which covers the Tranche 1 aimags and the main candidate aimags for Tranches 2 and 3.

Figure 2a. Livestock development in Bayan Ulgii, 1970-2018.

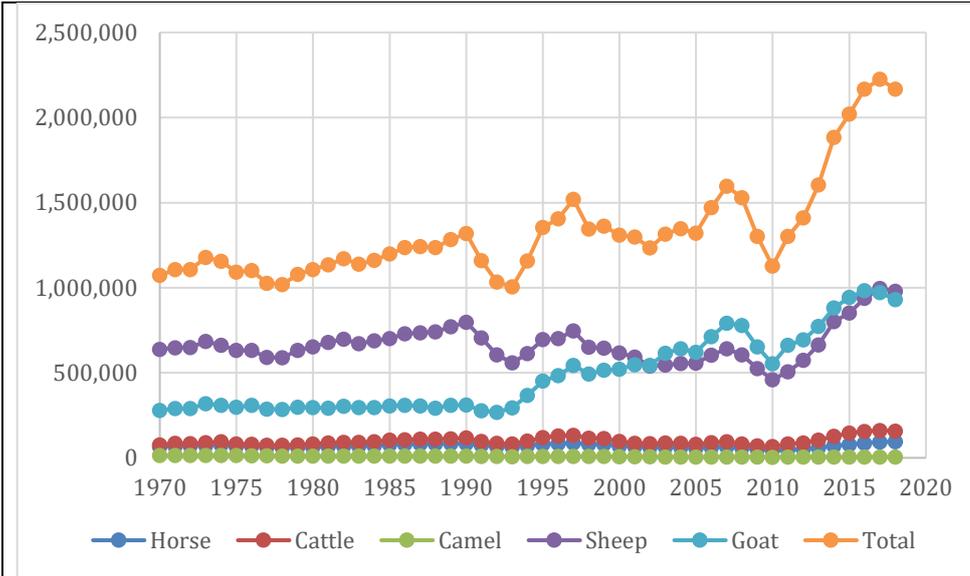


Figure 2b. Livestock development in Khovd, 1970-2018.

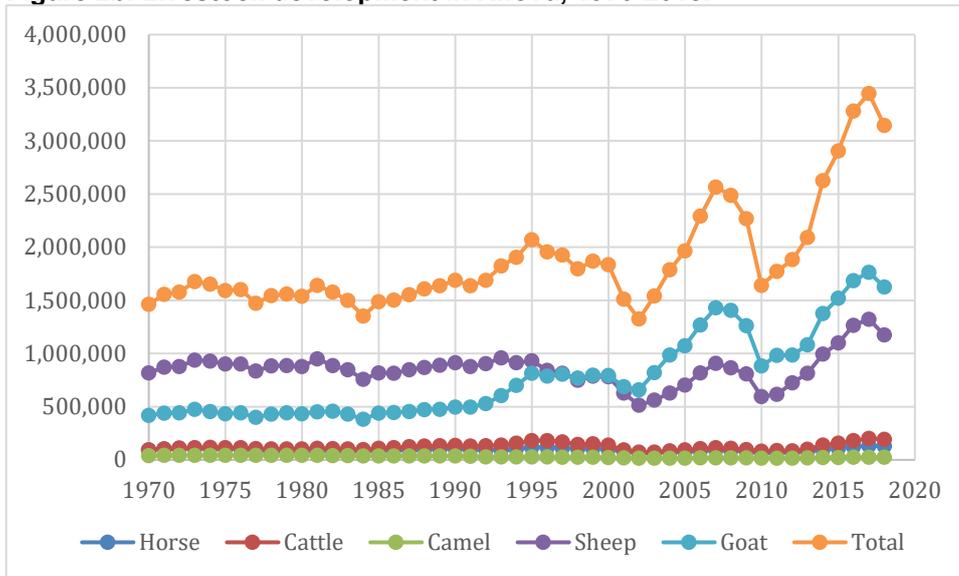


Figure 2c. Livestock development in Uvs, 1970-2018.

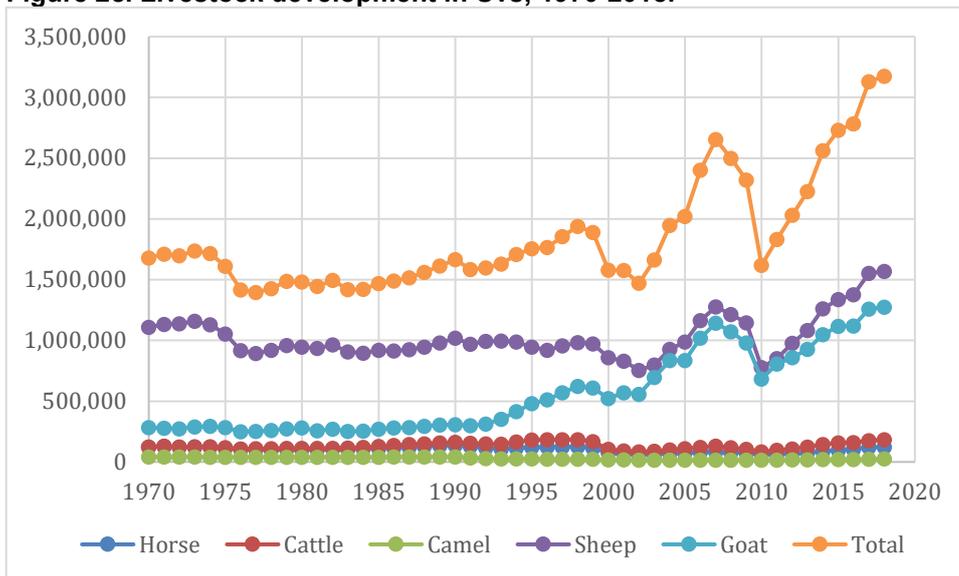


Figure 2d. Livestock development in Dornod, 1970-2018.

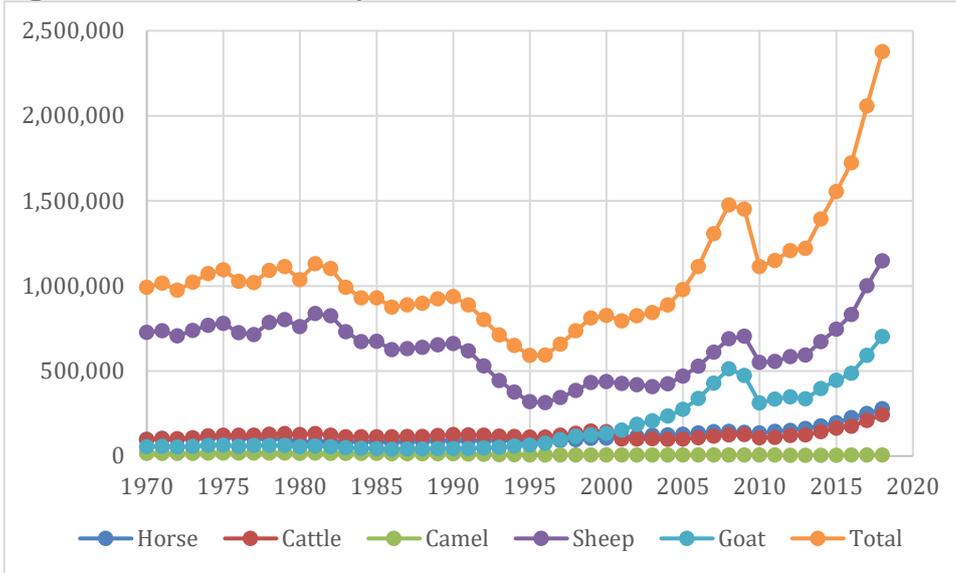


Figure 2e. Livestock development in Govi-Altai, 1970-2018.

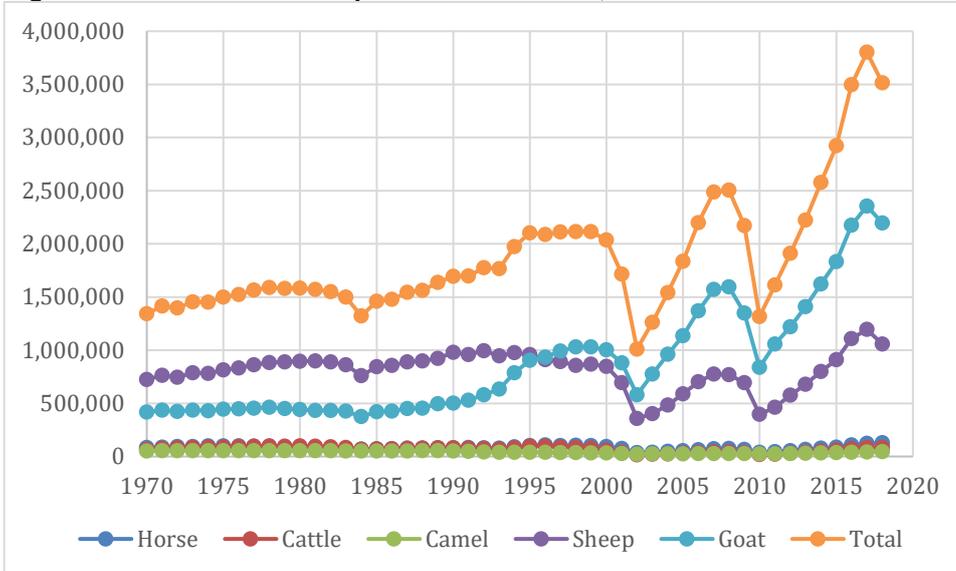


Figure 2f. Livestock development in Zavkhan, 1970-2018.

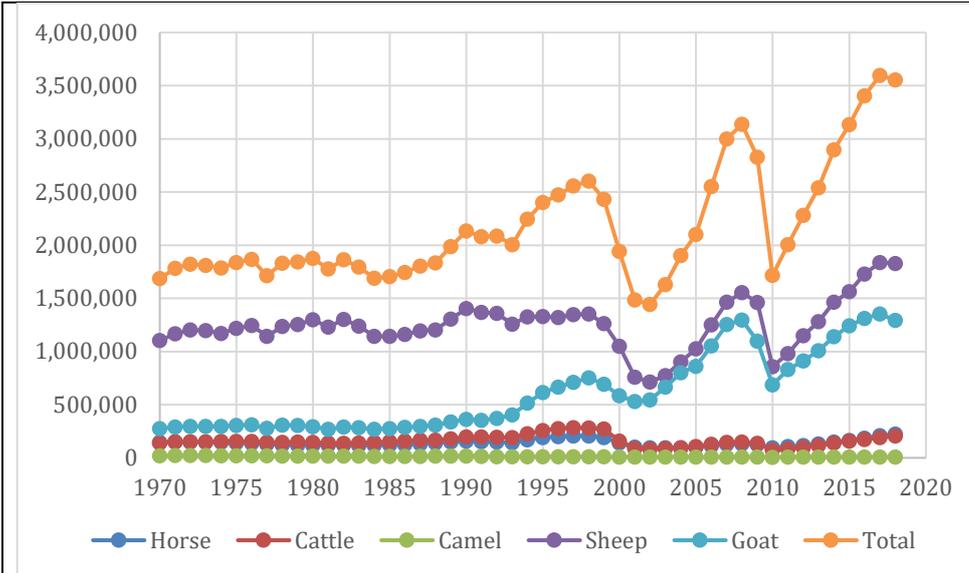
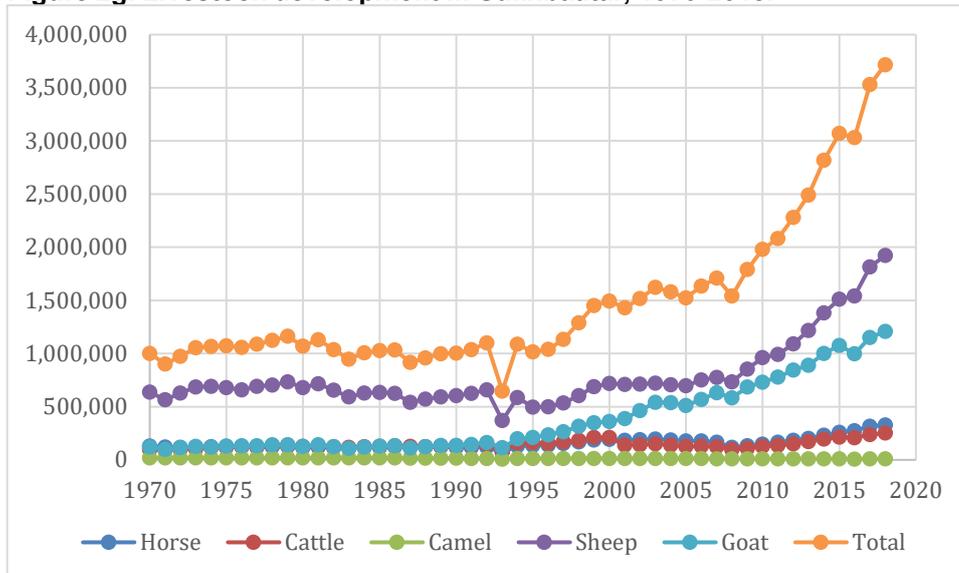


Figure 2g. Livestock development in Sukhbaatar, 1970-2018.



Figures 2a-2g show the gradual increase in the number of animals, which is especially pronounced from 2010 onwards. The figures also show the impacts of the dzud (see below) in reducing the animal numbers in the early 2000s and 2010, especially in the Western aimags (all aimags shown, except Dornod and Sukhbaatar), which are immediately compensated by a significant increase in animals numbers. The last feature of the figures worth pointing out is the decline in animal numbers between 2017 and 2018, which is especially pronounced in Govi-Altai, Khovd, and Bayan-Ulgii. This is mainly the result of a voluntary reduction of reproduction in autumn 2017 due to the lack of rain in summer 2017 (pastures too poor to adequately feed the herds, especially the pregnant females). Following this, the rains of 2018 arrived very late (in August - too late to complete the vegetative cycle of the plants before the first frost of September): as a result, there was increased mortality of young animals in the spring, animals were very weakened before entering the winter, and pastures were poor. Thus, the breeders preferred to slaughter many of their herds to valorize what could still be valorized (meat and skins) at the end of the year. The reduction observed is, therefore, typical of what could be expected under summer drought conditions. It is not a result of a herder's willingness to adjust to the carrying capacity.

Other projects

There are many on-going or planned interventions in Mongolia related to low-carbon, resilient, and sustainable rangeland management and/or to the livestock sector support. Each of these approaches is very

important for the sector or aspects it aims to improve, and a significant pool of lessons learned. They provide examples of best practices based on which ASDIP has been designed.

Important projects that have informed the design of ASDIP are the Green Pasture Program (SDC), the Ecosystem Based Adaptation Approach to Maintaining Water Security in Critical Water Catchments in Mongolia (UNDP), IFAD's Project for Market, the Pasture Management Development or the World Bank's Livestock and Agriculture Marketing Project, the Vegetable Production and Irrigated Agriculture Project (ADB), Improving Adaptive Capacity and Risk Management of Rural communities in Mongolia (UNDP), the Inclusive and Sustainable Vegetable Production and Marketing (SDC), Sustainable Cashmere project and Sustainable Textile Production and Eco-Labeling (AVSF) the Sustainable Textile Production and Eco-Labeling in Mongolia (EU), the Livestock Commercialization Program (World Bank), the proposed Mongolia Green Finance Corporation (Xac Bank)³⁰, Agriculture and Rural Development Project (Additional Financing) (ADB), Supporting the Credit Guarantee System for Economic Diversification and Employment Project (ADB), the Preparing the Climate-Resilient and Sustainable Livestock Development Project (ADB), the Cooperative-Based Sustainable Agriculture Production KSTA (ADB), Southeast Gobi Urban and Border Town Development Projects (ADB), the Improving Weather Forecast System Project (ADB), the Support to employment creation in Mongolia (SECiM), Component 2: Value Chains" (EU funded implemented by FAO and UNIDO), the Upgrading National Environment Monitoring Capacity Project (ADB), the Regional Improvement of Border Services Project and its additional financing (ADB), and the "Green Pasture Pilot" (Mercy Corp and SDC, in partnership with XacBank).

However, most of these projects have focused solely on cooperating with herders on natural resources management or investments into the value chains. Relatively little consideration has been given to the long-term sustainability of herder practices given the constraints posed by natural resources or the importance of organizational change and herders' empowerment to facilitate their productive participation in agribusiness value chains. For example, while the SDC-supported Green Gold project has shown very successful results in herders' organization in PUGs, the signing of Rangeland Use Agreements (RUAs) raising herders' awareness on the necessity of reducing herds' size, much still needs to be done. The lack of incentives for herds' size reduction, limited support for improved market access, the weakness of the cooperatives as an intermediary between herders and processing activities, the absence of traceability and certification system, improved veterinary services, or improved fodder production and low animal productivity does not provide sufficient economic incentives for herders to comply with the relevant provisions of the RUAs to reduce the number of heads. On the other side of the spectrum of interventions is the ADB-financed Agriculture and Rural Development Project (and its additional financing), which focused on support to processing factories and technical training of suppliers but was not successful in reaching the local agri-business capacity and the base of the agri-business value chain. Finally, none of the existing and prior initiatives systematically addressed the need to build the necessary pre-conditions in the aimag and (inter)soum centers for agro-processing facilities (see Section B.2). In general, one of the key contributions of ASDIP is to provide a sustainable, market-based, or quasi market-based footing for the project as opposed to donor-based grant funding, as discussed in Section B.6. However, because of their complementarity with some of ASDIP components, all those parallel initiatives provide an opportunity for synergy and ASDIP replication to maximize climate impact – See Box 1 (In Section B.3, the discussion has been deferred to that section because it requires information about the output structure of ASDIP that only then is introduced), Annex 25, and Section D.2. The gaps of each initiative described above call for a more integrated and comprehensive approach to which they can contribute the long-term in a synergetic manner. ASDIP is developing a model that will capitalize on the important know-how and achievement of the above initiatives and, on the other hand, create the necessary linkages and integrated framework to realize sustainability and maximize climate impact.

³⁰ While targeting different scope of business support, the program intend to work with the proposed Mongolia Green Finance Corporation through a knowledge sharing program to develop and advocate relevant policies to support of sustainable green finance vital to the country's envisioned green development and economic growth. The knowledge sharing for the two programs could cover the preparation of the following: (a) eligibility and selection criteria for PFIs, and (b) lending and onlending guidelines including acceptable collaterals and substitutes, loan-to-value methodologies, risk mitigation, project and borrowers eligibility, and loan terms to be followed by the PFIs.

ASDIP also includes interventions in school, dormitories, and kindergartens in line with the Improving School Dormitory Environment for Primary Students in Western Region (ADB), the Skills for Employment Project (ADB), the Early Childhood Education for Rural, Nomadic and Migrant Children Project (ADB), the Education for All Fast Track Initiative Catalytic Fund Project (World Bank). It also includes improving health facilities with the construction of WASH facilities aligned with the ADB-funded Health Sector Development Program. The proposed ger areas redevelopment within ASDIP builds on ADB and GCF-financed projects that support the Municipality of Ulaanbaatar (MUB) in upgrading and developing green, affordable housing in ger areas are transformed into livable ecodistricts. These projects are piloting models for the redevelopment of the ger areas, an approach which ASDIP has modified to the specific contexts of the aimag centers (i.e., lower land price, lower density, and less chaotic urban layout, involving different constraints and allowing for different types of redevelopment mechanisms other than urban renewal based on land swapping).

B.2. Theory of change (max. 1000 words, approximately 2 pages plus diagram)

The Causes: climate change and unsustainable livestock management

Climate change: Climate change causes a decline in biomass production by rangelands and a decline in livestock productivity. Furthermore, climate change increases the risk of dzuds. It increases the vulnerability of the livestock sector, causing herders to increase herd size as a coping mechanism (See Section B.1 and the Climate Change Assessment).

Number of animals: Since the approval of the National Mongolian Livestock Program in 2010, the Government's objective has been to reduce the overall livestock numbers to keep them at sustainable levels. At that time, the target was to reduce the number of animals from the baseline of 43.3 million in 2008 to 36.5 million in 2021. However, this objective has so far been elusive. The Ministry of Food, Agriculture and Light Industry (MOFALI) estimates that Mongolian rangelands' sustainable carrying capacity is 51.6 million heads (86 million SHU)³¹. However, the current livestock population now stands at over 70 million heads. At its current pace, the livestock number is expected to exceed 100 million by 2025. The water resources and the biomass productivity of the rangelands (provision of feed by the rangelands for the livestock sector) cannot cope with these increasing livestock populations.

Grazing practices and social organization: The lack of collective rangeland management among the herders, the collapse of herding facilities such as water wells (which leads to a concentration of grazing on rangelands around a limited number of water points such as rivers and lakes), and the decrease of hay and fodder production have also been demonstrated to be an important cause of land degradation³². SDC and the Green Gold project have demonstrated that grazing management can lead to vegetation recovery and/or increased forage availability in Mongolia. The social organizations operating during the socialist period (*Negdel*) used to organize pastureland management and notably enforce seasonal movement. An SDC 2017 study³³ also shows the strong links between overgrazing, rangeland disputes (due to higher number of animals and households encamping too close to each other), and selfish behaviors of grazing own animals on other's summer and autumn camp rangeland, which makes it difficult for the latter to pass winter.

Herds composition: The impact of goats on rangeland degradation has been significantly higher than other animals. Goats have more destructive grazing as they pull out plants completely, including the roots, which destroys grassland more than the biomass intake on its own would indicate. NSO data (1970-2018) shows that the share of goats in herds is stable over the 1970-1990 period. The number and proportion of goats started to increase from the 1990s, with strong increases in the 2000s, especially after the 2009-2010 dzud incidence, with goats exceeding sheep in number. Currently, the proportion of goat is 41.2%, and the ratio between sheep and goat is 52:48, while a previous equilibrium was observed during the socialist period with a 70:30 ratio".

³¹ National data based on MOFALI National Livestock Program, 2017 and on NSO, 2017. Western region data based on MOFALI soum-level datasets provided by MOFALI.

³² See "[Green Gold](#)" Project, Swiss Development Corporation (SDC).

³³ Source: Socioeconomic baseline study of herder households, SDC, 2017.

The Reasons

In 1990, with the disengagement from the Soviet Union, Mongolia entered a transitional period. Many people lost their jobs, as state enterprises were shut down or privatized, and the centralized administration system withdrew. State cooperatives, processing facilities, and services to the rural economy were dilapidated or abandoned. Because the urban economy could not generate jobs to compensate for employment losses, many households with little experience in livestock management went back to herding activity as most livestock were privatized. In contrast, others migrated to Ulaanbaatar in search of livelihood opportunities.³⁴

With the collapse of their economic, processing, productive functions, and the dismantling of cooperatives, *aimag* and *soum* centers could not play their role as anchors of economic activities and in attracting quality processing facilities as an outlet of herders' raw material production. The livestock value chains deteriorated due to unhealthy and low-quality livestock raw material and relying on quantity with low price differentiation and incentives for quality. Responding to the livestock's low value, higher exposure to diseases due to poor veterinary services, and the massive loss of livestock after *dzud* herders started to migrate massively to urban areas, particularly to the capital city, in search of livelihood opportunities.³⁵ Households migrated and settled in Ulaanbaatar's outskirts and aimag centers, overwhelming the capacity of cities to absorb them and form vast unplanned substandard areas, named ger areas, which represent about 60% of Ulaanbaatar population and more than 70% of aimag centers' population.³⁶

Since 2000, the large waves of migration, especially to Ulaanbaatar, resulted in an urbanization ratio of about 70% of the country's 3.2 million population in 2019, while the average urbanization ratio in Asia is 50%. With a 1.4 million population, Ulaanbaatar accounts for almost half of the country's population, 66% of the urban population, and 63% of the gross domestic product. The capital city's demographic and economic weight illustrates the drastic urban and territorial imbalance in the country's.³⁷ It shows the overcentralized political, economic, cultural, and social activities in Ulaanbaatar City and demonstrates the urgent need to implement a policy to develop secondary cities. Rural-urban migration also increased the pressure on urban systems, which have exceeded their planned service life or deteriorated, becoming inefficient and undersized to meet present needs and anticipated future growth. See also Insert 3.

Insert 3. The decline of Mongolia aimag and soum centers

Looking at population changes and migrations, the first characteristic of the aimags and soums is the decline of its administrative centers (we talk here mostly about aimag centers, because soum centers are very small, on average about 2,000 inhabitants). The figure below shows the actual aggregated population of the three targeted aimag centers in Tranche 1 (Uvs, Bayan Ulgii, and Khovd) between 1990 and 2018 (blue line) and the projected population during the same period taking the national population growth rate for each year (red line) used as a proxy for natural

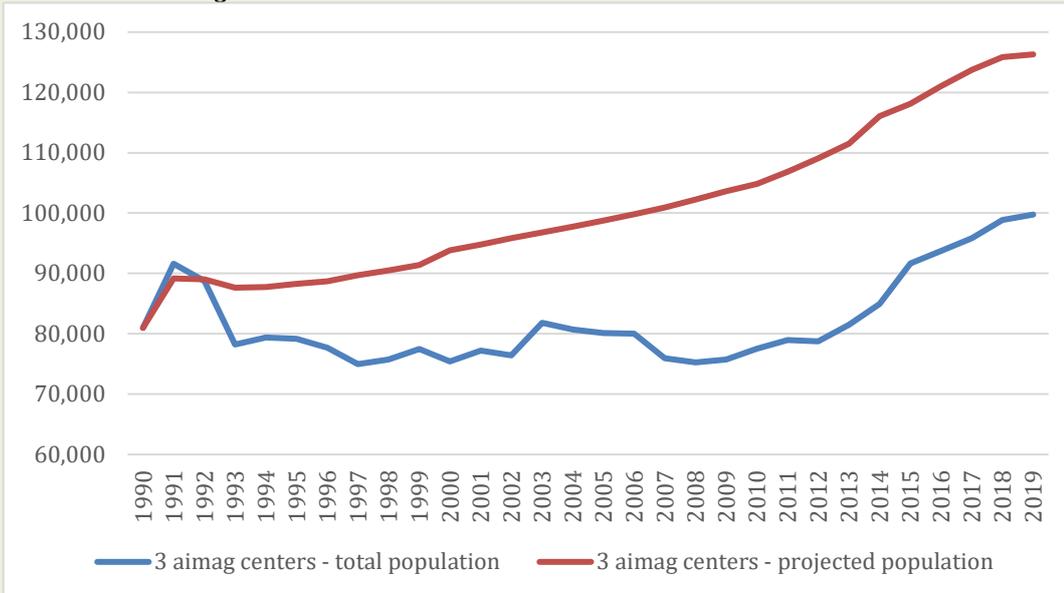
³⁴ Nomadic livestock production persisted as a safety net for food security and livelihood for the majority of Mongolian families. Their livelihood is directly dependent on rangeland-based livestock herding. As a result, the number of herder households more than doubled in 5 years from 74,000 in 1990 to 169,000 in 1995.

³⁵ The large amounts of livestock that perished in past *dzud* events demonstrate herders' vulnerability and the extent to which a harsh winter following a summer drought can devastate national livestock assets. During the *dzuds* in 1999–2001, 25% of the national livestock perished. Between 1999 and 2003, an estimated 180,000 people migrated to Ulaanbaatar having lost their livelihood to the severe winter conditions. In 2010, an estimated 75,000 households lost half or more of their herd, of which 12,000 households lost their entire herd.

³⁶ *Ger* are characterized by low- and middle-income households living in loosely aligned plots, with irregular and unpaved pathways, unserved detached solid houses and *gers*, poorly insulated, using inefficient coal stoves that generate large amounts of carbon dioxide emissions and air pollution, especially during winter.³⁶ Poor sanitation, with most households relying on open pit latrines, coupled with poor solid waste collection create unsanitary living conditions. Residents have limited access to water (supplied via water kiosks), and access to public space and social facilities, commercial areas, and economic amenities is lacking. This situation (i) generates high level of air pollution severely affecting residents' health; (ii) makes *ger* areas highly vulnerable to climate change driven events such as flood, and intensifies their carbon emissions; (iii) inhibits both economic integration and urban redevelopment processes; (iv) generates high levels of unemployment and poverty and poor access to quality education; and (v) affects primarily the vulnerable groups—mostly women, children, elderly, and disadvantaged persons.

³⁷ Except for the cities of Darkhan and Erdenet (each with around 80,000 people), most of the *aimag* capitals have a population below 30,000.

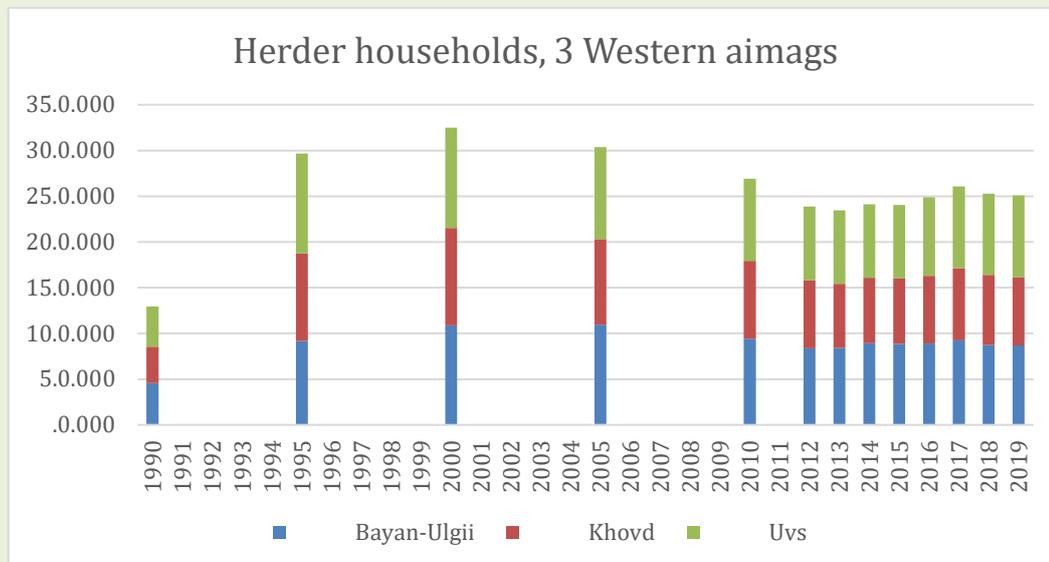
growth rate. The difference is an estimate of the net migration, which reaches about 26,544 people over the period for the three aimag centers.



Source: NSO

This trend is closely linked to the deterioration of urban infrastructures and services after the Soviet era, as well as the collapse of the rural economy associated services and infrastructures located in these administrative centers, such as veterinary services, fodder plants, and processing industries (meat factories). In terms of population flux, in revitalizing aimag and soum centers, the first objective is to maintain these centers' current population, avoid migration to Ulaanbaatar, and eventually attract some people originally from these areas have left over the past decade or go to study elsewhere.

Moreover, if we look at the rural population, the number of herder households in our three western aimags is relatively stabilized over the past ten years, around 25,000 herder households in total, as shown on the figure below:



Source: NSO

Revitalizing aimag and soum centers is not expected to initiate additional rural-urban migration and reduce the number of herder households for several reasons: (i) current rural-urban migration is mostly from aimag and soum centers to Ulaanbaatar; (ii) new jobs created in these aimag and soum centers require skills and knowledge that herder households do not have; (iii) revitalizing aimag and soum centers will be the basis for the development of the rural economy and will create new economic opportunities for herder households.

The shortcomings of aimag and soum centers are of paramount importance within the current situation because they cannot deliver their potential function as urban centers servicing the rural economy and, therefore, cause increased vulnerability for the herders. They lack basic infrastructure and services to support rural-urban linkages and markets, hindering LCLVC investments. They also do not have adequate facilities and logistics to effectively link and support the livestock herders with the necessary post-production, processing, distribution, and marketing activities to diversify the livestock value chain. Moreover, their high level of pollution and vulnerability to flooding and the absence of social and community facilities make them poorly livable and unattractive to employees and workers in the low-carbon, climate-resilient livestock value chains. For all these reasons, aimag and soum centers largely fail to attract value chain investments and thus fail to optimize animal raw material utilization.

The key lever: Reducing animal numbers

To address the twin problem of climate change mitigation and adaptation in the livestock sector, reducing the animal numbers is key. Climate change causes the resources available for the livestock sector to diminish, as water availability decreases, rangeland availability decreases (desertification), and rangeland's productivity (as measured by the production of edible biomass) decreases. Coping with these climate change impacts primarily hinges on reducing the number of animals while increasing the ratio of output to the herd. This limits the amount of (water, biomass from rangelands) resources needed to produce a given output and hence makes better use of the diminishing resources, which is important to provide food security to Mongolia's population. Of course, this is not the only measure to deal with climate change – increasing water resources, water efficiency measures, breeds that are more resistant to droughts, more sustainable grazing practices, and improved feed availability in winter through fodder production each have their role to play as well. These also impact reducing the sector's vulnerability to climate change, limiting the herds' increase as a coping measure mentioned above.

Mitigation also hinges on the animal numbers. Overgrazing due to ever-increasing herd sizes reduces the amount of carbon stored in grassland sinks and increases GHG emissions from CH₄ and N₂O. A reduction in the number of animals combined with an increase in the output per animal will, with a constant output, reduce direct GHG emissions from N₂O and CH₄ and, through the reduction of overgrazing, improve carbon sequestration in rangelands.

The main idea is that energy in the form of biomass is required for the herd and is converted into N₂O and CH₄ emissions upon digestions, while if the amount of biomass consumed exceeds the carrying capacity, carbon sinks will decline. Energy is required to maintain the animals and produce livestock outputs (meat stored in the animal, wool, dairy, etc.). From a production perspective, the energy needed to maintain the animal is "overhead." Therefore, an increase of the output to herd ratio will reduce the GHG emissions per unit of output and increase carbon sinks in the rangelands while maintaining the same output level³⁸.

Insert 4. Additional ASDIP interventions to reduce the livestock sector's climate change vulnerability

The main factors explaining aggravation of damages by dzud are (i) over pasture and rangeland degradation, (ii) collapse of the fodder storage and distribution system undertaken by *negdel* and of facilities such as winter shelters, water wells, storage facilities, (iii) degraded livestock health conditions.

Several components of the project have a direct objective to improve livestock resilience and productivity:

- Community-based investment at the PUG level: (i) development of protected hay fields to produce hay to feed the animals in winter and to prepare for extreme climate events when grazing becomes impossible (*dzuds*) – winter animal feeding is key to improve resilience to dzuds through winter preparedness ; (ii) winter shelters will protect the livestock from harsh climate events, and improve resilience to dzud occurrence; (iii) development of water wells, small bridge/river/stream crossing and earth road repair that will open up to new rangeland areas (today concentrated around natural water points such as rivers), and improve animal and human living conditions, and

³⁸ For an elaboration of these ideas, see for example Wilkes, A. and N. Batjargal (2015), *Mainstreaming Climate Technology in Mongolia: Report for the Agriculture sector*. Report prepared under TA-8109, Integration of Climate Technology Financing Needs into National Development Strategies, Plans, and Investment Priorities.

livestock productivity; (iv) storage facilities for wool and hay, and animal combing and shaving equipment/facilities will ease herders' work and improve animal productivity.

- Development of veterinary services through the community-based animal health workers and the development of laboratories and provision of breeding services will improve animal health, resilience to disease outbreaks, and improve animal productivity with better breeds.
- Development of large irrigated perimeters to produce fodder will complement local small hay production at the herder level to address the issue of winter feeding, improve resilience to dzuds, and animal productivity thanks to a better diet.
- Implementation of ecosystem-based water conservancy and harvesting solutions to collect and accumulate glacier melt water, spring snow melt water, and heavy summer rain and floodwater. Water will be collected in river bed associated ponds and partially distributed to restore ancient irrigation systems, stabilize water resources, and reverse the current trend of rapid degradation of rich mountain pastures for livestock and provide the basis for the production of fodder.

The intervention: Theory of Change

Achieving the huge potentials for increased climate resilience and enhanced carbon sequestration in rangelands and reduced emissions in the livestock sector requires reducing the number of livestock, combined with a change in herd composition and grazing practices (and also increasing the availability of fodder, and increasing water availability). The challenge is how to achieve this. The Mongolian government has been trying to reduce the number of livestock for decades, without success. However, it lacks the funding to pay incentives to reduce the number of animals, while herders will not decrease their herd sizes on their initiative because this is perceived to reduce income³⁹. The ASDIP approach to these challenges is transformational – achieve a large reduction in animal numbers while increasing the output and value-added per animal in the herd through targeted investments in low-carbon agribusinesses and low-carbon climate-resilient livestock value chains (LCLVCs) benefiting herders that reduce their herd sizes. To further support the transformation, ASDIP must provide targeted incentives and targeted sustainable alternative income sources for participating herders. As further elaborated below, the LCLVC investments are important to increase the output and value-added to herd size ratio. The pre-conditions for these LCLVC investments are investments in the infrastructure and urban services of Mongolia's aimag and soum centers.

Insert 5. Increased food production and security while fighting against climate change

Food security issues in Mongolia are largely related to animal losses due to disease outbreaks and poor health conditions and losses in the occurrence of extreme weather events (dzud) and low winter preparedness. The climate-related challenges are further exacerbated by low livelihood diversification, meaning that livestock losses will lead the households to become destitute and food insecure. Poor households with very low animal numbers are particularly vulnerable.

In terms of food security, another issue in Mongolia relates to dietary diversity (i.e., the number of food groups consumed). Herder households generally eat enough calories from their wheat, meat, and milk-based diet, but its poor diversity means micronutrient deficiencies are common. In particular, access to vegetables is low, as local production is limited. The project includes support to vegetable growing, which will support agribusiness diversification, adaptation to climate change, and improve food security.

An approach based on quality reduces risks of livestock losses and thus improves the stability of production and stability of food access (as one pillar to food security).

Through these measures, ASDIP will transform the livestock sector in Mongolia, break with the trend of ever-increasing animal numbers (since 1990), and instead reduce the number of animals, reduce CH₄ and N₂O

³⁹ The often-made assumption is that the ratio between outputs and number of animals is constant, and in that case, reducing the number of animals will reduce outputs and income. However, for several reasons, the simplifying assumption is not true. For example, management decisions (breeds selection, health investments, offtake decisions, additional feed supply) affect the ratio between output and the herd size. Also, reducing animal numbers allows for a regrowth of the rangelands, which together with selective grazing by the animals (selecting the more palatable plant species) leads to more food and higher productivity per animal. These factors make it possible that a reduction in number of animals is partially or completely offset, after a period of adjustment, through increases in output per animal.

emissions, and increase carbon sequestration. By reducing the number of animals and increasing productivity, total resource use will be diminished, and the sector will be able to cope with the increased scarcity of resources (biomass from rangelands, water) caused by climate change. The improved resource efficiency also means that food security (see Insert 5), an important adaptation goal, will be maintained or improved, despite the adverse impacts of climate change. While achieving these important adaptation and mitigation goals, herder incomes will be maintained. The following diagram illustrates the approach⁴⁰.

Diagram 1. Theory of Change Summary.

Problem Statement	The development of the livestock sector is unsustainable, not supported by a strong and diversified value chain and urban infrastructure and services, leading to reduced productivity and high vulnerability to extreme weather events and natural disasters, exacerbated by climate change. Climate change causes a decline in water availability and rangeland productivity and availability resulting in a steady decrease in carrying capacity. Animal numbers are currently far in excess of rangeland carrying capacity and continue to increase due to herder's low resiliency to climate change, causing increasing GHG emissions and the reduction of grassland carbon sinks. Doing nothing will have long-lasting, adverse consequences for Mongolia: (i) severe rangeland degradation; (ii) productivity decline of the livestock sector, which is key to the economy of Mongolia, and the targeted aimags, in particular in terms of employment and income opportunities for vulnerable population groups; (iii) increase in poverty incidence and social conflicts; and (iv) decrease in food production and security.			
Goal	ASDIP promotes a paradigm shift in the low-carbon and climate-resilient rangeland management and urban-rural linkages in Mongolia by promoting innovative practices, delivering urban and rural climate-resilience and large scale GHG mitigation with significant replication potential in Mongolia and North and Central Asia. <i>Indicators: 552,300 direct beneficiaries with improved resilience (17.1% of the country population) 115.7 million tCO_{2e} in GHG emission reductions, of which 94 million from carbon sequestered in the soil, 17.3 million tCO_{2e} emission reductions from avoided methane and nitrous oxide emissions, and 4.4 million tCO_{2e} through GHG mitigation in urban areas. Sustainable low-carbon and climate-resilient management of an estimated 28.8 million hectares of rangeland</i>			
Goal TOC Statement	IF ASDIP: (i) Creates the necessary low-carbon and climate-resilient infrastructure and improved living conditions at the aimags and soums centers ⁴¹ to attract Low-carbon and Climate-resilient Livestock Value Chain (LCLVC) investments and create improved markets through enhanced livestock producer links with processing, distribution and marketing; (ii) Provides herders with incentives and institutional and management structures for low-carbon and climate-resilient rangeland management to reduce animal numbers, prevent rangeland degradation, restore rangeland carbon sinks and manage herds and their food outputs within the dwindling water and rangeland biomass resources; (iii) Provides financing for LCLVC investments that provide herders and SMEs with the means to increase herd productivity and value added per animal and access to long-term alternative income sources enabling the reduction in animal numbers and GHG emissions and increase in climate resilience, and food production and security in the face of climate change and (iv) Builds institutional capacity of sector stakeholders to formulate, implement and enforce transformational low-carbon and climate-resilient development policies and plans for the livestock sector, disseminate knowledge about the ASDIP sustainable rangeland management approach to herders and other public and private stakeholders inside and outside the targeted aimags, and strengthen M&E and MRV capacity. THEN it will result in massive GHG mitigation in Mongolia exceeding 100 million tCO_{2e}, will directly improve the climate-resilience of more than 350,000 people, AND replication will occur within Mongolia and in other Asian countries. BECAUSE herders will reduce their animal numbers, the rangelands will be restored, AND a replicable model covering policies, plans, and enforcement systems for climate change mitigation and adaptation in the rangelands of the main ecosystems of North and Central Asia will be established and proven.			
Outcomes	Necessary low-carbon and climate-resilient infrastructure and living conditions in the aimags and soums centers for improved rural-urban market linkages and LCLVC investments created.	Herders provided with incentives and institutional and management structures for climate-resilient and low-carbon and climate-resilient rangeland management. <i>Indicator: 28.8 mln hectares of rangeland under improved and effective management</i>	Climate adaptation and mitigation finance for LCLVC investments provided, and access to climate finance by herders and SMEs improved. <i>Indicator: \$120.92 million of LCLVC investments made through blended finance,</i>	Institutional capacity of sector stakeholders to formulate, implement and enforce transformational low-carbon and climate-resilient development policies and plans for the livestock sector developed; knowledge sharing and information dissemination and MRV

⁴⁰ For additional background, see the Climate Change Assessment, Section 3, Subsection C,

⁴¹ "aimag and soum centers" refers to aimag and soum urban centers as well as intersoum centers. Aimag centers are aimag (province) capital with a population between 15,000 to 30,000 inhabitants. Soum and inter-soum centers are the main city of secondary administrative units under aimag, the number of inhabitants ranging from 2,000 to 10,000 inhabitants.

	<p><i>Indicators: 10.21 MW of low-emission electrical power capacity installed; 90 MW_{thermal} of low-emission heating capacity installed.</i></p> <p><i>552,300 males and females reached by climate risk reduction investments</i></p>	<p><i>that contributes to climate-resilience, enhanced carbon sinks, and reduced livestock GHG emissions</i></p> <p><i>Use by 54,000 herder households of ASDIP-supported rangeland management strategies and activities to respond to climate change and variability</i></p>	<p><i>which include private sector contributions</i></p>	<p>systems and the Partnership for Low-Carbon and Climate-Resilient Rangeland Management in Asia built.</p> <p><i>Indicators: Number of policies and action plans approved; Knowledge sharing and MRV systems developed and made operational, and the Partnership for Low-Carbon and Climate-Resilient Rangeland Management in Asia established and made active.</i></p>
Outcomes TOC	<p>Low-carbon and climate-resilient infrastructure and living conditions in the aimag and soums centers created to anchor LCLVC investments and more effective rural-urban linkages.</p> <p>IF financing and design support are made available for low-carbon and climate-resilient infrastructure and urban services, THEN aimags and soums centers will play their role in supporting the low-carbon and climate-resilient economy by providing the necessary conditions for LCLVC investments and more efficient rural-urban linkages BECAUSE investments in low-carbon and climate-resilient infrastructure and urban services will be made.</p>	<p>Transformational low-carbon and climate-resilient rangeland incentives and institutional structures and practices introduced and implemented.</p> <p>IF incentives and institutional and management structures for reducing animal numbers, improving grazing practices, and more climate-resilient rangeland management practices are introduced based on traditional herder's organization, THEN management of rangelands will be transformed, the rangelands' deterioration will be reversed, and carbon sinks increased, herders' livelihood improved, and livestock GHG emission reduced, BECAUSE herders will have the incentives and institutional and management structures and practices to reduce their herd size.</p>	<p>Financing for LCLVC investments to sustain low-carbon and climate-resilient rangeland management increased and made accessible to herders and SMEs.</p> <p>IF financing mechanisms are created, and access by herders and SMEs are strengthened to support LCLVC investment, AND strict eligibility and selection criteria are used, THEN low-carbon and climate-resilient rangeland management will become sustainable BECAUSE the LCLVC investments will provide herders with the inputs and enable their partnerships with SMEs, which will guarantee their long-term income from alternative sources to support the permanent reduction in animal numbers, sustainable and climate-resilient management of natural resources, and low-carbon and climate-resilient rangeland management.</p>	<p>Livestock sector capacity for low-carbon, climate-resilient policy, and plan formulation and implementation developed.</p> <p>IF the capacity is improved for the preparation of low-carbon, climate-resilient policies and plans for sustainable livestock development, knowledge and lessons learned are distilled and fed into policy dialogues especially on the successor of the NMLP, MRV systems become fully operational, and the Partnership for Low-Carbon and Climate-Resilient Rangeland Management in Asia is established, THEN transformative replication of ASDIP in Mongolia and other countries will occur BECAUSE low-carbon and climate-resilient rangeland policies, practices and plans will be mainstreamed and utilized for the implementation of the national Mongolian livestock plan AND international funding and support will be mobilized.</p>
Outputs	Climate-resilient, low-carbon, and attractive aimag and soum centers developed	Rangelands managed for climate-resilience, high carbon sequestration, and sustainable herding	Low-carbon and climate-resilient livestock value chains created and strengthened through accessible finance	Capacity and policy reforms for low-carbon and climate-resilient agro-territorial development improved
Activities	<ol style="list-style-type: none"> 1. Low-carbon and climate-resilient infrastructure and services upgrade in aimag centers 2. Low-carbon and climate-resilient infrastructure and services upgrade in intersoum centers 3. Implementation of smart land management system 	<ol style="list-style-type: none"> 1. Implementation of community-based low-carbon and climate-resilient investments 2. Support to low-carbon and climate-resilient pasture user groups and cooperatives 3. Implementation of water efficient irrigation systems for fodder production 4. Improvement of animal health 	<ol style="list-style-type: none"> 1. Provision of accessible low-carbon and climate-resilient agribusiness loans and credit guarantees to herders cooperatives and SMEs 2. Provision of innovation grants for low-carbon and climate-resilient livestock value chains to qualified herders and SMEs 	<ol style="list-style-type: none"> 1. Support for Project management and implementation 2. Support for low-carbon and climate-resilient rangeland management 3. Improvement of the capacity for low-carbon and climate-resilient agribusiness finance 4. Implementation of M&E and MRV system

				5. Enhancement of the capacity for policy formulation, implementation and enforcement.
Inputs	Concessional and regular loans for climate-resilient infrastructure and urban services investment Concessional loans and grant support for renewable energy and energy efficiency investment	Concessional loans and grants to support implementation of low-carbon and climate-resilient rangeland management	Concessional loans and grants as well as private sector contributions facilitated through guarantees to support the development of LCLVCs and incentivize low-carbon and climate-resilient rangeland management	Concessional loan and grants for program implementation support, technical expertise and communities of practice replication and knowledge partnerships, policy and regulatory reforms including advocacy and enforcement, and training and information and educational campaigns
Risks & Barriers	<p>Lack of finance to address the following constraints:</p> <ul style="list-style-type: none"> • Lack of adequate urban infrastructure and services in the aimags and soums centers to support rural-urban linkages and markets hindering LCLVC investments • Lack of livability in the aimags and soums deterring LCLVC investments • Lack of low-carbon, climate-resilient economic services and agropark facilities to attract green agribusiness investments in aimags and soums centers more proximate to the rural communities and pasturelands 	<ul style="list-style-type: none"> • Inadequate incentives for the communities to restore rangeland carbon sinks • Herders vulnerability to weather and other shocks • Lack of fodder supply • Lack of institutional structures for herders • Poor animal health and veterinary services • Limited livelihood and income-generating options for herders • Resistance against behavioral change 	<ul style="list-style-type: none"> • Inadequate and inaccessible finance for green livestock value chains as evidenced by: <ul style="list-style-type: none"> ○ High-interest rates ○ Short loan terms ○ Restrictive collateral requirements ○ Other rigid financing requirements • High actual and perceived risks in agriculture lending • Experience of low margins and profitability by the financiers 	<ul style="list-style-type: none"> • Lack of ability to formulate integrated low-carbon, climate-resilient agribusiness development plans • Lack of awareness/ability to engage with the wider set of stakeholders groups, including the non-ASDIP participants • Fragmented approaches among the sector stakeholder groups • Poor and overlapping policies • Uncoordinated management and overlapping, unclear functions of institutions involved • Lack of policy enforcement and management systems including MRV
Key Assumptions	<ul style="list-style-type: none"> - Continued interest of the Mongolian central government and local governments in addressing climate change adaptation and mitigation and improving low-carbon and sustainable management of rangelands. - Continued interest of the international community in addressing climate change adaptation and mitigation and supporting developing countries such as Mongolia in these efforts. - Interest in other Asian countries to replicate successful models for low-carbon and climate-resilient rangeland management. - Continued national and international demand for green livestock products. - No major adverse international price shocks affecting income from livestock products. - Leakage emissions are negligible (argument and monitoring procedure included in Section D.3 and the Climate Change Assessment, Section VIII) 			

The goal of ASDIP is to achieve a transformational change in Mongolian animal husbandry and rangeland management, to achieve a leap in the low-carbon and climate-resilient development of the sector, achieve mitigation of over 100 million tCO₂e, protect 28.8 million hectares of rangeland ecosystems, and maintain food security in the face of climate change. Achieving these goals, which is fully in line with the Mongolian policies for the sector and climate change, primarily requires the creation of (1) incentives for Mongolian herders to make the change to smaller herd sizes and (2) a sustainable source of income if they make this change, to compensate for a possible loss of income from reducing herd size. For ease of reference, herders that make the switch to reduce herd sizes and embrace improved sustainable and low-carbon, and climate-resilient rangeland management are called participating herders.

The sustainable sources of income to compensate for reducing the number of animals comprise (1) increasing output and value-added per animal in the herd of participating herders, which can be among

others be achieved through improvements in breeds, feed, access to water, health, and herd management (e.g., earlier offtake)⁴², (2) improved processing (reducing losses and hence increasing the value-added in the value chain per animal and unit of raw output) and higher selling opportunities,⁴³ and (3) increasing the share of the value-added in the value chain that participating herders obtain. As elaborated in the Climate Change Assessment (Annex 15), the first two of these lower the number of animals needed to achieve a certain amount of output, and therefore have direct adaptation and mitigation impacts. Moreover, better processing in the agro-processing facilities is achieved by using low-carbon technologies (embracing energy-efficient and renewable energy technologies where possible, using a higher fraction of the animal raw materials, and using clean and low-carbon processes to manage waste and wastewater).

The above approach targets⁴⁴ herders who have committed to reducing the number of animals and improving rangeland management, including the management and, where necessary, creation of water resources. It requires specific investments in the Low-carbon Climate-resilient Livestock Value Chain (LCLVC)⁴⁵ at the point of need, to provide the inputs herders need to increase the output and value-added per animal in the herd (point (1) above) and to reduce wastage (among others by relocating agro-processing facilities to the point of need reducing wastage during transport, and by improving the production processes so that less potential product is wasted). Moreover, a requirement of the new agro-processing facilities to be created within the project is that they share ownership or profits with participating herders represented in cooperatives (see Section B.3 and Box 5 in particular).

Several conditions need to be met before this approach can be implemented.

1. Agro-processing facilities require urban infrastructure to provide them with required utilities (water supply, wastewater treatment, waste treatment, electrical power, heat supply, transport). Moreover, the small cities in the targeted aimags (in size ranging from 2,000 to 30,000 inhabitants) need to attract professionals to support services to herders. Output 1 creates the necessary urban infrastructure for agro-processing and the creation of the conditions to restore their key function in the rural economy, where possible through investments in low-carbon and/or climate-resilient infrastructure (e.g., solar panels, insulation, efficient heating supply, low-carbon waste treatment, water supply, wastewater treatment, climate-proofed roads), partially inside agro-parks and partially inside aimag and soum centers⁴⁶. To some extent, this means revitalizing the aimag and soum centers because, before 1991, the functions and infrastructure in aimag and soum centers were maintained through large transfer payments, which broke down after 1991. Output 1 addresses the infrastructure deficit resulting from the end of the transfer payments, however using low-carbon and climate-resilient technologies instead of the inefficient technologies from the communist era. The main barrier that needs to be overcome is the lack of finance resulting from constraint government finances, which is resolved by making finance available at affordable terms.

Insert 6. Urban infrastructure and climate change resilience in ASDIP

⁴² See the Climate Change Assessment, Annex 15 to this Funding Proposal.

⁴³ This is one of the ways to increase value added per animal in compensation of a reduction of the number of animals. See also footnote 50.

⁴⁴ Targeting is important. If herders' income would be increased no matter the contribution to mitigation, the results would be counterproductive as herders would have the incentive to further increase the number of animals if the income per animal would increase. Annex 26, *Selected appendices in response to iTAP comments* is an annex that puts together several appendices that were prepared by the AE in response to iTAP comments on an earlier submission of ASDIP. It discusses in Appendix 2, *Low-Carbon Rangeland Management* how herders are supported and how it is ensured that these efforts are well targeted to only benefit those herders that have reduced and maintain lower animal numbers.

⁴⁵ LCLVC means that the full range of herders, herder groups, cooperatives and firms and their successive coordinated value-adding activities that transform raw livestock derived materials into food, beverage, fiber, animal skin and leather products that are sold to final consumers and disposed after use, in a manner that is profitable throughout the chain, promote rangeland regenerative practices, respects constraints imposed by available and shrinking water resources, reduces GHG emissions, and increases soil carbon sequestration. To the extent possible, this will be combined with social and environmental benefits, although this is not formally part of the low-carbon, climate-resilient value chain. ASDIP not only considers the core value chain (production, aggregation, processing, distribution and consumption), but also considers the extended value chain (provision of inputs, services and finance).

⁴⁶ For each of the outputs, see also the more detailed description in the next section and the references included therein.

Aimags and (inter)soum centers need to have sufficient infrastructure to fulfill their role in the LCLVCs as processing and market centers. Without adequate energy and heat supply, water supply, waste management facilities, wastewater treatment facilities, and transport facilities, these centers will not function as the anchor in the LCLVC (see also the description of Output 1 in B.3). To attract and retain professional service providers, these centers also need to offer adequate living conditions. These factors motivate ASDIP's investments in the aimag and (inter)soum centers to complement the rangeland activities.

Climate change poses significant additional challenges for the centers. Temperatures have been increasing and are projected to increase (Annex 15, Climate Change Assessment, Section X, both for Mongolia as a whole and for the targeted aimags), making investments in wastewater treatment and waste management prevent health problems due to pathogens more urgent.

The Third National Communication (p 200-207) describes that extreme weather and climate events have been increasing, especially in extreme short-term events. Heavy rain and flash flooding, squall winds, hail, and lightning are considered short-term (1-4 hours) events which cover a small area but cause much destruction and damages. About 57% of total extreme events and disasters belong to the short-range events, and 40% of these are flash floods. The frequency of heavy rain and flash flooding, squall winds, hail, and lightning has increased sharply in Mongolia, and the number of occurrences that lead to danger and damages has increased by two times in the last 20 years. However, it is difficult to demonstrate that this is the consequence of climate change and that climate change is a causality factor in the ASDIP locations.

Therefore, ASDIP will include waste management and wastewater treatment as urban adaptation measures and measures against flooding as potentially related to climate change. These adaptation investments are not covered by GCF funding. Apart from this, urban mitigation investment (solar PV, insulation), of which only solar PV panels receive GCF support.

2. The creation of incentives for reducing the number of animals to achieve low-carbon and climate-resilient rangeland management requires the organization of herders into groups that use the same pastures⁴⁷ and provide incentives for low-carbon climate-resilient rangeland management to these groups collectively. ASDIP does this through Pasture User Groups (PUGs) established by SDC, based on herders that traditionally use the same rangeland for their animals. These traditional herder groupings are called the *saakhalt ails*, "neighboring herders." Output 2 provide the incentives for the herders to get better organized and to implement improved low-carbon, climate-resilient rangeland management and restore the traditional herd composition with a reduced share of goats. The herder organization process must be bottom-up and be based on herders' willingness to participate. Raising awareness among the herders about the potential land degradation for their activities, the benefits for the resolution of conflicts over rangeland use, and the necessity that these issues can only be resolved collectively is an important step. ASDIP will use the PUG organization and RUA mechanisms developed by Green Gold Program (see Box 3). Based on traditional rotational grazing management, this will lead to a more sustainable social and productive grassroots organization, conflict resolution, and promotion of social harmony, without which the model might be more difficult to implement (see Insert 9) successfully. Output 2 also creates the conditions (water availability) for investments in the production of feed, which will help maintain animal productivity through harsh winters, and addresses the low health of animals, so that outputs can be maintained and premature deaths can be avoided. By providing herders with better opportunities to cope with adverse shocks caused among other factors by climate change, one of the reasons for increasing herd sizes (the wish to have a viable herd after calamities such as *dzuds*, exacerbated by climate change, kill animals) is directly addressed⁴⁸. Finally, Output 2 supports traceability and certification, leading to an expected improvement in marketability and price premiums for products from LCLVC. The main barriers are the lack of incentives, lack of finance for small-scale public investments, lack of knowledge and examples of ways to reduce herd sizes while improving herd productivity, lack of organization of herders, and the lack of supporting systems (certification, traceability). ASDIP addresses these barriers by making finance available, creating various support

⁴⁷ Collective action is needed within these groups, otherwise if individual herders will reduce their herd sizes, other herders may profit from this and even increase their herd sizes offsetting the effort. See also the Climate Change Assessment, Section 4, Subsection C.

⁴⁸ See the analysis of the impact of dzuds on herd sizes included in the Climate Change Assessment, Section 3.

systems (Output 2), and documenting these systems and knowledge gained during their implementation (Output 4).

3. Sustained increases in herder incomes to compensate for reducing the number of animals requires investments in LCLVCs. Partially these investments follow from the Low-carbon Climate-resilient Agribusiness Development Plans (LCADPs), which are developed with the support from Output 4. Investments in LCLVCs serve several objectives. These LCLVC investments:
 - 1) Provide herders with additional income resulting from their share of the profits (or income ownership shares) from processing activities, compensating them for maintaining lower herd sizes, which is an integral part of the climate change mitigation and adaptation strategy to reduce GHG emissions and increase carbon sequestration in rangelands and to maintain output and supply from a dwindling resource base and cope with climate change;
 - 2) Provide herders with inputs such as breeding services, improved access to water, and feeds to help them adapt to climate change and lower their GHG emissions and grazing pressure;
 - 3) Include low-carbon and climate-resilient technologies and promote the productive use of waste materials in processing; and
 - 4) Relocate processing facilities to the point of need, limiting the requirements for transport, and reducing the transport emissions and emissions resulting wastage⁴⁹ during transport.

Lack of finance is the main bottleneck for private sector investments into LCLVCs. ASDIP addresses this barrier by providing finance through Green Inclusive Regional Agribusiness Fund (GIRAF) which provides a low-cost and long-term source of financing for investments into the LCLVC by the private sector in Mongolia. ASDIP seeks to bridge the gap between grant-based financing and market-based financing, where the only source of semi-soft financing is in the form of payments for mitigation results, as discussed in section B.6 and Box 10 on the Partnership for Low-Carbon Rangeland Management in Asia. This means that ASDIP's financing will be partially concessional and pave the way for non-concessional financing based on a combination of loans, equity, and payments for GHG mitigation services through the proposed partnership, so creating an exit strategy to replace GCF and public sector financing with payments that are based on the ecosystem and carbon services from improved rangeland management.

4. To implement the approach indicated in 1-3 above and to monitor the results of the implementation requires the establishment of capacity to formulate plans and policies. ASDIP directly addresses this in Output 4, building the capacity, establishing the MRV system and producing the knowledge products that can be used for dissemination and to replicate the ASDIP approach inside and outside Mongolia. Inside Mongolia, this output will create the policy mechanisms and the capacity to formulate, implement, monitor and enforce plans that can contribute to the national livestock sector policies, the successor of the NMLP. Both inside and outside Mongolia, the Partnership for Low-Carbon and Climate-Resilient Rangeland Management in Asia (Box 10) is a key platform through which dissemination and replication will be achieved, providing a way to mobilize the needed finance for sustainable rangeland management.

It is important to note that the overall model structure does not aim to reduce the number of herders or to change the herders' way of life. Instead the aim is to decrease their vulnerability, establish a more sustainable and harmonious usage of natural resources while respecting the nomadic culture, and provide more jobs in urban areas for people living in urban areas. Marginal herders may decide to stop herding and take advantage of such new urban opportunities. However, this is expected to happen only to a minimal extent and is not the primary objective of ASDIP.

The above description elaborates the ASDIP approach and the barriers that need to be overcome. ASDIP implementation is expected to produce the knowledge, experience and case studies that demonstrate the viability of the approach and how improved low-carbon and climate-resilient rangeland management and animal husbandry can contribute to mitigation that is economically and financially viable. It will also provide example of how specific systems and mechanisms can be created to support the shift towards low-carbon

⁴⁹ Wastage during transport occurs for example when animals die during transport to UB before getting slaughtered. In this case, the meat becomes unsaleable and the emissions accumulated during the lifetime of the dead animal become lost. In essence, wastage during transport means that a larger herd needs to be maintained to achieve the same effective output.

and climate-resilient rangeland management and animal husbandry. The Partnership for Low-Carbon and Climate-Resilient Rangeland Management in Asia will make it possible to mobilize funding through result-based payments (payments linked to mitigation results) for the replication of the project activities in other parts of Mongolia and in Asia without relying on a large funding contribution from the GCF for these replications.

The combination of knowledge creation, formulation of replicable mechanisms and systems, transformation of rangeland management and animal husbandry to become low-carbon and climate-resilient, and a mechanism to replicate the successes of ASDIP inside and outside Mongolia means that ASDIP can be expected to provide a paradigm shift to rangeland management and animal husbandry in Asia.

B.3. Project/programme description (max. 2000 words, approximately 4 pages)

The implementation of the theory of change components under ASDIP will be delivered through a road map composed of the following four strategic, transformative objectives⁵⁰: (i) upgrade (revive) aimag and soum centers into low-carbon and climate-resilient urban settlements with improved living conditions to anchor LCLVC investments at the point of need; (ii) introduce of transformational low-carbon and climate-resilient rangeland management practices, with incentives, organizational structure and transitional support for herders; (iii) provide innovative climate mitigation and adaptation financing, attractive for LCLVC investments to sustain herders low-carbon and climate-resilient practices; and (iv) builds the capacity and awareness to formulate and implement transformational low-carbon and climate-resilient development plans and policy, and the knowledge and MRV system necessary for replication.

The translation of these strategic objectives into physical and non-physical interventions into a sequenced set of investments, mechanisms, policy actions, and capacity building support that are geographically targeted will constitute the scope of ASDIP. According to the theory of change, ASDIP has four outputs that address the identified barriers and risks and deliver the program's strategic objectives:

- **Output 1: Climate-resilient, low-carbon, and attractive aimag and soum centers developed** will implement priority low-carbon and climate-resilient infrastructure and services to promote the role of targeted aimag and inter-soum centers as anchors for LCLVC investments and the low-carbon climate-resilient rural economy, and to improve the living conditions in these aimag and inter-soum centers. The output will deliver a comprehensive and integrated approach addressing current urban services deficiencies (water, power, wastewater treatment, waste collection and treatment, district heating, drainage and flood protection, roads, affordable housing, and social facilities) using low-carbon solutions through renewable energy in the form of solar panels, energy efficiency through insulation and efficient heat supply, low-carbon waste and wastewater treatment technologies. An integrated street redevelopment approach, including affordable housing supply, will upgrade the aimag centers' substandard ger areas, which are the main sources of CO₂ emission and pollution during winter, address water shortages, and adapt them against flooding. In each targeted aimag and soum center, an agro-park specifically dedicated to LCLVC will be developed, including utilities adequate for the development of processing activities and an incubator center. Finally, a Smart Land Management Center will provide an essential tool for improving land and urban management, and monitoring rangeland health, water availability, soil condition, and carbon sequestration in the soil. Output 1 has three activities:
 - (i) Low-carbon and climate-resilient infrastructure and services upgrade of Aimag centers;
 - (ii) Low-carbon and climate-resilient infrastructure and services upgrade of Intersoum centers; and
 - (iii) Implementation of smart land management system.
- **Output 2: Rangelands managed for climate-resilience, high carbon sequestration, and sustainable herding** will introduce transformational low-carbon and climate-resilient rangeland management practices to maintain food production despite a dwindling resource base, increase rangeland carbon sinks and reduce livestock GHG emission through incentives and improve organizational structures improvement leading to a reduction of animal numbers and improved grazing practices. It will support herders' organizations (PUGs, cooperatives & associations) by implementing

⁵⁰ The policy framework related to the program strategic objectives is indicated at the end section B.3.

community-based investment projects for group of herders belonging to PUGs and financial support to cooperatives engaged in low-carbon climate-resilient rangeland management through RUA and support the reduction of herds' sizes. Primary works for irrigated perimeters and water conservancy solutions will allow the expansion of fodder production and increase the capacity to cope with water shortages induced by climate change. Finally, veterinary services will be strengthened at each level of the agribusiness chain and the animal traceability system's implementation. Output 2 has four activities:

- (i) Implementation of community-based low-carbon and climate-resilient investments;
- (ii) Support to low-carbon and climate-resilient pasture user groups and cooperatives;
- (iii) Implementation of water-efficient irrigation systems for fodder production⁵¹; and
- (iv) Improvement of animal health.

■ **Output 3: Low-carbon and climate-resilient livestock value chains created and strengthened through accessible finance** will provide innovative financing mechanisms to support LCLVC investments according to strict eligibility criteria. The financing mechanisms will sustainably support herders who are committed to low-carbon and climate-resilient rangeland management. The supported LCLVC investments:

- 1) Provide herders with additional income resulting from their share of the profits (or income ownership shares) from processing activities, compensating them for maintaining lower herd sizes, which is an integral part of the climate change mitigation and adaptation strategy by maintaining output and food production from a dwindling resource base and to reduce GHG emissions and increase carbon sequestration in rangelands;
- 2) Provide herders with inputs such as breeding services, improved access to water, and feeds to help them lower their GHG emissions and grazing pressure while maintaining output;
- 3) Include low-carbon and climate-resilient technologies and promote the productive use of waste materials in processing; and
- 4) Relocate processing facilities to the point of need, limiting transport requirements and reducing the transport emissions and emissions resulting in wastage⁵² during transport.

Through the Green Inclusive Regional Agribusiness Fund (GIRAF) it will provide financial products designed to attract private sector participation into the LCADP and LCLVC. The GIRAF will use innovative financial products such as (i) low-carbon and climate-resilient loans with more reasonable lower-than-market interest rates made possible by the concessional GCF financing, longer terms and grace periods, higher loan values, and an adjustable repayment period that take into account the production cycle and its seasonality, (ii) low-carbon and climate-resilient credit guarantees will be used as collateral substitutes and reduce the risks of the financiers thereby contributing to lower interest rates, and (iii) low-carbon, climate-resilient innovation grants to increase the competitiveness and growth of pioneering low-carbon and climate-resilient agribusiness livestock enterprises by advancing green agribusiness products, processes, and business model innovations. Output 3 has two activities:

- 1) Provision of accessible low-carbon and climate-resilient agribusiness loans and credit guarantees to herders cooperatives and SMEs; and
- 2) Provision of innovation grants for low-carbon and climate-resilient livestock value chains to qualified herders and SMEs.

■ **Output 4: Capacity and policy reforms for low-carbon and climate-resilient agro-territorial development improved** will provide consulting services and capacity development activities relevant to the efficient, sustainable, and replicable program design and implementation of ASDIP. Under output 4, consulting services will be delivered to MCUD, MOFALI, and DBM to ensure efficient program management and implementation. It will also provide technical support services to establish and operate the GIRAF (under output 2), which is tasked to provide accessible innovative and climate-smart financing

⁵¹ Annex 26, *Selected appendices in response to iTAP comments* discusses in Appendix 3, *Aniaml Feed* how ASDIP will support the production of feed, how the intervention was identified, and demand of the target population.

⁵² Wastage during transport occurs for example when animals die during transport to UB before getting slaughtered. In this case, the meat becomes unsaleable and the emissions accumulated during the lifetime of the dead animal become lost. In essence, wastage during transport means that a larger herd needs to be maintained to achieve the same effective output.

mechanisms for LCLVC investments under ASDIP. Furthermore, in coordination with output 2, it will develop an integrated certification system at all agribusiness value chain levels. Based on international and local lessons learned, output 4 will also strengthen sector capacity to formulate, implement and enforce policies and plans more conducive to an integrated agro-territorial development anchored on a climate-smart livestock sector and low-carbon, climate-resilient rangeland management. Project experience on low-carbon and climate-resilient rangeland management and low-carbon and climate-resilient animal husbandry will allow ASDIP to provide key inputs on the policy dialogues and advocacy for the successor of the NMLP⁵³ and developing the Partnership for Low-Carbon and Climate-Resilient Rangeland Management in Asia. Output 4 will also provide technical assistance to the design, installation, and operationalization of more efficient MRV and M&E systems to be supported by the Smart Land Management Center under Output 1. Output 4 has five activities:

- 1) Support for project management and implementation;
- 2) Support for low-carbon and climate-resilient rangeland management;
- 3) Improvement of the capacity for low-carbon and climate-resilient agribusiness finance;
- 4) Implementation of M&E and MRV system; and
- 5) Enhancement of the capacity for policy formulation, implementation, and enforcement.

ASDIP will be implemented during a 10-years period as a multitranche financing facility (MFF) through three sequenced tranches.⁵⁴ The program preparation has developed all relevant feasibility studies, due diligence, and safeguards for the first tranche, while the contents of the subsequent tranches have been pre-defined and will be similar to Tranche 1. Subsequent tranches fall within the framework of the overall MFF and its output structure (which stays constant), supporting policies framework developed under the MFF, and in accordance with the Tranche 2 and 3 investment preparation and selection criteria outlined in B.4.

The first tranche of ASDIP will implement the program activities in Bayan-Ulgii aimag, the Western part of Uvs aimag, and the Northern part of Khovd aimag. Output 1 activities will target in Bayan-Ulgii, Ulgii Aimag center, and Deluun inter-soum center; in Uvs Aimag, Ulaangom aimag center and Umnogovi inter-soum center; and in Khovd aimag, Khovd aimag center. Outputs 2 and 3 will cover all the affiliated soums in the area of influence above aimag or inter-soum centers. Tranches 2 and 3 will complete and consolidate Tranche 1 activities to other aimags based on the principles indicated in B.4. The detailed quantitative targets in the description below are for the first tranche only, while the final targets in the Logframe (Section E) cover the entire program.

Box 1. Complementarity and synergy with other initiatives to maximize climate impact and support replication

The significant number of ongoing and planned complementary initiatives in Mongolia (as described in Section B.1 and Annex 25) represent great learning exchanges and cooperation opportunities. Because those previous and ongoing efforts have mostly been siloed and fragmented, they are missing key urban-rural and market linkages and synergies to anchor local development into a sustainable, low-carbon, climate-resilient framework effectively. Those interventions fall broadly into three ASDIP-relevant categories:

- 1) Cooperative approaches among herders for pastureland management have been developed for the sustainable use of land and water resources. However, they do not sufficiently consider the investments required to improve animal productivity and create stronger links between the herders and a more diversified low-carbon, climate-resilient livestock value chain to compensate for the necessary reduction in herd size and income losses that would trigger long-term behavioral change by the herders. The necessary private sector incentives and climate finance to link viable and enforceable institutional arrangements with improvements in the market are also missing. One important aspect to

⁵³ ASDIP's input would approach these from the mitigation angle, while other donor projects, including the proposed UNDP project, will approach these issues from the adaptation angle. ADB will coordinate with other donors to ensure that recommendations are consistent. It is, however, anticipated that this will not impose a major problem as both mitigation and adaptation require increased efficiency in the use of the forage resources provided by rangelands and measures to cope with extreme weather events.

⁵⁴ ADB's Multitranche Financing Facility (MFF) is a financing modality that supports a client's medium- to long-term investment program or plan. ADB's Board of Directors approves a maximum amount for an MFF, and the conditions under which financing will be provided. On the basis of the Board's approval, and at the client's request, ADB Management converts portions of the facility amount into a series of tranches to finance eligible investments.

consider is that most initiatives related to low-carbon and sustainable rangeland management are aligned with the ASDIP approach (see Annex 25) because they are built on the same herders' organization platform implemented by Green Gold Project from SDC.

2) Investments into value chains are focusing on economic development and herder productivity without necessarily considering the long-term sustainability of herder practices given the limits of natural resources, the current alarming extent of overgrazing, and SMEs' specific needs for investing locally. Investment in the value chains also does not adequately support institutional arrangements and herders' empowerment to participate effectively in value chains.

3) Projects implementing the priority infrastructure and urban services barely take into account the necessary linkages with the rural economy and sustainable rangeland management and the local urban capacity to attract low carbon, climate-resilient value chain investments.

The gaps in each category of interventions described above call for a more integrated and comprehensive model. ASDIP represents an opportunity to create the necessary linkages between sustainable urban development, resilient rangeland management, and a climate-smart agribusiness value chain. The approach is premised on each initiative contributing in a synergetic manner, strengthening sustainability, and maximizing the climate impact. ASDIP will use its 10-year multi-tranche implementation structure to build and capitalize on existing local interventions while bringing them into an overall low-carbon and climate-resilient agri-territorial development framework. The integrated, transformative strategy combined with the necessary policy and institutional reforms and implementation support, and a strict set of eligibility and selection criteria (see Section B.4) will allow ASDIP to capitalize on local achievements for some of its program components and use resources more strategically to cover a wider geographical scope (see also Section D.2).

Complementarity and synergy with UNDP project

The UNDP project for Improving Adaptive Capacity and Risk Management of Rural Communities in Mongolia aims to strengthen the resilience of resource-dependent herder communities in four aimags vulnerable to climate change through three Outputs:

- Output 1: Integrate climate information into land and water use planning at the national and sub-national levels
- Output 2: Scaling up climate-resilient water and soil management practices for enhanced small-scale herder resource management
- Output 3: Build herder capacity to access markets for sustainably sourced, climate-resilient livestock products

Through its outputs 2 and 3, UNDP aims to improve herders' capacity and organization for sustainable rangeland management and resilience, herders' productivity, and access to markets for sustainably sourced climate-resilient livestock products. These are similar activities that ASDIP Output 2 (Activities 1 and 2) and Output 4 (Activity 2) will implement based on the same institutional and organizational platform formed by the PUG (established by Green Gold Program), and using RUAs to monitor overgrazing and sustainable rangeland management (see Box 3). This means that if the two projects are carefully aligned, there will be tremendous synergy and complementarity in the following outputs/activities:

1. ASDIP Output 1 will address a key challenge related to lack of facilities and services to herders and to agrobusiness processing industry that prevent them to be located at the point of needs, closer to rangeland and better connected to herders, for shorter processing circuits and value chains.
2. ASDIP Output 2 will complement UNDP Herder Producer Organizations (or cooperatives) by providing the necessary resources to upgrade the cooperatives' operation and initiate livestock destocking. At the same time it will also bring (through Output 2 Activity 3 and 4) essential complementary components that will contribute to reduce herds and herders vulnerability and improve their productivity such as veterinary services, large scale irrigated perimeter for fodder production, and animal health and disease free establishment.
3. ASDIP Output 3 will benefit to herders, herder cooperatives, and SMEs trained through UNDP Output 3, by providing effective access to finance and credit risk guarantee for LCLVC (climate sensitive VC for UNDP) through its financial intermediation component, the GIRAF. It will provide herder communities access to markets and support SMEs for sustainably sourced products which otherwise will have difficulty to materialize⁵⁵. This will allow to bridge the fundamental gap between grant-based financing and market-based financing, without which sustainable rangeland management will be most probably unsustainable.
4. ASDIP Output 4, and UNDP Activity 3.4. (Generation and dissemination of knowledge products) will be developed in close coordination and supervision of MOFALI. It will align their policy support, local planning documents, and mutually share knowledge and lessons learned. Similarly, cooperative model, traceability and certification components will be jointly developed under MOFALI supervision to ensure full compatibility. ASDIP includes a

⁵⁵ Without direct financial and incentive support it will be difficult and in certain areas most unlikely that agribusiness SMEs invest.

specific institutional capacity building component for formulation, implementation and enforcement for policies to support the new NMLP and the national livestock strategy (see Annex 27 and Section D.2, see Activity 5 of Output 4) which will be implemented in close coordination of UNDP project. On this aspect, the support for the formulation and implementation of the new MNLP aligned with ASDIP incentives to reduce livestock numbers and conditionality for the GIRAF support will constitute an effective and sustainable mechanism to reach the NMLP objectives, especially regarding the livestock reduction targets.

The climate information supported under Output 1 of the UNDP project will benefit to ASDIP, specifically: 1.1.3. Support development of guidelines for climate risk informed land, water and livestock planning to be adopted at the national and aimag level; and 1.1.4. Support to MoFALI to integrate climate change and risks and plan for long-term climate-resilient development at the national and aimag level (dissemination and application following Development Planning Law). Similarly, under Activity 1.3. Analytical products to support policy and regulatory transformation promoting sustainable land and water management and resilient herder livelihoods, UNDP will work with ASDIP to identify and develop tailored products which could inform green development. On the other hand, the ASDIP Smart Land Management Center will provide an essential tool to improve land and urban management, and particularly the monitoring of rangeland health, water availability, soil condition, and carbon sequestration in the soil.

Coordination between the two projects will be supported by the fact that rangeland and livestock related activities will be implemented under the direct supervision of the MOFALI and in coordination of the NFPUG which are both key implementing agencies for ASDIP and UNDP. Also, the PUG and RUAs mechanisms established by Green Gold program and used by the two projects are developed and registered in accordance with procedures supervised by ALAMGaC which is the main implementing agency of the ASDIP under MCUD.

It is important also to emphasize that the implementation of ASDIP over the UNDP project areas will allow the inclusion and explicit quantification of the mitigation benefits from the sustainable rangeland and animal husbandry. ASDIP will also bridge the gap from UNDP's grant-based approach to a more commercial and sustainable approach that could be scaled up and sustainably financed using monetization of emission reductions through the proposed Partnership for Low-Carbon and Climate-Resilient Rangeland Management in Asia (Box 10).

Sequence for implementation

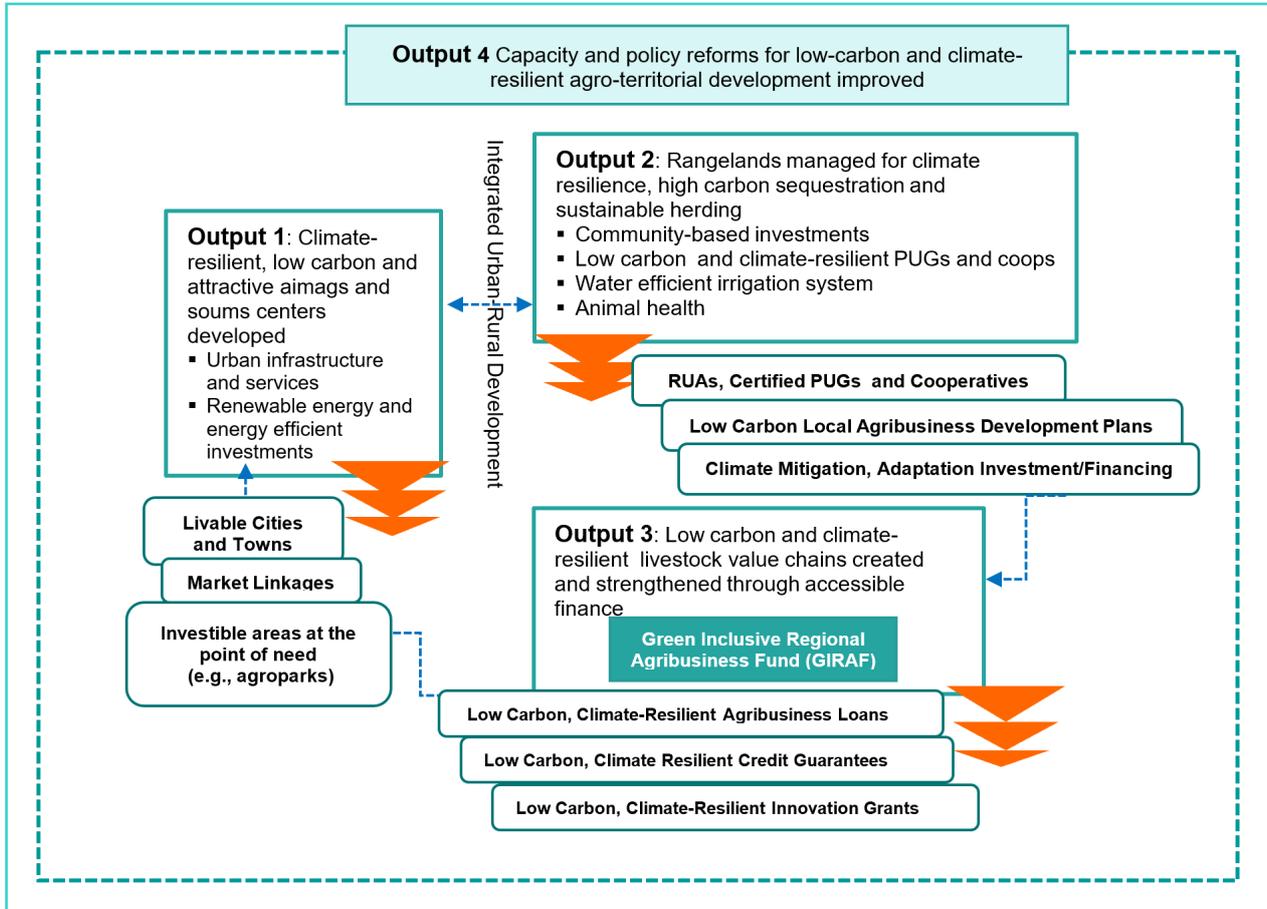
The two projects complementarities presented above, their geographic proximity and the overlapping project duration periods, present an opportunity to maximize synergies through a sequenced and coordinated implementation framework. Under Tranche 1, ASDIP will implement its full integrated approach in Bayan-Ulgii and Uvs Aimags and north of Khovd aimag. In north of Khovd, an aimag in which UNDP will also be active (although to the south), ASDIP will work with UNDP to incorporate climate risk informed land, water and livestock planning in local planning and behavior, and especially in ASDIP participatory inclusive herd management plan (PIHMP) and the Low-carbon Climate-resilient Agribusiness Development Plan (LCADP). PUG/RUA/Agri-cooperative organization will be led by ASDIP in close coordination with UNDP. Additional investments identified by the UNDP climate risk informed land, water and livestock planning that are not covered by ASDIP will be implemented by the UNDP project. To facilitate the coordination and synergies between the two projects, UNDP and ADB will enter into an MOU to coordinate efforts and sequence project interventions, and UNDP and ADB will be mutually invited as an observer on Project Steering committee and implementation review missions. As agreed with UNDP during project preparation, complementary activities in Khovd will not overlap and will be implemented in sequenced manner.

Under Tranche 2, ASDIP will pilot the integration of its outputs into UNDP activities project in south of Khovd Aimag (and possibly Dornod aimag). During Tranche 2 preparation, ASDIP will assess the level of readiness of the rangeland activities, assess the additional inputs that is requested to ensure the full compatibility of the ASDIP integrated approach. Then it will implement all the components necessary to realize its integrated low-carbon and climate-resilient territorial approach. Based on the Tranche 2 pilot, Tranche 3 will then extend to other UNDP's Aimags of Dornod, Sukhbaatar and Zavkhan. It is estimated that the ASDIP could then be able to cover and benefit to 50% of the Aimags covered by UNDP. Also under Tranches 2 and 3, ASDIP will ensure non-overlap with UNDP's activities.

The synergy of the ASDIP model with the UNDP projects provides a blueprint that will also be implemented in areas where other complementary initiatives have been implemented and that meet the ASDIP selection criteria. During Tranche 3 preparation ASDIP will identify other aimags or soums where pre-conditions have been met though complementary initiatives established by the government and other development partners such as SDC, EU, IFAD, ADB, AVSF, EIB, FAO, (See "Other projects" in Section B.1 and Annex 25) and comply with ASDIP eligibility and selection criteria for implementation listed in Section B.4.

• **Outputs and activities linkages:**

The Transformative, Fully Integrated Approach of ASDIP

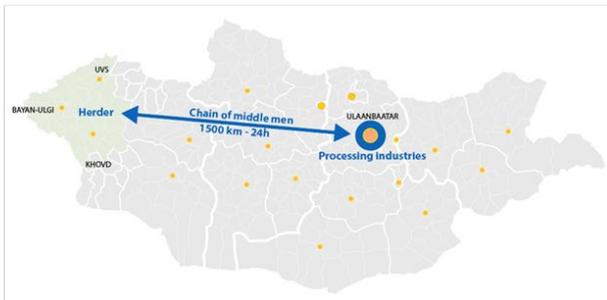


Supporting targeted Aimag and Soum centers as anchors of low-carbon climate-resilient livestock value chain investment with improved living conditions - Output 1 and Output 4 (Activity 1). The infrastructure gaps and deficiencies in targeted aimag and soum centers have created human settlements that do not play their role as anchors for the local economy, are not well adapted to climate change, have high CO₂ emission, and are polluting and offer substandard living condition for their residents.⁵⁶ Restoring their critical role in the Mongolia agrarian economy (for instance, providers of adequate veterinary services, slaughterhouses, storage facilities, fodder, banking services) and developing services specifically dedicated to attracting LCLVC investments is a fundamental step to support low-carbon and climate-resilient urban-rural linkages. ASDIP will address key infrastructure and service needs (water, power, wastewater treatment, waste collection and treatment, heat, roads, affordable housing) using low-carbon technologies (renewable energy in the form of solar panels, energy efficiency in the form of insulation and efficient heat supply, low-carbon waste and wastewater treatment technologies) to decrease urban CO₂ emissions and urban pollution creating more livable and low-carbon urban areas. In addition, the investments will address water shortages

⁵⁶ Addressing the poor living conditions requires an immediate abatement of soil and air pollution, starting from the ger areas, accommodating almost 70% of the population. 20 to 35% of this population, depending of the targeted aimags center, will be connected to urban services resulting in a significant GHG reduction, much more than the generation due to the improved service delivery.

and adapt the targeted centers against flooding. With agro-parks specifically dedicated to stimulating LCLVC investments, this will create the necessary conditions to attract processing facilities designed as a direct outlet for the products from herders engaged in low-carbon and sustainable rangeland management. This will also shorten the livestock value chains and bring processing facilities at the point of needs closer to the herders. This, in turn, will decrease the carbon footprint of the value chain and create a tighter geographic and economic integration of herders, rangeland management, and a food industry designed for low-carbon output and minimizing wastage as a strategy to adapt to climate change.

Current Situation



With ASDIP



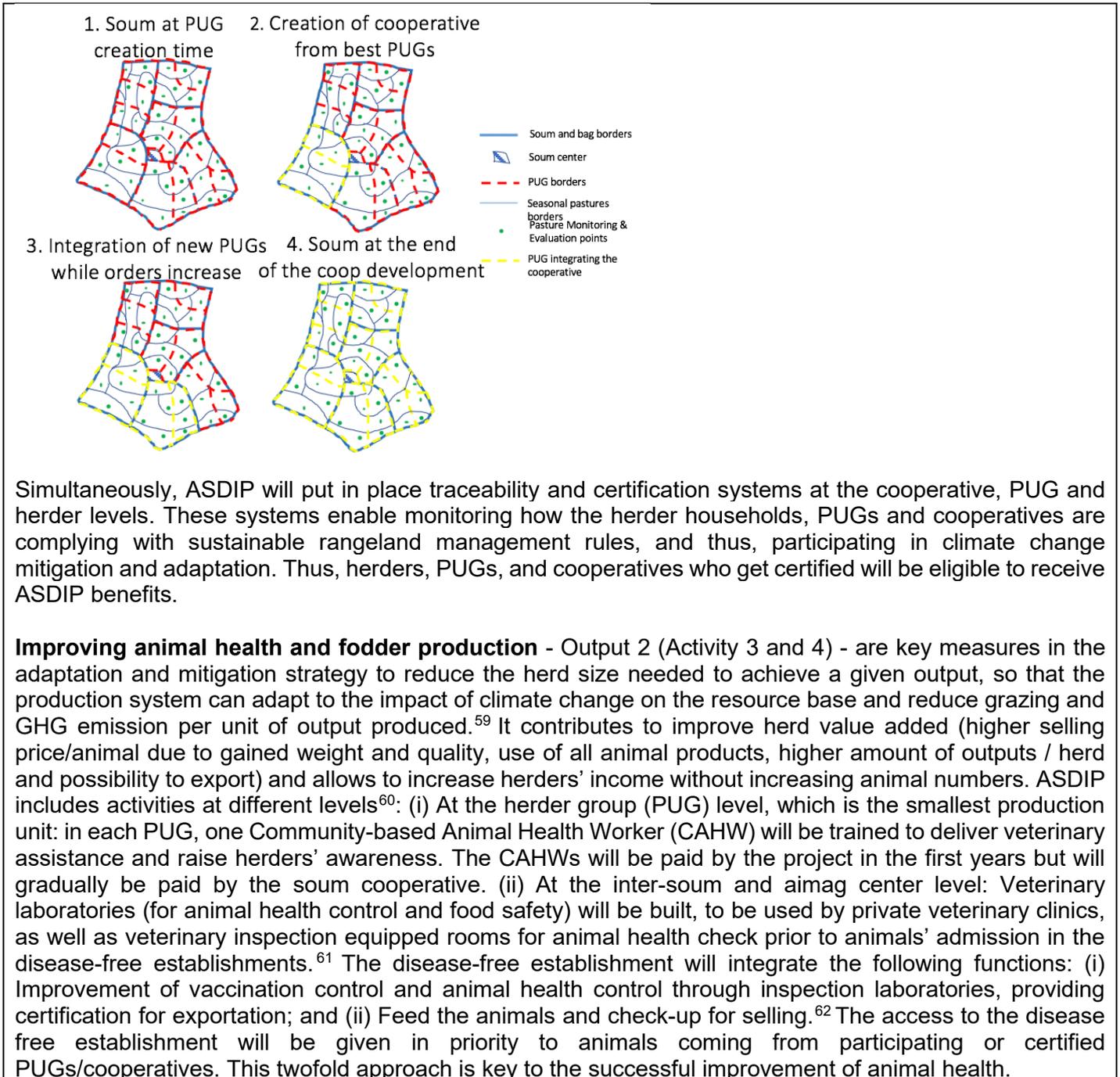
Organizing and financing the initial stage of the transition process for the herders - Output 2 (Activity 1) and Output 4 (Activity 2). ASDIP support will be based on Pastureland User Group (PUG) system established by the Swiss Agency for Development and Cooperation (SDC) under the “Green Gold Project” from the traditional Mongolian structures for herding.⁵⁷ Each PUG will commit to and implement Rangeland Use Agreements (RUAs), including stocking adjustment plans and herd management plan, indicating PUG’s annual objectives for reducing the size of its herd, targets for changes in livestock composition, and improved grazing practices. The RUA will be one component of a larger participatory, inclusive herd management plan (PIHMP) that identifies and prioritizes short- to medium-term investments to improve rangeland management, the quality of the herds, and the livelihood of the PUG members. For this initial stage of the low-carbon and climate-resilient rangeland management process, the primary mitigation financing instrument of ASDIP will take the form of matching grants to incentivize the commitment on and implementation of the RUAs. The matching grants will be co-financed by the PUGs through cash or in-kind contributions and will be used to implement the community-based micro-projects identified in the PIHMP (such as water wells, shelters, and hay fields) with a strong adaptation and to a lesser degree mitigation focus, using Community Participation in Procurement (CPP). These matching grants are appropriate to incentivize the participation of the herders and to compensate the initial effort to comply to the RUA.

Developing the capacity of certified livestock herders to increase their investment returns or income during the transition process – Output 2 (Activity 2) and Output 4 (Activity 4). PUGs with signed RUAs are supported by the project to form cooperatives. In each soum, all PUGs will be encouraged to gradually sign RUAs and integrate into a cooperative. The cooperative in this case will be an economic structure providing services for herders complying with low-carbon and climate-resilient rangeland management policies. Its objectives are to create benefits to its members who will be engaged in low-carbon and climate-resilient herding through increased market leverage and investments and share profits for its members. Its role will be to (i) market herders’ products (including surplus products such as the initial excess animals from destocking); (ii) provide services and information to PUG/herders; monitor RUAs, destocking, certification, grazing practices and herds composition; improve planning; (iii) defend the interest of its members; and (iv) improve access to finance and investment⁵⁸. A cooperative is supported by the project only if it is comprised of PUGs with signed RUAs.

CONSTITUTION OF COOPERATIVES BASED ON THE PUGS WITH SIGNED RUAS

⁵⁷ The *saakhalt ails*, “neighboring herders”.

⁵⁸ The cooperative can engage in processing activities, in partnership with SMEs or alone (see Output 3).



⁵⁹ See Annex15, Climate Change Assessment. See also FAO (2013a), *Mitigation of greenhouse gas emissions in livestock production – A review of technical options for non-CO2 emissions*. FAO Animal Production and Health Paper No. 177; FAO (2013b), *Tackling climate change through livestock – A global assessment of emissions and mitigation opportunities* and the Climate-Smart Agriculture sourcebook of the FAO, focusing on adaptation and mitigation opportunities. See <http://www.fao.org/climate-smart-agriculture-sourcebook/production-resources/en/> and in particular the module on climate-smart livestock production: <http://www.fao.org/climate-smart-agriculture-sourcebook/production-resources/module-b2-livestock/b2-overview/en/>

⁶⁰ Annex 26, *Selected appendices in response to iTAP comments* discusses in Appendix 1, *Veterinary Services: Scope, Affordability and Willingness to Pay* the reasons for proposing this type of intervention focusing on support at different administrative levels rather than other approaches. This appendix also discusses whether herders can afford to pay for the services, and whether they are willing to.

⁶¹ Annex 26, *Selected appendices in response to iTAP comments* discusses in Appendix 4, *Disease Free Establishments* the reasons for proposing this intervention rather than others.

⁶² Before 1990, each soum center had such facilities.

Lack of fodder supply is a major constraint for herders to adapt to climate change and manage their herds through the winter with minimal losses. Lack of fodder supply directly and indirectly (through the coping mechanism to manage expected losses) increases the rangeland's grazing pressure.⁶³ It is one of the main constraints that currently limit the livestock economy to function only a few months a year, during the summer, when animals have gained some weight and one of the reasons why herders increase the size of their herds. Adequate production of high nutritious fodder crop plants sold at an affordable price would allow the extension of the period of activity of all livestock-related activities, and in return, increase the revenues of herders. Under ASDIP, the creation or rehabilitation of irrigated perimeters together with water conservancy and water-efficiency components to ensure water availability will overcome this issue. The reconstruction of the head and the main structure of irrigation systems for fodder crop plantations and the piloting of water conservancy solutions in targeted aimag and inter-soum centers under Output 2 will be combined with financing support as part of Output 3 for private sector investment in irrigated perimeter and fodder crop farming activity.

Low-carbon Climate-resilient Agribusiness Development Plan (LCADP) and Low-carbon Climate-resilient Livestock Value Chain (LCLVC). Simultaneously, under Output 4 (Activity 2 and 3), ASDIP will also support a participative, consensus-building formulation of LCADP. The LCADP will identify priority investments and activities at the intersoum and aimag levels to establish the LCLVC that will provide the certified herders, PUGs, and/or cooperatives with low-carbon and climate-resilient opportunities for increasing their investment returns and compensating them for their foregone income as they transition to sustainable rangeland management. Here LCLVC means that the full range of herders, herder groups, cooperatives, and firms and their successive coordinated value-adding activities that transform raw livestock derived materials into food, beverage, fiber, animal skin, and leather products are sold to final consumers and disposed of after use, in a manner that is profitable throughout the chain, promote rangeland regenerative practices, adapts to climate change, and its impacts on water availability, land availability and land productivity reduces GHG emissions and increases soil carbon sequestration, all in consideration of social and environmental benefits. ASDIP not only considers the core value chain (production, aggregation, processing, distribution, and consumption) but also considers the extended value chain (provision of inputs, services and finance). To support the entire transformation process, ASDIP will not only invest directly in community and urban-rural infrastructure to pursue a low-carbon and climate-resilient development pathway for Mongolia's livestock sector. It will also invest in the necessary enabling factors such as climate mitigation and adaptation finance, technology development and transfer, effective institutions, policies and governance, and the appropriate knowledge products including a technically sound MRV system. Throughout this process, ASDIP will use pioneering approaches to foster paradigm shifts away from the traditional barriers and risks that perpetuate the restrictions in agriculture and climate finance, low-carbon and climate-resilient innovations, a policy environment more conducive to sustainable rangeland management, and stronger institutions capable of reinvigorating the LCLVC.

Leveraging mitigation and adaptation finance for private sector investments incorporating partnership agreements with certified livestock herders, PUGs, and cooperatives in low-carbon, climate-resilient livestock value chains – Output 3. The establishment of the Green Inclusive Regional Agribusiness Fund (GIRAF) will offer financial products designed to attract private sector participation into the LCLVC, and expand the access of certified herders, PUGS, and cooperatives to affordable mitigation and adaptation finance. The GIRAF will adopt a blended finance strategy by leveraging the GCF loan proceeds to mobilize private sector resources that would otherwise not be allocated or invested in sustainable rangeland management. It also safeguards the ability of the herders to benefit more equitably from the LCLVC investments by financing only those that are included in the LCADP and those with explicit and well-defined profit or partnership agreements between herders' cooperatives and eligible agribusiness enterprises. The GIRAF will be structured to provide the mitigation and adaptation finance that will help implement the LCADP beyond the initial transition phase through identified priority investments in agribusiness comprising the LCLVC. It will provide the following innovative financial products:

⁶³ Large quantities of fodder are imported especially from Russia (it is estimated to 70% of the consumption in the western aimags).

1. Low-carbon and climate-resilient loans with more reasonable lower-than-market interest rates made possible by the concessional GCF financing, longer terms and grace periods, higher loan values, and an adjustable repayment period that take into account the production cycle and its seasonality,
2. Low-carbon and climate-resilient credit guarantees that can be used as collateral substitutes and reduce the risks of the financiers, thereby contributing to lower interest rates, and
3. Low-carbon, climate-resilient innovation grants that increase the competitiveness and growth of pioneering low-carbon, climate-resilient agribusiness livestock enterprises in Mongolia's aimags and soums by advancing low-carbon, climate-resilient agribusiness products, processes, and business model innovations.

The LCLVC investments included in the LCADP will comprise the initial long list of subprojects for GIRAF financing. In addition to being included in the LCADP, investment or subprojects to be eligible for GIRAF financing must demonstrate that:

- they can improve either mitigation and adaptation outcomes simultaneously or one of the two with a neutral impact on the other outcome. So either improve carbon sequestration and reduce GHG emissions and at the very least neutral on adaptation, or improve adaptation (improved water efficiency, improved water supply, improved resource efficiency, improved feed supply, improved breeds that are more resilient to water scarcity) and at the very least, neutral on mitigation;
- they can provide certified livestock herders with a profit-sharing or partnership agreement to provide them with higher investment returns or income and incentivize them to continue their commitment to their RUAs and destocking plans;
- they have a plan for incorporating investments that reduce the GHG impacts of energy use, for example, through investment(s) in solar panel, solar rooftops, or energy efficiency measures; investments that use waste products, for example, to produce biodiesel or biogas; (iii) investments that reduce wastage (losses in the value chain); and (iv) investments that shorten the distance raw materials and products need to travel, thereby reducing the amount of GHG emissions related to transport;
- they cannot be financed without GIRAF support; and
- they are located in the proposed LCLVC aimag and inter-soum centers agro-park (under Output 1) or provide evidence that services/infrastructure supply and waste treatment are satisfactory.

Capacity and policy reforms improved for low-carbon and climate-resilient agro-territorial development will address the current constraints to enabling a policy environment that is more conducive to (i) developing climate-resilient, low carbon, and attractive aimag and soum centers; (ii) managing rangelands more effectively for climate resilience, high carbon sequestration, and sustainable herding; (iii) creating and strengthening low carbon, climate-resilient and inclusive value chains through more accessible green finance; and (iv) developing the capacity for a greener and more competitive agro-territorial development in Mongolia. Areas for potential vulnerability reduction will be covered, including (i) livestock resilience building and productivity enhancement; (ii) greater input towards rangeland sustainability and subsequent productivity; (iii) increased food production (and security) while fighting against climate change; (iv) conflict resolution and bringing social harmony (extension of the PUG model and peaceful resource sharing); and (v) where the right pre-conditions exist, outputs from afforestation and/or rangeland agroforestry (sequestration from afforestation and/or rangeland agroforestry). It will develop institutions, policies and capacity for program implementation, and to formulate and implement integrated policies that will guide and contribute to building the revised NMLP (Output 4 Activity 5); inform on low-carbon and climate-resilient rangeland management and urban development; implementation of MRV and M&E systems supported by the smart land management center (Output 1 Activity 3). The preparation of knowledge fed into the policy dialogue, and the formulation of lessons learned, program evaluation, practices sharing, and efforts coordination are meant to achieve maximum replication of ASDIP.

- **Detailed investments and activities under Tranche 1**

Output 1 includes the following activities in Tranche 1 which will also be replicated in Tranches 2 and 3:
Activity 1 – Low-carbon and climate-resilient infrastructure and services upgrade of Aimag centers

- Delivery of comprehensive low-carbon and climate-resilient urban infrastructure extension: 960m³/h of water supply capacity increase, 2*2000m³ water reservoir, and 10.8km of water pipes; upgrade of wastewater treatment plant capacity for 10,200m³/d wastewater treatment using low-carbon technologies, capacity increase, wastewater pipe extension of 21.1km, pumping capacity increase of 650m³/h; District heating network extension of 9.2km, 3 energy-efficient low-carbon heating sub-station up to 5Gcal each; upgrade of electricity substation capacity and power line of 68.0km; Optical cable extension 15.5km in urban centers; Urban road extension of 9.1km; Drainage system extension for 14.0km, 15.2km of flood protection extension, and initial treatment of current 514ha solid waste dumpsite.
- Rehabilitation of 5.4km roads with networks of ger areas and the delivery of 420 affordable highly insulated low-carbon housing units, 5.9ha of public landscaping, and 1.1ha of social amenities.⁶⁴
- Agribusiness park infrastructure and services for LCLVC investments: 2.0km of roads, 4.1km of water pipes, 750m³/d wastewater capacity increase, 5.1km of waste water pipes, 5 heating sub-stations from 1 to 2Gcal each, heating network extension of 4.1km, upgrade of electricity substation capacity and power line of 2.5km, optical cable extension to 12.9km, 3 business incubators and training centers;
- 4670m² of solar panels representing a capacity of 1.35MW

Activity 2 – Low-carbon and climate-resilient infrastructure and services upgrade of Intersoum centers

- Delivery of comprehensive low-carbon and climate-resilient urban infrastructure extension: 50m³/h of water supply capacity increase, and 5.4km of water pipes; wastewater treatment plant capacity for 200m³/d wastewater treatment using low-carbon technologies, wastewater pipe of 3.3km; upgrade of electricity substation capacity and power line of 20km; Optical cable extension of 158km for inter-soum connection; and initial treatment of current 4.9ha solid waste dumpsite.
- Agribusiness park infrastructure and services for LCLVC investments: 1.1km of water pipes, 100m³/d wastewater capacity increase using low-carbon technologies, 1.0km of waste water pipes, heating network of 1.1km, 2 energy-efficient low-carbon heating plants up to 3Gcal, upgrade of electricity substation capacity and power line of 1.3km, optical cable to 5.0km, 2 business incubators and training centers;
- Extension of socio-economic services in inter-soum centers: 2 dormitories for 450 pupils, 2 community centers, 2 sport complexes and rehabilitation of existing facilities.
- 35km of linkage road improvement to Omnogovi and to Tarialan.
- 1740m² of solar panels representing a capacity of 0.51MW.

Activity 3 - Implementation of smart land management system

- Data Center with hardware and software upgrading (including the calibrated and properly parameterized Century model);
- Land and urban development management/administration IT systems and databases;
- Remote sensing laboratory with data receiver station from satellites, and soil analysis certified laboratory (R&D center); and
- Public outreach and Information Center.

For Output 1, ADB will finance heating system, inter-soum connection roads, urban roads, solid waste management, power supply, communication, agro-park infrastructure, community facilities, business incubator, and affordable housing units. EIB loan and European Union (EU) grant will be dedicated to ger areas street redevelopment, water and wastewater infrastructure, flood protection and drainage. EU grant will finance the smart land management and climate responsive digital center. GCF loan will finance solar panels.

Box 2. Overview of Output 1.

⁶⁴ A pilot ger area redevelopment street will be implemented in each Aimag center to be replicated in second phase of Tranche 1 and in subsequent tranches.

In the communist era before 1991, aimag and soum centers played a key role in anchoring livestock value chains by providing infrastructure, processing facilities and offering professional services. These were based on transfers and external support and could not be operated and maintained on that basis after 1991. Infrastructure fell in disrepair, and processing facilities and services were discontinued, resulting in severe infrastructure gaps. The existing infrastructure is outdated, badly maintained, maladapted to climate change, inefficient and emits significant amount of GHGs, making it unsuitable as basis for a rural economy. Many infrastructure systems (implemented during the Soviet period, 40 to 50 years ago) have exceeded their planned service life or have been deteriorated, are inefficient and lack the size to meet present needs and planned future growth. These infrastructure deficiencies have significant consequences on the targeted aimag and soum centers attractiveness for private sector investments into LCLVCs (and other sectors) and livability. The following are some examples:

1. Most of the living areas in the aimag centers are prone to flooding due to the lack of drainage; this is affecting first and foremost the poorest housing areas;
2. Air and soil pollution, among others caused by the current dumpsite located near housing areas, without any sorting and treatment;
3. Current wastewater treatment facilities are not properly treating domestic and industrial wastewater leading to high soil pollution levels;
4. In the aimag centers, the ger areas (home to between 60% and 70% of the aimag centers' population) are characterized by unplanned and underserved informal settlements with no water and sewerage connections, unimproved pit latrines, a highly polluted environment because of coal heating, lack of access to social facilities, limited employment opportunities, and limited housing investment. Because of ger areas situation air quality in winter is often worse than Ulaanbaatar itself (which is the worst polluted cities in the world in winter); and
5. At the level of the inter-soum centers, all public (education, health, government) buildings are in very poor condition and dormitories are overcrowded.
6. Natural disasters (such as floods), further contribute and reinforce the poor attractiveness for investments of these cities.

The aimag and soum centers currently do not have the infrastructure needed to host agro-processing industries and provide the urban environmental infrastructure that can attract and keep professionals to provide services. Output 1 targets and eliminates infrastructure gaps that have been identified over a series of studies and reports⁶⁵, thus restoring the functions these small cities used to have, but using low-carbon and climate-resilient technologies that are more efficient and cleaner.

Output 1 introduces for the first time in Mongolia a comprehensive and integrated approach to tackle low-carbon and climate-resilient urban infrastructure and services deficiencies⁶⁶ in targeted aimag and soum centers to improve their capacity, reliability and efficiency so that the necessary infrastructure is in place for LCLVCs. The design of the output is based on extensive communication with the relevant planning and technical agencies of the MCUD, and Aimag and soum governments, and community consultations, integrating all stakeholders' expectations, objectives, and constraints. It has identified how existing infrastructure can best support the existing planned economic and redevelopment programs and what interventions are required to support urban upgrading and economic activities promoted by the project. Where possible the Output integrates low-carbon technologies (renewable energy, insulation, efficient heating supply plants, low-carbon wastewater treatment facilities). Adaptation is included in water supply, waste management, wastewater treatment, and drainage investments. Finally, financial and management aspects of targeted aimags, as well as Mongolian standards and regulations have been studied to ensure the adequacy and sustainability of the proposed investments. Applicable international standards have been used and will be applied.

Output 1 aims to eliminate the deficit in strategic investments in aimag centers, in particular in ger areas facing (i) the poor condition of roads, (ii) the lack and inefficiencies of heating, water and wastewater systems and (iii) frequent flooding due to a high shortage in drainage and flood protection. ASDIP also includes the renewal of the out-of-date infrastructure networks and accordingly supports the reinforcement of drinking water supply, wastewater treatment, heating and power supply. Output 1 will also introduce the installation of solar panels to supply housing buildings, facilities, and public amenities financed by the program.

⁶⁵ See the TRTA draft final report, Volume II. Additionally, see several studies and reports prepared under ADB TAs such as *Fostering Value-Added Activities in Western Mongolia*, followed by new, ongoing TAs *Unleashing the Private Sector to Drive Inclusive Growth in Eastern Mongolia* and *Mongolia: Human Settlements Development Program* as well as a National Urban Assessment.

⁶⁶ Current challenges have been characterized and input on the system deficiencies and operating challenges faced by the local governments and operating agencies have been considered in determining the interventions proposed.

Underserved residential areas surrounding the aimags' core-centers have grown without proper infrastructure. This generates high GHG emissions and huge pollution (especially in winter), prevents proper urban development and private sector investment, and makes it more difficult to attract professionals. Because of the low income of the population and the neighborhoods' low-density, network development in those areas is not viable. Therefore, Tranche 1 will pilot a combined approach of street infrastructure development, housing connection, and densification through housing supply in order to respond to the local and future demand on affordable housing renting. The redevelopment process starts with a global vision of the site potential, the perimeter, which identifies the basic parameters of urban design⁶⁷. Then it focuses on the pilot road chosen according to its potential of success as a replicable model. It might be considered as an experimental phase, which offers the best conditions for a sustainable redevelopment extended step by step to the whole perimeter. Tranche 1 will pilot roads, each one around 800m long and part of a perimeter of about 40 hectares, which should be developed during the next tranche, with a possible extension to two optional roads during Tranche 1, depending on the outcomes from the implementation of the pilot roads. It aims to target at least around 35% of the total ger area population in the three aimag centers, it means about 6,000 households within the scope of the ASDIP, of the 17,000 households living in the ger area.

Design and scope of the agro-parks are based on local economic development potential and target, LCLVC analysis and consultation with local businesses. It represents the first investments of the project that will be complemented, if necessary, by the subsequent tranches based on emerging needs and developments. In each targeted urban center, infrastructure and services for treating the waste and supplying the necessary urban services for economic activities have been designed and dimensioned for initial processing and economic activities. With a planned area of 10 ha in aimag' centers, the agro-parks are scaled to host LCLVC activities.

In the inter-soum centers meeting similar issues linked to the lack of urban services are encountered. Infrastructure is even worse, while more resources are needed on a per capita basis to raise the service levels. In addition to the upgrading of infrastructure networks and waste collection and treatment, a major improvement of the public buildings (administrative-, educational-, sanitary-, cultural- and sport- buildings) is required, among others to create and restore a sound urban environment as reliable basis for the local economic expansion (Outputs 2 and 3).

Infrastructure for the LCLVC is also supported by the implementation of agro-parks (3 to 5ha in area) close to the storage and pre-processing activities planned in the soum centers. Agro-parks in inter-soum centers are sized and designed on similar assumptions and basis as for aimag centers.

Finally, the Smart Land Management Center will provide an essential tool to improve land and urban management, and particularly the monitoring of rangeland health, water availability, soil condition, and carbon sequestration in the soil. It will (i) establish a monitoring network and laboratory for land and soil condition and quality, including software development and hardware supply, densification of analysis and monitoring points, field measurement instruments and equipment supply, processing and application of satellite data and protocol integration with exiting system; (ii) establish a Smart Land Management Center including software development and hardware supply, IT systems and database for land administration and territorial management, field measurement, data collection, system for receiving, processing and application of satellite data, digitalization of historical geodesy and cartographic archive, and improve data storage, protection and security; (iii) develop an urban cadaster database and system: software and administer aimag and soum data to urban development cadaster database including software development and hardware supply, field measurement and data collection; and (iv) implement institutional development and capacity building and training program, and public information and outreach program.

Output 2 includes the following activities in Tranche 1, that will be replicated in tranche 2 and 3:⁶⁸

Activity 1 - Implementation of community-based low-carbon and climate-resilient investments

- Financial support to the targeted PUGs through about 90 community contracting small projects using Community Participation in Procurement (CPP) to support investment in small infrastructure and equipment to improve pastureland resilience and productivity, water availability, herder's livelihood,

⁶⁷ Ratios of residential, public amenities and open space (roads – greening) areas and population density as well.

⁶⁸ Output 2 will be implemented under the supervision of MOFALI (Ministry of Agriculture and Light Industries), in close cooperation with the NFPUG (National Federation of Pasture User Groups) and GAVS (General Authority for Veterinary Services, and MET (Ministry of Environment and Tourism). MCUD has overall responsibility of project implementation.

quality inputs to the agri-business value chain, more sustainable management of local resources and herds⁶⁹;

Activity 2 - Support to low-carbon and climate-resilient pasture user groups and cooperatives

- assistance to participative herders' communities to build capacities of Pasture User Groups (PUGs), development of Participatory and Inclusive Herd Management Plan (PIHMP), establishment of Rangeland Use Agreements (RUAs) and stocking adjustment plans for about 90 PUGs;
- establishment of a cooperative in each targeted soum, intersoum, and aimag, and at regional-level organizations of cooperatives based on participative/certified low-carbon herders and PUG⁷⁰; and
- Incentives to encourage the reduction of the herd size, this could represent about \$2,000 reward per year for each compliant PUG.⁷¹

Activity 3 - Implementation of water efficient irrigation systems for fodder production

- Construction of primary works (head structures and primary irrigation canals) for four irrigated schemes in Tranche 1, envisioning in total 1,400 ha of fodder farms;
- Implement an ecosystem based high mountain water conservancy and harvesting pilot in Uvs Aimags in collaboration with MET to be replicated in other in western Aimags (i) of the headworks on the Kharkhira river, (ii) of the channel feeding the reservoirs, (iii) of two reservoirs of about 40,000m³, and (iv) a primary irrigation channel. See Box 4 for a summary.

Activity 4 – Improvement of animal health

- Strengthening of veterinary services at each level of the agribusiness chain⁷², including improvement of the animal traceability system.
- Community-based Animal Health Workers (CAHW) set in each targeted PUG (CAHW are para-vets at the PUG level)
- Supply of equipment for veterinary services and traceability system;
- Construction of laboratories in the aimag and intersoum centers, including one regional research development center.
- Disease free establishments developed: construction of five disease-free establishments (3 for Aimags centers and 2 for inter-soum centers) to provide adequate facilities for animal health control.

*For Output 2, ADB will finance civil works for disease free establishment and irrigation perimeters primary work. GCF grant will finance the rest of the activities, and GCF loan will mainly be used for the operation and maintenance cost. Beneficiaries will participate in activity 1 through in-kind contributions. **Box 3 provides an overview of some of the key elements of Output 2.***

⁶⁹ Such investments are key to sustainable use of rangelands and to adapt to variable weather patterns exacerbated by climate change. This include: wool, hay and fodder storage; water harvesting structures; new and rehabilitated wells; support to improved fodder production such as protected irrigated hay and fodder fields and establishing guarded grazing reserves, provision of productive investments; wind-blocking animal shelters for winter; animal combing and shaving facility and equipment; small bridges for river/stream crossing and earth road repair, wells and drinking troughs equipped with solar water pumps; equipment for dairy processing; and breeding facilities. Where the conditions are suitable, afforestation and agroforestry investments may also be considered for funding. However, it should be noted that in general, the conditions for tree growth in Mongolia are not good. The cold climate and limited precipitation encourages growth of grasses rather than trees, and the growth cycles of forests are very long. See the Climate Change Assessment for a more detailed discussion.

⁷⁰ With input from the ADB TA "Cooperative-Based Sustainable Agriculture Production" (53036-001).

⁷¹ The various mechanisms to support PUGs, cooperatives and SCCs, and the incentives for reduction of animal numbers are summarized together in Annex 19 of the FP. It provides a wide-ranging system that in its entirety cover all herder households in the ASDIP areas. See also Table 3 included in the FP.

⁷² In coordination with the World Bank Livestock Commercialization project. The WB livestock commercialization project has its own separate financing. It is a nationwide project, whereas ASDIP is regional. The WB livestock commercialization project has some complementary components with ASDIP at the national level (veterinary campaigns capacity building, central veterinary laboratory in Ulaanbaatar), as well as at the regional level (regional laboratories, disease-free zones). At the regional level, coordination to avoid overlapping between the two projects is ensured by the General Authority for Veterinary Services (GAVS) within MOFALI. For instance, ASDIP will finance the Khovd regional laboratory and support veterinary services in the Western aimags, and the WB Livestock Commercialization Project finances regional laboratories in others aimags..

Box 3 provides an overview of some of the key elements of Output 2.

Box 3. PUG and RUA approach underpinning Output 2

There are three types of herder organizations:

- The Pasture User Groups – PUGs – related to pasture governance. They regulate pasture usage through the delineation of herders' rangeland, measurement of rangeland capacity versus rangeland load (number of animals) and establishing contracts with soum governments using Rangeland Use Agreements (RUAs).
- The cooperatives, whose role is to distribute to herders financial incentives provided by the government, such as bonuses for wool, cashmere and hide, provide linkages to the market, and develop infrastructure for herding and agribusiness activities.
- The Saving and Credit cooperatives – financial institutions providing loans to their members.

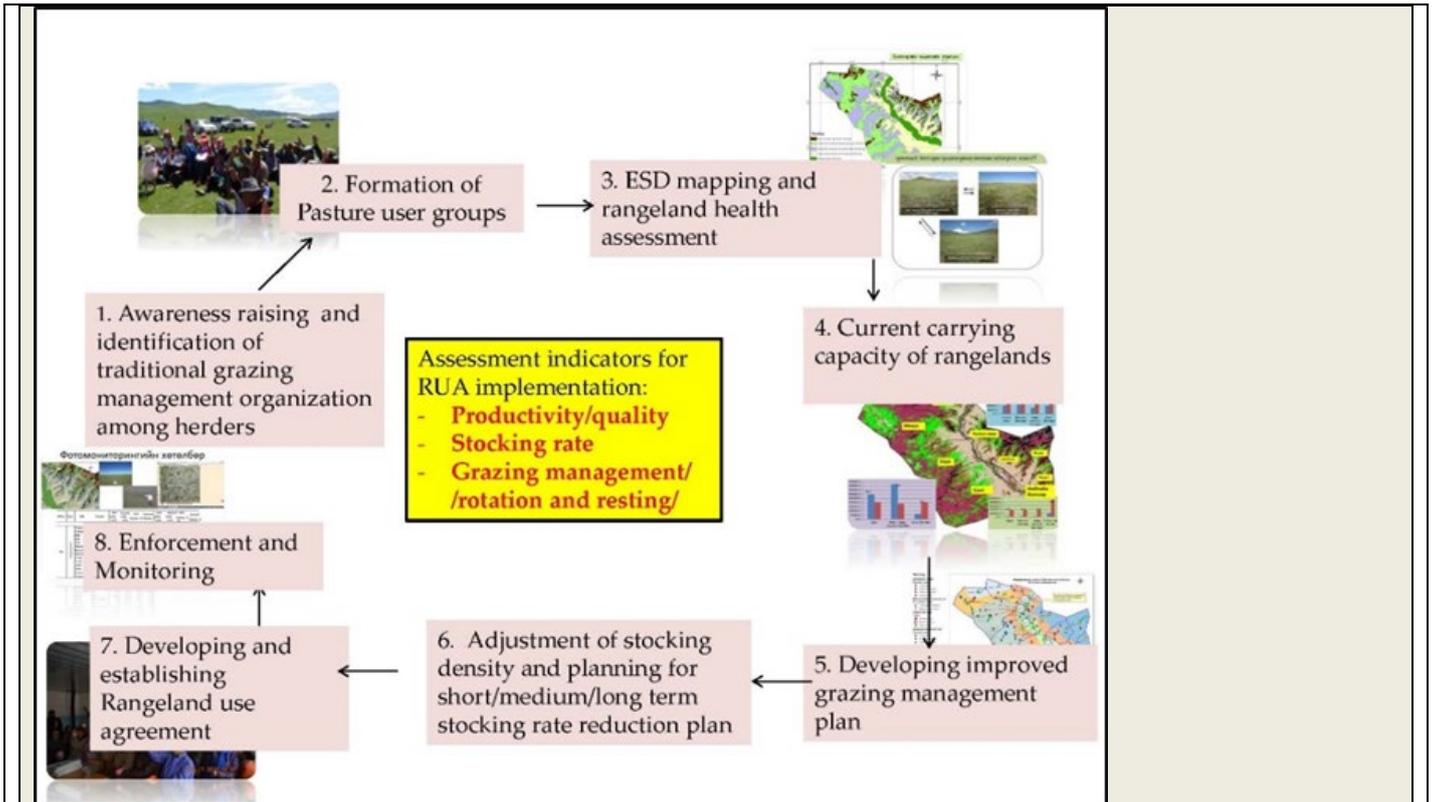
However, in most soums, these organizations are still weak and needs support and capacity building to function properly. Reaching agreements on pasture rotation and rangeland use among herders, and establishing efficient cooperatives and SCC is requires in-depth cooperation among herders.

It starts with the implementation of the PUG/RUA approach which includes 8 major steps which are: 1) Awareness raising among herders and traditional grazing management, 2) Establishment of PUGs, 3) Ecological Site Description (ESD) mapping and rangeland assessment, 4) Carrying capacity of rangeland, 5) Developing rangeland management plan, 6) Adjustment of stocking rates, 7) Development of Rangeland Use Agreement, 8) Implementation, enforcement and monitoring of the RUA (see the illustration below). The whole process combines traditional knowledge of herders in rangeland management with scientific evidence. The main responsibilities belong to the PUGs which needs to define and agree on grazing boundaries of common rangelands, decide on seasonal rotational grazing plans and schedules within agreed boundaries; adopt community-based rules to enforce grazing plans and schedules; and finally to monitor the enforcement of the rules by members. The process is continuously accompanied and facilitated by technical experts and by officials from the bagh,⁷³ soum and aimag level. The RUA needs to be agreed upon by the local authorities which usually have to substantially contribute to it, especially once the RUA is embedded in the soum land management plan. The main law of Mongolia on land management is the Land law. There is no specific regulation for rangeland management, yet in the Land law, there exist two provisions as per rangeland management⁷⁴. This is users/herders may establish agreement on the use of shared seasonal rangelands as a group with the local authority. The second important regulation for rangeland management is the soum annual land management planning methodology which was adopted in 2006 to ensure enforcement of the Land Law. Implementation of this methodology is the mandate of ALAMGaC which has branches in all aimags and land managers in each soum.

The 8 main elements of the PUG/RUA approach

⁷³ Administratively, Mongolia is divided into 21 provinces, called aimags, and one capital city. Each aimag is divided into soums, and each soum are further subdivided into baghs.

⁷⁴ The RUA is a collective and voluntary agreement between a group of herders and the soum government that is (i) legally recognized and registered by ALAMGaC and the Minister of Justice and (ii) socially and politically accepted by all parties. To be legally recognized and registered it must include 5 annexes with information on herds, pasture use, state of rangeland, carrying capacity, etc. Once it includes all requested information and it is signed, it can be registered by ALAMGaC and becomes legally binding, which in itself is a strong incentive for entering into a RUA and complying with its requirements.



The Agency for Land Management and Administration, Geodesy and Cartography (ALAMGaC) has approved rangeland recovery classes and photo-monitoring methodology to monitor RUA implementation. ALAMGaC, the National Federation of PUGs (NFPUG), and the National Agency for Meteorology and Environmental Monitoring (NAMEM) are key institutions to continue updating and ensure enforcement of RUAs beyond the Green Gold Animal Health Project (GG AHP). ALAMGaC and NAMEM represent the State (owner of the rangelands) and NFPUG represents the users (herders). Rangeland ecological recovery class database at the NAMEM are used to define the baseline state of rangeland health upon the establishment of RUA which needs to be measured annually by photo monitoring of rangeland productivity and composition of key indicator species created at the ALAMGaC. Within ASDIP, this will be linked with information on soil carbon content in selected sample sites to further increase the suitability of this system for the measurement of GHG mitigation. The initiative of GG AHP to register rangelands based on PUGs/RUA has been accepted by ALAMGaC two years ago and is progressing smoothly. This will enable the assurance of herders' user rights to their traditional rangelands and monitor the implementation of the RUAs by ALAMGaC. Between 2016-2017, GG AHP has assisted ALAMGaC in revising the existing software to accommodate registration of PUGs and RUA. As of December 2017, 100 PUGs and RUAs have been registered in Mongolia. The new software has enabled to attach photo monitoring indicators updated annually to each of respective PUG/RUAs making it possible to monitor if PUGs grazing management has improved and resulted in improved rangeland health. This has been leveraged into the development of Rangeland protection law that the enforcement tool has already been tested and created in the forms of PUG, RUA and ALAMGaC database. As of December 2017, with the technical assistance of GG AHP, 5,700 sampling sites have been identified in the seasonal rangelands of PUGs and baseline data has been collected and housed in the national database. This means that photo monitoring data base covers now about 60 % of all soums.

Based on existing situation, the project will provide capacity building and technical assistance to establish or work with existing PUGs to develop RUA and Participatory and Inclusive Herd Management Plan (PIHMP), which include item 3 and 4 and go beyond in order to identify the current constraints for rangeland management and livelihood improvement and list activities that are needed to improve the rangeland management, the quality of the herds, the life of herders, and the livelihood of PUG members. As incentives, once the two documents are in place, each PUG will among others benefit from financial support to implement priority items identified in the PIHMP through CPP. The program will build a development process at the soum level which enables the strengthening herders' organizations under low-carbon and climate-resilient development conditions. The model is built on milestones to achieve for further project support as described in **Annex 2, Vol 3**. It also is important to note that the organization process between herders, local and national authorities, and other relevant stakeholders is built on the current herders' organization structure and will act as guarantor for prevention, settlement and resolution of issues and

conflicts related to land and water access and usage. The PUG/RUA approach have contributed to reduce conflicts between herders related to access to communal rangelands and water resources, improved participation of herders in soum rangeland management planning; and herders' participation in local governance.⁷⁵

Step 1: (i) Establish local governance mechanism for the project consisting of Bagh Government, Bagh council, Bagh Herders Group Association. (ii) Organize group discussion and on the project principles and implementation steps. (iii) Make a first assessment on PUGs that are ready to proactively participate in the project. Continue to engage with groups that are not ready until they want to move further.

Step 2: (i) Check the existing RUA or formulate the RUA, assess herds size and composition, and rangeland carrying capacity using existing data from MOFALI, land officer, and the ALAMGaC. (ii) provide capacity building to all targeted PUGs for them to formulate/upgrade the RUA including herd stocking and composition adjustment plan⁷⁶; (iii) Establish the rangeland management objectives, prioritize the list of activities that are needed to improve the rangeland management, the quality of the herds, the life of herders, support to vulnerable groups, and the livelihood of herders, define the plan and annual target for herds reduction and composition, and develop PUG's aspirations for the creation of a soum-level cooperative. Compile all those elements in the Participatory and Inclusive Herd Management Plans (PIHMP).

Step 3: PUG which has signed a RUA, elaborated a stocking adjustment plan, prepared a PIHMP, and committed to the cooperative establishment are considered *certified*⁷⁷ PUG/HG and are eligible for financial support for micro-projects and activities identified through Community Participation in Procurement (CPP), and support for cooperative establishment, see Annex 16. Continue to engage with those who are not ready. Go to the next steps for those ready.

Step 4: Priority activity investment plan and financing plan are developed, and CPP activities are implemented.⁷⁸

Step 5: Once several PUGs are certified, the project supports the creation of a herders' cooperative (referred to as *soum coop*) through seed funding, herder participation⁷⁹, and capacity building. In the case where there is a functioning cooperative, and where it is deemed that the project should rather build on and improve the existing cooperative, the project will provide technical support and advice to the existing cooperative for the coop to meet the project requirements for financial support. Soum coops will benefit from technical and financial support to establish intersoum, aimag and regional level organizations of cooperatives. Cooperatives are to play a key role in the marketing of products, which includes the collection of raw materials and quality check and implementation of traceability and certifications systems. Cooperatives will manage key assets for production and will be supported to invest in pre-processing of animal raw materials, which can be done at the soum by the cooperatives and its member herders. Also, the cooperatives will be supported to invest in/partner with private sector entities who invest in pre-processing and processing facilities (cf. output 3). The cooperative will contribute to establish the green agri-business plan at soum and intersoum/aimag level.⁸⁰

The table below summarizes the actions, support linked with the program activities, and responsibilities to each target group leading to a more low-carbon and climate-resilient rangeland management. For more details see Annex

⁷⁵ Green Gold's report on Pasture User Groups (2017)

⁷⁶ The stocking adjustment plan indicate annual objectives for herds reduction at the PUG level.

⁷⁷ Certification is based on sustainability criteria and makes the PUGs eligible for further project support.

⁷⁸ Rangeland small scale investment for 90 PUG/6,315 herders HH: \$2,000 for grant for small scale investment/per herders for 6,315 herders HH. GCF grant will cover 76.25%, that is \$1,525, rest will come from beneficiaries). This represents about 90 PUGs. It should be noted that this is only one incentive and that the full set of incentives is much wider (Annex 19 of the FP, Table 3 of the FP).

⁷⁹ Initial capital of the cooperative should come from the herders, with in-kind or cash participation of about 200,000-500,000 MNT.

⁸⁰ Seeds money for working capital and equipment to establish Coop for 30 Soum Coop, 5 Aimag/Intersoum Center Coop; 3 Aimag coop organization; and 1 Regional Coop Organization; Operation costs over 5 years for Soum PUG associations (SPUGA) and Aimag PUG Associations (APUGA): (i) \$132,000 grant support in average per coop over 5 years for initial capital investment, initial working capital and support to fixed charges - 30 coop; (ii) Up to \$80,000 grant support per intersoum/aimag center coop over 5 years for initial capital investment, initial working capital and support to fixed charges - 5 coop; (iii) Up to \$84,000 grant support per aimag coop organization over 5 years for initial capital investment and support to fixed charges - 3 organizations; (iv) Up to \$117,000 grant support for regional coop organization over 5 years for initial capital investment and support to fixed charges; (v) Up to \$90,000 per year grant support for all SPUGA and APUGA in the three aimags.

2, Vol 3 and / or to FP Annex 19 Mechanisms to support PUGs, cooperatives and SCCs, and incentives for reduction of herds.

Table 3. Overview of support for low-carbon and climate-resilient rangeland management.

Target	Action	Support	Responsibilities
Herders	<ul style="list-style-type: none"> - Form PUG/herders group - Sign the RUA and contribute to PUG's commitment for stocking adjustment - Participate in the Participatory and Inclusive Herd Management Plan (PIHMP) - Participate in the CPP 	<ul style="list-style-type: none"> - Awareness, Capacity Building, Technical Advisory (Output 4 – Activity 2) 	<ul style="list-style-type: none"> - Implement the stocking adjustment plan - Participate in community financial contribution to microprojects financed by the CPP, use and maintain the assets
PUG	<ul style="list-style-type: none"> - Sign RUA and elaborate stocking adjustment plan - Formulate PIHMP - Own/Use the CPP asset⁸¹ - Establish/join the Soum coop 	<ul style="list-style-type: none"> - Legally binding RUAs providing a strong and permanent basis for access to rangelands for the herders in the PUG. - Awareness, Capacity Building, Technical Advisory (Output 4 – Activity 2) - Up to \$2,000/herder household of the PUG grant support per PUG to implement priority investment identified in the PIHMP (Output 2-Activity 1) - Training of a Community-Based Animal Health Workers (output 4-activity 2) - Provision of veterinary equipment (Output 2 – Activity 5) 	<ul style="list-style-type: none"> - Implement RUA and stocking adjustment plan - Implement the PIHMP - Implement the CCP - Raise herder awareness on animal vaccination and traceability
Soum association of PUGs/HGs	<ul style="list-style-type: none"> - Own the CPP asset - Inter-PUG/HG coordination and linkage with local government 	<ul style="list-style-type: none"> Awareness, Capacity Building, Technical Advisor (Output 4 – Activity 2) 	<ul style="list-style-type: none"> - Support RUA registration - Traceability system input
Aimag Federation of PUGs	<ul style="list-style-type: none"> - Implementation of capacity building programs to PUGs/HGs and coordination of activities at aimag level 	<ul style="list-style-type: none"> Awareness, Capacity Building, Technical Advisor (Output 4 – Activity 2) 	<ul style="list-style-type: none"> - Data monitoring - Traceability system input
Bag/Soum Gov	<ul style="list-style-type: none"> - Support and participate in the formation of PUG/HG - Sign the RUA and register RUA in the ALAMGaC database - Own the CPP asset 	<ul style="list-style-type: none"> Capacity building and technical assistance to soum land officers (Output 4 – Activity 2) 	<ul style="list-style-type: none"> - Registration of data within ALAMGaC system
Soum Coop	<ul style="list-style-type: none"> - Gradually integrate PUGs/HGs of the soum when meeting low-carbon criteria - Form/join the intersoum joint cooperative and aimag level organization of coops - Management of assets for increased animal productivity 	<ul style="list-style-type: none"> Awareness, Capacity Building, Technical Advisory (Output 4 – Activity 2) \$132,000 grant in average support per coop over 5 years for initial capital investment, initial working capital and support to 	<ul style="list-style-type: none"> - Collection of raw material and 1st quality checking - Participation in traceability and certification systems and respect low-carbon criteria

⁸¹ CPP assets can be owned by herder groups, soum association of PUGs, bag/soum governments, or soum coops, depending on type of asset, number of users, and herders' preference.

	(such as disease-free establishments) - Marketing of raw and pre-processed / processed material - Own the CPP asset	fixed charges ⁸² (Output 2 – Activity 2)	
Intersoum joint cooperative	- Investment in animal raw materials pre-processing and processing - Market the coops products in the inter-soum agro-park industries - Support the creation of partnerships between the private sector's entities and the cooperatives, with profit-sharing agreements, for investments in fodder production, slaughterhouse, wool and cashmere processing facilities, dairy farms, and meat, hide, and skin industries - Technical support on animal health and improvement of products quality - Help coops to access bank loans	Awareness, Capacity Building, Technical Advisory (Output 4 – Activity 2) Fund for investments through eligibility under GIRAF (10% of total investment) in meat processing facilities and fodder farms (Output 3 – Activity 1) Up to \$80,000 grant support per coop over 5 years for initial capital investment, initial working capital and support to fixed charges (Output 2 – Activity 2)	- Marketing of products and participation to traceability & certification process - Participation in traceability and certification systems and respect low-carbon criteria
Aimag organization of cooperatives	- Investment/partnership with private entities investing in pre-processing facilities - Investment in animal raw materials pre-processing and processing - Marketing of raw materials and linkages with processors - Technical support on animal health and improvement of products quality - Help coops to access bank loans	Capacity Building, Technical Advisory (Output 4 – Activity 2) Up to \$150,000 grant support per aimag organization over 5 years for initial capital investment and support to fixed charges (Output 2 – Activity 2)	- Marketing of products and participation to traceability & certification process
Regional organization of cooperatives	- Create international market linkage and support in standards requirement	Capacity Building, Technical Advisory (Output 4 – Activity 2) Up to \$135,000 grant support over 5 years for initial capital investment and support to fixed charges (Output 2 – Activity 2)	- Marketing of products and participation to traceability & certification process

Box 4. High mountain water conservancy pilot

The high mountain water accumulation is an important water saving and storage investment that will help to cope with the impact of climate change on the precipitation patterns. This is a high priority of the Government of Mongolia, included in Mongolia's GCF programming and described in an earlier concept note called *High mountain water accumulation to alleviate negative impacts of climate changes in high mountain area of Mongolia* and alternatively *High altitude water management to alleviate the negative impacts of climate changes in the Mongolian Altai*.

The pilot is part of Output 2, activity 3 of ASDIP, which consists of two linked sub-activities, one related to irrigated schemes for fodder farms, and one related to an ecosystem based high mountain water conservancy and harvesting pilot to be used in the irrigated schemes. Fodder production sequesters carbon at the rate of slightly

⁸² In addition, there is herders' investment which represents about 10% of total capital investment and 30% of fixed charges. The APOs/Technical Assistance will seek higher herders' contribution (thus reducing ASDIP's contribution), in order to increase ownership feeling and appropriation by herders, thus ensuring higher sustainability. Amounts indicated are thus ceiling amounts.

more than 1 tCO₂e per hectare per year and supports the reduction of grazing intensity by providing an additional source of animal feed and increasing output per animal⁸³.

The second sub-activity (the high mountain water conservancy pilot) aims at building the climate changes resilience of highly vulnerable and water-dependent rural populations near the Kharkhiraa, Turgen and Khovd rivers located in western Mongolia through glacier melt water and precipitation conservation and management measures for sustaining adequate water availability for animal husbandry, farming, household use, pasture, wildlife and freshwater lake ecosystems. The investment activity will collect and accumulate glacier melt water, spring snow melt water and heavy summer rain and flood water of the Mongol-Altai mountains, Great Lakes depression, Kharkhiraa, Turgen and Khovd rivers in the western part of Mongolia. The collected water will be used for different purposes, including agriculture, livestock, power production and sustaining natural water systems, such as lakes and groundwater. Water will be collected in river bed associated ponds and partially distributed to restored ancient irrigation systems, allowing for increased resilience and adaptation of local communities to climate change, in particular through the stabilization of water resources, the reversion of the current trend of rapid degradation of rich mountain pastures for livestock and wildlife, and the prevention of a possible shutdown of traditionally irrigated crop production, which served as a principle income source for certain local communities for several hundreds of years. The sub-activity also contributes to GHG mitigation because it ensures the availability of water for feed production. Availability of feed in winter is crucial to main animal weight and productivity and reduce mortality and reduces the amount of “catch-up grazing” needed after winter. By making water availability more certain, the sub-activity takes away the main risk factor of feed production and provides an important impetus to the local production of affordable feed. This will enable grassland restoration, improve productivity of animals and herds, and reduces input per animal. Moreover, earlier analyses conducted with ADB support have shown that feed production can be commercially attractive and at the same time in itself sequester carbon, independent of the impact on rangelands and GHG intensity of animal husbandry outputs⁸⁴. This, however, assumes that sufficient water is available for feed production.

In addition, the sub-activity has a direct favorable impact on rangelands. As plant coverage on the ground is reduced, water absorption decreases, and palatable plants are not able to grow due to the lack of soil moisture. Rangeland plant growth depends on moisture supply, particularly in springtime (May)—the period of revitalization. At this time, it is important to create favorable conditions for the soil to absorb and retain a sufficient supply of moisture⁸⁵. This is exactly what the sub-activity aims to achieve.

Output 3 is implemented through the financial intermediation loan (FIL) component of the MFF. It includes the following activities in Tranche 1, and the same activities will be replicated in Tranches 2 and 3:

Activity 1 - Provision of accessible low-carbon and climate-resilient agribusiness loans and credit guarantees to herders cooperatives and SMEs. It includes

- Lending Window 1, to provide low-carbon and climate-resilient agribusiness loans through qualified participating banks for small- and medium-sized enterprises (SMEs) in partnership agreements with herders’ cooperatives and herders engaged in sustainable rangeland management, or promoting advance processing, commercial and logistic investments for retail and exports; and other forms of economic diversification;
- Lending Window 2, to provide direct low-carbon and climate-resilient agribusiness loans to qualified medium- and large-enterprises who are involved in livestock production, processing, distribution and marketing, and export. The enterprises to qualify must have business plans that include a clearly articulated approach for working and sharing their profits, with herders’ cooperatives or herders engaged in sustainable rangeland management. They must also demonstrate congruence and consistency with the LCADP;
- A low-carbon and climate-resilient credit guarantee facility to provide low-carbon and climate-resilient credit risk mitigation for financial institutions participating in the project and to facilitate the

⁸³ Wilkes, A. and N. Batjargal (2015), *Mainstreaming Climate Technology in Mongolia: Report for the Agriculture sector*. Report prepared under TA-8109, Integration of Climate Technology Financing Needs into National Development Strategies, Plans, and Investment Priorities.

⁸⁴ Wilkes, A. and N. Batjargal (2015), *Mainstreaming Climate Technology in Mongolia: Report for the Agriculture sector*. Report prepared under TA-8109, Integration of Climate Technology Financing Needs into National Development Strategies, Plans, and Investment Priorities.

⁸⁵ Dagvadorj, D., T. Tennigkeit, A. Wilkes and C. Yeager (2013), Nationally Appropriate Mitigation Actions for Grassland and Livestock Management in Mongolia. *ADB Brief No. 13*, May 2013.

acceptability of collateral substitutes to be developed as part of the project's LCLVC financing schemes; and

- A pilot Lending Window 3 to focus on low-carbon and climate-resilient microfinance to be channeled through savings and credit cooperatives (SCCs) to certified herders and their households. The pilot program will be expanded during Tranche 2 in order to support livestock-related home-based businesses and microenterprises with plans to locate in the business incubators under Output 1.

Activity 2 - Provision of innovation grants for low-carbon and climate-resilient livestock value chains to qualified herders and SMEs. This entails the delivery of:

- Low-carbon and climate-resilient innovation grants to provide business incentives designed to commercialize innovations leading to greener, more inclusive, and competitive LCLVCs.

For Output 3, the GCF loan will finance Activity 1 with financing contribution from participating commercial banks. Activity 2 will be fully financed by the GCF grant.

Box 5 provides an overview of some of the key elements of Output 3, while Annex 2, Vol IV provides a more detailed discussion.

Box 5. Summary of the Green Inclusive Regional Agribusiness Fund (GIRAF).

Traditional barriers to access to agriculture finance. The World Bank in analyzing how climate finance can work in agriculture has noted that access to sufficient and adequate finance has been a challenge to the agriculture sector (including the livestock industry) in developing countries for decades due to perceptions of low profitability, low margins for financiers, and high actual and perceived risks (among other issues). Financiers in most countries, therefore have reacted by limiting their exposure to the sector, raising interest rates, tightening the lending criteria, shortening terms, imposing onerous lending terms, and often shing away from lending to agriculture at all, seeking more stable returns from other sectors of the economy. The three major barriers that have traditionally limited the access of smallholder farmers/herders and SMEs to sufficient and adequate finance—often referred to as the missing middle in agriculture literature—are (i) high transaction costs, (ii) inadequate enabling environments, and (iii) insufficient capacity of the financial sector to manage specific agriculture risks.⁸⁶ These constraints to agriculture finance are evident in Mongolia as discussed in several ADB studies and based on consultations conducted in the ASDIP-targeted aimags and soums. Addressing these constraints will pave the way for climate change mitigation and adaptation finance to support the transition to sustainable rangeland and consequently, a more climate-smart livestock sector in Mongolia.

The GIRAF fund structure and management. For the delivery of Output 3, financing and implementation arrangements will facilitate the application of a blended climate change mitigation and adaptation finance strategy to support a climate-smart, low-carbon livestock sector in Mongolia using a financial intermediation loan (FIL) component.⁸⁷ Under the proposed FIL component of ASDIP, the Asset Management Company of DBM (AMC-DBM) will establish the GIRAF on behalf of the Ministry of Finance (MOF) to support the climate change mitigation and adaptation investment requirements of sustainable rangeland management. Simultaneously, it will address the financing constraints preventing the livestock herders, PUGs, and agriculture cooperatives as well as their partner business enterprise from capturing the full benefits of a competitive and inclusive LCLVC.⁸⁸ Through the GIRAF,

⁸⁶ Marc Peter Sadler. 2016. *Making Climate Finance Work in Agriculture*. World Bank: Washington, D.C.

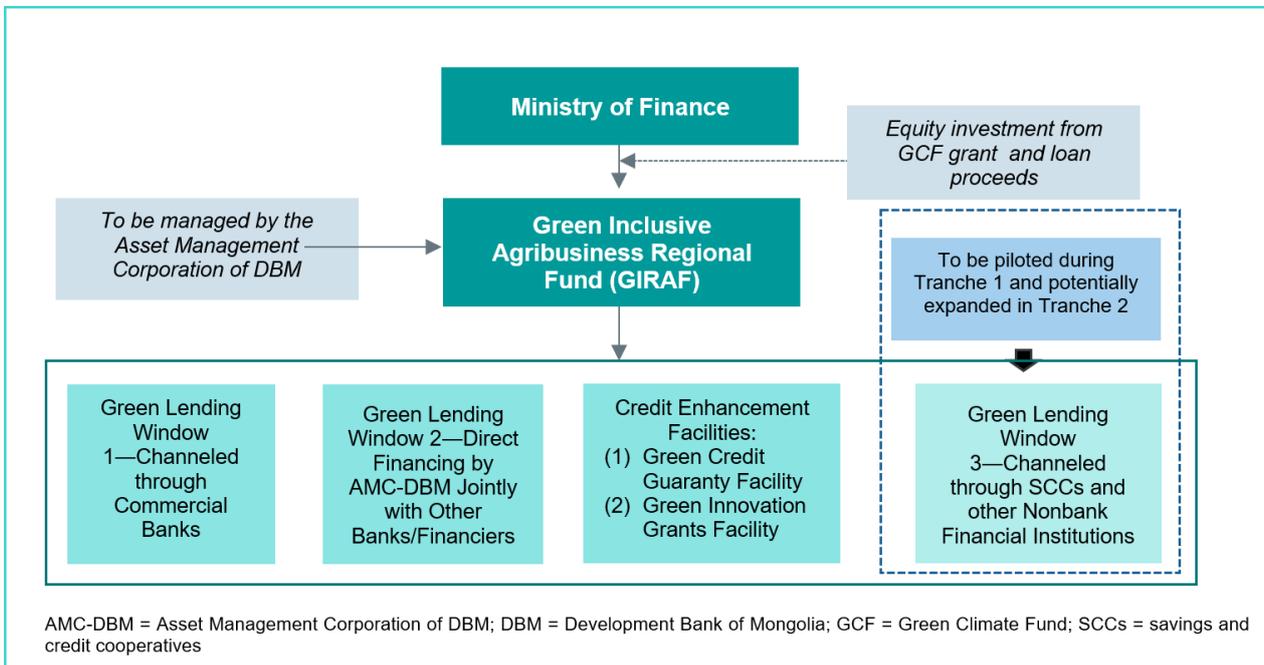
⁸⁷ ADB provides a financial intermediation loan (FIL) on a stand-alone basis, or as components of sector development programs or sector or project loans, to finance specific development projects whose individual financing requirements are not large enough to warrant its direct supervision. ADB funds can be directly provided to one or several financial intermediaries depending on their management and administrative capabilities or channeled to financial intermediaries through the government and/or apex wholesale financial mechanisms, where conditions necessary for their sustainable operation exist. Apex institutions are usually financial institutions through which donor-funded financial intermediation loans are channeled to a second layer of financial intermediaries, who will in turn onlend such loan proceeds to the subborrowers. Apex institutions take the credit risk on the second-tier intermediaries.

⁸⁸ Based on Government Resolution 135 and DBM Board of Directors Resolution 66 dated 23 August 2017, DBM established AMC-DBM and acquired special license for investment management services. In accordance with Financial Regulatory Commission Resolution 241 dated 15 December 2017, AMC-DBM received the right to establish and manage investment funds.

AMC-DBM will leverage GCF funding to attract additional investments from commercial banks and nonbank financial institutions, small-, medium, and even large enterprises, agricultural cooperatives, and the government.

Under ASDIP, the Government will invest \$87.61 million from the GCF loan proceeds into the GIRAF which will be managed by AMC-DBM as the apex financial institution. It will also pass on the \$5 million reimbursable grant proceeds to the GIRAF to finance low-carbon, climate-resilient innovations. The GIRAF will be established as a private investment fund⁸⁹ and structured as a revolving fund. Cognizant of the different climate-smart financing needs of a LCLVC's stakeholders, the fund will initially operate with (i) two low-carbon, climate-resilient lending windows to be channeled through participating commercial banks or directly through AMC-DBM jointly with other banks and financiers, (ii) a low-carbon and climate-resilient credit guarantees facility, and (iii) a low-carbon climate-resilient innovations grant facility for incentivizing investments to commercialize innovations leading to a greener, more inclusive, and competitive LCLVC (**Figure 6**). Another low-carbon and climate-resilient lending window to address the financing needs of microenterprises and which will channel loans through qualified savings and credit cooperatives (SCCs) and other nonbank financial institutions will be piloted during Tranche 1 to be potentially launched and expanded in Tranche 2. For the first two low-carbon and climate-resilient lending windows, business enterprises in partnership with herders or herders' cooperatives engaged in low-carbon and climate-resilient rangeland management and urban-rural linkages as well as diversification of the livestock agribusiness value chain will be eligible to borrow.

Figure 6: The Green Inclusive Regional Agribusiness Fund Structure



On-lending and relending mechanisms. Participating commercial banks will be selected using an eligibility and selection criteria that includes the following: (i) must be a duly registered bank in Mongolia under the applicable laws of Mongolia; (ii) must have a proven track record of at least 3 years in agriculture and agribusiness finance; (iii) must have adequate capacity to conduct retail banking for agriculture and agribusiness in the targeted aimags and soums; (iv) must be currently implementing or have plans to implement a financing program for green growth initiatives including carbon finance; (v) have corporate, financial, and governance practices that are acceptable to ADB; (vi) satisfy ADB's due diligence requirements for integrity, anti-money laundering, and counterfinancing of terrorism, and have put in place measures to implement such controls; (vii) have no past due obligations with the Bank of Mongolia (BOM) or adverse audit findings; (viii) have an adequately maintained financial management system including accounting records, procedures, and internal as well as risk management control systems that are satisfactory to ADB; (ix) have an established ESMS or is willing to setup such in a manner acceptable to ADB, including appointing qualified staff to manage and implement the system; and (x) willing to designate experienced professional staff who will report progress to, and coordinate relevant activities with the GIRAF, DBM, AMC-DBM,

⁸⁹ Private investment fund is one of the two types of funds available under the Mongolian law. The other is public investment fund, which is a mutual fund.

MCUD and MOFALI. Due diligence of the preselected commercial banks will be carried out and updated at least twice a year during the program implementation.

The GIRAF Lending Window 1. Three categories of subprojects are eligible for financing under this window. The details of each and their financing terms are discussed in the table below: ⁹⁰

Category 1 Subprojects

Eligible sub-borrowers and subprojects	<p>Under this lending window, the GIRAF will provide low-carbon, climate-resilient agribusiness loans through qualified participating banks for the following essential LCLVC related agribusiness subprojects involving (i) certified herders' cooperatives or (ii) SMEs in partnership agreements with certified herders' cooperatives where it is stipulated that the latter has contributed to the financing of the total subproject cost and will receive at least a 10% share of the subproject profits:</p> <ul style="list-style-type: none"> (i) New slaughterhouses/meat processing to be located in the ASDIP-financed agroparks in the targeted aimags and intersoum centers; (ii) New irrigated perimeters (for fodder crops and seeds growing only, other uses are not eligible for financing under this window) (iii) Relocate processing facilities to the point of need, limiting the requirements for transport, and reducing the transport emissions and emissions resulting in wastage during transport. (iv) Subprojects that introduce low-carbon and climate-resilient technologies into the production process, such as renewable energy and use of waste materials (v) Subprojects that provide herders on a commercial basis with inputs such as breeding services improved access to water and feeds to help them adapt to climate change and lower their GHG emissions and grazing pressure
Eligible subloan expenditures	<ul style="list-style-type: none"> (iii) Working capital requirements (iv) Equipment purchase (v) Civil works (vi) Feasibility study/business plan preparation (vii) Surveys integral to the feasibility study/business plan preparation (viii) Detailed engineering design
Indicative subloan size	Up to US\$350,000 or MNT equivalent
Indicative lending terms	Interest rate: 7% per annum; Term: working capital loans (up to 2 years), others: (up to a maximum of 7 years); Grace period: up to 3 years

Category 2 Subprojects

Eligible sub-borrowers and subprojects	<p>Under this lending window, the GIRAF will provide low-carbon and climate-resilient agribusiness loans through qualified participating banks for the following livestock processing-related agribusiness subprojects in the value chain involving (i) SMEs in partnership agreements with certified herders' cooperatives (where the latter have a minimum share of 10%-15% of the subproject profits), or (ii) SMEs signing sales & purchase agreement with its suppliers such as the certified herders, PUGs, herders cooperatives (schedule & quality) which indicate that suppliers are paid for the raw materials and annual (or seasonal) profit sharing, or (iii) SMEs in partnership with certified herders provided there is a mutually agreed work and profit sharing agreement among the two parties:⁹¹</p> <ul style="list-style-type: none"> (i) Meat (ii) Skin (iii) Wool (iv) Cashmere (v) Dairy <p>These agribusinesses, to be financed, must be included in the LCADP to be formulated with the support of ASDIP for the targeted aimags and soums using a participatory, consensus building approach among the agribusiness value chain stakeholders. They should also be</p>
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⁹⁰ The low-carbon and climate-resilient loan financing terms indicated for each window are based on a survey of prevailing agricultural finance programs in Mongolia which are funded by the government and/or international donor agencies. Analysis conducted under the transaction technical assistance (TRTA) based on consultative meetings with banks and the private sector on June to September 2018 at the targeted aimags and soums revealed that access to finance by the herders, herders' cooperatives and agriculture/agribusiness SMEs has been severely limited, lending credence to the missing middle financing gap in Mongolia's aimags and soums, particularly for the livestock agribusiness sector.

⁹¹ Tannery businesses are not eligible due to their high environmental impacts.

	located in the ASDIP-financed agropark in an aimag or intersoum center. For agribusinesses engaged in meat, skin and hide, they must be located in an ASDIP-financed agropark where there is a slaughterhouse/meat processing facility that is operational or will soon be operational.
Eligible subloan expenditures	(i) Working capital requirements (ii) Equipment purchase (iii) Civil works (iv) Feasibility study/business plan preparation (v) Surveys integral to the feasibility study/business plan preparation (vi) Detailed engineering design
Indicative subloan size	Up to US\$500,000 or MNT equivalent
Indicative lending terms	Interest rate: 7.5% per annum; Term: working capital loans (up to 2 years), others: (up to a maximum of 7 years); Grace period: up to 3 years
Category 3 Subprojects	
Eligible sub-borrowers and subprojects	Under this lending window, the GIRAF will provide low-carbon and climate-resilient agribusiness loans through qualified participating banks for subprojects involving certified herders cooperatives and their business partner enterprises in off-pastureland, non-wood related, less GHG-intensive economic diversification. Subprojects that are related to the vegetable agro-value chain or manufacturing by-products that are key to the herders' livelihood income, food security or support economic diversification will also be eligible for financing under this window, even if they are not mentioned in the LCADP. These may include but not limited to the following: (i) Subprojects related to livestock marketing including the export market; (ii) Subprojects that are related to service industries operating in the aimag and intersoum centers and which can provide the certified herders household with alternative income sources; (iii) Greenhouse Farming (Note: There are no restrictions on the location of this type of subproject); and (iv) Animal waste valorization businesses to be located in the ASDIP-financed agroparks in the targeted aimags and intersoum centers. The above agribusinesses, to be financed, must be in the LCADP to be formulated with the support of ASDIP for the targeted aimags and soums using a participatory, consensus building approach among the agribusiness value chain stakeholders.
Eligible subloan expenditures	(i) Working capital requirements (ii) Equipment purchase (iii) Civil works (iv) Feasibility study/business plan preparation (v) Surveys integral to the feasibility study/business plan preparation (vi) Detailed engineering design
Indicative subloan size	Up to US\$1 million or MNT equivalent
Indicative lending terms	Interest rate: 8.5% per annum; Term: working capital loans (up to 2 years), others: (up to a maximum of 10 years); Grace period: up to 3 years
<p>The GIRAF Green Lending Window 2. Under this lending window, the GIRAF will directly provide low-carbon, climate-resilient agribusiness loans in parallel financing with other banks and/or financial institutions valued at \$500,000 up to \$5 million to qualified medium- and large-enterprises who are involved in low-carbon and climate-resilient livestock production, processing, distribution and marketing, and exports in the meat, skin, hide, dairy, wool and cashmere value chains.</p> <p>To receive financing under this window, the business plans of these medium and large enterprises must include a clearly articulated approach for:</p> <ul style="list-style-type: none"> ▪ working and sharing their profits, with certified herders' cooperatives engaged in sustainable rangeland management; ▪ promoting low-carbon, climate-resilient rural-urban linkages and development; incorporating investments that reduce the GHG impacts of energy use such as solar panel, solar rooftops, or energy efficiency measures; 	

investments that use waste products or reduce wastage (losses in the value chain); and investments that shorten the distance raw materials and products need to travel, thereby reducing the amount of GHG emissions related to transport;

- generating additional jobs and employment in the process reinvigorating the LCLVC, and
- diversifying as well as making more competitive the local economies of the ASDIP-targeted aimags and soums.

The proposed agribusinesses must also be able to demonstrate congruence and consistency with the LCADP to be formulated with the support of ASDIP in the targeted aimags and soums. Eligible subloan expenditures will include civil works, equipment, feasibility studies and business plan preparation including all necessary surveys, and detailed engineering design. The interest rate to be charged by the GIRAF for this window, currently estimated at 10% to 12% per annum, will be a product of the blended finance to be provided, reflecting to the greatest extent possible, the concessionality provided by the GCF loan financing.

The GIRAF Low-Carbon and Climate-Resilient Credit Guarantee Facility. Based on a review of the lessons learned from similar types of agricultural credit guarantee facilities/funds in Asia, Europe and Africa, the credit guarantee facility (CGF) of the GIRAF has been designed to (i) provide a third-party credit risk mitigation tool to lenders through the full or partial coverage of the lender's losses on the GIRAF subloans to agricultural cooperatives, microenterprises, SMEs, even large enterprises, in case of default; (ii) serve as a collateral substitute for the missing middle sub-borrowers of the GIRAF mostly comprising the agricultural cooperatives and SMEs, with no hard collaterals such as real estate properties; (iii) facilitate acceptability of collateral substitutes used in innovative agribusiness value chain financing schemes such as receivables discount financing, also known as factoring, and (iv) enable the adoption of lower lending rates since the guaranteed portion of the subloans which may be categorized as posing minimal or zero risk to the lending financial institutions.

The basic features of the CGF will include the following: (i) the guarantee/insurance premium structure and coverage will depend on the size, purpose, and sub-borrowers of the GIRAF subloans; (ii) the ceiling for subloan-to-collateral value will be structured depending on the capacity to repay of the sub-borrowers and the collateral(s) they are able provide; (iii) the extent of the guarantee coverage to be adopted will range from 70% to 90% of the subloan value, depending on the purpose, size and tenor of the subloan and the type of sub-borrower; (iv) occurrence of default or failure of the sub-borrower to pay applicable amortization will be defined based on the nature and amortization scheme of the subloan; (v) enrollment of accounts may be undertaken with a system of representations and warranties to be provided by the participating lending financial institution; and (vi) AMC-DBM as facility manager will have the right to conduct random audits to assess the documentary status and financial viability of enrolled subloans under the credit guarantee line of a participating lending financial institution.

Credit Guarantee Enrolment. Participating financial institutions providing GIRAF low-carbon and climate-resilient subloans are all eligible to avail of the fund's credit guarantee coverage. The process for enrolling and making a call on the CGF of GIRAF will be as follows: (i) Financial institutions (banks, SCCs, and nonbank financial institutions) apply for a credit guarantee line with the GIRAF; (ii) AMC-DBM evaluates the applications against the approved CGF eligibility criteria for participating financial institutions under the GIRAF Lending Windows 1 and 2; (iii) For applications approved, a contract of guarantee will be executed between AMC-DBM and the applicant financial institution. The contract will cover provisions on the structure of the guarantee premium, extent of coverage and subloan ceilings, subloan to collateral value, borrowers' equity, acceptable collateral and valuation, eligible subloan purposes, and definition of default based on applicable payment schedule of guaranteed subloans; (iv) The financial institutions with approved credit guarantee line and contract of guarantee with AMC-DBM will enroll eligible subloans from the GIRAF Lending Windows 1 and 2 under their respective guarantee line with a letter of enrollment stating the required warranties and representations which will include: (a) the completeness of documents evidencing the subloan and the collateral/s securing the repayment thereof are valid, binding and enforceable against the sub-borrower; and (b) the reasonable examination of the loan accounts to ensure credit worthiness of the borrower under credit policies and guidelines on underwriting the loans extended by FI are compliant to provisions of the contract of guarantee.

Call Procedure on the Guarantee. In the event of a default, as defined in the contract of guarantee, the financial institution will file a claim against the guarantee cover for the defaulting account and forward all documents and other requirements for evaluation of the call by AMC-DBM. A valid claim on the guarantee coverage of an account will trigger the processing of a call payment on the outstanding principal of the insured loan. However, the financial intermediary will warrant the continuing management of the defaulting account to enable, if possible, the recovery of the subloan call payments by the CGF.

The GIRAF Low-Carbon and Climate-Resilient Innovation Grants Facility. Mongolia's agriculture sector is the second largest contributor to the country's GDP with a share of 11% and the biggest source of employment, providing jobs to nearly 35% of the country's economically active population. Within agriculture, the livestock industry is the largest GDP contributor with a share of almost 85%. However, despite the comparative advantages of the Mongolian livestock industry and the tremendous market opportunities available, both domestically and internationally, there are still too few successful livestock agribusinesses that operate successfully in the market. What exists in the aimags and soums of Mongolia is a plethora of micro- and small business enterprises which are unable to transform into middle and large enterprises comprising an economically competitive, climate change resilient, and socially inclusive industry. There are many impediments to the transformation: a lack of marketing and marketing knowledge, inappropriate technology, a weak value chain integration, inaccessible financing, and insufficient innovations. The result is a perverse cycle of low value added to the livestock sector, inadequate income, and poor livability; exacerbating the need to increase the number of animals leading to further rangeland degradation. The primary objective of the GIRAF Low-Carbon and Climate-resilient Innovation Grants Facility (GIGF) is to increase the competitiveness and growth of pioneering agribusiness livestock enterprises in Mongolia's aimags and soums by advancing low-carbon, climate-resilient agribusiness products, processes, and business model innovations. It will seek to catalyze low-carbon green and inclusive regional agribusiness growth by accelerating the transformation of micro-and small agribusiness enterprises into competitive medium- and large scale enterprises with the capacity to invigorate and diversify Mongolia's livestock value chain, in the process alleviating rangeland degradation and promoting more efficient markets and integrated rural-urban development.

Eligible Financing, Structure, and Management of the Facility. The total requested GCF grant for the ASDIP program is \$45 million, \$5 million of which has been earmarked for the GIGF of the GIRAF. From the total GCF grant, \$25 million has been allocated to Tranche 1. Of this Tranche 1 GCF grant allocation, \$3 million will be passed on as a grant by the Government of Mongolia (GOM) to the GIRAF for the GIGF innovation grants.

The Asset Management Corporation of the Development Bank of Mongolia (AMC-DBM) which is tasked to establish and manage the GIRAF in accordance with the Mongolian Investment Law will set up the GIGF as a revolving fund under the GIRAF. As such, the facility will also be managed by AMC-DBM in accordance with the grant policies and mechanics approved by the ASDIP Executive Working Group (EWG) and the Financial Regulatory Commission (FRC).⁹² The financial management system of the GIGF will adhere to the relevant standards and procedures to meet ADB requirements, including separate accounting, reporting, auditing, and monitoring systems appropriate for grants. AMC-DBM will appoint a **Grant Administrator** to ensure the smooth functioning and operations of the GIGF. He or she will report directly to the AMC-DBM appointed Fund Manager and will have primary responsibility for the following: (i) evaluation of the grant applications in accordance with the GIGF criteria, (ii) recommendations on GIGF grant awards, and (iii) grant administration including disbursements and monitoring evaluation. In these tasks, he or she is expected to ensure that the GIGF strictly adhere to the grant policies and mechanics approved by the FRC and the ASDIP EWG.

Grant Mechanics and Operations. Eligible Grant Recipients. Eligible grant recipients are the innovative and SMEs whose written policies and ongoing and proposed programs demonstrate a firm commitment to agribusiness innovations and competitive growth. They must also be working in partnership or in association with herders' engaged in sustainable low-carbon and climate-resilient rangeland management and which has the potential to become leaders in the low-carbon and climate-resilient livestock agribusiness value chain, as evidenced by their corporate values, strategies and priorities as well as network. They must be registered SMEs in Mongolia, established in accordance with all relevant Mongolian laws and must be operating profitably for at least two years, with no adverse audit findings, at the time of grant application. SMEs deemed eligible to borrow from any of the GIRAF Lending Windows are also eligible to apply for grants from the GIGF. If they are already a GIRAF sub-borrower, their account must be in financial good standing, with no defaults and no adverse audit findings. In addition, they have to meet the subproject eligibility criteria specified by GIGF.

Eligible Subprojects. Subproject Eligibility Criteria. To be eligible a subproject proposal will have to demonstrate compliance with all of the following six requirements below:

⁹² A draft manual containing the detailed grant policies and mechanics will be prepared by AMC-DBM with the support of program consultants under O4A3 to be financed by the ADB Concessional Loan. This manual will be submitted to the ASDIP Executive Working Group (EWG) for approval. The Financial Regulatory Commission will review and approve the manual prior to the approval of the EWG.

- (i) The proposed subproject should be a prototype.⁹³ It should be the first-of-its kind or near the first-of-its kind in the targeted aimag (maximum of one project of the same nature during the last five years in the aimag).
- (ii) Should be sufficiently green. The proposed subproject should have adequate climate change mitigation and adaptation benefits with an assessed climate change benefits (CCB)⁹⁴ to investment ratio of at least 10%.
- (iii) It should demonstrate additionality. It should show how the subproject can capture GHG emission reductions in the agriculture livestock value chain that would not occur without the GIGF support to the subproject, demonstrating a positive effect from a baseline scenario.⁹⁵
- (iv) It should be replicable. It should have an approach that clearly illustrates how its experience and lessons learned from ASDIP can be replicated or scaled up in the near future for other aimags.⁹⁶
- (v) It should demonstrate green social inclusivity. It should have institutional and design features that show how it will foster the linkage between growth and competitiveness and sustainable rangeland management, specifically with respect to herders' cooperatives and the vulnerable segments of society.⁹⁷
- (vi) It should have the potential to transform the SME into a larger, more competitive entity. It should show how the proposed low-carbon and climate-resilient agribusiness innovation can evolve into a larger enterprise capable of generating additional annual revenues of at least 10% and additional green jobs and employment of at least 30 for the economy.

Examples of Eligible Subprojects. Subprojects should employ innovative knowledge products and technologies in agricultural production and productivity, agro-processing, and agricultural marketing towards a low-carbon, climate-resilient and inclusive livestock agribusiness value chain at the aimags and soums. These may include but are not limited to the following: (i) gel applications to the ground to retain water; (ii) improved breeds; (iii) artificial insemination; (iv) feed additives to reduce methane emissions (v) digital systems in livestock marketing and distribution (related to product certification) and (vi) renewable energy or energy efficiency solutions for production and processing.

Noneligible Subprojects and Activities. Some subprojects and/or activities will not be funded by the GIGF. The following list is a guide to the types of subproject-related activities or costs which the GIGF will not cover. The GIGF will not cover costs relating to:

1. 'Business as usual' expenses, including:
 - overheads incurred in the course of normal business/industry,
 - activities that are already happening in business/industry,
 - capital expenditures planned in the normal course of business, such as spending on machinery, equipment, stock, software, and other similar expenditures.
2. Expenses the business/industry would incur anyway if it did not get funding under the GIGF,
3. Costs that are not in cash,
4. Activities that contribute to increases in GHG emissions or increases in climate change vulnerability,
5. Activities that fail to meet the ASDIP environmental and social safeguards, and
6. Activities that do not contribute to the achievement of the ASDIP program objectives.

⁹³ The proposed intervention and/or subproject should be a prototype, a model that can serve as a basis for future innovative knowledge and technology applications in activities critical to the strengthening the agribusiness livestock value chain in the targeted aimags and soums. These activities include (i) agricultural production, (ii) agricultural processing, (iii) packaging, (iv) distribution, (v) branding, and other aspects of marketing including those relevant to the export markets.

⁹⁴ The Climate Change Benefit (CCB) indicator is a measure of climate change value for money. It is a monetized estimate of the main annual climate change benefits resulting from the program or intervention, linking the annual climate change benefits to the investment amount. See Box 7.

⁹⁵ Additionality is the determination whether a proposed activity will produce some "extra good" in the future relative to a reference scenario, which is referred to as a baseline. The proposed subproject must be able to demonstrate how it will produce incremental GHG emissions in the agribusiness livestock value chain, given the with- and without-the-subproject scenarios, in which the without-the-subproject-scenario is the baseline.

⁹⁶ Consistent with the terms used in the relevant climate change literature, replicability is defined in this case as refers to activities that explicitly attempt to reproduce a specific intervention in a different location(s). This means that the subproject proposal should convincingly argue that with the GIGF support, it will be possible to overcome barriers towards the future implementation of similar projects in other aimags.

⁹⁷ The subproject must have an approach that explains how the subproject can achieve growth and competitiveness and reduce GHG emissions while producing benefits that are more equitably distributed. This can take the form of legally viable partnership arrangements between the SMEs and herders cooperatives as well as the vulnerable households in the targeted aimags and soums which enabling the latter to share in the benefits to be generated by the subproject.

Grant Applications, Awards, Disbursements and Monitoring. The approval of GIRAF grants will be based on an application using a template provided by AMC-DBM. The template will require all applicants to provide the rationale for their grant request, details of their proposed innovation(s), the impact on climate change mitigation and adaptation and the agribusiness livestock value chain, anticipated results (outcome and outputs), details of their budget and implementation plan with progress milestones. The grant applications will be evaluated using selection criteria that will include the following: (i) must be a prototype, the first or near-the first of its kind in the targeted aimag; (ii) CCB to investment indicator of at least 10%, (iii) ability to capture cost-efficient GHG emission reductions in the agriculture livestock value chain; (iv) replicability in other aimags; (v) green social inclusivity fostering partnership agreements that ensure a more equitably distribution of benefits; and (vi) potential to transform into a larger, more competitive entity capable of generating additional revenues and green jobs. Upon approval, AMC-DBM will monitor and disburse grants proportionately based on their implementation schedule and progress milestones achieved. This will mitigate the risk of grants being used to repay the loans.

A more detailed discussion of Output 3 and the GIRAF is attached as Annex 18 to this funding proposal.

Output 4 will build institutional and main stakeholders capacity, and support policy improvement activities in Tranche 1, to be replicated in Tranches 2 and 3:

Activity 1 – Support for project management and implementation

(i) Capacity building and support for project implementation and management:

- procurement capacity support for works, goods, and consulting services;
- on-the-job and formal training to PMO staff on all aspects of project management;
- financial management training to handle different withdrawal allocations;
- financial management and accounting system for the project;
- procurement assistance, bidding document review, contract bid review and evaluation, and contract management and disbursement;
- support the implementation of the Resettlement Framework (RF), Land Acquisition and Resettlement Plan (LARP) and the SGAP;
- provide on-the-job and formal training to PMO staff on social, gender, land swapping, and community participation aspects of project;
- monitoring and effective implementation of the LARP, and social and gender action plan;
- update, finalize, and monitor safeguards documents, including the resettlement plan, initial environment examination or environment impact assessment, and environment management plan in compliance with ADB's guidelines and the relevant frameworks agreed between ADB and the Government of Mongolia.

(ii) Sustainable urban development, energy-efficient housing, efficient service delivery and utility management⁹⁸:

- training to the PMO/APOs, MCUD, aimag and soum governments to support the implementation of Output 1 and change practices towards more sustainable urban planning and resource management through on-the-job training; and in particular:
- development of a model based on the pilot ger areas redevelopment of Tranche 1: inclusive, participative and green ger areas' street redevelopment framework completed based on the Tranche 1 pilot and replicated on Tranche 2 and 3, and capitalization for replication beyond the MFF;
- capacity building for effective management of solid waste collection and transport, using recycling programs and financially stable;
- specific advisory services for energy-efficient housing improvements (insulation and connection) of ger areas housing units;
- introduction of heat metering, now only in Ulaangom, with appropriate tariff restructuring to incentivize energy efficiency;

⁹⁸ Capacity building main beneficiaries are (i) the residents for a relevant use and maintenance of technical unit and for energy efficiency improvement of existing houses, and (ii) the utility companies for a more efficient operation and maintenance of networks, plants, and services.

Activity 2 - Support for low-carbon and climate-resilient rangeland management

- (i) improvement of rangeland management and climate change adaptation and mitigation:
- Capacity building to ALAMGaC and land officers for improved rangeland health monitoring and registration and monitoring of RUAs;
 - Capacity building and awareness raising activities to PUGs all along the elaboration of PIHMP, signing of RUAs and elaboration of stocking adjustment plans (see Output 2)
- (ii) herders' organizations sustainable development
- Support to PUGs and their structuring at soum, aimag and national level, capacity building and on-the-job training;
 - Support to cooperatives and their structuring at aimag and regional level, capacity building and on-the-job training;
 - Support on developing and establishing green cooperative model;
 - Support to Saving and Credit Cooperatives (SCCs) – through the set-up of another lending window to address the financing needs of microenterprises and which will channel loans through qualified Savings and Credit Cooperatives and other nonbank financial institutions, piloted during Tranche 1 to be potentially launched and expanded in Tranche 2
 - Creation of institutional linkages and synergies between PUGs, cooperatives and SCCs, and inclusion of local governments through the facilitation of “soum exchange platforms” in which all organizations participate.
 - Capacity building will be provided to all herders' organizations of the project areas based on voluntary participation, and to all PUG and cooperatives as a pre-condition to benefit from project support.
- (iii) veterinary services,
- Strengthening of veterinary services at each level of the agribusiness chain⁹⁹,
 - Training programs to Community-based Animal Health Worker (CAHW) in each PUG in charge of providing preliminary veterinary services and raising herders' awareness on animal health;
- (iv) sustainable low-carbon value chains and market development, including:
- Preparation of the Low-carbon Climate-resilient Agribusiness Development Plan (LCADP) and Low-carbon Climate-resilient Livestock Value Chain (LCLVC) together with activity 3 and of related pre-feasibility studies, business plans and technical specifications for the priority investments;
- (v) development of certification and traceability systems: capacity building to MOFALI, GAVS and NFPUG. Certification systems will be based on 3 pillars: ecological (sustainable rangeland management, resilience of herds), social (fair price, fair share of profit, empowerment), and technical (optimization of practices, quality vs quantity, animal welfare
- (vi) training programs to operate and maintain the irrigation systems and grow fodder crops - definition of water conservancy and management principles; support to water users will depend on their commitment to produce fodder at a regulated price for the herders;
- (vii) project management: training of PMO, APO and IPO staff, in particular on ADB safeguard, due diligence, procurement and financial management;
- (viii) support the formulation of policies on rangeland and land use management, soum territorial development plan, pastoralism and livestock management (including the formulation and dissemination of knowledge products and lessons learned and contributions to the formulation of the successor of the NMLP).
- (xix) sustainable water management practices developed and disseminated:
- Generate, disseminate and implement practical practice, knowledge on sustainable water management and climate change adaptation practices widely among local communities with specific focus on vulnerable groups;

⁹⁹ In coordination with the World Bank Livestock Commercialization project. The WB livestock commercialization project has its own separate financing. It is a nationwide project, whereas ASDIP is regional. The WB livestock commercialization project has some complementary components with ASDIP at the national level (veterinary campaigns capacity building, central veterinary laboratory in Ulaanbaatar), as well as at the regional level (regional laboratories, disease-free zones). At the regional level, coordination to avoid overlapping between the two projects is ensured by the General Authority for Veterinary Services (GAVS) within MOFALI. For instance, ASDIP will finance the Khovd regional laboratory and support veterinary services in the Western aimags, and the WB Livestock Commercialization Project finances regional laboratories in others aimags..

- From project's lessons learned and good practices generated develop and support the adoption of modified national and regional water management, agricultural and regional development policies and a national action program on rural climate change adaptation.
 - Support farmers in the area for efficient use of water and provide modern pilots of irrigation schemes that also minimizes the run-off of chemicals used in agriculture. It will also support the formation of water users' groups that will co-invest in such irrigation schemes, thus ensuring ownership of the technology by the farmers. The pilot demonstration and its multiplication through co-investment will be rigorously supported by training on new cropping technologies, proper use of agrochemicals, storage and marketing of agricultural products. New innovative approaches such as solar powered and drop irrigation systems will be introduced in the agricultural sector.
- (xx) combining the item above generate a territorial framework promoting low-carbon agribusiness development, sustainable land management and livable and attractive urban development.¹⁰⁰ It also includes analyses to capitalize on mechanisms and incentives developed and implemented under ASDIP and study suitability as policy, and policy recommendations.

Activity 3 - Improvement of the capacity for low-carbon and climate-resilient agribusiness finance

- Training programs to strengthen the capacities of SMEs and cooperatives in the areas of business planning, marketing, strategy formulation, and technology adaptation and application, to be delivered in the incubators and in partnership with the Aimag Employment Services for increased sustainability;
- Provide inputs in the preparation of Low-carbon Climate-resilient Agribusiness Development Plan (LCADP) and Low-carbon Climate-resilient Livestock Value Chain (LCLVC) and of related pre-feasibility studies, business plans and technical specifications for the priority investments.
- SMEs and cooperatives will be selected based on their interest to get project financing support from Output 3 and compliance with project criteria related to rangeland management, carrying capacity, veterinary services and certification system.
- Creating an environment where financial institutions are able to provide the financing required to improve the livestock agribusiness value chain. This support may include but will not be limited to the following: (i) multisectoral, consultative meetings and workshops to bring together financial institutions and livestock agribusiness stakeholders to formulate innovative financing solutions for the missing middle (e.g. developing collateral substitutes such as factoring or account receivables finance); (ii) providing transaction advisory services to producer organizations or lead actors in the chain to help them meet the requirements of viable, sustainable chain operations (including related financial services); and (iii) facilitation of linkages with exporters (or importers in target market countries) to demonstrate the availability of well-established domestic and international market outlets to financiers, and to provide sufficient value-added potential at the aimag and soum levels.
- Creating an environment where cooperation between cooperatives and SMEs is facilitated, through the creation of models (templates, guidelines and advisory services) for partnership or purchase agreements;
- Developing and supporting the implementation of low-carbon income generation opportunities for rural communities through diversification of agriculture and livestock products.
- Piloting microfinance mechanisms through Saving and Credit Cooperatives (SCCs) and other nonbank financial institutions to make affordable loans more accessible to certified herders and formulation of recommendations on how the GIRAF Lending Window 3 in output 3 can be structured in the most effective and efficient manner. This will, among other sub-activities, study how SCCs can address lending through innovative financial products and services to member herders complying with the stocking adjustment rates supportive of ASDIP's objectives of increasing animal productivity and economic diversification.

Activity 4 - Implementation of M&E and MRV system

- Assistance in the development of proper M&E and MRV system. Box 6 contains a description of the main features of the proposed MRV, which builds on existing rangeland monitoring mechanisms. These existing monitoring mechanisms mainly focus on ecological aspects of rangeland health and

¹⁰⁰ This will be complemented the Human Settlements Development Program (HSDP) TA.

for our purposes will be complemented with the biomass and carbon components of rangeland health. To this purpose, ASDIP intends to mobilize funding through the Smart Land Management Center.

Box 6. Main elements of the MRV system (See Annex 15)

MRV of rangeland related GHG emission reductions can be based on a variety of approaches, including the IPCC guidelines and the use of existing monitoring methodologies such as those included in the Plan Vivo PDD (see Appendix 8), which ADB intends to use, or alternatively the very comparable Verra (previously called VCS) methodology, Approved VCS Methodology VM0026, Version 1.0, dated 22 April 2014, Sectoral Scope 14: "Sustainable Grassland Management". The reason for selecting the Appendix 8 of the Plan Vivo PDD as proposed monitoring methodology is that it has been developed for Mongolia and has already been successfully applied to a project in Mongolia.

Significant infrastructure exists that can be used for monitoring purposes. The National Agency for Meteorology and Environmental Monitoring (NAMEM) is the institution responsible for nationwide rangeland monitoring covering 1516 monitoring sites representing all baghs in Mongolia. NAMEM has achieved significant progress to i) institute measurement of internationally-accepted core indicators that are standardized nationally; ii) develop a reference database of different rangeland types that provides a basis for interpreting monitoring data and determining what is "healthy" or "degraded"(ecological site descriptions); and iii) build capacity to produce a timely outlook on rangeland health based on monitoring data.

Comparisons of existing rangeland monitoring methodologies used by different Mongolian institutions (Research institutes; Universities; Ministry of Environment and Tourism; Ministry of Food, Agriculture and Light Industry; National Agency for Meteorology and Environmental Monitoring and the Agency for Land Management, Geodesy and Cartography led to an agreement on unified set of core indicators that will reduce controversy in assessments of rangeland health into the future. Core indicators include foliar canopy cover, species composition, and basal gaps of perennial plants, plant height, and biomass. Measurement methods include line-point intercept, gap intercept, air dry biomass at 1 cm clipping height, and photo points. A methodology for rapid characterization of soils to identify ecological sites and a concept for developing simplified ecological site descriptions that match existing herder concepts (see below) were also agreed upon. The newly standardized methodology is replicable, precise, and simple enough for easy use. The method can not only be used to report rangeland health at a point in time (assessment), but also provide precise estimates of rangeland change over the long-term (monitoring). In 2011, the methodology and indicators were approved by the Government as a nationwide monitoring methodology of rangeland health.

Additionally, extensive information is collected on rangeland use, grazing patterns, stock composition, etc. These data are collected through the monitoring of the Rangeland User Agreements signed with the Pastureland User Groups and will be used for monitoring the success of the adaptation elements of ASDIP.

What has been missing so far is the link between the monitoring of rangeland health and the monitoring of rangeland management on the one hand, and soil carbon stocks on the other hand. Models such as the Century model can play a role in this regard, but it is important to calibrate the model based on local data. Additionally, it is important to link data from rangeland health monitoring points with soil carbon. To complement the existing data collection methods, it is therefore important to measure soil carbon at a sample of the monitoring points established by NAMEM. For this purpose, the methodology described in He et al (2011) can be used.

ASDIP, in its 4th output, provides considerable attention to the question of proper monitoring of soil carbon sequestration, and will ensure that accurate numbers are collected and reported. This is also important given the objective to crowd in result-based funding from non-GCF sources for improved rangeland management (See Box 10).

Source: Climate Change Assessment.¹⁰¹

Activity 5 - Enhancement of institutional capacity for policy reforms formulation, implementation and enforcement

¹⁰¹ The Climate Change Assessment contains a further elaboration as well as a description of the MRV for the other main elements of ASDIP.

This activity will address the current impediments to enabling a policy environment that is more conducive to (i) developing climate-resilient, low-carbon, and attractive aimag and soum centers; (ii) managing rangelands more effectively for climate resilience, high carbon sequestration, and sustainable herding; (iii) creating and strengthening low-carbon, climate-resilient, and inclusive value chains through more accessible green finance; and (iv) developing the sectoral capacity for low-carbon, climate-resilient and more competitive agro-territorial development in Mongolia. It will also help create comprehensive and broad-based support for the formulation, advocacy, and implementation of the necessary policy reforms among the various sector stakeholders, including the ASDIP program/project participants and stakeholders. For this purpose, it will adopt a highly participatory, consensus-building approach. The activity support knowledge learning and dissemination activities that would reach out to the participant-beneficiaries of Tranches 1, 2, and 3 of the program and beyond (i.e., the ASDIP non-target aimags and beneficiaries). Lessons learned from effective policy reform and implementation programs in Mongolia and other countries will be applied to plan and undertake the various tasks deemed critical to putting in place and implementing the necessary capacity development program. It includes the following tasks:

Task No. 1: Conduct of relevant policy studies and technical analysis. Consensus building on the required policy reforms, proposed modifications, and implementation depends on the availability and acceptability among the various stakeholders (the policy experts first and foremost) of the policy studies and technical analyses. The activity will build on policy studies and technical analysis already available and undertake new studies required for the paradigm shift. This, in addition to the necessary policy dialogues, will ensure that decision-makers and affected groups understand the need to adopt the recommended policy changes. Under this task, a study on the possibility of setting a pasture user fee for herders and people with livestock will be conducted as a potential policy tool for regulating grazeland pressure. The pasture fees will be used to improving pasture conditions. Another possible study will be on improving livestock insurance policy and practices. The study will explore options for how this insurance program can be accessed at an affordable rate, or through subsidized premiums, by herders who participate in sustainable rangeland management.

Task No. 2: Technical support in the formulation, implementation monitoring, and enforcement of new policies. A key immediate focus of this activity, among others that could potentially be identified in the course of program implementation, is to assist MOFALI and MET in the formulation of the successor to the National Mongolia Livestock Plan (NMLP), the current version of which will expire in 2021. The new NMLP amending the existing legislation will require the Mongolia Parliament's approval, after which an **action plan** will have to be prepared for its enforcement. ASDIP will provide technical and advocacy support to this entire process in coordination with other donors involved in the livestock sector, such as UNDP, the World Bank, FAO, and the EU.

Task No. 3: Formulation and implementation of a national strategic advocacy plan. A national strategic policy advocacy plan to bring in non-participants will be developed to broaden and deepen the support from both the public and private sector for proposed ASDIP-related policy reforms. The plan will potentially include policy briefings, preparation of policy primers and briefs, seminars, conferences, workshops and policy dialogues among the various sector stakeholders involved which will include not just the policymakers, herders groups and cooperatives, private sector representatives, banks and nonbanks financial institutions international donor partners but members of the academe and the media as well.

Task No. 4: Development and application of an effective knowledge learning and information, education and communication (IEC) campaign. The national strategic advocacy plan will use knowledge learning and information dissemination tools such as a website, videos, and print materials which can be accessed and/or distributed in the various aimags and in Ulaanbaatar, or through ASDIP sponsored or co-sponsored national and local meetings and workshops, as well as educational and other learning programs and events. The GIRAF which will be established as a revolving fund to operate beyond the 10-year ASDIP implementation period, and which fundamentally targets the private sector through various financial intermediaries with branches all over the country (in both the ASDIP targeted and non-targeted aimags) will also be pivotal to implementing the national plan. Details of this activity are in Annex 27.

MFF Tranche structure, scope and the policy framework

ASDIP policy reform and structure will allow the proposed model to be replicated within and outside Mongolia. There are, outside the targeted aimags, many on-going initiatives that correspond to one or several activities of ASDIP. Which means that there is a potential during the subsequent Tranche of the investment program to capitalize on these initiatives if compatible and complement with other activities of the ASDIP to achieve the same impact. This will allow the ASDIP to maximize its intervention scope and coverage by implementing its framework through only selected activities. The Tranche 2 of the MFF will complete the Tranche 1 targeted aimags by supporting one additional inter-soum in Uvs (such as Baruunturuun) and another one in Khovd (such as Bulgan or Darvi). It will also pilot the implementation of the project component and mechanism into areas that have benefited from similar programs for sustainable rangeland management. In selected areas where similar or complementary activities have been or will be implemented, such as in the south of Khovd aimag where the UNDP project Improving Adaptive Capacity and Risk Management of Rural Communities in Mongolia will be implemented, ASDIP's outputs will be customized to bridge the gap between rangeland management, agri-business development and urban services and ensure sustainability- see Box 1 and Section D.2. Tranche 3 will continue support Tranche 1 and 2 areas and will extend the program to other areas that are compatible with the project approach, such as other aimags targeted by UNDP project,¹⁰² and correspond to criteria of sustainable rangeland management and low-carbon agribusiness development, and where the right conditions have been created for the replication of ASDIP. Tranche 2 and 3 will replicate Tranche 1 activities and investments and will follow the investment preparation and selection criteria outlined in section B.4, which have been developed in accordance with the MFF strategic framework. In output 1 this will translate in infrastructure investment for additional 3 aimags centers and four inter-soums centers. Depending on the needs and the situation of each subsequent aimag and inter-soum centers the project will fully or partially replicate the tranche 1 activities. The ger area street redevelopment will be expended based on the pilot in Tranche 1 to upgrade 29km of ger areas street and build 2,300 affordable housing units. For output 2 Tranche 1 will cover 15.1 million hectares, Tranche 2 and 3 aim to cover of 28.8 million hectares. The water conservancy component will also be replicated. Output 3 implementation will follow the coverage of the rest of the outputs providing innovative financing mechanisms to support LCLVC but, especially toward the end of the Program, could be expended to other areas than the one targeted by program as long as pre-existing conditions, and eligibility and selection criteria are met.

Output 4 has been calibrated to provides continue continuous capacity building and institutional strengthening for the implementation of the outputs and the MFF policy framework policy framework that supports the various strategic objectives of the roadmap. The policy framework is in line with the strategic objectives of the road map and will support:

- Strategic objective 1 by improving low-carbon and climate-resilient urban services, regulation, housing, and planning through (i) the use of adapted design code and standards, especially for energy efficiency and the use of renewable energy; (ii) ensuring the use of land management tools and framework to support low-carbon urbanization process; (iii) supporting the reorganization and capacity building of the targeted *aimags'* urban functions; (iv) developing the streamlined use of geospatial tools; (v) improving the urban service provider's organizational, operational, and financial capacity; (vi) rehabilitating the urban areas in their role as catalysts for a vibrant low-carbon agribusiness value chain and increased private sector participation; (vii) defining a model for *aimag* centers substandard ger areas upgrading, and and (h) establishing low-carbon and climate-resilient *soum* and *intersoum* development model as support to the rural economy renewal.¹⁰³
- Strategic objective 2 will be supported by improving low-carbon and climate-resilient rangeland and livestock management through (i) regulatory mechanisms to number each animal species depending on the pasture land capacities of each territory; (ii) a collective system of managing pasture land use and fodder production to stop land degradation due to overgrazing, (iii) the definition of restricted areas and restricted periods forbidden for goats, (iv) improved veterinary services and traceability,

¹⁰² Dornod, Zavkhan, Sukhbaatar aimags

¹⁰³ In coordination with Human Settlement Development Program.

(v) improved grazing practices; and (vi) providing incentives for low-carbon livestock management investments and practices by the private sector; contribute to the formulation and dissemination of knowledge products and lessons learned and contributions to the formulation of the successor of the NMLP; (vii) improve the link between livestock product and local agri-value chain; (viii) promote a better management of natural resources through improved irrigation system and water conservation measure and solution; (ix) increase and improved fodder or forage production; encourage reserve of strategic land at each soum; (x) project activities that aim to prevent further degradation of rangeland areas and allow soil carbon stocks to increase include, (xi) reduction of herds size.

- Strategic objective 3 will encompass policy reforms to promote LCLVC through (i) innovative financial instruments including collateral substitutes and credit guarantees that enable herders and agriculture cooperatives to participate more fully in the value chain, (ii) the establishment and operationalization of a regional agribusiness fund that blends private sector investments with limited public sector investments to finance herders cooperatives and livestock agribusiness enterprises engaged in low-carbon sustainable rangeland management, urban-rural linkages and economic diversification, and (iii) the formulation of a system of reimbursable grants to the private sector to incentivize the adoption and commercialization of innovations linked to LCLVC.
- Strategic objective 4 will be supported by policy reforms to improve low-carbon climate-resilient rural-urban management through (i) systems and tools for optimizing land and territorial management, rangeland management monitoring including mechanisms for monitoring, strengthening cadastral capacity, and integrating support for soum and aimag territorial management; (ii) rural-urban development strategies including land use, urban function and hierarchies and support to priority activities,¹⁰⁴ and (iii) approaches to facilitate planning and implementation for water resilience in the aimags and soums.

Through this comprehensive and integrated framework, its implementation strategy, and its capacity to build-on similar on-going initiatives, the program will create replicable and synergetic mechanisms enhancing the program impact, paradigm shift and transformative approach.

B.4. Implementation arrangements (max. 1500 words, approximately 3 pages plus diagrams)

A Program Steering Committee (PSC), chaired by MOF and including representative of MCUD, MOFALI, MET, Development Bank of Mongolia (DBM), and targeted aimag governments will be established to oversee project implementation, provide strategic and policy guidance, and inter Ministry and agencies coordination. An Executive Working Group (EWG) including the MCUD, MOFALI, and DBM will be established to directly supervise and monitor the implementation of the project. The MCUD will lead the program implementation. A program management office (PMO) will be established under MCUD, the PMO director will be the head of ALAMGaC.¹⁰⁵

The PMO will be managed by a PMO coordinator and be organized with three departments, managed three deputy coordinators. The deputy coordinator for Output 1 (urban and territorial development), will report to the PMO director and coordinator, and will coordinate with and be guided by MCUD. The deputy coordinator for Output 2 (rangeland management and agricultural component), will report to PMO director and coordinator, and will coordinate with, and be guided by MOFALI. The deputy coordinator for procurement, finance, safeguard and due diligence will report directly to the PMO director and coordinator. A program implementation unit (PIU) for managing Output 3 will be established at AMC-DBM under the supervision of DBM, and will liaise and coordinate with PMO director and coordinator. The PMO, PIU, MCUD and DBM/AMC-DBM will directly report to the EWG.

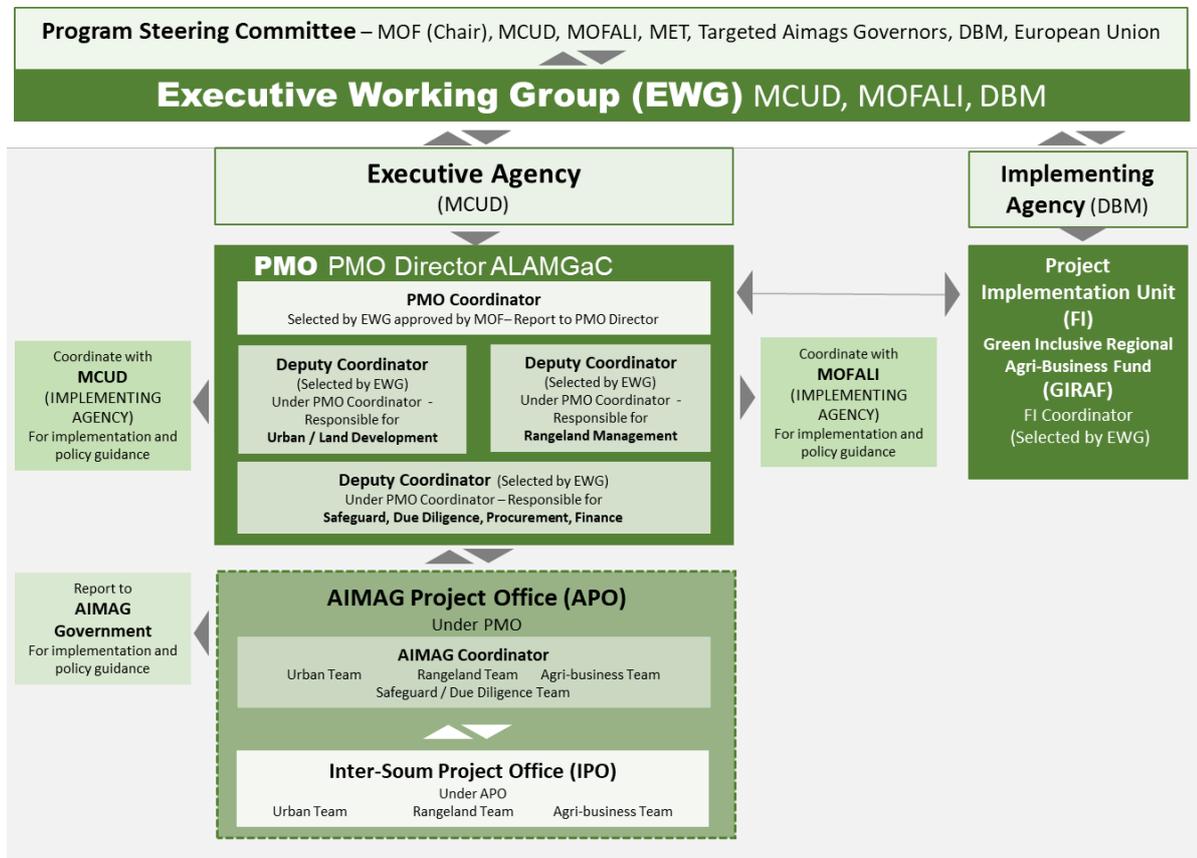
At the aimag level an Aimag Project Office (APO) will be established, and an Inter-Soum Implementation Office (IPO) in each inter-soum targeted by the project. Each will have urban development, rangeland management, agri-business, and safeguard and due diligence team. Each APO will be managed by APO coordinator and report to the PMO director and coordinator and will liaise and coordinate with Aimag Governor's Office. Local Agri-Business Council, comprising of representatives of associations or federations

¹⁰⁵ The Agency for Land Management and Administration, Geodesy and Cartography, under MCUD.

¹⁰⁵ The Agency for Land Management and Administration, Geodesy and Cartography, under MCUD.

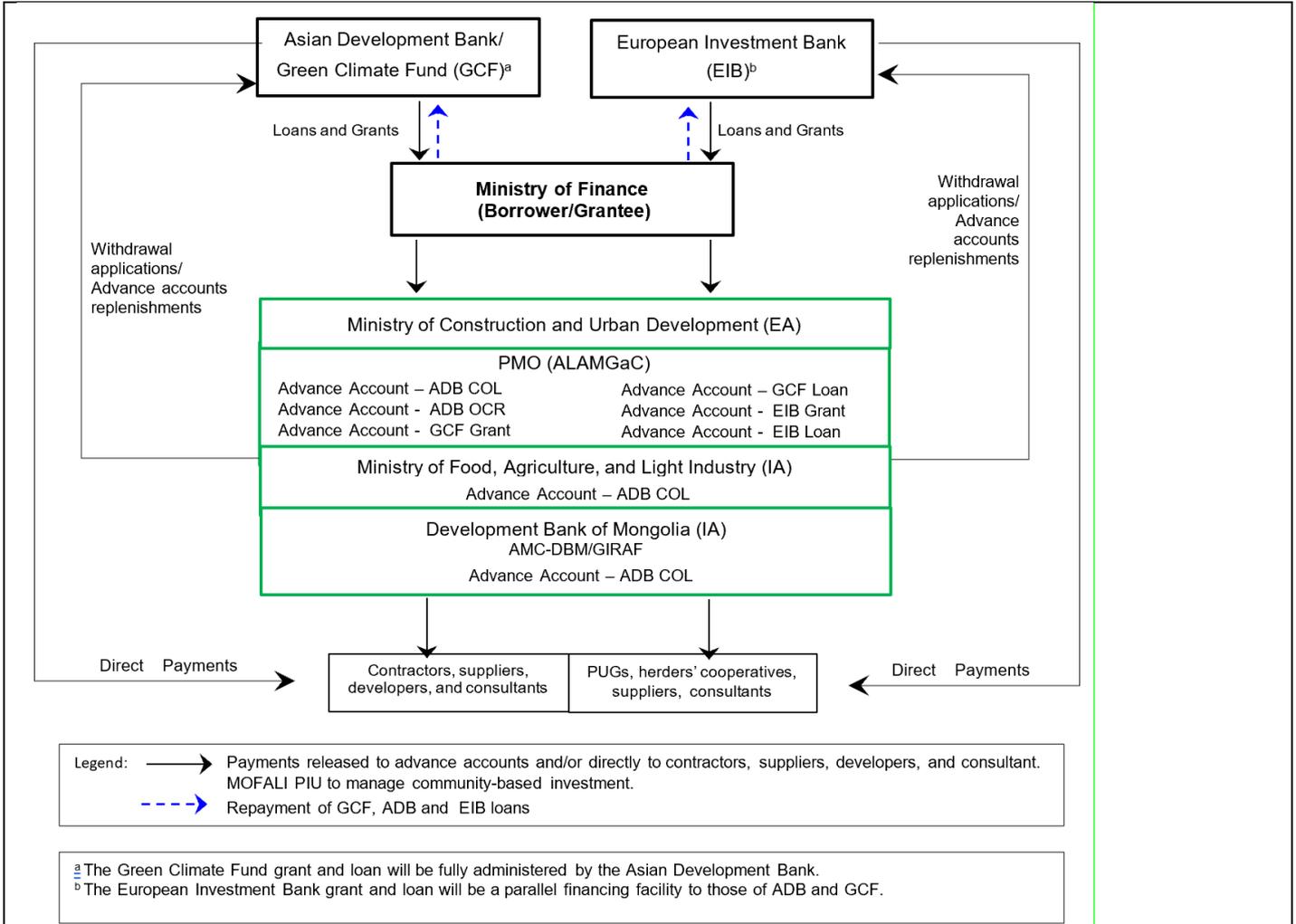
for production of meat, wool and cashmere, skin and hide products, and Mongolian National Chamber of Commerce and Industry (MNCCI), herders organizations, and cooperatives, will be established to provide economic and value chain development guidance and support to the EWG and PMO. In each inter-soum targeted by the project, Inter-soum Project Implementation Unit (IPIU) will be established, and will have urban development, rangeland management, and agri-business team. IPIUs will be managed by IPIU coordinator and report to the APIU coordinator, and will liaise and coordinate with Soum Governor's Office.

Figure 7. Project implementation arrangements.



ASDIP will be implemented as a Multi-tranche Financing Facility (MFF). The MFF enables ADB to provide assistance programmatically by aligning the provision of financing with project readiness and the long-term needs of a client. The MFF facilitates long-term partnerships between ADB and its clients and provides opportunities for constructive dialogue on physical investments as well as nonphysical (thematic and sector) interventions. The MFF provides critical mass, predictability, and continuity to clients. ADB's Board of Directors approves a maximum amount for an MFF, and the conditions under which financing will be provided. On the basis of the Board's approval, and at the client's request, ADB Management converts portions of the facility amount into a series of tranches to finance eligible investments. A tranche can be a loan (other than a program or a sector development program loans), grant, guarantee, or ADB-administered co-financing and technical assistance. Tranches 2 and 3 will be developed in accordance with the investment preparation and selection criteria outlined in B.4. The tranche structure of the MFF is described in Section B.3.

Figure 8. Funds Flow for Outputs 1, 2, and 4:

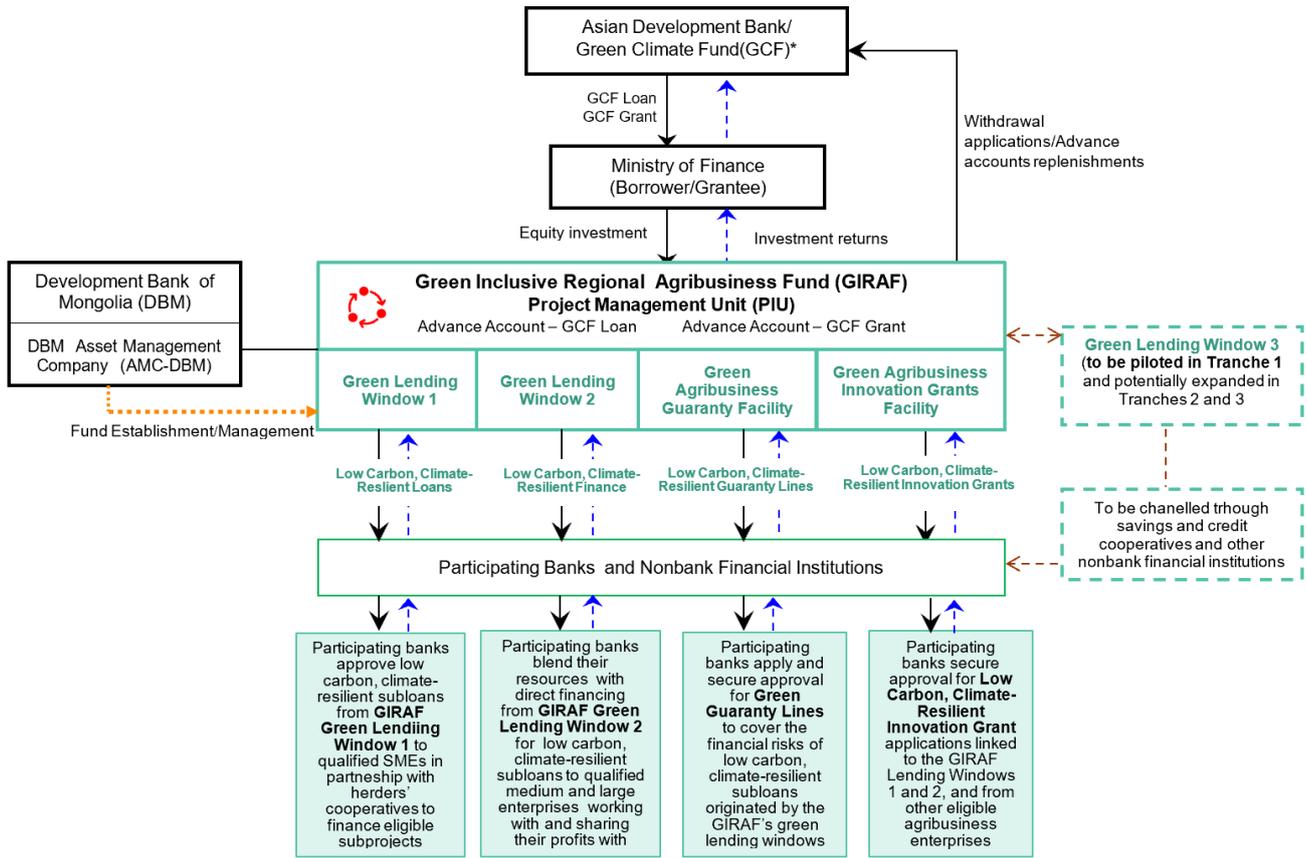


The GoM, represented by its Ministry of Finance of Mongolia (MoF) and the relevant ministries, and the Development Bank of Mongolia (DBM) as well as the Asset Management Company of the DBM (AMC-DBM) will act as the Executing Entities. For the implementation of the Program, the Accredited Entity will enter into the following Subsidiary Agreements: Grant Agreement with Mongolia (GCF Grant Agreement), represented by MoF, to channel the GCF Non-Reimbursable Funds in the form of a grant; and Loan Agreement with Mongolia (GCF Loan Agreement), represented by MoF, to channel the GCF Reimbursable Funds in the form of a loan (GCF Loan).

The Accredited Entity will also enter into project agreement with DBM/AMC-DBM (DBM/AMC DBM Project Agreement) which provides for responsibilities for DBM on outputs 3 and 4. Under the program, the GOM will invest the GCF loan proceeds into the GIRAF that will be established in accordance with the Law on Investment of Mongolia, with 100% equity investment of the government, through an account as a private investment fund. The GoM is the shareholder of the GIRAF. While GIRAF has its own legal personality, it does not operate as itself, and management, investment decisions and everything related to GIRAF will be done by AMC-DBM based on the asset management agreement between DBM, AMC-DBM and the government. AMC-DBM is a wholly owned subsidiary of DBM established as a separate legal entity in accordance with the relevant laws and regulations of Mongolia. DBM is fully owned by the government but is a separate legal entity. The ADB will enter into subsidiary agreements that will include with DBM specifying the responsibility of both DBM and AMC-DBM. DBM through AMC-DBM will act as the apex financial institution, to execute the funds in accordance with the project and the fund's internal charter, policy, rules and guidelines. DBM and AMC-DBM will be responsible to hire and manage the output 4 consulting services

for green and regional agri-business finance support. The implementation responsibilities of this output 4's activity will be included in the project agreement (subsidiary agreement) with DBM/AMC-DBM.

Figure 9. Funds Flow for Output 3 (GIRAF):



* The Green Climate Fund (GCF) grant and concessional loan will be fully administered by the Asian Development Bank.
 Legend: ———> GCF loan and grant drawdowns; relending/onlending/reimbursable grant disbursements
 - - - - -> GCF loan and GIRAF loan/subloan repayments; call payments and recoveries; reimbursable grants repayments (conditional)
 Revolving Fund <- - - - -> Pilot activities

Fund Structure and Management. Under the project, the GOM will invest \$87.61 million from the GCF loan proceeds into the GIRAF which will be managed by the DBM through AMC-DBM as the apex financial institution.¹⁰⁶ Cognizant of the different financing needs of the LCLVC stakeholders, the fund will initially operate with (i) two green lending windows to be channeled through participating commercial banks or directly through AMC-DBM jointly with other banks and financiers, (ii) a low-carbon and climate-resilient credit guarantee facility, and (iii) a low-carbon and climate-resilient innovation grant facility for incentivizing investments to commercialize low-carbon and climate-resilient innovations leading to a greener, more inclusive, and competitive LCLVC (**Figure 9**). Another green lending window to address the financing needs of microenterprises and which will channel loans through qualified savings and credit cooperatives (SCCs) and other nonbank financial institutions will be piloted during Tranche 1 to be potentially launched and expanded in Tranche 2. For the two lending windows, qualified herder cooperatives (especially green lending window 1), business enterprises in partnership with herders or herders' cooperatives engaged in sustainable rangeland management and urban-rural linkages as well as diversification of the livestock agribusiness value chain will be eligible to borrow.

¹⁰⁶ An apex institution is a second-tier or wholesale organization that channels funding (grants, loans, guarantees) to multiple finance institutions in a country or region.

Lender, guarantor, and grantee of record. For Output 3, Lending Windows 1, 2, and 3, the lender is the GIRAF, represented by DBM and AMC-DBM, as the Investment Fund Law of Mongolia (2013) requires an asset management company to establish and manage the operations of the GIRAF. The AMC-DBM will act as the GIRAF Fund Manager through AMC and will report its activities to the Financial Regulatory Commission and the Ministry of Finance.

For the Green Agribusiness Guarantee Facility, the guarantor is the GIRAF (represented by AMC-DBM). The AMC-DBM, through the Facility, provides low-carbon and climate-resilient agribusiness guarantee lines to ASDIP participating commercial banks and other nonbank financial institutions who will undertake the enrolment of ASDIP green loans under the guarantee lines (see section B.3, Output 3 description, Guarantee).

For the Green Innovation Grants Facility, the grant provider is the GIRAF (represented by DBM/AMC-DBM). The grantees are those that are approved by the DBM/AMC-DBM to receive the GIRAF grants in accordance with ASDIP's eligibility and selection criteria. Eligible grant recipients are SMEs whose written policies and ongoing and proposed programs demonstrate a firm commitment to agribusiness innovations and competitive growth. They must be registered SMEs in Mongolia, established in accordance with all relevant Mongolian laws and must be operating profitably for at least two years, with no adverse audit findings, at the time of grant application. SMEs deemed eligible to borrow from any of the GIRAF Lending Windows are eligible to apply for grants from the facility. If they are already a GIRAF sub-borrower, their account must be in financial good standing.

The GIRAF should be established by 2022 depending on the readiness of standard, guidelines, and regulations of the fund, which will be developed during the first stages of project implementation with support of the Output 4, Activity 3 consulting services. The conditions for GIRAF implementation are (i) result of annual review, satisfactory to ADB, from an independent external audit on the financial condition of the GIRAF; (ii) financial soundness at all times as evidenced by adequate capital, asset quality, liquidity and profitability, and maintenance of financial ratios at levels acceptable to ADB; (iii) risk management policies, operating systems, and procedures satisfactory to ADB; (iv) compliance with prudential regulations issued by the Financial Regulatory Commission of Mongolia for investment funds; (v) corporate and financial governance and management practices including among other things, transparent financial disclosure policies and practices acceptable to ADB; (vi) sound business objectives and strategy and/or plan; (vii) structured and setup as a revolving fund; (viii) autonomy in lending and pricing decisions; and (ix) adequate staff, policies, systems, and procedures to assess and monitor the economic, social, and environmental impacts of qualified subprojects in accordance with parameters established by ADB for this purpose.

By building the capacity of DBM/AMC-DBM and establishing a properly structured GIRAF as the apex financial institution, the project will enable the GIRAF mechanisms to evolve as a long-term and sustainable fund beyond the project implementation period with the ability to access sustainable sources of finance. These could be in the form of loans with concessional terms and/or private sector debt or equity that could help catalyze further investments for Mongolia's low-carbon and climate-resilient development.

Experience and track record of ADB (AE)

ADB has been Mongolia's largest multilateral development partner since 1991, and can build on a rich experience in the country including several investment projects and directly relevant technical assistance projects which have built up a considerable knowledge about the issues related to sustainable rural development in Mongolia – including the interaction between the rural land and the aimag and soum centers .

ASDIP among others builds on earlier support by ADB in Mongolia, such as the "Strengthening Carbon Financing for Regional Grassland Management in Northeast Asia" TA and the "Integration of Climate Technology Financing Needs into National Development Strategies, Plans, and Investment Priorities - Mainstreaming Climate Technology in Mongolia: Report for the Agriculture Sector" TA, which elaborated possible adaptation and mitigation interventions. ASDIP complements the "Ulaanbaatar Green Affordable

Housing and Urban Renewal Project” (AHURP) of ADB, which dealt with the climate change challenges of migrant from rural areas to Ulaanbaatar and received GCF co-funding.

Backed up by a well-staffed resident mission in Ulaanbaatar, ADB has a stock of over USD 2.5 billion of accumulated support to Mongolia (sovereign investment, non-sovereign investments, and technical assistance). ADB is therefore well placed to undertake the planned activities.

Capacity of the AE

The Asian Development Bank (ADB) has been Mongolia’s largest multilateral development partner since 1991. ADB has approved sovereign loans totaling \$2.3 billion, non-sovereign loans totaling \$105.1 million, grants of \$313.9 million, and technical assistance projects worth \$161.1 million for Mongolia. In 2018, ADB committed \$430 million for 8 projects, and 11.18 million on technical assistance for 20 projects. A resident mission in Mongolia was opened in 2001. ADB is well placed to develop and implement the ASDIP project, building on a rich experience in Mongolia.

Capacity of the Executing Entity and Implementing Entities

The Executing Entities of ASDIP is Government of Mongolia, represented by Ministry of Finance, MCUD, DBM and AMC-DBM acting on behalf of GIRAF.

Financial management assessments were conducted on the executing and implementing agencies in accordance with the relevant ADB guidelines and where necessary, measures were identified to enhance the capacity of the entity.

The financial management risk rating for MCUD and MOFALI is moderate because (i) both agencies have qualified staff with experience in managing projects funded by ADB and other international donors; (ii) their staff have adequate training on ADB’s disbursement policies and procedures including the management of advance accounts; and (iii) their accounting, audit, and control systems can readily be configured to support the investment project’s accounting and financial reporting requirements. For DBM and AMC-DBM, the financial management risk rating is substantial, but this rating is expected to become moderate because their staff will receive adequate training and gain substantial experience under an ongoing ADB-funded project. AMC-DBM has confirmed to the AE that they have initiated training on ADB disbursement and financial management using ADB handbooks and manuals. In addition, consultants to support DBM/AMC-DBM in the management and operation of the Eco-district Affordable Housing Fund (EDAF) through the Sustainable Green Finance of the Ulaanbaatar Green Affordable Housing and Resilient Urban Renewal Sector Project are scheduled have been engaged early this year ensuring that the appropriate training and feedback mechanisms are going to be undertaken. The consultants will prepare and submit progress reports to the Municipality of Ulaanbaatar (MUB) and the AE on all aspects of the EDAF activities including capacity building and training. The financial management assessment (FMA) undertaken for DBM/AMC-DBM also showed that the staff turnover rate for finance and accounting personnel is relatively low with high employee retention rates.

The financial management risks identified will be mitigated with the support of financial management consultants under Output 4, Activity 3 and the appropriate capacity development and training program outlined in the action plan for each agency as discussed in the FAM. The Executing Entity and (EE) and Implementing Entities (IEs) will follow the AE’s financial guidelines and procedures.

Overall Process for Tranche Preparation and approval

ASDIP will be implemented over 10 years as a multitranche financing facility (MFF) through three sequenced tranches.¹⁰⁷ The overall MFF have define a road map, strategic context, policy framework, investment

¹⁰⁷ ADB’s Multitranchise Financing Facility (MFF) is a financing modality that supports a client’s medium- to long-term investment program or plan. ADB’s Board of Directors approves a maximum amount for an MFF, and the conditions under which financing

program, and financing plan. The program preparation has developed all relevant feasibility studies, due diligence and safeguards for the first tranche, while the contents of the subsequent tranches have been pre-defined and will be similar to Tranche 1.

Subsequent tranches preparation will follow the scope indicated at the end of section B.3 and will include a climate change rationale for the targeted aimags together with technical, commercial, legal, regulatory, financial, economic, and social dimensions due diligence; and managing social risks, governance, fiduciary oversight, capacity, procurement, anticorruption aspects, implementation, safeguards, sustainability and other matters. The due diligence will help ADB determine whether the investments are ready for financing, i.e., whether they have been suitably prepared and can be implemented in compliance with the relevant ADB policies and agreed criteria, and whether an acceptable climate change rationale can be presented to GCF for no-objection on the inclusion of each proposed aimags within a tranche geographical scope. Preparation also inform on the readiness criteria and selection criteria, and the compliance decision filters for GCF loan and grant financing as indicated below.

Readiness criteria:

- Should have pass the internal safeguard and due diligence review process of the ADB.
- Should be located in aimags for which a climate change rationale has been assessed acceptable by GCF.
- On-going Tranches should be satisfactorily implemented and in compliance with the roadmap, loan covenant and undertakings.
- The Government and NDA approval should have expressed its commitment and willingness
- CPP activities should correspond to the preparation and approval process mentioned in Annex 16.

GCF selection criteria

- Comply with decision filter set for investments under Outputs 1, 2 and 3 as mentioned in Box 8, Annex 18 and CPP Annex 16.
- Should be located in aimags for which a climate change rationale has been assessed acceptable by GCF.
- Achieve a CCB exceeding 10% of the investment amount for mitigation related activities
- Included in the LCADP
- Demonstrate direct water resources saving impact or improve community resilience or rangeland resilience.
- Promote donor coordination.

Detailed investment eligibility, selection and decision criteria specific to output 2 are listed in Box 8. Detailed investment eligibility, selection and decision criteria specific to output 3 are in Annex 18. Under output 1, GCF will only finance renewable energy investments, such as solar panels.

Box 7. The Climate Change Benefit Indicator

The Climate Change Benefit (CCB) indicator is a measure of climate change value for money. It is a monetized estimate of the main annual climate change benefits resulting from ASDIP, linking the annual climate change benefits to the investment amount. An eligibility requirement for consideration in ASDIP is that the CCB (see below for calculation) is at least 10% of the investment amount. This requirement means that the climate change benefits alone will earn back the capital investment in (at most) 10 years time. Moreover, the CCB will be used to select the investments with the highest CCB as percentage of the capital investment as the investments that will receive priority GCF co-funding, provided also additional criteria are met (see below).

The monetary value of the climate change benefits is calculated as the sum of three terms:

will be provided. On the basis of the Board's approval, and at the client's request, ADB Management converts portions of the facility amount into a series of tranches to finance eligible investments.

1. [Average annual CO₂ emissions (average over lifetime)] x [shadow price of carbon]¹⁰⁸
2. [Annual amount of water saved / stored (average over lifetime)] x [shadow price of water]¹⁰⁹
3. [Δ annual value added / sheep unit] x [number of animals in sheep units]¹¹⁰

The first of these terms is a straightforward estimate of the monetary value of the GHG emission reductions achieved. The second term is an estimate of the value of the amount of water saved or stored, which is important for Mongolia given the shortage of water and the negative impact of climate change on water availability. The third term provides an estimate of how the animal productivity increase compensates for the need to reduce animal numbers to compensate for the reduction of the biomass productivity of grasslands.

Detailed investment eligibility, selection and decision criteria specific to output 2 are listed in Box 8. Detailed investment eligibility, selection and decision criteria specific to output 3 are in Annex 18. Under output 1, GCF will only finance renewable energy investments, such as solar panels.

Box 8. Specific Selection Criteria for Output 2

All output 2 rangeland investment projects must meet the following criteria:

- a. **Contribution to impact:** Investment should prove direct contribution to:
 - a. Reduced emissions from land use and through low-carbon and climate-resilient rangeland management and conservation and enhancement of rangeland carbon stock
 - b. Increased resilience to climate change, including against natural disasters linked to climate change as well as contributing to improved livelihoods of the most vulnerable people, communities and regions threatened by climate change
 - c. Improved resilience of ecosystems and ecosystem services against natural disasters
- b. Activities:
 - a. The GCF funding will be used for the following activities:
 - (i) support and capacity building for low-carbon PUGs and low-carbon pasture management plans;
 - (ii) support and capacity building for low-carbon herders' cooperatives build on low-carbon PUGs;
 - (iii) incentives to encourage the reduction of the herd size;
 - (iv) small infrastructure and equipment to improve resilience against natural disasters, productivity, and herder's livelihoods as described in Annex 16.
 - (v) improved veterinary services;
 - (vi) head structures and primary irrigation canals for fodder or vegetable production;
 - (vii) ecosystem-based water conservation and water harvesting solutions;
 - (viii) support animal tracking and traceability system; and
 - (ix) support to certification system;
 - b. Additional activities not envisaged in tranche 1 could be considered only if they can prove to support:
 - (i) herders' resilience and livelihood;
 - (ii) ecosystem resilience;
 - (iii) direct herds reduction, or indirect through economic diversification; and
 - (iv) improved grazing system.
- c. Due diligence: Comply with ADB due diligence policy.
- d. Safeguard Categorization: None of the investment or activity should trigger a safeguard classification higher than Category B.
- e. Gender: The investments should support the overall tranche as Effective Gender Mainstreaming, and should prove meaningful consultation during the investment preparation.
- f. Environmental Integrity. Ensure that the funded activities will not lead to an increase in GHG emissions.

Box 9: Conditions for Output 2 and 4 beneficiaries:

- a. Conditions support to PUGs: community investments through CPP (Output 2 Activity 1):

¹⁰⁸ For this purpose, ASDIP uses the ADB shadow price for CO₂: \$36.30 per ton of CO₂ or its equivalent in 2016 prices for 2016 emissions, to be increased by 2% annually in real terms. This is comparable to the World Bank shadow price of carbon of \$40 per tCO₂e in 2020, increasing by 2.25%. For simplicity we use a constant value for the shadow price of carbon, calculated by evaluating the ADB shadow price for GHG emission reductions in 2020 (\$39.62 per tCO₂e).

¹⁰⁹ For the shadow price of water, ASDIP uses a value of \$0.55 per m³ of water stored or saved.

¹¹⁰ The first term is evaluated as the difference between the average value added per animal (measured in sheep units), calculated over the last 5 years for which data are available, and the average value added per animal calculated over the 5 years after the measures to reduce animal numbers and increase value added per animal have been implemented. The second term is the average number of animals (in sheep units), in the 5 years after the measures have been implemented.

- a. Benefit several households and cannot be considered private business investments;
- b. Part of the eligible projects (see list in Annex 1 of Final Report Volume III);
- c. Included in the PIHMP (participatory and inclusive herd management plan) & implemented by PUGs;
- d. PUGs must have signed rangeland use agreements with soum governments following project requirements, including with a stocking adjustment plan (details in Annex 1 Final Report Volume III);
- e. PUG must contribute to 20% of the total investment (labor force, material & equipment, investment capital);
- f. Elaborate a CPP project sheet following project requirements (see Annex 1 Final Report Volume III).
- b. Support to PUG organizations (Output 2 - Activity 2.2): In all targeted areas, financial support to cover seed funding cost and first years running cost of soum PUG associations (SPUGA) and aimag PUG association (APUGA).
- c. Technical and financial support to herder's cooperatives and their organizations (Output 2 Activity 2): eligible cooperatives are either cooperatives created under the projects from successful PUGs, or pre-existing cooperatives that meet the list of criteria or are willing to be supported to meet them. The exact list of criteria will be defined at implementation stage, but following guidelines can be taken-into-account:
 - a. Soum coop members are exclusively members from PUGs which have signed RUAs including stocking adjustment plan and engaged in a PIHMP;
 - b. Soum coop embraces the principle of low-carbon and climate-resilient development, including the 3 pillars of sustainability: social, economic and environmental sustainability. These objectives should be clearly indicated in the cooperative status.
 - c. All members have provided an initial financial contribution to be defined during the general assembly meeting in order to form an initial investment capital for the coop.
 - d. Democratic/bottom-up governance based on active participation of the members in the decision-making, implementation and monitoring processes.
 - e. Statuses are registered and updated;
 - f. Cooperative management bodies are functional and operative;
 - g. Profit-redistribution according to the all member meeting decision;
 - h. Annual financial report;
 - i. Agreement to be controlled by an ethics committee that oversees if the cooperative is implementing its mission and objectives and aims at giving advice to fulfil these objectives;
 - j. Implementation or willingness to implement a livestock product low-carbon certification fitting with the definition of the sustainability concept, providing scientific guarantees that it leads the herders to adopt low-carbon practices.
 - k. In the case of existing cooperatives, the project will assess their willingness to participate in capacity building programs on sustainability, governance, administration and financial management if not fully complying with the criteria.
- d. Rewards for reduction in animals' numbers (Output 2 Activity 2.3): will beneficiate to PUGs that have signed RUAs following project requirements that are yearly monitored and reach the objectives stated in the stocking adjustment plan.
- e. Laboratories, animal traceability, veterinary equipment, and disease-free establishments (Output 2 Activity 4 and 5) are managed by the General Authority of Veterinary Services (GAVS). All herders have access to it. Eligible criteria: to be a targeted intersoum or an aimag center (for laboratory and diseases free establishment, and herds/PUG for affiliated Soum for veterinary equipment and traceability).
- f. Training and capacity building support (Output 4 Activity 2) for better rangeland management and for better veterinary practices: All herders and PUGs are eligible in the targeted soums for activities related to: development of PUGs and cooperatives, rangeland use agreements (RUA) and participatory and inclusive herd management plan (PIHMP), veterinary practices.
- g. Training of one community-based animal health worker (paravet) per PUG (Output 4 Activity 2) and provision of equipment (Output 2 Activity 5): All PUGs in the targeted soums will be eligible.
- h. Primary works for the irrigated perimeters (Output 2 Activity 3) will be implemented in the vicinities of the selected aimag and inter-soum centers. Location, technical parameters, preliminary design, costs will be done through feasibility study. In each location where it is implemented, the 'primary' beneficiary is the local government, who will keep the ownership of the infrastructure, and the 'secondary' beneficiaries are the farmers / water users. The selection of the farmers / water users benefitting from the primary works for irrigated perimeters will be done through Output 3 of the project, which will provide financing support to the private sector to develop irrigation perimeters to be connected to the primary works. Selection criteria are developed under Output 3.
- i. Capacity building for herders' cooperatives and their organizations, and the water users of the irrigated perimeters (Output 4 Activity 2). The selection criteria for the beneficiaries of Output 4 Activity 2 are the same as those used under Output 2.
- j. Improvement of the capacity for low-carbon and climate-resilient agribusiness finance Output 4 Activity 3: beneficiaries are (i) agribusinesses (SMEs and cooperatives) working in the sectors identified by the Low-carbon

Agribusiness Development Plan (see Outline in Final Report Volume III Appendix 12, to be further developed at detailed design stage); (ii) DBM and private banks to develop the financing mechanism to support agribusinesses (selection of the private banks is detailed under Output 3).

Sustainability and replicability

The proposed solutions have been designed in a way that it remains more advantageous for each individual herder to follow the project conditions and receive the associated benefits, than to exit the created system.

For the system to be sustainable, mechanisms have been designed for market premiums to replace the project's benefits on the long term, without changing the conditions: certification mechanisms will create market incentives to pursue sustainable rangeland management.

Once the different organizations have been created and that the project is in place, each herder household will be able to choose to enter or exit the low-carbon and sustainable rangeland management system; however, if herders exit the system, they will also lose all the associated economic benefits. The proposed measures and supporting incentives result in higher income from sustainable herding (restoring grasslands) than from unsustainable herding (further degrading grasslands or not restoring degraded grasslands).

By bridging the gap between grant-based financing and market-based financing through its revolving Green Inclusive Regional Agri-Business Fund (GIRAF), and through its community participation and capacity-building components, ASDIP will also ensure that local institutions, local banks, SMEs, SCC, Cooperatives, and herders have the capacity to further invest and adopt a low-carbon-climate-resilient path for rangeland management, agri-business, and urban development, after the project implementation period. The project outcomes, by demonstrating the benefits of shifting towards low-carbon and climate-resilient rangeland management, urban infrastructure and livelihoods, are expected to have long-term impacts well beyond the project implementation period. The mechanisms established will therefore continue to function after the end of the project implementation period.

B.5. Justification for GCF funding request (max. 1000 words, approximately 2 pages)

Mongolia faces significant challenges in financing long term investments and especially those of which a significant part of the benefits are in the form of GHG mitigation. These challenges justify the GCF contributions to ASDIP. There are several barriers that partly are general to Mongolia, and partly specific to ASDIP. To start with the latter, ASDIP requires a large number of coordinated actions and investments by a variety of actors (herders, local governments, agro-processing entrepreneurs), where the returns on investments by one party will partly depend on the actions and investments by others. Even if the knowledge and information existed to evaluate the viability of the actions proposed under ASDIP, such set of coordinated actions and investments are unlikely to emerge spontaneously and therefore require intervention and usually investments by a coordinating entity. The national government would usually be the entity that would coordinate the activities but in the case of Mongolia faces itself some restrictions on its capacity to invest, elaborated in the paragraphs below. Of course, it should be noted that the knowledge and information to evaluate the proposed interventions is not widely available in Mongolia, while the lack of mechanisms to support or reward low-carbon and climate-resilient investments further constrain the possibilities for financing of the low-carbon and climate-resilient investments foreseen in ASDIP.

Financial challenges general to Mongolia relate to Mongolia's macroeconomic conditions and the characteristics of the targeted regions and population. Mongolia is classified by the World Bank (June 2019) as a lower middle-income country, indicating a limited ability to cope with adverse shocks and make investments. Mongolia GNI per capita for 2018 was USD3,580. The Government of Mongolia is currently not able to step in and support in cases of calamities and faces severe challenges in financing large investment programs, due to constrained government finances. For example, the government budget deficit has been persistent and stood at -6.4% of GDP in 2017, while public debt was 91.4% of GDP, demonstrating

a limited capacity to increase expenditures. The COVID-19 crisis further negatively affects the ability of the Mongolia government to implement a program such as ASDIP on its own.

In general, Mongolia's economy is dependent on a limited number of products, and hence open to sharp shocks through developments in commodity prices and or decisions from specific investors to discontinue or restart specific projects. This factor further limits the capacity of the Mongolian government to cope with external shocks and to finance investments.

The Mongolian herders in western aimags are not able to cope with adverse shocks such as natural disasters. Note that the poverty incidence in Mongolia is 29.6%, and among rural population in western aimags it is 36%, demonstrating the lack of ability of the local population to cope with natural disasters and extreme weather events.¹¹¹ Average rural household incomes are slightly below 1 million MNT (400 USD) per month, again demonstrating the limited resources available to cope with climate change.¹¹²

Another factor that limits the ability of the population in western aimags to invest in climate change mitigation and adaptation is the limited amount of funds that are available for investment. This reflects the limited scale of the national capital markets: the stock market of Mongolia is limited in scale¹¹³, while the availability of bank loans is limited combined with high costs (the commercial bank prime lending rate was 20% in December 2017, 14th highest in the world) and short terms. These characteristics of the Mongolian capital markets are even stronger in the western aimags: for example, while the three targeted aimags account for over 8.5% of Mongolia's population, they only account for 3.30% of outstanding loan amounts and 2.75% of deposits, indicating the very limited extent of financial intermediation through the banking sector.

Given these factors outlined above, it is logical that ADB comes in as entity coordinating and financing the various investments and activities and supporting policies. Then the question is whether Mongolia could pay for market-conform financing by ADB. The macroeconomic factors mentioned above indicate that Mongolia would have insurmountable difficulties meeting standard financing conditions. This is especially the case given that the project, while building on previous projects, has some novel integration of elements that have been earlier tested in isolation and is the first in the developing world for an implementation of such a project at scale.

Earlier (e.g. SDC's Green Gold Program, see also section B.1) and newly proposed projects on the same topic have been or are expected to be implemented on a grant basis. ASDIP seeks to bridge the gap between grant-based financing and market-based financing, where the only source of semi-soft financing is in the form of payments for mitigation results, as discussed in the next section. This means that ASDIP's financing will be partially concessional and pave the way for non-concessional financing based on a combination of loans, equity, and payments for GHG mitigation services.

Given the factors above, a series of discussions were held between the Mongolian government and other sources of finance, and a financial package was put together that includes some concessionality, both in terms of the GCF financing and the co-financing. It should be noted that the co-financing includes USD 30 million in grants (from Asia Investment Facility of the EU), and the Mongolian government) and also includes USD 31.72 million in funding by the private sector, thus implying some comparability in concessionality and risk taking between GCF financing and co-financing. Most of the GCF contribution goes to Output 3, the GIRAF. A condition for support under GIRAF is that the investments supported by GIRAF (and hence

¹¹¹ Source: National Statistics Office (2019) National Statistical Yearbook 2018, Table 5.10, accessed through www.1212.mn. Data are the most recent available, for 2016-2018.

¹¹² Source: National Statistics Office (2019) National Statistical Yearbook 2018, Table 5.1, accessed through www.1212.mn.

¹¹³ Based on data in the National Statistical Yearbook 2018, Tables 13.1 and 14.6, market capitalization of the companies registered at the Mongolian Stock Exchange is 7.81% in 2018. For comparison, https://www.theglobaleconomy.com/rankings/stock_market_capitalization/ provides stock market capitalization to GDP ratios for 62 countries (not including Mongolia). The average ratio in 2018 is 71.05%, and only in Ukraine and Algeria, the ratio is lower than in Mongolia. Another comparison is with countries in Asia. For the Asian countries for which data are available, the average for 2018 was 106.49%. The highest value was in Hong Kong: 1052.15% and the lowest value was in Lebanon: 17.08%.

benefitting from GCF funding) would not happen in absence of this GIRAF/GCF support, because the investment proponents would not be able to compensate financiers. The financial and economic analysis has verified that with the proposed GCF financing in place, ASDIP will be able to pay the co-financiers the required return on investment. Other GCF support targets activities that do not directly result in revenues.

The full package is limited in its concessionality. (46.7 % of the overall cost is concessional financing and 27.5% of the GCF funding is in the form of grants). In principle, income-generating investments are funded through loans, while activities that do not result in income (capacity building, policy development, investment plan preparation) have been funded through grants. The amount of GCF financing and its concessionality are limited in relation to the amount of expected GHG emission reductions and the climate adaptation benefits and are just sufficient to make the financing plan sustainable under the various sensitivity scenarios considered.

Grant concessionality is passed through completely to the end-users, while concessionality of concessional loans are passed through to the extent possible while compensating financial intermediaries for costs and risks incurred.

B.6. Exit strategy and sustainability (max. 500 words, approximately 1 page)

As discussed above, one of the key issues ASDIP addresses is how benefits will continue after the formal support for ASDIP through ADB and other sources of support have ended. This is achieved by removing market distortions and barriers, so that both the incentives and the means for continued implementation and replication of the project interventions are guaranteed. Key to this is the strengthening of the sector's institutional capacity to formulate, implement and enforce national policies and actions plans (from the national level to the aimag and soums levels) that enable an environment more conducive to a climate-smart livestock sector (Output 4) including low carbon, climate resilient rangeland management and practices. The greenhouse gas mitigation resulting from the project as a result-based funding source to pay for the implementation of the policies and incentives through the proposed Partnership for Low-Carbon and Climate-Resilient Rangeland Management in Asia (see Box 10), which provides an expected source of income for the Government of Mongolia (and the governments of other countries that seek to replicate ASDIP) and hence an added incentive for maintaining and properly operating the project assets that are owned by the Government of Mongolia (Output 1, 2 and 4).

Exit strategies were prepared for the benefits – and thus the good practices – to last beyond the project timeframe:

- (i) At the end of the MFF, the cooperatives will generate profits and will be able to invest in micro-projects for their PUGs, replacing the project's support through Community Participation in Procurement.
- (ii) The MFF timeframe allows to put in place a certification system for key products (cashmere, wool, meat, others) that will reward compliant herders through the coop. Herders engaged in sustainable practices will thus benefit from a market premium, as it is already the case today with the sustainable cashmere products (paid at a higher price than common cashmere products).
- (iii) The herders will continue to have an interest in selling animals through the cooperative, considering the cooperative's share or profits. At the same time, the herders cannot increase again their number of herds or they will lose their certification, and therefore the market premium for certified products. Herders who do not respect certification requirements over a certain period of time are excluded from the cooperative and therefore lose benefits of profit sharing on product sales. It will then be economically rationale to keep a reduced number of herds (requiring less work and effort) and keep all the advantages associated with this requirement, in particular the market premium and cooperative services.
- (iv) Certified herders will also keep advantages in terms of preferential access to services such as the disease-free establishment and other services that the cooperatives will offer to their members, for example the selling on credit of hay and fodder.
- (v) Once strengthened, SCCs will be self-sustainable and able to provide green financial products to certified herders.
- (vi) There is a risk that i- cooperatives be attracted by less constraining, easier certification models and ii- SCCs stop proposing specific green financial products/funds for rangeland restoration and do not fund

the PUG system. In order to encourage these institutions to follow the sustainable objectives for which they have been supported by the project, an ethics committee will be created. The ethics committee would check that the sustainable development objectives are properly implemented and will be comprised of recognized external institutions such as universities, donor agencies, NGOs. The ethics committee provides advise and technical support and has access to the needed documents to proceed to any control. The ethics committee does not take any decision related to orientations and activities of the PUGs, coops and SCCs, which remain self-determining institutions. However, by chairing in the ethics committee, the members recognize that the organizations comply with their objectives and mission, and the members are free to leave the ethics committee if it is not the case.

Insert 7. Sustainability of PUGs beyond the first 6 years

While PUGs are not investment vehicles and have more limited operational costs, several mechanisms will be at work to finance PUGs, ASDIP implementation:

First, the cooperatives will generate profits and thus become self-sustainable. As the cooperatives are based on PUGs, a model whereby the cooperatives participate in the financing of their member PUGs will be implemented. In particular, cooperatives will be able to invest in micro-projects for their PUGs, replacing the project's support through Community Participation in Procurement. In AVSF's experience in Bayankhongor, once operational, cooperatives can finance one micro-project by year with the support of Local Development Fund (LDF) co-funding. Institutional strengthening with the creation of "soum platforms" better connecting the PUGs with related soum officials will also improve the leverage of public funding by PUGs.

Saving and Credit Cooperatives (SCCs), which are small-scale financial institutions used by herders supported by the project, will be used to finance the PUG system. Due to successful models of SCCs in some soums, the SCCs have become the main income source for Soum Association of PUGs/Aimag Federation of PUGs. (Green Gold, 2019).

Also, capacity building to NFPUG provided under Tranche 1 will include support to improve the subscription fee system and to increase financing from PUG members.

Finally, the profit-sharing mechanism between green agribusinesses and PUGs/herders supported by the GIRAF as a condition for private sector to access to financing support will provide the long-term necessary resources to maintain the PUGs.

Insert 8. Micro-scale O&M for structures to be maintained by the herders

As detailed in **Annex 19 page 11**, the ownership and O&M responsibilities should be decided on a case-by-case basis based on the herders' preferences and type of project: several models (ownership / O&M by the soum/bag government, Soum association of PUGs (APUGs) or PUG/users) are possible depending on the investment. Legal advisory services under the project implementation consultancy services will provide advice and templates of lease agreements for each possible option.

Ability of PUG/users to cover O&M costs is a key aspect for the sustainability of these micro-projects. When PUG/herders are responsible for O&M, the CPP project sheet will include an operation and maintenance plan, identifying person(s) in charge, estimating O&M costs and describing how these costs will be covered.

The project overall scheme relies on the increase of the value added per animal in the herd, and its fair redistribution in the supply chain, through the cooperatives. The subsequent increase in revenue is expected to be partly used to cover O&M of these micro-projects.

At the beginning, the project will increase this value added per animal with financial incentives to buy the excess animals, time for all project components to be developed, from rangeland management, animal feeding and breeding, veterinary services and development of processing activities. Once this is in place and can reach the market thanks to the traceability and certification systems, the market will then pay a premium for the high value products, that will take over project financial incentives in the long term. Reaching out to herders of additional value created will be ensured through the cooperatives and contracts' systems put in place by the project. This will ensure resources at the herders' level to cover microscale O&M for structures that will be managed and owned on a community-basis, to be defined for each type of structure, based on local needs and wills.

More narrowly, ASDIP ensures that the financing plan has built in ample guarantees that O&M costs are covered so that the assets of ASDIP will remain operational. Use of the assets will result in revenues, and one of the design requirements of ASDIP has been to ensure that with GCF financing in place, the project would be financially viable and sustainable.

Financial sustainability of the investments supported with GCF funding will be a key design consideration, and therefore guaranteed as shown in the financial analysis of the MFF tranches. It is anticipated that the repayment will occur over a 40-year period.

In the case of output 3, the investment co-funded by ASDIP are owned by the private sector. With the GCF financing in place, the revenues from these assets and businesses are sufficient to pay O&M costs and to continue the operation of the assets. Therefore, all asset owners and operators, whether in the public or private sector, will have the continued incentives and means to operate and maintain the assets, thus guaranteeing a continued flow of benefits (including environmental and social benefits) resulting from these assets.

Replication of successful project experiences will be encouraged through systematic monitoring of implementation results and the creation and dissemination of knowledge products. ADB's aim is to offer "finance ++": a superior combination of ADB's own finance plus leveraging resources through partnership plus providing knowledge to DMCs to maximize and accelerate development effectiveness. ASDIP will be a way to use knowledge built up in the past through earlier TAs such as "*Strengthening Carbon Financing for Regional Rangeland Management in Northeast Asia*" and "*Integration of Climate Technology Financing Needs into National Development Strategies, Plans, and Investment Priorities - Mainstreaming Climate Technology in Mongolia: Report for the Agriculture Sector*", and to use it to build additional knowledge that can be used in subsequent finance++ interventions. Such approach to using and building ADB knowledge is fully consistent with ADB's knowledge actions plans. Among ADB developing member countries, replication possibilities exist within Mongolia (aimags not covered under the MFF, and outside Mongolia in other countries with large rangeland systems, such as People's Republic of China, Kazakhstan, Kyrgyz Republic and Uzbekistan). Furthermore, knowledge gained through ASDIP will be shared with others for replication outside ADB.

Box 10. Partnership for Low-Carbon and Climate-Resilient Rangeland Management in Asia

Rangelands are among the largest ecosystems in the world and contribute to the livelihoods of more than 800 million people. In Asia, pastures (part of the rangelands) account for over 10 million km² of land area. Large parts of the rangelands in Asia, especially in Central and Northeast Asia, are degraded through overgrazing and other causes.

Restoring rangelands requires the reduction of grazing pressure. In the process of rangeland restoration, depleted soil organic carbon stocks will be restored. This is a slow and gradual process that takes about 20 years. During this process CO₂ is sequestered as soil carbon. While the amount of soil organic carbon that can annually be sequestered per ha is limited, the large rangeland areas makes the mitigation potential very large. Using data generated in RETA 7534 "*Strengthening Carbon Financing for Regional Grassland Management in Northeast Asia*" for Mongolia and PRC, and combining this with FAO statistics, the total annual mitigation potential in PRC, Kazakhstan, Mongolia, Turkmenistan and Uzbekistan can be conservatively calculated as 64 million tCO_{2e} per year, with a corresponding mitigation potential over a 20-year period in excess of 1.0 billion tCO_{2e}.

The above estimate is preliminary and based on several simplifying assumptions. If anything, the estimate of the potential is conservative. Moreover, measures to restore grasslands will in most cases also reduce GHG emissions from the livestock sector.

ASDIP has prepared more detailed emission reduction calculations for the sequestration of soil carbon from improved rangeland management and will implement accurate GHG emission reduction calculations as part of the MRV of its operations.

GCF funding for carbon sequestered will include a combination of a concessional loan and a grant, but the amount of finance provided by the GCF will be limited compared to the value of the carbon sequestered. At any reasonable price of carbon,¹¹⁴ the value of the amount of carbon sequestered would be exceeding the total investment cost of ASDIP (expected to reach \$735 million) and would also otherwise be beyond the capacity of GCF to pay.

¹¹⁴ A current price assumption would be \$10-15 per tCO_{2e}, which is below the social cost of carbon.

It is therefore proposed to use ASDIP and initial GCF funding as a catalyst to pilot and develop an ADB-managed Partnership for Low-Carbon and Climate-Resilient Rangeland Management in Asia: a regional program (covering DMCs in Central & West Asia and East Asia with an initial focus on Mongolia) with funding from developed member countries of ADB that might be expected to have an interest in rangeland management & husbandry. Such a partnership would aim to establish and improve low-carbon and climate-resilient rangeland management and enhance soil carbon stocks on previously degraded land in the targeted region. The partnership could be expected to focus on:

- 1) Measurement of soil carbon stocks and validation of the monitoring methodologies¹¹⁵ used to estimate soil carbon stocks.
- 2) Measurement of the impact of changed rangeland management practices on soil carbon stocks.
- 3) Calculation of improved mitigation estimates for improved rangeland management
- 4) Analysis of the impact of various policy instruments and plans on rangeland use practices, herder income levels and carbon stocks.
- 5) Formulation and implementation of projects and policies to improve rangeland management.
- 6) Measurement, verification and reporting of the carbon sequestered as a result of the policies and projects.
- 7) Benefit-sharing of results-based payments for carbon sequestered through improved rangeland management. Payments will be collected from the countries represented in the partnership and will be either directly distributed to herder households or more likely be used to finance policies and incentives.
- 8) Monitoring and evaluation, followed by formulation of lessons learned and preparation of knowledge products and their dissemination, for improved implementation of future projects and policies.
- 9) Active reaching out to other countries that could benefit from low-carbon and climate-resilient rangeland management.

ASDIP and the catalytic GCF funding would also be used to validate and demonstrate the viability of the approach (see 1)–4) above) in the context of a first project integrating investments and policies (see 5) above). The results will be used to expand the proposed partnership. The proposed partnership would initially pay for (and depending on the wishes of the partnership countries and the progress of international negotiations, also receive) the carbon sequestered by ASDIP in excess of a threshold of 6.22 million tCO₂, and assuming enough appetite, carbon sequestered by replication projects in Mongolia and/or projects focusing on other rangeland areas in Asia. It would provide a source of revenues that could help to pay back funding and could additionally function as collateral for debt funding.

There is a strong interplay with some of the project activities related to replication. For example, Activity 4.5 focuses on knowledge sharing and policy formulation, implementation, monitoring and enforcement, which are ingredients for replication. The activity is important for setting government objectives, aligning efforts, creating awareness raising and supporting policy change. Concrete reductions of livestock numbers relative to the baseline in non-targeted aimags will however also require (i) on the ground capacity building and (ii) incentives provided in these territories as well. ASDIP does not intervene in non-target aimags, and GoM has no resource available to do this, so this may not happen easily. However, the proposed partnership could step in to realize the replication potential.

¹¹⁵ It is proposed to use a Verra (previously called VCS) methodology, Approved VCS Methodology VM0026, Version 1.0, dated 22 April 2014, Sectoral Scope 14: “Sustainable Grassland Management”.

C. FINANCING INFORMATION						
C.1. Total financing						
(a) Requested GCF funding (i + ii + iii + iv + v + vi + vii)		Total amount			Currency	
		175.0			million USD (\$)	
GCF financial instrument		Amount	Tenor	Grace period	Pricing	
(i)	Senior loans	130.0	40 years	10 years	0 % interest, 0.25% service fee, 0.50% commitment fee	
(ii)	Subordinated loans	Enter amount	Enter years	Enter years	Enter %	
(iii)	Equity	Enter amount			Enter % equity return	
(iv)	Guarantees	Enter amount	Enter years			
(vi)	Grants	45.0				
(vii)	Result-based payments	Enter amount				
(b) Co-financing information		Total amount			Currency	
		560.0			million USD (\$)	
Name of institution		Financial instrument	Amount	Currency	Tenor & grace	Pricing
ADB OCR Concessional		Senior Loans	135.0	million USD (\$)	25 years 5 years	2%
ADB OCR Regular		Senior Loans	135.0	million USD (\$)	25 years 5 years	Libor-based%
ADB Grant		Grant	3.0	million USD (\$)		
European Union		Grant	30.0	million USD (\$)		
European Investment Bank		Senior Loans	150.0	million USD (\$)	20 years 5 years	Libor-based%
DBM / commercial banks / private sector		Senior Loans	25.0	million USD (\$)		
Government of Mongolia		Grant	75.28	million USD (\$)		
Beneficiaries		In kind	6.72	million USD (\$)		
(c) Total financing (c) = (a)+(b)		Amount			Currency	
		735.0			million USD (\$)	
(d) Other financing arrangements and contributions (max. 250 words, approximately 0.5 page)		Please see Section below.				
C.2. Financing by component						
<p>The total cost of the program is estimated at \$735 million. The cost of Tranche 1 is estimated at \$270 million (Table 4). The government has requested an MFF in an amount up to \$448 million, or 61.9% of the investment program, from a blend of ADB resources (ADB ordinary capital resources (OCR) loan, concessional OCR (COL) loan, and grant)¹¹⁶ and co-financing to be administered by ADB. The Government will finance \$75.28 million, or 10.24% of the total cost, including roads, resettlement, other miscellaneous costs, and \$48 million of taxes and duties through exemptions or will provide funds to pay such taxes and</p>						

¹¹⁶ The allocation of OCR loan, COL loan and grant are depending on (a) general availability of concessional resources, and (b) Mongolia's access to the concessional resources.

duties in accordance with relevant laws and regulations. Administered co-financing is estimated at \$175 million provided as loans and grants. Non-administered co-financing is estimated at \$180 million equivalent provided as loans and grants. The financing plan is in Table 5. The program to be financed by the MFF in three tranches will be implemented over 10 years, subject to the government's submission of related periodic financing requests, execution of the related loan and project agreements for each tranche, and fulfilment of terms and conditions and undertakings set forth in the framework financing agreement between ADB and the Government. Contribution from the private sector and the beneficiaries are estimated at \$31.7million. EIB will provide a co-financing of up to \$150 million loan and \$30 million grant (from Asia Investment Facility - AIF- of European Union). The EIB loan would have a 20-year term including a grace period of 5 years and an interest rate in accordance with its LIBOR-based lending facility. The GCF will provide grant co-financing equivalent to \$45.0 million and loan co-financing equivalent to \$130 million, to be administered by ADB as an accredited entity. The GCF loan will have a 40-year term, including a 10-year grace period, annual principal repayments from year 11 to year 20 equivalent to 2% of the initial principal, and from year 21 to year 40 equivalent to 4%, and such other terms and conditions set forth in the draft GCF loan agreement. The interest and commitment charges during implementation will be capitalized as part of the GCF loan.

For the FIL component of the program, the government will invest about \$87.61 million of the GCF loan proceeds into the Green Inclusive Regional Agribusiness Fund (GIRAF) to finance output 3. The DBM through its Asset Management Corporation (AMC-DBM) will manage the GIRAF, which will serve as the apex financial institution for the program funds to be channelled through financial intermediaries. It is estimated that GCF loan proceeds, will lead to private entrepreneurs, DBM and other participating commercial banks to contribute \$25 million. Moreover, about \$5 million of the GCF grant will be passed on to the government to provide low-carbon and climate-resilient innovation grants through the GIRAF to qualified investors who will promote innovations in green, low-carbon, inclusive agribusiness.

For Tranche 1, ADB will finance \$93 million or 34.4% of the total investment requirement. About \$45.0 million equivalent will be financed from the concessional OCR and \$45.0 million from regular OCR. About \$3 million will be financed by ADB thematic grant resources. The concessional loan will have a 25-year term, including a grace period of 5 years, an interest rate of 2.0% per year during the grace period and thereafter, and such other terms and conditions set forth in the draft loan and project agreements. The regular loan will have a 25-year term, including a grace period of 5 years, an annual interest rate determined in accordance with ADB's London interbank offered rate (LIBOR)-based lending facility, and such other terms and conditions to be set forth in the loan and project agreements

EIB will provide a co-financing of up to \$52.9 million loan and \$10.5 million grant (from Asia Investment Facility - AIF- of European Union). The EIB loan would have a 20-year term including a grace period of 5 years and an interest rate in accordance with its LIBOR-based lending facility. The portion of such co-financing will be limited to urban infrastructure, excluding waste management. The GCF will provide grant co-financing equivalent to \$25.0 million and loan co-financing equivalent to \$50.2 million, to be administered by ADB as an accredited entity. The GCF loan will have a 40-year term, including a 10-year grace period, annual principal repayments from year 11 to year 20 equivalent to 2% of the initial principal, and from year 21 to year 40 equivalent to 4%, and such other terms and conditions set forth in the draft GCF loan agreement. The interest and commitment charges during implementation will be capitalized as part of the GCF loan.

Table 4: Summary Investment Plan
(\$ million)

Item	Investment Program	Tranche 1
Base Costs		
Output 1: Climate-resilient, low-carbon, and attractive aimag and soum centers developed	395.7	109.3
Output 2: Rangelands managed for climate-resilience, high carbon sequestration, and sustainable herding	99.2	45.9

Output 3: Low-carbon and climate-resilient livestock value chains created and strengthened through accessible finance	115.8	54.8
Output 4: Capacity and policy reforms for low-carbon and climate-resilient agro-territorial development improved	38.5	27.1
Subtotal (A)	649.2	237.1
Contingencies	59.3	24.0
Financial Charges During Implementation	26.5	8.9
Total (A+B+C)	735.0	270.0

* Total may not sum up due to rounding-off.

Table 5: Summary Financing Plan
(\$ million)

Source	Amount (\$ million)	Share of Total (%)
INVESTMENT PROGRAM		
A. Investment Project Components		
1. Asian Development Bank	273.0	44.2
2. Green Climate Fund (grant) ^a	40.0	6.4
3. Green Climate Fund (loan) ^a	42.4	6.9
4. European Union (grant)	30.0	4.9
5. European Investment Bank (loan)	150.0	24.3
6. Government of Mongolia	75.3	12.2
7. Beneficiaries	6.7	1.1
Subtotal (A)	617.4	100.0
B. Financial Intermediation Loan Component		
1. Green Climate Fund (loan) ^a	87.6	74.5
2. Green Climate Fund (grant)	5.0	4.2
3. DBM/Commercial banks/Private sector	25.0	21.3
Subtotal (B)	117.6	100.0
Total (A and B)	735.0	
TRANCHE 1		
A. Investment Project Components		
1. Asian Development Bank	93.0	43.4
2. Green Climate Fund (grant) ^a	22.0	10.3
3. Green Climate Fund (loan) ^a	11.8	5.5
5. European Union (grant)	10.5	4.9
6. European Investment Bank (loan)	52.9	24.7
7. Government of Mongolia	20.7	9.7
8. Beneficiaries	3.4	1.6
Subtotal (A)	214.3	100.0
B. Financial Intermediation Loan Component		
1. Green Climate Fund (loan) ^a	38.4	68.9
2. Green Climate Fund (grant) ^a	3.0	5.4
3. DBM/Banks/Private sector	14.3	25.7
Subtotal (B)	55.7	100.0
Total (A and B)	270.0	

^a Administered by the Asian Development Bank.

Source: Asian Development Bank estimates.

Table 6: Cost Sharing Plan and Summary Budget Breakdown: Investment Program

(\$ million)

Item	GCF Grant		GCF LOAN		Total Cost	
	Amount	% of Cost Category	Amount	% of Cost Category	Amount	Duties and Taxes
A. Output 1: Climate-resilient, low-carbon, and attractive aimag and soum centers developed						
1. Low-carbon and climate-resilient infrastructure and services upgrade in aimag centers	-	0.00%	8.48	2.80%	312.80	27.94
2. Low-carbon and climate-resilient infrastructure and services upgrade in intersoum centers	-	0.00%	3.23	3.68%	78.05	7.10

3. Implementation of smart land management system	-	0.00%	-	0.00%	4.93	0.45
Subtotal (A)	-	0.00%	11.71	2.96%	395.77	35.48
B. Output 2: Rangelands managed for climate-resilience, high carbon sequestration, and sustainable herding						
1. Implementation of community-based low-carbon and climate-resilient investments	14.33	42.98%	5.05	15.15%	33.34	3.03
2. Support to low-carbon and climate-resilient pasture user groups and cooperatives	10.89	86.41%	-	0.00%	12.60	1.15
3. Implementation of water efficient irrigation systems for fodder production	9.52	33.04%	8.92	30.96%	28.81	2.62
4. Improvement of animal health	1.30	5.33%	11.05	45.28%	24.39	2.22
Subtotal (B)	36.04	36.34%	25.02	25.23%	99.15	9.01
C. Output 3: Low-carbon and climate-resilient livestock value chains created and strengthened through accessible finance						
1. Provision of accessible low-carbon and climate-resilient agribusiness loans and credit guarantees to herders cooperatives and SMEs	-	0.00%	85.77	77.97%	110.00	-
2. Provision of innovation grants for low-carbon and climate-resilient livestock value chains to qualified herders and SMEs	5.00	86.74%	-	0.00%	5.76	-
Subtotal (C)	5.00	4.32%	85.77	74.09%	115.76	-
D. Output 4: Capacity and policy reforms for low-carbon and climate-resilient agro-territorial development improved						
1. Support for management and implementation	-	0.00%	-	0.00%	19.60	1.78
2. Support for low-carbon and climate-resilient rangeland management	-	0.00%	-	0.00%	6.85	0.62
3. Improvement of the capacity for low-carbon and climate-resilient agribusiness finance	-	0.00%	-	0.00%	4.95	0.45
4. Implementation of M&E and MRV system	-	0.00%	-	0.00%	5.10	0.46
5. Enhancement of the capacity for policy formulation, implementation and enforcement	-	0.00%	-	0.00%	2.00	0.18
Subtotal (D)	-	0.00%	-	0.00%	38.50	3.50
Total base costs (Outputs 1-4)	41.03	6.32%	122.50	18.93%	649.19	48.00
Contingencies						
A. Physical	1.45	5.92%	2.30	9.35%	24.57	-
B. Price	2.51	7.25%	2.58	7.42%	34.71	-
Total contingencies	3.96	6.69%	4.87	8.22%	59.28	-
Financial charges during implementation	-	0.00%	2.63	9.91%	26.53	-
Total Project Cost	45.00	6.12%	130.00	17.69%	735.00	48.00

* Total may not sum up due to rounding-off.

Table 7: Cost Sharing Plan and Summary GCF financing Breakdown: Tranche 1

(\$ million)

Item	GCF Grant		GCF LOAN		Total Cost	
	Amount	% of Cost Category	Amount	% of Cost Category	Amount	Duties and Taxes
A. Output 1: Climate-resilient, low-carbon, and attractive aimag and soum centers developed						
1. Low-carbon and climate-resilient infrastructure and services upgrade in aimag centers	-	0.00%	1.53	1.77%	81.37	6.97
2. Low-carbon and climate-resilient infrastructure and services upgrade in intersoum centers	-	0.00%	1.08	5.62%	24.40	2.22
3. Implementation of smart land management system	-	0.00%	-	0.00%	3.61	0.33
Subtotal (A)	-	0.00%	2.61	2.38%	109.38	9.52
B. Output 2: Rangelands managed for climate-resilience, high carbon sequestration, and sustainable herding						
1. Implementation of community-based low-carbon and climate-resilient investments	9.63	57.76%	2.53	15.15%	16.67	1.52
2. Support to low-carbon and climate-resilient pasture user groups and cooperatives	7.29	86.51%	-	0.00%	8.43	0.77
3. Implementation of water efficient irrigation systems for fodder production	2.20	20.07%	2.35	21.43%	10.96	1.00
4. Improvement of animal health	1.30	13.23%	3.73	38.05%	9.80	0.89
Subtotal (B)	20.42	44.52%	8.61	18.76%	45.87	4.17
C. Output 3: Low-carbon and climate-resilient livestock value chains created and strengthened through accessible finance						
1. Provision of accessible low-carbon and climate-resilient agribusiness loans and credit guarantees to herders cooperatives and SMEs	-	0.00%	37.51	72.85%	51.49	-
2. Provision of innovation grants for low-carbon and climate-resilient livestock value chains to qualified herders and SMEs	3.00	90.91%	-	0.00%	3.30	-
Subtotal (C)	3.00	5.48%	37.51	68.46%	54.79	-
D. Output 4: Capacity and policy reforms for low-carbon and climate-resilient agro-territorial development improved						
1. Support for project management and implementation	-	0.00%	-	0.00%	12.16	1.11
2. Support for low-carbon and climate-resilient rangeland management	-	0.00%	-	0.00%	5.49	0.50
3. Improvement of the capacity for low-carbon and climate-resilient agribusiness finance	-	0.00%	-	0.00%	4.95	0.45
4. Implementation of M&E and MRV system	-	0.00%	-	0.00%	3.48	0.32

5. Enhancement of the capacity for policy formulation, implementation and enforcement				1.00	0.09
Subtotal (D)	-	0.00%	-	0.00%	27.07
Total base costs (Outputs 1-4)	23.42	9.58%	48.72	20.63%	237.10
Contingencies					
A. Physical	0.39	3.60%	0.35	3.27%	10.72
B. Price	1.19	9.01%	0.04	0.27%	13.24
Total contingencies	1.58	6.59%	0.39	1.61%	23.96
Financial charges during implementation	-	0.00%	1.09	12.19%	8.94
Total Project Cost	25.00	9.26%	50.20	18.59%	270.00

* Total may not sum up due to rounding-off.

Table 8: Tentative Cost Sharing Plan per Tranche

Item	Investment Program	Tranche 1	Tranche 2	Tranche 3
Base costs				
Output 1: Climate-resilient, low-carbon, and attractive aimag and soum centers developed	395.77	109.38	159.04	127.36
Output 2: Rangelands managed for climate-resilience, high carbon sequestration, and sustainable herding	99.15	45.87	37.97	15.31
Output 3: Low-carbon and climate-resilient livestock value chains created and strengthened through accessible finance	115.76	54.79	40.00	20.98
Output 4: Capacity and policy reforms for low-carbon and climate-resilient agro-territorial development improved	38.50	27.07	7.50	3.93
Subtotal (A)	649.19	237.10	244.51	167.58
B. Total contingencies	59.28	23.96	21.05	14.27
C. Financial charges during implementation	26.53	8.94	10.44	7.15
Total (A + B + C)	735.00	270.00	276.00	189.00

Table 9: GCF Financing by Output and by Tranche

Item	Tranche1		Tranche 2		Tranche 3		MFF	
	Grant	Loan	Grant	Loan	Grant	Loan	Grant	Loan
A. Base Costs								
Output 1	0.00	2.61	0.00	5.46	0.00	3.64	0.00	11.71
Output 2	20.42	8.61	9.37	9.85	6.25	6.56	35.24	25.02
Output 3	3.00	37.51	1.20	28.96	0.80	19.30	5.00	85.77
Subtotal (A)	23.42	48.73	10.57	47.27	7.05	29.51	40.24	122.50
B. Contingencies & FCC	1.58	1.48	1.43	3.74	0.95	2.29	4.76	7.50
Total (A + B)	25.00	50.20	12.00	48.00	8.00	31.80	45.00	130.00

C.3 Capacity building and technology development/transfer (max. 250 words, approximately 0.5 page)

C.3.1 Does GCF funding finance capacity building activities? Yes No

C.3.2. Does GCF funding finance technology development/transfer? Yes No

If the project/programme is expected to support capacity building and technology development/transfer, please provide a brief description of these activities and quantify the total requested GCF funding amount for these activities, to the extent possible.

D. EXPECTED PERFORMANCE AGAINST INVESTMENT CRITERIA

This section refers to the performance of the project/programme against the investment criteria as set out in the GCF's [Initial Investment Framework](#).

D.1. Impact potential (max. 500 words, approximately 1 page)

ASDIP is expected to contribute significantly to GCF's adaptation and mitigation agenda by addressing:

1. Adaptation by addressing climate change vulnerabilities of aimag and soum centers through improved climate-resilient infrastructure provision
2. Adaptation through adapting the animal husbandry sector to the expected reduction in Mongolian rangelands' productivity due to climate change.
3. Mitigation through carbon sequestration resulting from restored rangelands and through avoided methane emissions.
4. Mitigation opportunities in the urban sector through improved energy efficiency and the uptake of renewable energy.in aimag and soum centers.

To address the reduction of rangelands productivity caused by climate change (see Sections B.1 and B.2 and the Climate Change Assessment), it is necessary to achieve a reduction in the size of the herds to adapt it to the lower resource availability (water, rangelands, biomass productivity of the rangelands). The herder population, however, is quite vulnerable to adverse shocks. Poverty among herder households is much higher than for the general population in Mongolia. As a result, herder households, therefore, have a hard time absorbing losses from climate change. Indeed, a coping strategy is to increase the number of animals even further, increasing the sector's vulnerability to climate change. If a reduction in animal numbers would lead to a reduction in herder's income or is expected to result in such a reduction in income, it would certainly be impossible to achieve a reduction in herd sizes.

Therefore, the decrease in animal numbers should be accompanied by an increase in value created per animal, which can be achieved through a combination of an increase in output per animal, quality of outputs, and price of the outputs from the animal husbandry sector and is in ASDIP supported through several incentives and support measures. These measures will also lead to a reduction of grazing pressure on rangelands and enhanced carbon sequestration, as well as a reduction of methane emissions from livestock, all of which are important for the replication strategy of ASDIP (see D.2).

Increasing output per animal and improving the quality of the outputs and their prices requires a vibrant infrastructure of value chains and processing facilities and supporting services (e.g. veterinary services, extension services), both of which need to be in cities the targeted aimags. This means that the cities where these value chain entities and service providers are located need to be attractive for professionals to live in. One of the important factors that limit the attractiveness of cities is climate change. Therefore, investments to make the cities more attractive, livable, and adapted to climate change, where possible using low-carbon technologies, are a necessary part of the ASDIP project.

The specific impacts from ASDIP are as follows (see the calculation spreadsheet for the mitigation outcomes in Annex 17):

- **552,300 direct beneficiaries** from adaptation (calculated as the population of the aimags targeted by ASDIP)¹¹⁷. The population in the aimags will benefit through more resilient cities, improved grasslands, reduced air pollution from dust, enhanced water availability, and reduced glacier melting.
- **The whole population of Mongolia (over 3 million people)** will benefit from protected rangelands and enhanced food security. This is important because Mongolia's per capita food supply is not abundant. The admittedly dated source https://en.wikipedia.org/wiki/List_of_countries_by_food_energy_intake lists Mongolia as 143rd, with a per capita kilocalorie supply of 2240 (average daily minimum requirement 1800).
- **28.8 million hectares** of rangeland ecosystems protected.

¹¹⁷ Source: National Statistics Office (2019) National Statistical Yearbook 2018, Table 3.5, accessed through www.1212.mn. Population figures are for 2018.

- **11,690** direct green jobs created through green agri-business support.
- **94.05** million from carbon sequestered in the soil¹¹⁸.
- **17.2** million tCO₂e emission reductions from avoided methane and nitrous oxide emissions.
- **4.6** million tCO₂e through GHG mitigation in urban areas.
- **0.49** million tCO₂e emission reductions through other non-agricultural investments (wastewater treatment plant, avoided transport movements).
- **3.98** million tCO₂e in leakage emissions (see the Climate Change Assessment in Annex 15, and Box 11, whereas Box 12 provides a further elaboration on the project boundary specific to rangeland activities)
- **112.40 million tCO₂e in net GHG emission reductions.**

Box 11. Leakage emissions in the livestock sector under ASDIP

Leakage emissions are, according to the IPCC¹¹⁹:

Phenomena whereby the reduction in emissions (relative to a baseline) in a jurisdiction/sector associated with the implementation of mitigation policy is offset to some degree by an increase outside the jurisdiction/sector through induced changes in consumption, production, prices, land use and/or trade across the jurisdictions/sectors. Leakage can occur at a number of levels, be it a project, state, province, nation or world region. [Formatted and our emphasis added]

In the context of Carbon Dioxide Capture and Storage (CCS), CO₂ leakage refers to the escape of injected carbon dioxide (CO₂) from the storage location and eventual release to the atmosphere. In the context of other substances, the term is used more generically, such as for methane (CH₄) leakage (e.g., from fossil fuel extraction activities) and hydrofluorocarbon (HFC) leakage (e.g., from refrigeration and air-conditioning systems). {WGIII}

The text referring to physical leakage of GHGs has been added for completeness and is not relevant for our purposes.

Potential leakage effects considered by ASDIP are: 1) leakage effects within the rangeland targeted by the project, 2) leakage effects due to expansion of herds outside of project areas, and 3) leakage effects through non-project activities catalyzed by the project (including emissions during construction, emissions from the use of roads, and emissions from business activities and infrastructure supported by ASDIP). Below we discuss each in turn.

1) Potential leakage within targeted PUG rangelands is prevented through the signing of the RUA by all the PUG herder households that are traditionally using the same pasture. The RUA is enforced by the PUG members and the local government. It is a binding agreement among herders who are traditionally sharing the same rangeland resource. Enforced RUAs will stop conflicts between herders, define more sustainable grazing practices, and set a destocking schedule and herd composition based on the rangeland carrying capacity. The rangeland area ruled by the RUA is not open to other herders who cannot bring their herds in the PUG's rangeland. Also, with the RUA, non-participating herders and herders in participating PUGs cannot use rangelands not accounted for in ASDIP. Finally, ASDIP will not lead to excess animals that can/will be grazed elsewhere (excess animals will be slaughtered, while an additional measure to reduce population is a change in reproduction strategy).

¹¹⁸ The ASDIP calculations are very conservative. Our estimate equals 4 tCO₂/hectare over the project's lifetime. The recently approved GCF project in Kyrgyz Republic (FP116) also contained a rangeland management component, with an estimate mitigation of more than 23 tCO₂/hectare over the project's lifetime. The UNDP notes in the recently approved funding proposal FP141 that as per estimations made by applying IPCC guidelines, good land management practices would result in estimated carbon sequestration potential of 0.85 tCO₂ per hectare per year for a medium-degraded pasture for a typical soil type in Mongolia – more than 4 times our conservative assumption.

¹¹⁹ IPCC, 2014: Annex II: Glossary [Mach, K.J., S. Planton and C. von Stechow (eds.)]. In: Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)]. IPCC, Geneva, Switzerland, pp. 117-130. CDM uses comparable definitions: "the net change of anthropogenic emissions by sources of GHGs which occurs outside the project boundary, and which is measurable and attributable to the CDM project activity or PoA, as applicable" for projects other than afforestation/reforestation and "the increase in GHG emissions by sources or decrease in carbon stock in carbon pools which occurs outside the boundary of the A/R CDM project activity or A/R PoA, as applicable, which is measurable and attributable to the A/R CDM project activity or A/R PoA, as applicable" for afforestation/reforestation projects. See CDM Executive Board (2019), Glossary CDM Terms, Version 10.0. of 12 September 2019. Code CDM-EB07-A04-GLOS. https://cdm.unfccc.int/filestorage/e/x/t/extfile-20200812172710158-Glossary_CDM.pdf?t=bTB8cW1rc3dhfDAmlFe4HQsrN3Seaa-zIH8x. The quoted definitions can be found on page 13.

2) Potential leakage in the form mentioned is a misunderstanding that does not apply in Mongolia. There are no increased opportunities for non-beneficiaries outside of the project area resulting from reducing the number of animals in ASDIP targeted rangelands. In this context, there is no rational reason for herders outside the project area to expand their herds because of ASDIP, and nothing in ASDIP affects the decision calculus of herders outside of the project area¹²⁰, no matter whether this calculus is based on subsistence considerations, on commercial considerations, or a mix of these two. Herders outside the project area (whether it is in the same rangeland or in another rangeland outside the project rangeland, but see Box 12), will NOT increase herd size because of the ASDIP project. Any increase in herd size that will occur in those herder groups will be the normal baseline increase since they are not receiving benefits from ASDIP. Therefore, based on IPCC definition of leakage, this source of leakage emissions does not apply here.

On the contrary, ASDIP will increase herd productivity and a change in quality, controlled by the certification system, that will incentivize other areas to adopt the same model to access more profitable commercial value chains through knowledge transfer and financial and market incentives created by the GIRAF. More knowledge will become available in reducing herd sizes. The Mongolian government will have access to an improved toolkit to achieve animal reduction goals. The GIRAF will support commercial investments conditioned to comply with low-carbon and climate-resilient, sustainable rangeland management practices.

Based on the arguments outlined above (see points 1 and 2), leakage in the animal husbandry / livestock sector has *ex-ante* been estimated as zero. However, ASDIP will monitor animal numbers within the project areas and outside the project area. If herd sizes outside of the project area beyond what is reasonable given historic trends, and if such increase is the most pronounced in areas neighboring project areas, a further investigation will be made to assess whether the zero leakage assumption can be maintained or whether leakage needs to be taken into account in calculating the realized emission reductions. This approach goes much beyond what is common in GCF FPs.

3) The following leakage emissions outside the animal husbandry / livestock sector have been quantified¹²¹:

- The total of construction emissions is 149,202 tCO₂e over the lifetime of the project or 0.13% of the net emission reductions achieved by the project.
- Emissions due to the use of roads constructed by ASDIP have been estimated as 2,557,167 tCO₂e over the project's lifetime.
- Emissions due to the operation of GIRAF investments have been estimated as 912,306 tCO₂e over the lifetime of the project.
- Emissions due to the operation of Output 2 investments have been estimated as 361,502 tCO₂e over the project's lifetime.

This is an exhaustive list of plausible sources of emissions from ASDIP. It should be noted that in an earlier stage of the formulation of this FP, the AE received comments about the possibility of “boomtown” emissions that would be triggered by the supported aimag and soum centers suddenly attracting major investments and inflows of people. However, this is extremely unlikely. It should be mentioned that the AE and the consultants involved in the formulation of ASDIP has never heard of experts mentioning the possibility that infrastructure investment in the targeted aimags could create “boomtowns” and is not aware of any literature suggesting this possibility. The targeted aimags have been a source of out-migration towards UB since the transition in the early 1990s, and the proposed investments by ASDIP do not make the aimag and soum centers suddenly very attractive for settlement and investment. The areas remain isolated and lack strong demand. The ASDIP investments are more likely to partly stop the net outflow of people and create more employment opportunities for people already living in the centers than anything else. Finally, even if the ASDIP investments would induce a rapid growth in the targeted aimags, this would probably mean lower growth elsewhere (notably in the capital UB), and hence a displacement of emissions rather than a net increase in emissions.

Box 12. Elaboration of the project boundary of the carbon sequestration activities.

Only rangelands in the participating aimags/provinces for which Pasture User Groups (PUGs) have signed rangeland use agreements (RUAs) are part of the project boundary for carbon sequestration activities. The project boundary

¹²⁰ The only possible impact is through induced price changes. Following the example of the consideration of leakage under A/R CDM methodologies, leakage through such mechanisms have been assumed zero.

¹²¹ See the Emission Reduction estimation spreadsheet (Annex 17) and the Climate Change Assessment (Annex 15) for details.

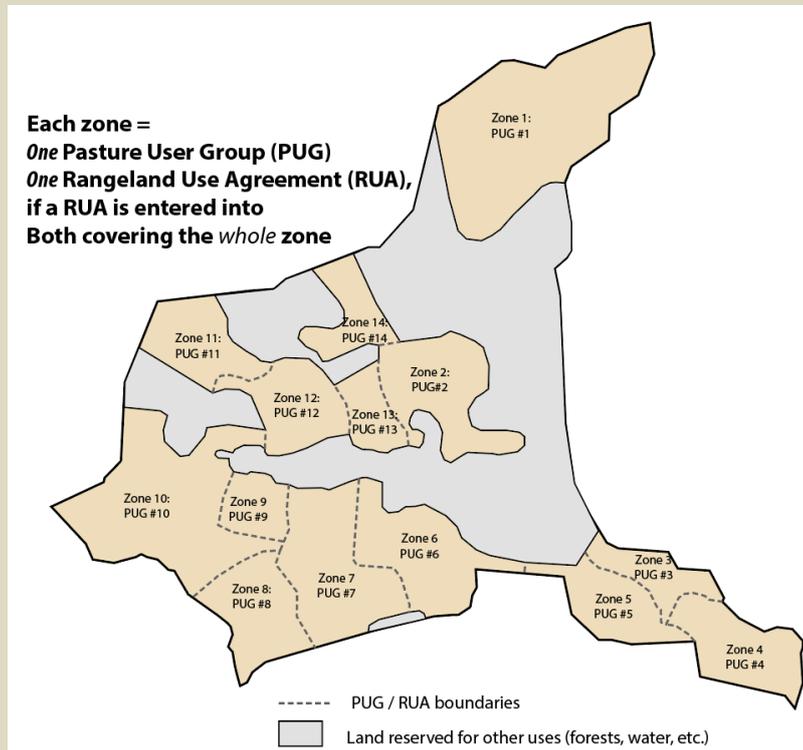
corresponds to all rangelands that belong to a PUGs with signed RUAs in the participating aimags and soums. Within the areas covered by the ASDIP, all rangelands that are covered by a specific RUA belong in their entirety within the given project boundary; all rangelands for which no RUA has been signed belong in their entirety outside the given project boundary.

The PUG boundaries are defined based on traditional practices as well as geographic constraints. Traditionally, herders constitute “saakhalt ails”, meaning, “group of neighboring herders”, which share common rangelands. The constitution of a PUG is a formalization of these traditional herder groups, and the RUAs are based on these territorial divisions by PUGs.

The soum (administrative sub-division of a Province/Aimag) is the first territorial administrative entry point for rangeland use management. The area of available rangeland in a soum is divided into several zones, each zone being attributed to one PUG as may be formalized through a RUA.

In the sketch 1 below, the soum is divided into 14 PUG zones. Each PUG zone is clearly delineated and altogether the 14 PUG zones cover all the soum’s rangelands; in other words, all rangelands of the soum are attributed to PUGs. Each zone corresponds to one PUG and one RUA (if a RUA is entered into). For further discussion, it is useful to define each zone as a rangeland.

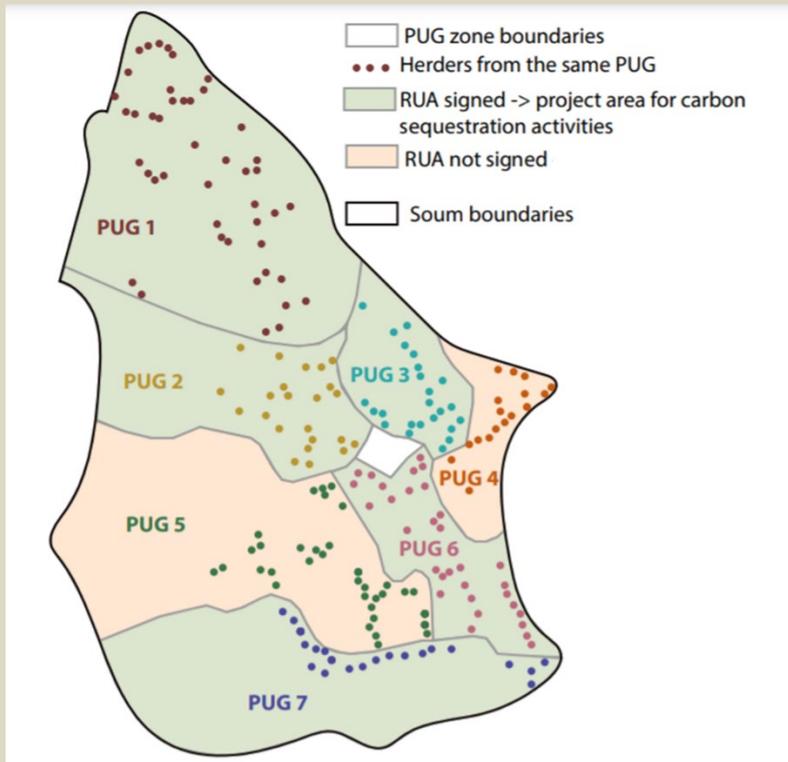
Sketch 1– Land management



The allocation of land is made in a way that any rangeland is used by a PUG, and each PUG has rangeland.

Within ASDIP, as a first step, a similar map of the PUG territories will be obtained or realized by the technical assistance, clearly identifying PUG boundaries, based on Green Gold work at the grassroots level. Following this step, the participation of all the herder households of a given zone in the formal PUG establishment, and subsequent the signing of the RUA by all herder households of the given zone, will provide the basis for the carbon sequestration activities to operate.

Sketch 2 – Illustration of possible area for carbon sequestration activities



In sketch 2 above, PUGs number 1, 2, 3, 6 and 7 sign RUA. They benefit from carbon sequestration activities. PUGs 4 & 5 do not sign RUAs and receive technical assistance only. These PUGs do not benefit from carbon sequestration activities. As a result, in green is the project area for carbon sequestration activities, and in orange is the project area for TA support and output 2 activities, related to animal health control.¹²²

As such the full mitigation and adaptation impact is obtained when the RUA are signed, implemented and sustained. ASDIP has activities and mechanisms to initiate, incentivize, enforce and sustain the establishment of PUG and the signing of RUA. These activities/mechanisms are implemented at various level depending on the level of readiness of each PUG, going from low to high levels of readiness.

The rangelands belonging to a soum targeted by ASDIP form a mosaic of rangeland zones (zones indicated in sketch 1). Each zone is defined as a rangeland. As mentioned above, the allocation of rangeland use is made in a way that any rangeland is used by one PUG only (only one PUG has the enforceable use rights over that rangeland), and each PUG has a rangeland. Therefore, any rangeland within the targeted ASDIP soums:

- Either belongs in its entirety to the project boundary for carbon sequestration activities, in the case where the PUG has signed a RUA for this rangeland;
- OR is in its entirety outside the project boundary for carbon sequestration activities, in the case where the PUG has not signed a RUA for this rangeland (but still will benefit from technical assistance support and animal health activities – see footnote 121 below sketch 2).

For all the rangelands of a soum to be considered as project boundary for carbon sequestration activities, it is required that each PUG of this soum has signed a RUA. However, the signing of RUA will be done on a voluntary basis, through a consultation and negotiation process to ensure buy-in by the herder communities. This process will be phased-in, depending on the willingness and the readiness of each PUG to participate.

¹²² Animal health related components must cover the entire aimags to prevent from animal disease outbreaks. These activities cannot be limited to the project area for carbon sequestration activities, as any animal disease outbreak in adjoining territories would have negative impacts on the targeted territories for carbon sequestration activities too. It can be noted that there are two levels of interventions regarding veterinary services: at the PUG level, one Community-based Animal Health Worker (CAHW) will be trained to deliver veterinary assistance and raise herders' awareness. At the intersoum and aimag center level: Veterinary laboratories (for animal health control and food safety) will be built, to be used by private veterinary clinics, as well as veterinary inspection equipped rooms for animal health check prior to animals' admission in the disease-free establishments. These services will benefit all herders from targeted aimags. Traceability systems will also be implemented at the aimag level.

Prevention of usage of RUA rangelands by outside herder groups.

As explained above, the project boundary is specifically defined by the signing of the RUA. Therefore, within the ASDIP targeted areas the project boundary corresponds to the boundary of PUGs with signed RUAs. This solidifies the use rights of participating herder and clearly prevents the use of the rangeland within the RUA by outsider herders. **Specific clauses in the RUAs prevent uses of the rangeland by non-PUG herders or other activities** (such as extractive industries). Through the Rangeland Use Agreement, the State remains the owner of the land, the PUG members gain long-term use rights, and the State's responsibility is to enforce the RUA and to prevent uses by other (non-signatory) herders / other uses of the land. The RUAs are legally recognized documents, which means that there are legal recourses if the RUAs are violated, i.e., if one of the two parties (PUG and/or the soum government) does not comply with the stated duties, for example, if the soum government does not take action against trespassing by migrating herders.

Templates and existing examples of RUAs wherein these details are outlined are provided in the TRTA Final Report, Volume III. Some relevant sections in the RUAs are highlighted below:

In the RUA section "rights and duties of the state":

- "- To take measures to migrate out outsider-herders out who brought his/her livestock to contracted pasture area without permission;
- To make sure that the pasture is or shall not be allocated to, and used, by others"

In the RUA section "rights and Duties of the User":

- "-Demand stopping trespassing by others into pasture or long stay/grazing without official permission or agreeing;

In the RUA section "Prohibitions"

- "-The user shall be prohibited to (...) either permitting to enter or subletting for grazing of the pasture by livestock owned by non-member person/s;
- Without decision by the general meeting, no Parties shall sublet or assign the land under the winter and spring campsite/s and the pasture allocated under this Agreement or part of it to pledge for income generation as collateralizing, selling, giving away or renting;
- No Parties shall assign, pledge, rent or sell the pasture and other assets and equipment accompanied as a whole or part of them".

In summary, the RUA will serve to protect the PUG members and recognize them as users of the rangelands, that should not be used by other herders, or for other uses such as mining.

For more details, please refer to TRTA Final Report, Vol III, Annex 1 and its appendices.

D.2. Paradigm shift potential (max. 500 words, approximately 1 page)

ASDIP addresses the low-carbon and climate-resilient management of a major type of global landscape, the rangeland. The different rangeland types together constitute about **70%** of the earth's land surface (excluding Antarctica). Globally, rangelands account for a considerable carbon sink. Estimates are that rangeland and grassland globally contain 306–330 billion tC in inorganic form and 470–550 billion tC in organic form, or about 20–25% of the global terrestrial carbon (Kimble et al. 2001),¹²³ with the potential to increase sequestration to as much as 1.1 billion tCO₂e/year.¹²⁴ This provides a significant potential for carbon sequestration that has been systematically under-exploited. ASDIP addresses this issue in several *aimags* of Mongolia. It builds mechanisms to enable low-carbon, climate-resilient rangeland management and reduction in animal numbers, combined with an increase of output per animal, highly relevant for replication within Mongolia and beyond. Therefore, the scope for replication of a successful approach to manage rangelands while addressing greenhouse gas mitigation and adaptation concerns is therefore huge.

¹²³ Kimble, J. M., Follett, R., and Lal, R. (2001). The characteristics and extent of US grazing lands. In 'The potential of US Grazing Lands to Sequester Carbon and Mitigate the Greenhouse Effect'. (Eds R. F. Follett, J. M. Kimble and R. Lal.) pp. 3–19. (CRC Press: Boca Raton, FL.)

¹²⁴ Lal, R. (2004). Soil carbon sequestration impacts on global climate change and food security. *Science* **304**, 1623–1627.

ASDIP is transformational in the intended turnaround in the animal husbandry sector, from ever-increasing animal numbers, increasing climate vulnerabilities, falling outputs to herd size ratios, increasing GHG emissions, and ever-worsening rangeland degradation and falling carbon sinks, to one in which the number of animals decreases, climate resilience improves by adjusting to resource availability, outputs to herd ratios increase, GHG emissions decrease, rangelands are restored, and rangeland soil carbon sinks increases. This is a dramatic break from current trends in Mongolia. To achieve this, ASDIP takes an integrated, innovative, and transformational approach addressing rangeland, urban, livestock, and value chains simultaneously to ensure that each can provide the inputs expected by the others. All the paradigm shift elements presented below will ensure the maximization of ASDIP impact and its comprehensiveness within and outside ASDIP's implementation scope, beyond its regional geographic coverage inside and outside Mongolia to other countries confronting the same rangeland management issues.

Contribution to local and national levels strategies

The comprehensive scope and cross-cutting issues of climate change in Mongolia require sound institutional arrangements and collaboration within the government at all levels and the various stakeholders to be effectively transformative. Therefore, breaking away from traditional, siloed approaches will be vital. ASDIP will use a fully integrated approach, vertically among the various levels of government (national, provincial, and local) and horizontally across inter-ministerial and inter-governmental agencies, combined with financial institutions, private sector groups, and civil society organizations. The ASDIP institutional and implementation frameworks are discussed in more detail in section B.4. This implementation structure is critical for Mongolia to ensure that climate change can successfully be mainstreamed into national, subnational, and local policies and plans and that there is broad-based support from civil society and private sector groups for the necessary institutional arrangements and LCLVCs to be directly integrated into government policies, strategies, and plans.

The integration of low-carbon and climate-resilient strategies at the grass-root level (herders, PUGs, cooperative organizations), using local planning tools (Participatory and Inclusive Herd Management Plan, Low-Carbon, Climate-Resilient Agribusiness Development Plan, and Low-Carbon Climate-Resilient Livestock Value Chain), and translated within the *soum*, *aimag*, and regional plans, will create and advocate for a local low-carbon and climate-resilient agro-territorial development model. Over the 10-year implementation timeframe of ASDIP, this model will be promoted within ministries and government agencies responsible for the urban and agricultural development planning policies and plans at the national and aimags levels (such as MCUD, MOFALI, MET, and NDA). Also, the role of key civil society organizations, NFPUG, and its local branches, which is pivotal to sustainable rangeland management, will be more clearly defined and strengthened, with long-term sustainability guaranteed. The cooperatives model as an optimal institutional arrangement for herders to work together in partnerships with a wide variety of LCLVC investors will be reviewed, re-oriented, and reinforced to improve the livestock producers linkages to processing, distribution, and marketing activities of a more diversified LCLVC. Through the cooperative model, ASDIP will contribute significantly to legally viable, financially sound, and more socially inclusive partnerships between PUGs and SMEs engaged in the LCLVC. At the national level, the Human Settlement Development Program (HSDP), which is under preparation and financed by ADB, aims to formulate aimag socioeconomic and spatial development plans and improve policies and tools to support green, competitive, and sustainable territorial development. HSDP will integrate ASDIP's agro-territorial development model into its approach setting the development framework for ASDIP replication in Mongolia.

ASDIP will thus establish streamlined and coherent institutional arrangements between local sustainable climate strategies and countrywide planning and policy frameworks to create the necessary environment for replication and scaling-up.

Knowledge sharing and learning

ASDIP will dedicate a significant part of its resources in Output 4 to produce and disseminate multisectoral and cross administrative knowledge. It will adopt a highly participatory, consensus-building approach and support knowledge creation and dissemination activities that reach out to the participant-beneficiaries of Tranches 1, 2, and 3 of the program and beyond (i.e., the ASDIP non-target aimags)¹²⁵. ASDIP will produce knowledge and lessons learned to formulate government policies and investment programs to drive replication inside and outside Mongolia. In particular, Output 4 Activity 5 – see Annex 27 – will promote and mobilize broad-based support for the formulation, advocacy, and implementation of the necessary policy reforms among various key stakeholders within and without the program.

Knowledge sharing will also be supported by the professional skills and capacities developed under ASDIP, representing more than 10,000 person-months of national consultants and program management inputs financed by ASDIP including professional staff in administration and finance, to create strong in-country expertise, technical skills, and knowledge essential to institutionalize and replicate the paradigm shift.

Contribution to the regulatory framework and policies

As developed in section D.5, ASDIP is fully aligned with and will contribute to key climate change strategies and policies of the government of Mongolia: the National Action Program on Climate Change (NAPCC), Mongolia's first NDC, the Green Development Policy of Mongolia, the Technology Needs Assessment (TNA), the Nationally Appropriate Mitigation Action (NAMA) submissions of Mongolia and the National Mongolian Livestock Program (NMLP) and its update.¹²⁶

ASDIP will provide inputs for the formulation, implementation, and enforcement of the successor to the NMLP. In coordination with other donors, it will also form the blueprint for national policies and ensure coherence in the recommendations.¹²⁷ A strong monitoring and evaluation component and support to the development of MRV will contribute to these goals by drawing out lessons learned on successful measures to reduce animal numbers and increase herd productivity, such as effective incentives, cost-effective investments, market creation for the LCLVC, MRV, of the emission reductions, commercial impacts, on herders. Toward this end, a dedicated activity (Output 4, Activity 5) has been integrated into ASDIP to build enhanced institutional capacity for policy formulation, implementation, and enforcement to support the new NMLP and the overall national strategy.¹²⁸ This activity will also help build consensus and wider support for the formulation, advocacy, and implementation of necessary policy reforms among the various sector stakeholders, including the ASDIP participants and non-participants.

In the context of green city development, the Sustainable Development Vision 2030 of the Government of Mongolia calls for the preparation and implementation of "*green development standards for urban*

¹²⁵ Knowledge production and dissemination will be based on the activities developed in ASDIP particularly in relation to rangeland management for the sustainability of the livestock sector, number of animals to match with carrying capacity, importance of vaccination and access to veterinary services, improvement of breeds and decreasing of the average animal age, importance and benefits of the traceability and certification systems to reach the high-value market, water conservancy measures, meaning and objectives of a cooperative and of a contract. Knowledge learning and information dissemination tools such as a website, videos, and print materials which can be accessed and/or distributed in the various aimags and in Ulaanbaatar, or through ASDIP sponsored or co-sponsored national and local meetings and workshops, as well as educational and other learning programs and events.

¹²⁶ See also the Climate Change Assessment in annex 15

¹²⁷ Other donor projects may focus on adaptation. However, there is a large overlap in adaptation and mitigation recommendations for animal husbandry and rangeland management, as both focus on increasing efficiency of the rangeland resources and addressing natural disasters through other means than increasing herd sizes.

¹²⁸ This will cover, to the extent possible, the following areas: (i) livestock resilience improvement and productivity enhancement; (ii) greater input towards rangeland sustainability and subsequent productivity; (iii) increased food production (and security) while fighting against climate change; (iv) conflict resolution and bringing social harmony (extension of the PUG model and peaceful resource sharing); (v) outputs from rangeland agroforestry (sequestration from rangeland agroforestry); and (vi) Low carbon and climate resilient herders, PUGs and cooperative organization.

development,” to which ASDIP plans to contribute, in three areas: climate resilience of cities, low-carbon development of cities, and the roles of cities in anchoring the LCLVCs.

A certification system will be established¹²⁹ at the national level in cooperation with other initiatives. It will raise awareness and support long term sustainable rangeland management practices. The certification system will cover three levels (herders, PUGs, and cooperatives) with specific requirements related to, among others, animal stocking rates. It will provide the conditions that need to be met, at each level, to benefit from ASDIP support and improved competitiveness connectivities to a more diversified market. This certification system will be established with a traceability system, both operating together to create long-term market-based incentives to pursue sustainable rangeland management and establish LCLVCs. The Smart Land Management Center, to be developed under ASDIP, will also contribute to monitoring rangeland health, soil condition, water availability, and carbon sequestration in the soil. It will also reinforce strong knowledge institutionalization and policy formulation, implementation, and enforcement. The center will pave the way for replicating and disseminating the ASDIP approach beyond its targeted aimags throughout the country.

Scaling-up and replication potential

Making full use of its tranche implementation structure, long-term implementation timeframe, and financial modality, and considering the significant number of complementary initiatives (such as UNDP), ASDIP will develop an innovative synergetic approach - See Box 1 – to maximize its replication potential beyond ASDIP scope. During Tranche 1, ASDIP will develop a low-carbon and climate-resilient local development model, share, learn, and coordinate with other initiatives for replication in subsequent tranches. Other initiatives will be encouraged to coordinate and learn from the ASDIP for complementarity and compliance on selection criteria (see section B.4) to allow their participation in Tranche 2 and 3 implementation and enhance the scaling-up replicability potential of ASDIP’s low-carbon and climate-resilient model. This strategy will allow ASDIP to save resources on similar activities and to cover a larger geographical scope while bringing local initiatives into an overall low-carbon and climate-resilient development framework. On one side, it will learn how to adapt its model and integrate compatible pre-conditions, and on the other side, develop a clear process for different contexts to comply with this model. This structure will also allow to study and pilot key climate change features in Tranche 1, to be up-scaled in Tranche 2 and 3, for better replication beyond ASDIP implementation timeframe (such as water storage and management technologies, agro-park for LCLVC, substandard peri-urban areas upgrading, etc.).

The replication potential of ASDIP will also benefit from its long-term financial incentives. The GIRAF will be established as a revolving fund and will operate beyond the original scope and implementation timeline of ASDIP, given the GCF loan's highly concessional terms (40-year term inclusive of a 10-year grace period). Through various financial intermediaries with branches all over the country (in both the ASDIP target and non-target aimags), it will act as a powerful incentive and national policy enforcement tool to influence local practices and local development and attract LCLVC.

Finally, to further encourage replication inside and outside Mongolia, ASDIP and GCF funding will catalyze a partnership that will promote the restoration of rangelands and soil carbon sinks in Asia (for more information on this proposed partnership, see Box 10). It is proposed that the approach of ASDIP to achieve GHG mitigation through enhanced soil carbon sinks in the rangelands will be initiated through support from the GCF, which then will be scaled up with additional international partners purchasing emission results and cover rangelands within and outside Mongolia. Mongolia's total pastureland is about **4.7** times the area targeted in ASDIP, while in Northeast and Central West Asia, the replication possibilities are a factor **over 25**.

¹²⁹ See Output 4 Activity 2. It will be based on 3 pillars: ecological (rangeland management, resilience of herds), social (fair price, fair share of profit, empowerment), and technical (optimization of practices, quality vs quantity, animal welfare) sustainability.

D.3. Sustainable development (max. 500 words, approximately 1 page)

SDGs

In terms of the SDGs, ASDIP will contribute particularly to: **SDG13 Climate Action**, SDG6 Clean Water and Sanitation, SDG8 Decent Work and Economic Growth, SDG9 Industry, Innovation, and Infrastructure, SDG11 Sustainable Cities and Communities, and SDG15 Life on Land.

Environmental co-benefits

There are 552,300 beneficiaries from improved environmental conditions in the targeted aimags (all aimags covered in tranches 1-3), mainly in the form of enhanced urban infrastructure and improved rangelands.

Urban environment

The extensive new and upgraded urban and agrobusiness infrastructure and services (i.e., water supply, heating, wastewater collection, electrical power, solid waste management, drainage and flood control) that the ASDIP will develop for Aimag capital cities and selected soum centres will significantly improve environmental conditions, and the standard of living of affected communities. In the Aimag capitals of Ulaangom, Ulgii, and Jargalant the expansion and improvements to wastewater collection and treatment planned for Tranches 1 & 2 of ASDIP will significantly improve living conditions in the cities while greatly improving the quality (e.g., reductions in BOD5, ecoli bacteria, nutrient forms of nitrogen and phosphorus, TDS) of the Kharkiraa, Khovd, and Buyant rivers which currently receive minimal to non-treated wastewater effluents from the WWTPs of the three capital cities. Moreover, the ecological Strictly Protected Areas of Uvs Lake and Khar-Nus Lake downstream of Kharkiraa river and Buyant river, respectively will also benefit from reduced water pollution. At a smaller scale, improvements to wastewater collection & expanded treatment in Omnogovi and Deluun soum centres will also improve the quality of living with residents also realizing a cleaner environment.

The expansion and upgrades to central urban heating will greatly improve local air quality from stricter emissions (NOx, SOx, CO2) treatment technology. During the winter heating months area residents will benefit greatly from reduced ambient PM2.5 and PM10 concentrations. In addition to improved ambient air quality, a major benefit of the ASDIP in the capital cities will stem from the introduction of centrally serviced modern apartments in ger areas which, amongst improved utilities and energy efficient building designs, will exchange residential coal heating/cook stoves for central hot water heating. Traditional coal and wood burning for ger household heating and cooking produces upwards of 95% of the ground-level loads of PM2.5 and PM10 in ger homesteads (WHO, 2011). The introduction of central heating and modern stoves will effectively reduce heavy in-house PM pollution to zero, thereby improving respiratory health of affected families.

The planned improvements to drainage and flood control in the capital cities and soum centres will improve movement and access by residents during spring runoff and severe rainfall events. Less standing water will also improve individual and community health from reduced exposure to gastrointestinal disorders and water-borne disease vectors such as mosquitoes. Notable will be the impact of improvements to the Khovd riverbank in Ulgii which routinely overflows causing extensive flooding in the Bag communities along the river. The improvements to solid waste collection, and garbage containment at the dumpsites in all Aimag capital cities and soum centres will result in much cleaner urban environments, and cessation of the extensive windblown garbage that now occurs on the landscape near the dumpsites.

Rangeland management

Development of modern agri-business technologies and improved rangeland management will allow overgrazed pastureland habitat to recover. The introduction to Aimag capital cities and soum centres of modern animal husbandry techniques including multi-crop fodder production, livestock quarantine and veterinary services, and international slaughterhouse technology will: (i) produce healthier and stronger

livestock that are better able to cope with winter conditions, thereby significantly reducing incidence of Dzud; (ii) produce livestock of significantly greater value which will improve herder livelihoods from access to previously inaccessible lucrative international meat markets; and (iii) reduce land and surface water pollution from proper animal slaughtering, meat processing, and waste management.

A major target objective of increasing the quality of meat production is to reduce the size of livestock herds (goats and sheep primarily) which currently are significantly overgrazing the pasturelands. A reduction in herd size will allow pastureland vegetation and soil to recover closer to natural rangeland steppe conditions. Aside, from increased CO₂ sequestration and reduced CH₄ emissions from reduced livestock discussed elsewhere in this GCF application, restored or improved pastureland habitats will greatly benefit the diversity of ground and avian wildlife that are directly or indirectly dependent on the affected rangeland/forest steppe and mountain taiga habitats.¹³⁰

The latest data on rangeland degradation in Mongolia, from an ecological perspective, have been included in the table below. The latest monitoring data at the start of the of the implementation of the animal numbers measures of the project will be used as baseline, and ASDIP targets will be formulated such that after 10 years, all monitoring points in the project location will have improved at least one class, with the exception of the monitoring points that are rated at the highest health category, for which no higher class exists.

Use of updated information is important, because the latest sharp increases in number of animals has not been reflected yet in the state of rangeland degradation, so that the degradation of rangelands at the start of the implementation of measures to restore rangelands are likely to be underestimated if the latest data set is used. See also the discussion in the Climate Change Assessment, which notes that other sources indicate higher degrees of rangeland degradation in Mongolia.

Table 10. Summary of rangeland categories in the Mongolian rangeland health assessment report

Category	Definition	% of rangelands (2016)
I	Non degraded - All dominants are in place.	42.30%
II	Slightly degraded - Key dominant are still dominating, some grazing sensitive forbs are in decline and grazing resistant species are in increase.	13.50%
III	Moderately degraded - Dominants are in decline and replaced by other subdominants, number of species drops down.	21.10%
IV	Heavily degraded - Remnants of key species are thinning, and abundance of degradation indicator species increases.	12.80%
V	Fully degraded - Total vegetation cover is reduced or dominated by very few degradation indicator species.	10.30%

Source: Densambu, B., S. Sainnemekh, B. Bestelmeyer, U. Budbaatar. 2018. National report on the rangeland health of Mongolia: Second Assessment. Green Gold-Animal health project, SDC; Mongolian National Federation of PUGs. Ulaanbaatar.

Social co-benefits

The ger areas redevelopment component under Output 1 includes high social impacts through (i) access to utilities with the provision of a technical unit on the residents' land plots, and improved housing, with development of financing mechanisms adapted to residents' socioeconomic conditions for housing

¹³⁰ Examples of valued animals that would benefit from reduced herds and improved steppe & taiga terrestrial and aquatic habitats are: wild sheep (*Ovis ammon*), Siberian Ibex (*Capra sibirica*), Mongolian Saiga (*Saiga tatarica mongolica*), musk deer (*Moschus moschiferus*), black tailed gazelle (*Gazelle subgutturosa*), wild boar (*Sus scrofa nigipes*), stone martin (*Martes foina*), marbeled polecat (*Vormela peregusna*), elk (*Cervus elaphus*) or Red Deer, cenereous vulture (*Aegyptius monachus*), golden eagle (*Aquila chrysaetos*), spoonbills (*Platalea Leucorodia*), dalmatian pelican (*Pelecanus crispus*), great white egrets (*Egretta alba*), great black-headed gulls (*Larus ichthyatus*), and, swan goose (*Anser cygnoides*), and numerous other small rodentia, and reptiles. Vegetation that would be expected to return are various wild grasses (e.g., *Stipa baicalensis*, *S. capillata*, and *S. grandis*), and various shrubs (e.g., *Caragana microphylla*, *Ephedra equisetina*, and *E sinica*).

connection to the technical unit and improved housing insulation; (ii) affordable housing options with rental housing and rent-to-own scheme; (iii) improved child-friendly and gender-sensitive public space with high community participation in detailed design preparation to optimize impacts, (iv) construction of a multi-purpose community development center managed by the community to improve appropriation and build social cohesion; and (v) infrastructure adapted to the disabled. The MFF aims to target around 35% of the total ger area population in the aimag centers of Uvs, Bayan Ulgii, and Khovd, that is about 6,000 households out of the 17,000 households living in ger areas and currently suffering from the lack of public services and amenities, which impacts on their quality of life and health.

Urban interventions in the inter-soum centers also include positive social impacts such as (i) impacts of WASH facilities on soum centers residents, (ii) improved dormitory environment & studying conditions for all children and improved enrollment of herders' children, (iii) development of sport and other activities. Last (iv) the provision of dormitories for herder households' children also prevents from family separation during the school year (with mothers moving to the soum centers to take care of the children), which causes workforce scarcity in the livestock breeding sector (increasing herders' vulnerability to natural disasters and other external shocks); increases the number of unemployed people in the settlement; puts economic pressure on the families (with increased housing costs and travel costs involved), and creates family conflicts. The MFF will target 5 inter-soum centers; each inter-soum has a population of 5,000 inhabitants in average and interventions in these inter-soum centers both benefit to the urban population (soum center residents) and to the surrounding rural population using the inter-soum center's services.

Output 2 and 3 are expected to lead to (i) reduction in land disputes and conflicts between herders through improved rangeland management, and protection of Pasture User Groups (PUGs) from mining operations and other land uses, through the signing of long-term Rangeland Use Agreements between PUGs and soum governments (ii) improved herders' participation in local governance (iii) access to basic community needs and ability to cope with extreme events, through the financing of facilities and equipment for PUGs engaged in sustainable rangeland management; (iv) improved livelihoods of herders, through support to herders' cooperatives and improved product quality (training, product certification systems, activities related to animal health), for improved marketing of products at higher prices (v) creation of new job opportunities (see below). These components will highly benefit to herder households of Uvs, Bayan Ulgii and Khovd (total of 17,607 herder households), of which today two thirds earn below subsistence level income (NSO) in the three targeted aimags. They will also create employment in the intersoum and aimag centers where unemployment is high.

Insert 9. Conflict resolution and bringing social harmony

In the livestock sector, several components of the project will directly contribute to conflict resolution and bringing social harmony. Rangeland management is well-known case of "tragedy of the commons" - a situation in a shared-resource system where individual users, acting independently according to their own self-interest, behave contrary to the common good of all users, by depleting or spoiling that resource through their collective action (Forster Lloyd, 1863; Hardin, 1968; Ostrom, 2009). The social organizations which were operating during the socialist period (Negdel) used to organize pastureland management and notably enforce seasonal movement and regulate livestock numbers. The collapse of these organizations led to inadequate pastureland management, causing in turn social tensions and conflicts over land.

Lack of rangeland management and increase of animals' numbers is the major source of conflicts among herders, that have increased over the past years and can be as serious as killing as reported in the media. Community management of rangeland use is expected to bring social harmony in the herders' communities. A Green Gold 2017 Report¹³¹ shows that as a result of PUG creation and work, conflicts among herders have reduced. A research survey was implemented by researchers from the National University of Mongolia and concluded "fewer conflicts over rangeland use were reported in the Green Gold project sites than in control sites" (Interim report, June 2014, Department of Anthropology and Archaeology, National University of Mongolia). This result was confirmed by Green Gold internal monitoring as well.

¹³¹ SDC, Pasture User Groups (2017).

Rangeland Use Agreements (RUA) also enable herders to secure their traditional user rights against mining operation or migrant herders.

Within the communities, conflicts also stem from the privatization of community facilities, such as water wells, by the richest herders. The project includes specific measures to ensure community use of all investments at the herder level. The project is also putting special emphasis and actions to support the activities of the women and vulnerable people, and ensure an equal access to the project activities to all, including ethnic minorities (see Social Development Action Plan and Gender Action Plan).

The livestock sector is also characterized by the lack of integration of its supply and value chains, resulting into regular conflicts between the herders, the middlemen and the processors. The project aims at integrating these actors and structure their relations, in particular with the development of real cooperatives and contracts.

ASDIP is based on traditional practices and do not promote intensive livestock exploitation. It does not aim to move herders to aimag and soum centers but to decrease their vulnerability and improve their livelihood notably through higher animal productivity.

Economic co-benefits

ASDIP will promote economic diversification and job creation through the various investments of the project in construction activities, through the agroparks and irrigated perimeters and related financial intermediaries for SMEs, and through the construction of incubators in aimag and intersoum centers and related soft support to MSMEs. It is estimated that Output 3 will support the creation of about 11,400 green jobs through its 3 lending windows and guarantee component, creating in return more than 150,000 indirect jobs.¹³² This is especially significant because the targeted aimags are less well developed than the rest of Mongolia.

Gender-sensitive development

The project is classified as Effective Gender Mainstreaming (EGM) considering its impacts on women's access to basic rural and urban infrastructure and services, economic and financial resources, and enhancing women's voices and rights, which contribute to gender equality and women's empowerment, as described in section G2 and in Annex 8.

D.4. Needs of recipient (max. 500 words, approximately 1 page)

Mongolia is extremely vulnerable to natural disasters, and this is especially true for the animal husbandry sector. Prominent extreme disaster events affecting Mongolia are droughts and dzuds (episodes of extreme cold and heavy snow, as described above). Dzuds and droughts in some years result in massive livestock losses. For example, an analysis of data in statistical yearbooks show that in 2010, 31.5% of livestock was lost due to natural disasters, and in 2001 and 2002 more than 18% respectively more than 12%. This demonstrates the significance of natural disasters.

The Mongolian herders in the targeted aimags are not able to cope with these natural disasters. Note that the poverty incidence in Mongolia is 29.6%, and among rural population in western aimags it is 36%, demonstrating the lack of ability of the local population to cope.¹³³ Average rural household incomes are slightly below 1 million MNT (400 USD) per month, again demonstrating the limited resources available to cope with natural disasters.¹³⁴ As a result of these factors, one of the key strategies of Mongolian herders to cope with natural disasters has been to increase herd sizes (see also Section B.1). While increasing herd

¹³² IFC study, "Assessing Private Sector Contributions to Job Creation and Poverty Reduction". The number of indirect jobs ranged from 7 times to 25 times as many direct jobs in the case studies that IFC conducted. Moreover, these indirect jobs benefited the unskilled and the poor. IFC Jobs Study: Assessing Private Sector Contributions to Job Creation and Poverty Reduction. http://www.handinhandinternational.org/wp-content/uploads/2017/03/IFC_JobStudyCondensedReport.pdf

¹³³ Source: National Statistics Office (2019) National Statistical Yearbook 2018, Table 5.10, accessed through www.1212.mn. Data are the most recent available, for 2016-2018.

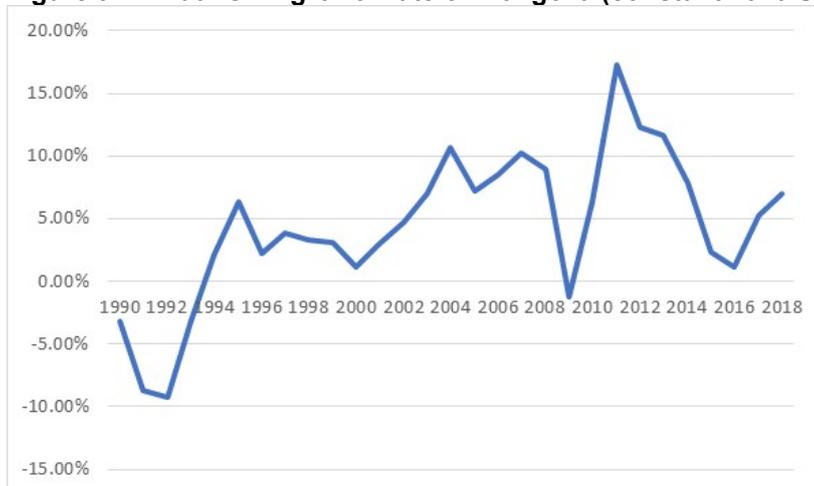
¹³⁴ Source: National Statistics Office (2019) National Statistical Yearbook 2018, Table 5.1, accessed through www.1212.mn.

sizes is a rational coping strategy, it is counterproductive to the government objectives of reducing animal numbers, reducing overgrazing, restoring grasslands, and mitigating GHG emission from animal husbandry.

Another factor that limits the ability of the population in western aimags to cope with natural disasters is the limited amount of funds that are available for investment. This reflects the limited scale of the national capital markets: the stock market of Mongolia is limited in scale¹³⁵, while the availability of bank loans is limited combined with high costs (the commercial bank prime lending rate was 20% in December 2017, 14th highest in the world) and short terms. These characteristics of the Mongolian capital markets are even stronger in the western aimags: for example, while the three targeted aimags account for over 8.5% of Mongolia's population, they only account for 3.30% of outstanding loan amounts and 2.75% of deposits, indicating the very limited extent of financial intermediation through the banking sector.

Mongolia is classified by the World Bank (June 2019) as a lower middle income country, indicating a limited ability to cope. Mongolia GNI per capita for 2018 was USD3,580. The Government of Mongolia is currently not able to step in and support in cases of calamities, due to constrained government finances. For example, the government budget deficit has been persistent and stood at -6.4% of GDP in 2017, while public debt was 91.4% of GDP, demonstrating a limited capacity to increase expenditures to deal with natural disasters or provide herders with compensation or incentives for reducing the number of animals.

Figure 9. Annual GDP growth rate of Mongolia (constant 2010 USD)



In general, Mongolia's economy is dependent on a limited number of products, and hence open to sharp shocks through developments in commodity prices and or decisions from specific investors to discontinue or restart specific projects, as illustrated by Figure 9. This factor further limits the capacity of the Mongolian government to cope with external shocks.

D.5. Country ownership (max. 500 words, approximately 1 page)

Complete alignment with national priorities

ASDIP is fully aligned with key strategies and policies of the government of Mongolia, including the climate change strategies and policies. To illustrate we highlight how ASDIP matches the National Action Programme on Climate Change (NAPCC), Mongolia's first NDC, the Green Development Policy of Mongolia,

¹³⁵ Based on data in the National Statistical Yearbook 2018, Tables 13.1 and 14.6, market capitalization of the companies registered at the Mongolian Stock Exchange is 7.81% in 2018. For comparison, https://www.theglobaleconomy.com/rankings/stock_market_capitalization/ provides stock market capitalization to GDP ratios for 62 countries (not including Mongolia). The average ratio in 2018 is 71.05%, and only in Ukraine and Algeria, the ratio is lower than in Mongolia. Another comparison is with countries in Asia. For the Asian countries for which data are available, the average for 2018 was 106.49%. The highest value was in Hong Kong: 1052.15% and the lowest value was in Lebanon: 17.08%.

the Technology Needs Assessment (TNA), the Nationally Appropriate Mitigation Action (NAMA) submissions of Mongolia and the National Mongolian Livestock Program and its update¹³⁶:

NAPCC

The NAPCC provides the overarching climate change strategy of Mongolia. The implementation of the NAPCC to 2021 aims to help Mongolia create the capacity to adapt to climate change and establish a foundation for green economic growth and development. The goals of the program include to ensure environmental sustainability, to develop socioeconomic sectors adapted to climate change, to reduce of vulnerabilities and risks, and to mitigate GHG emissions as well as to promote economic effectiveness and efficiency and implementation of 'green growth' policies. The NAPCC consists of two phases. In the first phase (2011-2016), national mitigation and adaptation capacity will be strengthened; legal environment, structure, institutional and management system will be set-up; and community and public awareness and participation in climate change activities will be improved. In the second phase (2017-2021), climate change adaptation measures will be implemented and GHG mitigation actions will commence.

Both in the first and second phase, rangeland management and other activities covered under ASDIP play a key role. Activities mentioned under the first phase of the NAPCC include:

- Extend water reservoirs and basin constructions for harvesting of river, precipitation and snow melt water (3.2.4),
- Reduce land degradation and desertification, and increase the carbon sequestration potential of pasture and soils (3.2.9),
- Conduct measures to reduce livestock vulnerability and risks (3.2.12),
- Implement projects and programs in order to improve human livelihoods, reduce poverty and build up new green workplaces (3.2.14).

In the second phase, the following NAPCC activities are key for ASDIP:

- Establish water reservoirs on rivers in the Arctic Ocean Basin and in glacial areas (3.2.16)
- Implement enduring policies for livestock management adapted to climate change (3.2.22)
- Set up heat supply systems in aimag centers with highly efficient and environmentally sound power generators (3.3.24),
- Meet energy needs of soum centers and settlements that are not able to be connected to the central electricity network using renewable energy generators (3.3.25),
- Exploit solar and geothermal energy and bio gas in the heating of private houses and supplying hot water (3.3.26),

First NDC

Some of the policies and measures through which Mongolia intends to contribute to global efforts to mitigate GHG emissions, contingent upon the continuation of international support to complement domestic efforts are:

- Maintain livestock population at appropriate levels according to the pasture carrying capacity.
- Reduce building heat loss by 20% by 2020 and by 40% by 2030, compared to 2014 levels
- Increase renewable electricity capacity from 7.62% in 2014 to 20% by 2020 and to 30% by 2030 as a share of total electricity generation capacity

Some of the NDC's additional mitigation actions that GOM is interested to pursue, subject to international support, are:

- Agriculture (development of a comprehensive plan for emission reductions in the livestock sub-sector for implementation between 2020 and 2030).
- Reduce fuel use in individual households through improving stove efficiency (with co-benefit of air pollution reduction).
- The NDC also mentions that Improving pasture management has the potential to increase carbon sequestration Mongolia-wide by 29 million tCO₂e/y.

¹³⁶ See also the Climate Change Assessment in annex 15

A key adaptation priority mentioned is in animal husbandry, with the key aim to maintain ecosystem balance through improving pasture management.

Draft second NDC

- The second NDC of Mongolia is under preparation. It among others includes the objective to reduce livestock sector emissions by 23.4% against the baseline by 2030. ASDIP will strongly contribute to the achievement of this target.

Green Development Policy

The Green Development Policy has 6 strategic objectives, of which 4 (SO1, SO2, SO4, and SO6) are strongly linked with ASDIP.¹³⁷

- SO1: “Promote a sustainable consumption and production pattern with efficient use of natural resources, reduced greenhouse gas emissions and waste generation”, and focuses for example on resource efficiency measures
- SO2: “Sustain ecosystem’s carrying capacity by enhancing environmental protection and restoration activities, and reducing environmental pollution and degradation”, and focuses for example on the creation of sustainable finance systems for community-based natural resources management, promotion of access to safe water and sewerage systems.
- SO4: “Engrain a green lifestyle by reducing poverty and promoting green jobs”, and focuses for example on improving green production skills and promoting an incentive mechanism for herders who take the initiative to contribute towards preventing pasture degradation.
- SO6: “Develop and implement a population settlement plan in accordance with climate change, while considering the availability of natural resources and the resilience of regions”, and for example includes developing self-sufficient “green” and “smart” cities and villages that are compatible with the carrying capacity of the environment and climate change trends, in order to prevent the overpopulation in urban cities.

TNA

The TNA of Mongolia consists of two volumes, one dealing with mitigation and one with adaptation. The adaptation volume of the Mongolian TNA¹³⁸ deals with the agricultural sector exclusively and to a very important extent with the husbandry sector. Recommended technologies include selective breeding of livestock, livestock disease management, and sustainable pasture management.

NAMA

Mongolia’s NAMA submission highlights the objective to “[l]imit the increase in the total number of livestock by increasing the productivity of each type of animal, especially cattle.”¹³⁹ Furthermore, the NAMA submission mentions “insulation improvements for existing buildings and implement new energy efficient standards for new buildings”, and includes promotion of renewable energy.

National Mongolian Livestock Program (NMLP)

The NMLP of 2010 realizes the challenges imposed by overgrazing. It includes significant targets to limit the growth of the number of animals, with the target for 2021 (36.5 million animals) far below the reference level of 2008 (43.3 million animals). Another key objective is to achieve a balance between carrying capacity and animal numbers. A comprehensive analysis has been included in Annex 15, the Climate Change Assessment. The main conclusions of the analysis are:

¹³⁷ This is not to say that the other objectives are not linked to ASDIP. For example, Strategic Objective #4 focuses on green jobs and (in the action plan) measures such as “Improve green production skills of herders and rural poor households and support through preferential loans and equipment” and “Strengthen individual’s ability/capacity to overcome the adverse impacts of climate change by implementing programs and projects to improve the livelihood of individuals those are directly dependent on the nature, natural causes and resources”, which again are strongly linked to ASDIP.

¹³⁸ Ministry of Environment and Green Development (2013), Technology Needs Assessment Volume 1 - Climate Change Adaptation in Mongolia.

¹³⁹ https://unfccc.int/files/meetings/cop_15/copenhagen_accord/application/pdf/mongoliacphaccord_app2.pdf

- The NMLP as envisaged in 2010 limits overall grazing pressure to much below the BAU scenario while modifying the herd composition (increasing the share of large animals vis-à-vis sheep and goats) for better ecological and economic balance. At the same time, the NMLP seeks to increase the carrying capacity of the Mongolian rangelands and to achieve a better balance between carrying capacity and herd sizes and composition.
- The rapid actual growth in herd size since 2010 (by 2019, 71 million animals) means that by 2021, each of the animal species will have excess animals relative to the 2021 NMLP targets. Achievement of the NMLP therefore requires that each animal species will be reduced in number.
- The long-term government objective is to reduce grazing pressure and changing the herd composition towards large ruminants, with specific targets for the period after the end of the NMLP still to be determined.
- The animal reduction objectives included in ASDIP are therefore in line with the NMLP and the long-term objectives of the Mongolian government. ASDIP addresses exactly the gaps identified by the Mongolian government. ASDIP creates the enabling environment for the Mongolian herders to actively pursue quality instead of quantity by increasing the commercialization of the livestock sector by supporting rural agri-businesses and ultimately by increasing herder incomes from a more limited number of animals.

Mongolian livestock successor program

Deliberations are ongoing regarding a successor of the NMLP. A key policy target that likely will be inscribed in this new program is to reduce the number of livestock to 51.2 million heads or equivalent of 74 million sheep units by 2033 to maintain optimal carrying capacity of grazing land. ASDIP will directly contribute to this target and through Output 4 and in coordination with other donors to ensure coherence and consistency of recommendations, will provide important lessons for the formulation of policies and implementing programs and measures.

Consultations with the NDA

Discussions with the NDA took place on 20 May 2019 on the basis a first draft of the concept note that was shared with the NDA earlier in May 2019. Comments from the NDA were received in the meeting on 20 May 2019 and have been incorporated in the later versions of the concept note and in the funding proposal. The latest discussion with NDA on 15 October 2019, confirmed the strong support of the NDA on the proposal, and identified one additional component that could be added to the ASDIP for piloting water storage and management technologies in the western aimags.

A stakeholders meeting was held on 31 January 2020 and discussion with the heads of department of the MET was held on 7 February 2020. Under NDA recommendation, it was decided that an additional component will be included in the program to implement ecosystem based water conservancy and sustainable water management solutions.

Preparation and consultations

The ASDIP project has been initiated at the request of GOM. A TRTA (transaction technical assistance) for the ASDIP MFF is ongoing and includes extensive stakeholder consultations focused especially in the region covered by the first tranche of the MFF, as well as discussions with the Government of Mongolia in Ulaanbaatar (Ministry of Construction and Urban Development, Ministry of Environment and Tourism). The TRTA is led by the ADB and is part of the thorough preparation of the ASDIP project through a series of missions and consultations, both at the central level, and with the main stakeholder groups in the three targeted aimags, including herders and local governments. NFPUG, as the national federation of pastureland user groups, is a major representative of the key stakeholders and has been systematically consulted in the development of ASDIP and will implement significant parts of ASDIP.

The consultations with stakeholders paid significant attention to women and ethnic minorities. As mentioned (Section D.3), ASDIP is classified as Effective Gender Mainstreaming. The TRTA also conducted an analysis of ethnic minority issues, focusing in particular on the case of the Kazakh, the Tuva and the Khoton. The

analysis found that the ethnic groups will not be negatively affected by the project. They will all equally benefit from the project provided sufficient communication and community engagement activities are put in place, as detailed in the Social Action Plan, Project Consultation and Participation Plan and Stakeholder Communications Strategy. The Tranche 1 of the MFF is classified as category “C” for Indigenous Peoples because the social assessment does not establish the present ethnic minorities as Indigenous Peoples as per ADB’s SPS (2009)/SR-3, and Tranche 1 will not directly or indirectly affect the dignity, human rights, livelihood systems, or culture of minority ethnic groups.

D.6. Efficiency and effectiveness (max. 500 words, approximately 1 page)

Adequacy and reasonableness

The level of support requested from the GCF for ASDIP is based on ensuring the financial sustainability of the project, as confirmed by the financial analysis (see below). The amount of GCF finance and concessionality requested is appropriate given the restrictions on both Mongolia’s and the targeted population’s capacity to sustain debt (see also D.4 and B.5). The main GCF support is through GIRAF (output 3) and will benefit investments that without the GCF contribution would not be able to attract financing. Other GCF funding supports activities that do not result in direct revenues. Therefore, GCF support is needed, and as argued below, sufficient to ensure that the targeted investment can attract required co-financing (see below) Further justification comes from the comparison with other projects focusing on nature-based mitigation (again, see below).

Efficiency and effectiveness

ASDIP has very low investment per tCO₂e mitigated. With ratios of 6.54 USD/tCO₂e (total investment costs per tCO₂e mitigated) and 1.56 USD/tCO₂e (GCF investment per tCO₂e mitigated), ASDIP outperforms other GCF mitigation projects. There are no other GCF projects that focus on rangelands management exclusively, but there are 6 recent projects that mostly concern nature-based mitigation. The average GCF contribution for these projects amounted to 4.36 USD/tCO₂e, and compared to ASDIP, all with a higher concessionality of GCF contributions and lower percentages of co-financing. ASDIP compares favorably to these earlier approved projects.

Economic Analysis.

In accordance with the relevant guidelines, economic internal rates of return confirmed the economic viability of the MFF and Tranche 1 (the first Tranche). The economic costs were estimated using the domestic price numeraire. Among the benefits and co-benefits identified during the project design, the following were quantified:

- incremental consumption benefits from improved water supply, sanitation, heating, and electricity in the targeted aimag and soum centers;
- annual market rental values of the planned housing units.

Other benefits were not quantified either due to the lack of relevant data at the time of the analysis or the lack of a universally accepted valuation methodology for the benefit. They include benefits from global warming damages avoided as a result of lower greenhouse gas emissions stemming from sustainable rangeland management, energy savings from reduced consumption as a result of the switch to climate-mitigating technology, and incremental income and employment from new investments in the agribusiness value chain or from business expansions induced by the project’s fully integrated urban-rural territorial development approach. The base case results indicate economic internal rates of return of 11.4%–16.1%, exceeding the ADB minimum prescribed discount rate of 9%. A sensitivity analysis, undertaken to further test economic viability, determined that Tranche 1 will

remain economically robust under several scenarios including: (i) a 10% increase in investment cost, (ii) a 10% decline in benefits; and (iii) a combination of scenarios (i) and (ii).

Financial Analysis

The financial analysis was undertaken in accordance with the relevant Asian Development Bank (ADB) guidelines.¹⁴⁰ The financial analysis was conducted at the project level and the entity level. At the project level, the analysis focused on the feasibility of the proposed project investment (i.e., Tranche 1 investments), and at the entity level, a financial sustainability analysis of the implementing and operating institutions was performed. At the project level, the financial analysis focused on the revenue-generating subprojects planned for each of the three aimag centers. The subprojects analyzed included (i) water; (ii) wastewater; (iii) heating and (iv) electrical improvements; with the services offered by three separate utilities: one for water and wastewater, and one each for heating and electricity. The incremental income and expenditures of each subproject were estimated during the analysis; a separate subproject cash flow was also prepared. Based on the cash flows, the financial internal rate of return (FIRR) for each subproject was calculated. To determine the incremental income to be derived for each subproject, existing average tariffs, in MNT per household per month, were considered in the analysis. Tariff increase proposals were assumed for each utility concerned in the three aimags. An affordability analysis of the proposed tariff increases was also undertaken, in addition to an assessment of the target households' willingness to pay.

The resulting base case FIRRs for the subprojects ranged from negative, in the case of all wastewater subprojects to 20.05% in case of Bayan Ulgii Electrical utility. Other than the wastewater subprojects, the FIRRs exceeded the estimated weighted average cost of capital (WACC) which was estimated at 0.45%. A sensitivity analysis, undertaken to further test financial viability, showed that the potential financial viability of the subprojects under varying scenarios was highly vulnerable to increases in capital costs, increases in O&M costs, decreases in revenues, or a combination of all. The sensitivity analysis revealed that the FIRRs are most vulnerable to decreases in revenues, suggesting that the approval of proposed tariffs to facilitate the recovery of capital investments, debt servicing and operation and maintenance should be carefully monitored.

The affordability analysis showed that the proposed waste and wastewater tariffs used in the FIRR analysis ranged from 1.02% of the total monthly household income in Khovd, to 1.65% in Uvs. The proposed tariffs for heating ranged from 3.45% of the total monthly household income in Uvs, to 4.1 % in Bayan Ulgii. The proposed tariffs for electricity ranged from 0.94%% of the total monthly household income in Khovd, to 1.21% in Bayan Ulgii. This confirms that the proposed tariffs are reasonable; falling within the internationally accepted threshold for affordable utility payments of 5% of total monthly household income. All proposed tariffs considered the willingness-to-pay survey results conducted in the three aimags in September 2019. At the entity level, a 3-year historical financial performance analysis was conducted and based on trends, financial projections were prepared. This analysis demonstrated that if the proposed tariff increases are approved and adopted, the water and wastewater, heating and electrical utilities will be able to sustain their operations, including debt servicing of existing and new loans.

At the aimag level, the impact of nonrevenue generating subprojects including those with relatively limited potential income due to existing price or lease regulations (such as affordable housing and the agroparks) were analyzed. Based on the aimags' 5-year historical performance and projected financial income and expenditures, all the operation and maintenance of the non-revenue earning subprojects including flood protection, drainage, solid waste, and roads will be sustained by the revenues of the aimags.

Technology choices

Technology choices will be based on the best available technologies, considering climate change, environment, social and economic criteria and the desire for innovation. Technology choices will also

be informed by the technical assistance that is provided as part of ASDIP and will be subject to systematic learning and dissemination for the benefit of other projects in Mongolia and in the wider region. The same is also true in the case of 'soft innovation' in the form of contractual, regulatory, and policy approaches that are novel to Mongolia. This includes use of low-carbon technologies in the urban component of the project such as solar panels and appropriate insulation materials and use of climate-proofed technologies and materials in construction. It also included support under GIRAF from its Innovations Grant Facility (IGF) for technological green innovations.¹⁴¹ Innovations to be considered are those that promote the commercialization of technology applications towards a green and inclusive livestock agribusiness value chain at the aimags and soums. These may include the following: (i) gel applications to the ground to retain water; (ii) improved breeds; (iii) artificial insemination; (iv) feed additives to reduce methane emissions (v) digital systems in livestock marketing and distribution (related to product certification) and (vi) renewable energy or energy efficiency solutions for production and processing..

¹⁴⁰ ADB. 2005. Financial Management and Analysis of Projects. Manila. ADB, 2019. Financial Analysis and Evaluation – Technical Guidance Note, 2019. Manila.

¹⁴¹ These grants will be funded through GCF grants with repayment contingencies which are directed towards private-sector operations in order to maximize effectiveness and efficiency of the Fund's resources, and to avoid the risk of distortive subsidies to the private sector. The terms and conditions of such repayable grants would be determined on a case-by-case basis in accordance with the agreed lending and grant financing policies of the program. All grants will be repayable by the recipient in cases involving corruption or other non-compliance with integrity or fiduciary standards.

E. LOGICAL FRAMEWORK

This section refers to the project/programme's logical framework in accordance with the GCF's [Performance Measurement Frameworks](#) under the [Results Management Framework](#) to which the project/programme contributes as a whole, including in respect of any co-financing.

E.1. Paradigm shift objectives

Please select the appropriated expected result. For cross-cutting proposals, tick both.

- Shift to low-emission sustainable development pathways
- Increased climate resilient sustainable development

E.2. Core indicator targets

Provide specific numerical values for the GCF core indicators to be achieved by the project/programme. Methodologies for the calculations should be provided. This should be consistent with the information provided in section A.

E.2.1. Expected tonnes of carbon dioxide equivalent (t CO ₂ eq) to be reduced or avoided (mitigation and cross-cutting only)	Annual	2.81 million t CO ₂ eq (average over a 40-year period)
	Lifetime	112.40 million t CO ₂ eq ¹⁴²
E.2.2. Estimated cost per t CO ₂ eq, defined as total investment cost / expected lifetime emission reductions (mitigation and cross-cutting only)	(a) Total project financing	<u>735 million USD</u>
	(b) Requested GCF amount	<u>175 million USD</u>
	(c) Expected lifetime emission reductions	<u>112.40 million t CO₂eq</u>
	(d) Estimated cost per t CO₂eq (d = a / c)	<u>6.54 USD / t CO₂eq</u>
	(e) Estimated GCF cost per t CO₂eq removed (e = b / c)	<u>1.56 USD / t CO₂eq</u>
E.2.3. Expected volume of finance to be leveraged by the proposed project/programme as a result of the Fund's financing, disaggregated by public and private sources (mitigation and cross-cutting only)	(f) Total finance leveraged	<u>560 million USD</u>
	(g) Public source co-financed	<u>528.28 million USD</u>
	(h) Private source finance leveraged	<u>31.72 million USD</u>
	(i) Total Leverage ratio (i = f / b)	<u>3.20</u>
	(j) Public source co-financing ratio (j = g / b)	<u>3.02</u>
	(k) Private source leverage ratio (k = h / b)	<u>0.18</u>
E.2.4. Expected total number of direct and indirect beneficiaries, (disaggregated by sex)	Direct	552,300 51% of which are female (281,673)
	Indirect	3.24 million 51% of which female (1,646,631)
E.2.5. Number of beneficiaries relative to total population (disaggregated by sex)	Direct	17% of the Mongolian population. 17% of the male population, 17% of the female population
	Indirect	100% of the Mongolian population, 100% of the male population of Mongolia, 100% of the female population of Mongolia.

¹⁴² After 10 years, the total emission reductions from ASDIP amount to 7.75 million tCO₂e.

E.3. Fund-level impacts

Select the appropriate impact(s) to be reported for the project/programme. Select key result areas and corresponding indicators from GCF RMF and PMFs as appropriate. Note that more than one indicator may be selected per expected impact result. The result areas indicated in this section should match those selected in section A.4 above. Add rows as needed.

Expected Results	Indicator	Means of Verification (MoV)	Baseline	Target		Assumptions
				Mid-term	Final	
<i>M1.0 Reduced emissions through increased low-emission energy access and power generation</i>	<i>M1.1 Tonnes of carbon dioxide equivalent (t CO₂eq) reduced or avoided - gender-sensitive energy access power generation</i>	Solar panels, rooftops and solar streetlights.. Project reporting according to MRV protocol, verified by external verifier. ALAMGaC	0	Y5: 0.0052 mln. tCO ₂ e	Y10: 0.0495 mln. tCO ₂ e	Continued interest and support from government of Mongolia Lifetime for solar PV and solar streetlights 20 years. As investments are phased in, the start of these lifetime periods is staggered over time, which means that emission reductions run to further into the future. Y21 ¹⁴³ : 0.1920 mln. tCO ₂ e Y40: 0.2597 mln. tCO ₂ e
<i>M3.0 Reduced emissions from buildings, cities, industries and appliances</i>	<i>M3.1 Tonnes of carbon dioxide equivalent (t CO₂eq) reduced or avoided - buildings, cities, industries, and appliances</i>	Insulation and efficient heat supply project reporting according to MRV protocol, verified by external verifier. ALAMGaC data on number of people connected to infrastructures and living in apartments.	0	Y5: 0.0052 mln. tCO ₂ e	Y10: 0.0495 mln. tCO ₂ e	Buildings and facilities are constructed in line with designed technical specifications and building performance and ger areas residents are keen to move and live in the project apartments. Lifetime for building insulation 40 years. As investments are phased in, the start of these lifetime periods is staggered over time, which means that emission reductions run to further into the future. Y21: 1.8569 mln. tCO ₂ e Y40: 4.3615 mln. tCO ₂ e
<i>M4.0 Reduced emissions from land use, reforestation,</i>	<i>M4.1 Tonnes of carbon dioxide equivalent (t CO₂eq) reduced or avoided</i>	Emission reductions and removals through	0 ¹⁴⁴	Y5: 0.196	Y10: 7.608 mln. tCO ₂ e	Successful achievement of animal number reduction targets.

¹⁴³ The AE has included information for years 21 and 40 as being halfway through and at the end of the lifetime of the ASDIP interventions. See also above. Year 5 and Year 10 correspond to halfway through and the end of the implementation period.

¹⁴⁴ This indicator comprises a stock variable and a flow variable, which poses some problems for presentation. During implementation, the AE will report on the two components of this indicator (N₂O+CH₄ and soil carbon sequestration separately, and then aggregate the results. In the first case, using baseline emissions, project emissions, and emission reductions (annually and cumulatively), in the second case based on measured soil carbon baseline and soil carbon in the project case (with a control) and annuals removals calculated as the difference between the project case and the base case divided by the number of years and reporting on the cumulative number. Baseline emissions for CH₄ and N₂O will be established during the project implementation, when more information on the precise location of the tranche 2 and 3 locations will become available. Emission reductions will be calculated vis-à-vis this baseline, on the basis of project emissions (CH₄ and N₂O emissions) in the targeted locations. For the moment, baseline emissions are estimated at 6.9 million tCO₂e annually,

<i>reduced deforestation, and through sustainable forest management and conservation and enhancement of forest carbon stocks</i>	<i>(including increased removals) - forest and land use</i>	avoided CH4 + N2O respectively soil carbon removals through better rangeland management. Project reporting according to MRV protocol, verified by external verifier. ALAMGAC and NAMEM land data.		mln. tCO2e		Continued interest and support from government of Mongolia Lifetime for rangeland management and N2O/CH4 reduction, both 20 years. As investments are phased in, the start of these lifetime periods is staggered over time, which means that emission reductions run to further into the future. Y21: 62.061 mln. tCO2e Y40: 111.269 mln. tCO2e
<i>A1.0 Increased resilience and enhanced livelihoods of the most vulnerable people, communities and regions</i>	<i>A1.2 Number of males and females benefiting from the adoption of diversified, climate resilient livelihood options (including fisheries, agriculture, tourism, etc.)</i>	Herder households in the targeted areas ¹⁴⁵ - NSO Yearbook	0	Y5: 26,534	Y10: 39,785	Successful rollout within the targeted aimags
<i>A2.0 Increased resilience of health and well-being, and food and water security</i>	<i>A2.2 Number of food secure households (in areas/periods at risk of climate change impacts)</i>	Households in the targeted areas	0	Y5: 93,700	Y10: 150,500	Successful rollout within the targeted aimags
<i>A4.0 Improved resilience of ecosystems and ecosystem services</i>	<i>A4.1 Coverage/scale of ecosystems protected and strengthened in response to climate variability and change</i>	ALAMGAC ¹⁴⁶ reporting system	0	Y5: 15.1 mln hectares	Y10: 28.8 mln hectares	Successful achievement of animal number reduction targets. Continued interest and support from government of Mongolia

E.4. Fund-level outcomes

Select the appropriate outcome(s) to be reported for the project/programme. Select key expected outcomes and corresponding indicators from GCF RMF and PMFs as appropriate. Note that more than one indicator may be selected per expected outcome. Add rows as needed.

Expected Outcomes	Indicator	Means of Verification (MoV)	Baseline	Target		Assumptions
				Mid-term)	Final	
M6.0 Increased number of small, medium and large low-emission power suppliers	<i>M6.3 MWs of low-emission energy capacity installed, generated and/or rehabilitated as a result of GCF support</i>	Solar panel on rooftops and solar streetlights ¹⁴⁷ . Project reports, ALAMGAC reporting system	0	Y5: 1.86 MW	Y10: 10.21 MW	Continued interest and support from government of Mongolia Y21: 9.98 MW Y40: 0.00 MW
M7.0 Lower energy intensity of buildings, cities, industries and	<i>M7.1 Energy intensity/improved efficiency of buildings,</i>	Project reports on the use of the fund support, which will	Heating demand: 300kWh/m ²	Y5 Heating demand:	Y10 Heating demand:	Buildings and facilities are constructed in line with designed technical

given the current assumptions about the locations of Tranche 2 and 3. Baseline emission reductions are zero (no activities to reduce GHG emissions from the baseline). For rangeland management and its impact on soil carbon, the baseline contains significant soil carbon, which will be measured prior to the start of the rangeland management activities. Current estimates are 31.06 tC/hectare on average. Removals will add to soil carbon and will be monitored. Current removals are zero (no average additions to soil carbon stocks).

¹⁴⁵ No male/ female split available in the NSO Yearbook.

¹⁴⁶ ALAMGAC is an existing agency divided into 4 departments, one of them in charge of land management, with one land officer in each soum of the country. The land officer is in charge of monitoring status of the land yearly thanks to a photo monitoring method. It is an independent source of data from the project.

¹⁴⁷ Y21 and Y40 numbers reflect decommissioning of solar panels that have passed their economic lifetime.

appliances	<i>cities, industries and appliances as a result of Fund support</i>	be assessed and recommended by an architect	Insulated area: 0 Heating supply efficiency 50%	130-140 kWh/ m ² Insulated area: 37,256 m ² Heating supply efficiency 80%	130-140 kWh/ m ² Insulated area: 204,331 m ² Heating supply efficiency 80%	specification and building performance Y21, Y40: Heating demand: 130-140 kWh/ m ² /year Y21, Y40: insulated area 204,331 m ² Y21, Y40: Heating supply efficiency 80%
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M9.0 Improved management of land or forest areas contributing to emissions reductions	<i>M9.1 Hectares of land or forests under improved and effective management that contributes to CO2 emission reductions</i>	ALAMGAC reporting system	0 ^{148, 149}	Y5: 15.1 mln hectares	Y10: 28.8 mln hectares	Successful achievement of animal number reduction targets. Continued interest and support from government of Mongolia Y21, Y40 : 28.8 mln hectares
A5.0 Strengthened institutional and regulatory systems for climate-responsive planning and development	<i>A5.1 Institutional and regulatory systems that improve incentives for climate resilience and their effective implementation</i>	Participatory and Inclusive Herder Management Plans (PIHMP) are prepared in each soum (Soum government) Certification system is implemented and followed by herders, PUGs, cooperatives (Certification committee).	0	Y5: 3 aimags covered	Y10: 6 aimags covered	Financial and institutional mechanisms for the project are established Y21, Y40: 6 aimags covered
A7.0 Strengthened adaptive capacity and reduced exposure to climate risks	<i>A7.1 Use by vulnerable households, communities, businesses and public-sector services of Fund-supported tools instruments, strategies and activities to respond to climate change and variability</i>	Quantitative indicator: Percentage of targeted herder populations using fund supported tools, etc. MOFALI database, MOFALI annual report	0%	Y5: 50% (Tranche 1 areas only)	Y10: 90% (Tranches 1-3 areas)	Continued interest of herders in the project activities and the signing and implementation of RUAs

E.5. Project/programme performance indicators

Expected Results	Indicator	Means of Verification (MoV)	Base line	Target		Assumptions
				Mid-term	Final	
1. Climate-resilient, low-carbon, and attractive Aimag and Soum centers developed <i>Targeted aimag and soum centers offer better living conditions through improved infrastructure and support the development of low-</i>	Re-development of ger areas: - Connection to the networks: equivalent 35% of the ger area population of the 3 original aimags, and 80% of female-headed households of these targeted areas - Housing units with reinforced insulation Re-development / reinforcement of basic infrastructure within the urban	Project progress reports, and Mongolia State Special Inspection Monitoring ¹⁵⁰ Project progress reports, and Mongolia	0 0	Y5: 13,400p = 3,500hu Y5: 16,500 hh	Y10: 22,500p = 5,900hu Y10: 54,100 hh	Good coordination between relevant Ministries and agencies Good performance of contractors' Local Government and private service providers

¹⁴⁸ Specific improvement targets will be based on the latest national report on the rangeland health of Mongolia: available at the start of ASDIP.

¹⁴⁹ The latest monitoring data will be used as baseline, and targets will be formulated such that after 10 years, all monitoring points in the project location will have improved at least one class, with the exception of the monitoring points that are rated at the highest health category, for which no higher class exists.

¹⁵⁰ The Inspection body is defined according to the Mongolian "Law of State Supervision and Inspection". The Inspection body will perform its assignment according to the Article 5 of the Law "Common ground and rules to conduct state supervision and inspection". The establishment of the Inspection Body remains under the responsibility of the Executive Agency grouping together 4 Ministries (MOF, MCUD, MOFALI and MET) + the targeted Aimags Governors. The National Development Agency (NDA), as department of the MCUD, should be the appropriate institution to carry out this inspection with complete impartiality. The inspection protocols will be part to the quarterly progress reports.

<i>carbon climate-resilient livestock value chain.</i>	perimeter: aimag centers and inter-soum - total number of impacted households	State Special Inspection Monitoring				cooperation on urban services reforms
	Total area of agro-parks infrastructure developed (hectares)	Project progress reports, and Mongolia State Special Inspection Monitoring	0	Y5: 40ha	Y10: 90ha	Strong interest and high participation from communities in ger areas street redevelopment scheme
	Installed capacity solar rooftops and solar streetlights (MW)	Project progress reports, and Mongolia State Special Inspection Monitoring	0	Y5: 1.86 MW	Y10: 10.21 MW	
	Installed capacity efficient heat supply	Project progress reports, and Mongolia State Special Inspection Monitoring	0	Y5: 10.46MW	Y10: 90.46MW	
2. Rangelands managed for climate-resilience, high carbon sequestration, and sustainable herding <i>Rangeland health is improved for enhanced carbon sequestration, benefits from better management of water resources, and supports herders to improve livestock productivity and the quality animal-based raw material while reducing GHG emissions while improving income.</i>	# of PUGs/HGs have signed the updated RUA and Sustainable and Inclusive Herd Management Plan – all RUA updated/signed under the project include an Annex where both spouses of signatory households sign the RUA	Project progress reports, Soum government monitoring data on land management	0	Y5: 90	Y10: 180	
	Percentage of herders and PUGs that are certified (follow project sustainable criteria) / Volume of certified livestock products reaching the market	Certification committee / MOFALI and project progress report	0	Y5: 20% of all the herders targeted by the program	Y10: 40% of all the herders targeted by the program	
	Volume of financing for water conservancy and harvesting projects	Tranche completion reports, municipalities' reports	0	Y5: \$3 million	Y10: \$13 million	
3. Low-carbon and climate-resilient livestock value chains created and strengthened through accessible finance <i>Access to green finance, green credit guarantees, and green innovation grants for low-carbon agri-business enterprises and low-carbon agricultural cooperatives expanded (financial intermediation loan [FIL] component)</i>	Number of green low-carbon and climate-resilient agribusiness loans by participating bank for eligible SMEs, SMEs in partnership with herders' cooperatives, and SMEs in partnership with herders approved and availed (GIRAF Green Lending Window 1)	GIRAF progress and monitoring reports; ¹⁵¹ Externally audited financial statements and operational report from the qualified commercial bank's regarding the use of funding sourced from GIRAF; Central Bank monitoring and supervision reports	0	Y5: At least 170 green low-carbon agri-business loans	Y10: At least 485 green low-carbon agri-business loans	GIRAF is created and established by AMC-DBM on behalf of MOF in accordance with the relevant laws of Mongolia and in compliance with the requirements of the Financial Regulatory Commission Lending and onlending policies of GIRAF formulated and approved by the EWG as part of program start-up activities Commercial banks participate in the program and avail of the GIRAF green financing and green
	Number of green low-carbon and climate-resilient agribusiness loans financed directly by GIRAF jointly with participating banks for eligible medium and large enterprises engaged in commercial and logistic investments for retail/ exports approved and availed	GIRAF progress and monitoring reports; Externally audited financial and operational report from the beneficiary enterprises; Oversight reports from the Financial Regulatory Commission (FRC);	0	Y5: At least 6 green low-carbon agri-business loans to medium and large enterprises	Y10: At least 15 green low-carbon agri-business loans to medium and large enterprises	

¹⁵¹ The means of verification for GIRAF operational outcomes can be incorporated within the fund's internal policy documents. Furthermore, the commercial banks, NBFI's and SCC's will establish agreements with the GIRAF, which will outline any additional monitoring and reporting requirements that may be needed and any verification processes that needs to be conducted by third party investigators.

						guarantees and using the green grants to incentivize private sector participation in commercializing the technology for green and sustainable agribusiness
	% of call payments made as a proportion of GIRAF agribusiness loans portfolio of participating banks	GIRAF progress and monitoring reports; Oversight reports from the FRC; Externally audited financial statements and operational report from the qualified commercial bank's regarding the use of funding sourced from GIRAF	0	Y5: At least 15%	Y10: At least 12%	
	Number of green low-carbon agribusiness innovation grants approved and fully disbursed	GIRAF progress and monitoring reports GIRAF externally audited operational and financial report, Oversight from the FRC and verification of investment fund activities by the Custodian bank to ensure compliance with approved policy guidelines, operational rules and regulations	0	Y5: At least 50	Y10: At least 100	
	Number of green low-carbon and climate-resilient loans approved and utilized under the pilot scheme channeled through savings and credit cooperatives and other nonbank financial institutions for GIRAF Green Lending Window 3	GIRAF progress and monitoring reports; Externally audited financial statements and operational report from the qualified SCC's and NBF's regarding the use of funding sourced from GIRAF; Monitoring and supervision reports by the FRC	0	Y5: At least 250 micro green agribusiness loans under the piloting phase	Y10: At least 1,000 micro green agribusiness loans	
4. Capacity and policy reforms for low-carbon and climate-resilient agro-territorial development improved <i>Institutions, policies and capacity for program implementation, low-carbon and climate-resilient rangeland management, climate change mitigation, water resources management, low-carbon urban services development, green agribusiness, and green territorial development are strengthened</i>	# of LCADPs that are developed, and are consolidated into 6 Aimag	Consultant report	0	Y5: 40	Y10: 80	Government commitment to the project remains high Successful policy dialogues with tariff regulatory Agencies Community participation and awareness is high
	# of national policies for rangeland management and green territorial development prepared and implemented	Report from MOFALI Policy Department	0	Y5: 3	Y10: 5	
	# of green agro-parks plans, and managements based on local agri-territorial development plan completed	Local Government report on urban construction and economic development	0	Y5: 5	Y10: 12	
	Water conservancy and sustainable water management practices developed and disseminated	Consultant Report	Not developed	Y5: developed and disseminated	Y10: developed and disseminated	
	# of training programs and outreach activities for SMEs and Soum cooperatives (with	Consultant Report	0	Y5: 100	Y10: 200	

	at least 40% are women participants) in areas of pre-processing and production, business planning, marketing, strategy, and technology					
	Number of policy recommendations included in NMLP successor program	Consultant report, letters from MOFALI	0	Y5: 2	Y10: 5	
	Number of institutional capacity building events held for rangelands policy implementation	Consultant report	0	Y5: 2	Y10: 5	

E.6. Activities

All project activities should be listed here with a description and sub-activities. Significant deliverables should be reflected in the implementation timetable. Add rows as needed.

Activity	Description	Sub-activities	Deliverables
Output 1 activities			
1. Low-carbon and climate-resilient infrastructure and services upgrade in aimag centers	<p>Aimag centers' basic urban infrastructures expanded using low-carbon technologies</p> <p>Redevelopment of aimag centers' ger areas</p> <p>Low-carbon infrastructure developed for the agro-parks in the aimag centers.</p> <p>Public buildings rehabilitated / improved / expanded using low-carbon technologies, and WASH facilities sensitive to gender.</p> <p>Renewable energy investments, such as solar panels.</p>	<p>1.1a Complete infrastructure and architectural detailed design</p> <p>1.1b Complete resettlement</p> <p>1.1c Procure goods and work</p> <p>1.1d Construct, supervise, and commission infrastructure, housing units, social facilities, and public space</p> <p>Ger areas street re-developed</p> <p>1.1e Survey and community engagement – with specific activities for female participation</p> <p>1.1f Voluntary street development participation plan</p> <p>1.1g Detailed Design</p> <p>1.1h Procurement</p> <p>1.1i Construction</p> <p>1.1j Housing handover to TOSK and Renting</p>	<p>Preparation and submission of DD</p> <p>Completion of resettlement</p> <p>Bidding documents prepared</p> <p>Construction works finalized</p>
2. Low-carbon and climate-resilient infrastructure and services upgrade in intersoum centers	<p>Inter-soum centers' basic urban infrastructures expanded using low-carbon technologies</p> <p>Low-carbon infrastructure developed for inter-soum agro-parks</p> <p>Public buildings rehabilitated / improved / expanded using low-carbon technologies, and WASH facilities sensitive to gender.</p>	<p>1.2a Complete infrastructure and architectural detailed design</p> <p>1.2b Complete resettlement</p> <p>1.2c Procure goods and work</p> <p>1.2d Construct, supervise, and commission infrastructure, housing units, social facilities, and public space</p>	

	Renewable energy investments, such as solar panels.		
3. Implementation of smart land management system	Smart land management and Climate responsive Digital Center is installed	1.3a Design build bidding document completed and procured 1.3b Detailed design completed 1.3c Installation completed	
Output 2 activities			
1. Implementation of community-based low-carbon and climate-resilient investments	Investment in small infrastructure and equipment to improve rangeland use, herder's livelihood, quality inputs to the agri-business value chain, more sustainable management of local resources and herds	2.1a Community Participation in Procurement (CPP) preparation 2.1b Procurement 2.1c Training and construction and supervision	
2. Support to low-carbon and climate-resilient pasture user groups and cooperatives	Assistance and investment in herders' organizations including: (i) building of PUGs (preparation of PIHMP, establishment of RUAs); (ii) establishment of a herders' cooperative in each targeted soum, intersoum, and aimag, and (iii) at regional-level support to herder cooperatives' organizations to encourage the reduction of the herd size	2.2a Training and operational support to PUGs, PIHMP completed and RUAs completed and signed 2.2b Training, operational support and seed funding for herders' coop 2.2c Training and financial support to herders' coop organizations	PIHMP including CPP project sheets prepared, stocking adjustment plans prepared and RUAs signed for each PUG In each soum, one cooperative established or upgraded to meet project requirement Organizations of cooperatives established at inter-soum, aimag and regional levels
3. Implementation of water efficient irrigation systems for fodder production	(a) Construction of primary works (head structures and primary irrigation canals) to develop full irrigation systems supported under output 3 to produce fodder (b) Implement an ecosystem based high mountain water conservancy and harvesting project including (i) headworks on the Kharkhiraa river, (ii) channel feeding the reservoirs, (iii) two reservoirs of about 40,000m ³ , and (iv) a primary irrigation channel.	2.3a Design build bidding document completed and procured 2.3b Support to and set up of water management associations 2.3c Detailed design completed 2.3d Installation completed	CPP implemented (construction works finalized, equipment provided) One CAHW trained and operational in each PUG For irrigated perimeters, laboratories, disease-free establishments: DD and bidding documents prepared and submitted, construction works finalized
4. Improvement of Animal Health	(a) Community-based Animal Health Workers (CAHW) set in each targeted PUG (CAHW are para-vets at the PUG level) (b) Supply of equipment for veterinary services and traceability system (c) Construction of laboratories & Disease Free Establishments in the aimag and intersoum centers, including one regional research development center	2.4a Training and support to CAHW at PUG level 2.4b Provision of veterinary equipment including a traceability system 2.4a Design build bidding document completed and procured 2.4b Detailed design completed 2.4c Installation completed	Water associations set and water resources management plan prepared
Output 3 activities			

<p>1. Provision of accessible low-carbon and climate-resilient agribusiness loans and credit guarantees to herders cooperatives and SMEs</p>	<p>Through the GIRAF:</p> <p>Two low-carbon and climate-resilient lending windows to be channeled through participating commercial banks or directly through AMC-DBM jointly with other banks and financiers</p> <p>A low-carbon and climate-resilient credit guarantees facility, and</p> <p>A third lending window to be channeled through savings and credit cooperatives (SCCs) to be piloted and potentially expanded in T2</p>	<p>3.1a Low-carbon and climate-resilient agribusiness loans through qualified participating banks or directly through the GIRAF delivered to eligible agribusiness enterprises in partnership with herders' PUGs and cooperatives</p> <p>3.1b Low-carbon and climate-resilient credit guarantees coverage to GIRAF sub-loans provided through the GCGF of the GIRAF</p> <p>3.1c Low-carbon and climate-resilient loans through SCCs delivered to herders cooperatives members</p>	<p>GIRAF established and structured in accordance with the applicable Mongolian law and requirements</p>
<p>2. Provision of innovation grants for low-carbon and climate-resilient livestock value chains to qualified herders and SMEs</p>	<p>A low-carbon climate-resilient innovations grant facility for incentivizing investments to commercialize innovations</p>	<p>3.2 Low-carbon and climate-resilient innovation grants awarded to eligible grant recipients</p>	
<p>Output 4 activities</p>			
<p>1. Support for project management and implementation</p>	<p>(i) Capacity building and awareness raising activities to PUGs, ALAMGaC & land officers (improved rangeland health monitoring and registration and monitoring of RUAs)</p> <p>(ii) Support to herders' organizations sustainable development: capacity building and on-the-job training to PUGs and herders' coop, support on developing and establishing green cooperative model; support to SCCs</p> <p>(iii) Support to veterinary services: training programs to CAHW, strengthening of veterinary services (GAVS) at each level of the agribusiness chain</p> <p>(iv) Sustainable agribusiness value chains and market development, including preparation of Low-carbon Agribusiness Development Plans</p> <p>(v) Development of certification and traceability systems, capacity building to MOFALI, GAVS and NFPUG.</p> <p>(vi) Training programs to operate and maintain the irrigation systems and grow fodder crops - definition of water conservancy and</p>	<p>4.1a Staff, train, and increase PMO capacity.</p> <p>4.1b Tranche 1 Detailed design and supervision</p> <p>4.1c Training, policy and sector reforms for sustainable urban development, energy-efficient housing, efficient service delivery and utility management.</p> <p>4.1d Support for program safeguard, due diligence, procurement, and finance.</p> <p>4.1e Tranche 2/3 feasibility study, detailed design, and supervision</p>	<p>Procurement of consulting Services</p> <p>5 low-carbon climate-resilient agribusiness development plans completed</p> <p>Models (templates and guidelines) for partnership agreements between cooperatives and SMEs developed</p> <p>Training programs implemented and assessed</p> <p>Traceability and certification system established</p> <p>GIRAF operating manuals for lending and onlending, credit guarantee and green innovation grants</p> <p>Recommendations for expanding the pilot program for GIRAF Lending Window 3 to T2/T3</p> <p>Stakeholder consultations, training, guidelines, regulation, policy dialogue,</p> <p>Reporting</p>

	management principles; support to water users, sustainable water management practices developed and disseminated		Policy studies and reforms among the various ASDIP sectors National strategic advocacy plan
2. Support for low-carbon and climate-resilient rangeland management	(i) Capacity building and awareness raising activities to PUGs, ALAMGaC & land officers (improved rangeland health monitoring and registration and monitoring of RUAs) (ii) Support to herders' organizations sustainable development: capacity building and on-the-job training to PUGs and herders' coop, support on developing and establishing green cooperative model; support to SCCs (iii) Support to veterinary services: training programs to CAHW, strengthening of veterinary services (GAVS) at each level of the agribusiness chain (iv) Sustainable agribusiness value chains and market development, including preparation of Low-carbon Agribusiness Development Plans (v) Development of certification and traceability systems, capacity building to MOFALI, GAVS and NFPUG. (vi) Training programs to operate and maintain the irrigation systems and grow fodder crops - definition of water conservancy and management principles; support to water users, sustainable water management practices developed and disseminated	4.2a Herders' communities awareness raised and trained (rangeland management, herding practices, veterinary services), capacity developed (CAHW) 4.2b Government staff (especially land and veterinary officers) trained and capacity developed 4.2c Operational documents prepared (PIHMP, RUA, LCADP) 4.2d Certification and traceability systems developed 4.2e Water users trained or O&M and institutional structure and mechanism developed	Information, education and communication (IEC) campaign
3. Improvement of the capacity for low-carbon and climate-resilient agribusiness finance	Support for policy reforms and capacity development in low-carbon and climate-resilient agribusiness finance Piloting Lending Window 3 for the GIRAF	4.3a Consulting services in the areas of (i) agriculture lending policy reforms and increasing access to low-carbon agribusiness finance, (ii) GIRAF establishment and operation 4.3b Engagement of the services of an internationally qualified international NGO to assist with implementing the pilot program and the design of Lending Window 3	
4. Implementation of M&E and MRV system	Establishment of MRV system	4.4a Consultation, training 4.4b MRV and M&E methodology and architecture design	

	Establishment of M&E system	4.4c Capacity building data collection	
5. Enhancement of the capacity for policy formulation, implementation and enforcement	<p>Support for the formulation, advocacy, and implementation of the necessary policy reforms among the various sector stakeholders, including the non-ASDIP program/project participants and stakeholders.</p> <p>Support knowledge learning and dissemination activities that would reach out to the beneficiaries as well as the non-beneficiaries of ASDIP.</p>	<p>4.5a Conduct of relevant policy studies and technical analysis</p> <p>4.5b Technical support in the formulation, implementation monitoring, and enforcement of new policies</p> <p>4.5c Formulation and implementation of a national strategic advocacy plan</p> <p>4.5d Development and application of an effective knowledge learning and information, education and communication (IEC) campaign</p>	

E.7. Monitoring, reporting and evaluation arrangements (max. 500 words, approximately 1 page)

The government, GCF, and ADB reporting requirements will be harmonized by the consultants, who will produce detailed reporting formats within one month of project commencement.

The PMO, APO, IPO and PIU will provide ADB with quarterly progress reports in a format consistent with ADB's requirements and consolidated annual reports including: (i) progress achieved by output as measured through the indicator's performance targets, (ii) key implementation issues and solutions, (iii) an updated procurement plan, and (iv) an updated implementation plan for the following 12 months. See Appendix, Consulting Services & Supervision TA-Terms of Reference for the outline of the quarterly progress report.

The government and ADB will jointly review the project at least twice a year. This includes (i) the performance of the PMO/APO/IPO/PIU consultants and contractors, (ii) physical progress of each project output, (iii) effectiveness of capacity development and awareness building programs, (iv) compliance with loan covenants, and (v) assessment of subprojects sustainability in technical and financial terms.

In addition to regular reviews, government and ADB will undertake a comprehensive mid-term review after 2.5 years of project implementation to identify problems and constraints and suggest measures to address them. Specific items to be reviewed will include (i) assessing need to restructure or reformulate the project; (ii) updating the project's DMF; and (iii) assessing need to extend the loan closing date. This review will play an important role in the formulation of lessons regarding effective and ineffective interventions to promote low-carbon animal husbandry and rangeland restoration and low-carbon development of aimag and soum centers that can be disseminated within and outside of Mongolia and form the basis of replication activities through the Partnership for Low-Carbon and Climate-Resilient Rangeland Management in Asia.

The PMO, APO, IPO and PIU will submit financial reports in the prescribed format to the responsible government entities on a monthly basis. Financial reports will be audited annually by qualified auditors approved by ADB and government; and the audit report, together with comments on any action being taken, will be submitted to ADB by the responsible government entities annually. These reports should be adequately reviewed and comply with international accounting standards.

The responsible government entities (and the PMO/PIU) will also provide other reports as may be reasonably requested by ADB, including the project's environmental reports and resettlement reports.

Within 6 months of physical completion of the project, the responsible government entities will submit a project completion report to ADB, detailing, among others, (i) information on project completion, (ii) use of loan proceeds, and (iii) the extent to which the project outcome has been accomplished.

The relevant reporting schedule is included in the table below.

Table 9. Reporting schedule

Milestones	Expected Dates
Start of Project Implementation	Funded Activity Agreement (FAA) Effective Date
Inception report	Within 8 months from the FAA Effective Date
Monitoring report	Every 2 years during project implementation
Interim evaluation report	Within 6 months after end of Year 5
Project completion report	Within 18 months after project completion date
Final independent evaluation report	Within 18 months after the submission of the project completion report

F. RISK ASSESSMENT AND MANAGEMENT

F.1. Risk factors and mitigations measures (max. 3 pages)

Selected Risk Factor 1

Category	Probability	Impact
Technical and operational	Low	Low

Description

Project effectiveness could suffer due to lack of sufficient human resources for project management and implementation.

Mitigation Measure(s)

The project includes project implementation and management support consultant (PIMSC) services that will provide the necessary support and on-the-job training for staff of the project management office (PMO) for project management. Separate consultant teams will be recruited for design, construction supervision, and capacity building works. MCUD and MOFALI action for authorizing and staffing the PMO as early as possible. Selected implementing agencies, ALAMGaC, TOSK, NFPUG and AMC-DBM are experienced and operational in the project sectors and have substantial staff at central and local levels. Project geographical scope has been streamlined for each project tranche.

Selected Risk Factor 2

Category	Probability	Impact
Technical and operational	Medium	Medium

Description

Lack of coordination with government agencies, especially departments of MOFALI and Land Administration, Construction and Urban Development Agencies (LACUDA) in selected aimags and soums.

Mitigation Measure(s)

The PMO will be set up directly under a steering committee and executive working group composed of MCUD, MOFALI, MOF, aimag governors and DBM, and PIUs will be set up in each aimag to facilitate coordination between government agencies and reduce the sensitivity of the PMO and PIUs to several levels of political influence. Furthermore, the PMO is set up in MCUD and will include one senior officer of MOFALI. ALAMGaC is the central authority managing the LACUDAs in the aimags for the cadastral system, and has land officers down to the soum level, which will facilitate implementation of project's infrastructures and facilities.

Selected Risk Factor 3

Category	Probability	Impact
Technical and operational	Medium	Medium

Description

Lack of PMO capacity to engage with communities, manage the land readjustment process, and reach a land for TU swapping agreement.

Mitigation Measure(s)

The project includes PIMSC services that will provide the necessary support and on-the-job training for PMO staff to manage communities and reach a swapping agreement. A capacity building plan will be put in place to support all stakeholders in this process. A project-specific grievance redress mechanism (GRM) will be established to receive, evaluate, and facilitate the resolution of AP's concerns, complaints, and grievances about the social and environmental performance at the level of the project (see section G.1).

Selected Risk Factor 4

Category	Probability	Impact
Technical and operational	Low	Medium

Description		
Community's willingness to participate is low, leading to delay in infrastructure implementation.		
Mitigation Measure(s)		
The feasibility study confirmed the high community demand for the project, through multiple focus group discussions and willingness to participate surveys. Also, willingness to participate will be assessed three times (during identification, feasibility, detailed design), and will ensure the high willingness to participate of the community in the selected subprojects.		
Selected Risk Factor 5		
Category	Probability	Impact
Technical and operational	Low	High
Description		
Project incentives to support sustainable rangeland management and reduce stocking rates are insufficient to induce behavioral change or are diverted from their initial objective.		
Mitigation Measure(s)		
The set of incentives developed is wide-ranging and covers all herder household in the project areas. The feasibility study has confirmed that the level and variety of the incentives are sufficient to induce the desired change, provided that the incentives are not diverted from their original purposes. The feasibility study confirmed that the likelihood of such diversion is very low. In any case, the project will develop a certification system that will monitor over time beneficiaries' behaviors and entitle them to benefit from further project's support. The certification system will include individual and collective achievement of targets yearly. The PIMSC will support the preparation of (i) Participatory and Inclusive Herd Management Plans and (ii) Low-Carbon Agribusiness Development Plans that will both identify targeted activities to be supported by the project. The PIMSC will then prepare technical specifications including financial plan for these activities.		
Selected Risk Factor 6		
Category	Probability	Impact
Technical and operational	Low	Low
Description		
Insufficient capacity (and lack of technological capacity) of the private sector (agri-cooperatives and SMEs) to develop agribusinesses, diversify livestock products and economic opportunities.		
Mitigation Measure(s)		
A training program will be delivered to targeted agribusinesses (business planning, marketing, strategy and technology) to strengthen their capacities. The project will include the construction of one incubator in the agro-park of each aimag and intersoum centers where capacities of the private sector will be built. The Chamber of Commerce and Industry will be actively involved in the management of the incubator and the preparation of the Local Agribusiness Development plan.		
Selected Risk Factor 7		
Category	Probability	Impact
Technical and operational	Medium	Medium
Description		
Economic benefits resulting from the project do not reward fairly and sufficiently the efforts made by all actors of the supply and value chains, affecting the sustainability of the project agro-components (sustainable rangeland management, veterinary services, disease free establishment, meat processing factory).		
Mitigation Measure(s)		
Financing support include conditions to distribute the added value among the operators, and involvement of cooperatives as shareholder is made mandatory in all productive assets to ensure integration of the herders. For instance, a business plan and a profit share agreement are necessary to apply for project financial support, and each productive asset includes preferential conditions to reward herders following good practices set by the project.		
Selected Risk Factor 8		
Category	Probability	Impact
Governance	Medium	Medium
Description		
Irregularities in procurement and financial management		

Mitigation Measure(s)		
The financial management assessment (TRTA report Appendix IV, <i>Financial Analysis and Management</i>) and the procurement capacity assessment (TRTA report Appendix IV, <i>Procurement Plan and Procurement Assessment Capacity</i>).		
Selected Risk Factor 9		
Category	Probability	Impact
Credit	Medium	Medium
Description		
Financial sustainability adversely affected by the lack of financial management skills and insufficient utility tariff adjustments.		
Mitigation Measure(s)		
The capacity building consultants recruited by the PMO will provide training and capacity development in sustainable operation and maintenance (O&M) of the new facilities, tariff setting, and financial management. While tariffs will be adjusted over time to cover cost of O&M, the government will cover any funding gap if revenues from tariffs are insufficient.		
Selected Risk Factor 10		
Category	Probability	Impact
Credit	Low	Low
Description		
Adequate counterpart funding for project administration is not made available promptly.		
Mitigation Measure(s)		
Counterpart funding will be secured by loan signing. This is a condition for signing of the loan agreement.		
Selected Risk Factor 11		
Category	Probability	Impact
Governance	Low	Low
Description		
Government requirements and ADB procurement processes may result in delays in the recruitment of consultants and the procurement of civil works and goods.		
Mitigation Measure(s)		
ADB will provide an individual start-up procurement advisor to help in the selection of the PIMSC and to provide training on ADB's processes for project administration and implementation.		
Selected Risk Factor 12		
Category	Probability	Impact
Governance	Low	Medium
Description		
Lack of PMO capacity to write detailed terms of reference for the recruitment of consultants and to monitor consultant and contractors works.		
Mitigation Measure(s)		
ADB will provide 'advanced-actions' consultants to support the PMO in the set-up and preparation of detailed terms of reference for PIM consultants and provide training to monitor and evaluate consultant works.		
Selected Risk Factor 13		
Category	Probability	Impact
Credit	Low	Low
Description		
Commercial banks are unwilling to establish new financial products with lower interest rates to support agribusinesses, and in particular micro-enterprises and cooperatives.		
Mitigation Measure(s)		
TRTA Consultants held multiple preliminary discussions with the banks to ensure their interest in moving ahead. A risk guarantee fund will be set up at AMC-DBM. Additionally, the capital for such loans will be made available to the banks through the project fund at preferential rates.		
Selected Risk Factor 14		
Category	Probability	Impact
Other	Low	Low

Description		
Political change impacts political support to the project, which is an essential requirement.		
Mitigation Measure(s)		
Providing municipal infrastructure and facilities in the targeted aimag and intersoum centers, solutions for improved housing conditions in the ger areas, and infrastructures, services and financing mechanisms to structure the livestock sector and develop agribusinesses are identified as essential priorities by both aimag and state governments. The project is aligned with all planning documents and government initiatives at local and central levels. Thorough consultations at all institutional levels will guarantee and widespread support among policymakers.		
Selected Risk Factor 15		
Category	Probability	Impact
Other	Low	Low
Description		
The project has only a temporarily effect on herders' activities and impact on land degradation, and once the project stops, current practices continue.		
Mitigation Measure(s)		
The project will put in place an organizational structure to structure to herders' activities, with cooperatives at different levels. These organizations will be developed and their staff trained by the PIMSC, with the objective that they structure and integrate the livestock sector on the long term. Once all project's infrastructures and services are implemented, it will allow the livestock sector to access new economic opportunities and markets, that are expected to take over from the project financial incentives and initial support. Furthermore, a comprehensive set of incentives has been formulated with a long-term horizon in mind. For example, the benefit from having a strong claim to land through a legally binding RUA and the benefits flowing the herder's share in GIRAF funded investments will continue to flow to herders in PUGs that continue to comply with the RUA. Such benefit-mechanisms are permanent. Moreover, it is anticipated that the Partnership for Low-Carbon and Climate-Resilient Rangeland Management in Asia will be able to provide a more permanent source of funding.		

G. GCF POLICIES AND STANDARDS

G.1. Environmental and social risk assessment (max. 750 words, approximately 1.5 pages)

Environmental assessment

As part of the TRTA, an environmental assessment¹⁵² was carried out. The assessment found that ASDIP is category B for environment pursuant to ADB's 2009 Safeguard Policy Statement. This category B project will have potentially adverse impacts that are less adverse than those of Category A projects, are short-term, site-specific, largely reversible, and can be mitigated with the supporting Aimag environmental management plans (EMP). The conclusions of the assessment supporting Category B for the program are:

- The construction phase of the diverse array of infrastructure components require careful mitigation measures to ensure construction disturbances and impacts are minimized and managed with standard construction practice and mitigation measures. Of particular importance is that the current practice of manual transport of household water needs from local kiosks must receive maximum protection during construction phase so that no water supply to any household is disrupted for a single day.
- The infrastructure and agro-business components of the ASDIP will not negatively impact protected areas, critical wildlife habitat, or rare or endangered wildlife. This was ascertained with the early screening and removal of ecologically sensitive subcomponents. Two originally proposed project sites were screened out of the project during the site investigations because the sites created Category A conditions as they were in a National Park and a Game Reserve.
- The water requirements of the project with special reference to the irrigated fodder and hay farms and meat processing facilities will be clarified along with the source water availability to ensure sufficient water resources are available for all users in the affected areas.
- The scope of rehabilitation that will occur to existing heating plants will be determined to clarify the scope of investment that is required to ensure emissions meet required quality standards.
- The Aimag EMPs developed for ASDIP provide impact mitigation plans, environmental monitoring plans, and specify the institutional responsibilities and capacity needs for the environmental management of ASDIP.
- The IEE concludes that the description of the feasibility designs of Tranche 1 of the ASDIP is sufficient to identify the scope of potential environmental impacts of ASDIP. Information on available water resources does not identify water shortages problems. Sensitive environmental or social receptor data are not discovered. Therefore, the ASDIP will remain Category B for environment.

Social assessment

As part of the TRTA, a social and poverty assessment¹⁵³ was carried out. In order to mitigate the social risks of the project and maximize the benefits for socially vulnerable people, including the poor, a Social Development Action Plan (SDAP) was developed. In addition, to strengthen the stakeholders' participation and engagement in the project design and implementation processes, a Consultation and Participation Plan (CPP) and Stakeholder Communications Strategy (SCS) were prepared and are annexed to the Funding Proposal as Annex 7.

Considering the wide scope of Tranche 1, with various projects involving different beneficiaries, the social analysis was conducted at three levels:

- The ger areas redevelopment project
- The inter-soum centers development
- The regional agri-business development

At each level, the project was designed in a way to include significant positive social impacts (see section D.3.).

¹⁵² See the TRTA draft final report, Volume V.

¹⁵³ See the TRTA draft final report, Volume VI, Section Poverty and Social Assessment (PSA),

Key risks identified by the social and poverty assessment were the following:

- In the targeted ger areas streets (output 1): risk of exclusion of poor households and ethnic minority from project activities and from community management of community center; risk for secondary occupants to be negatively affected by landowners' decision to cede land for a technical unit (risk assessed as low based on meaningful consultations); involuntary resettlement;
- In the inter-soum centers (output 1): no negative social impact/risk was identified linked to the project activities;
- Regarding regional agri-business development – output 2: risk of exclusion of poor herder households and ethnic minorities in the RUAs/PUG/cooperative approach and thus of exclusion from project benefits;
- Regarding regional agri-business development – output 3: risk for the GIRAF to benefit to private sector entities with low economic impacts on herders.

The Social Development Action Plan includes measures to mitigate these risks and optimize benefits to the vulnerable households.

In particular and as examples¹⁵⁴:

- Project information flyers available in Mongolian, Kazakh and Tuva where necessary;
- Target of 100% of herder households of targeted soums in PUGs and soum cooperatives integrating 70% of herder households of complying PUGs (inclusive approach);
- Requirements to be filled by the GIRAF Participating Enterprises (PPE) include a form of cooperation with sustainable herder organizations (partnership agreements or sales & purchase agreements) to ensure integration of the herders into the development model.

Environmental and Social Management System (ESMS) for Asset Management Company of the Development of Mongolia (AMC-DBM), Xac Bank and Khan Bank

An Environmental and Social Management System (ESMS) was developed for the three Financial Intermediaries (FI) of the ASDIP which are defined by the Asset Management Company (AMC) of the Development Bank of Mongolia (DBM), Xac Bank (XB), and Khan Bank (KB) and its borrowers. The ESMS will guide implementation of Output 3 of the ASDIP. The ESMS is an internal management system that will be implemented by the FIs to ensure they successfully manage the potential environmental and social impacts of equity investments in the ASDIP. The ESMS includes environmental and social policies; screening, categorization, and assessment; document preparation requirements and review procedures; organizational structure and staffing including skills and competencies in environmental and social areas; training requirements; and monitoring and reporting.

Involuntary Resettlement.

Tranche 1 is classified as category B for Involuntary Resettlement (IR). The FS engineering designs and locations of the suggested works were examined on site, and measures to avoid and minimize the IR impacts were taken. Thus the IR impacts are as follows: affected entities 29 (26 households, 3 organizations and businesses), affected land parcels 21 (20 partially, 1 fully), and the total affected land area is 2,181m².¹⁵⁵ The draft Resettlement Framework (RF) and draft Land Acquisition and Resettlement Plan (LARP) were prepared for Tranche 1 as part of the TRTA¹⁵⁶. These two documents will be finalized during the implementation of the tranche 1 based on the finalized location and detailed engineering design. The RF will be the guiding document for the IR safeguards for Tranche 1, but also for the entire ASDIP implementation for the land acquisition and resettlement (LAR) in compliance with ADB SPS (2009), and relevant Mongolian legislation.

The PMO/MCUD along with MOFALI, and PIUs along with the aimag governments will be responsible for the overall implementation and compliance with the RF and LARPs. IR safeguards compliance and LARP

¹⁵⁴ See social assessment and SDAP for comprehensive list of actions and details (TRTA final report, Volume VI)

¹⁵⁵ The IR impacts are yet to be finalized based on the results of the Socio-economic survey.

¹⁵⁶ TRTA final report, Volume VI, Section Involuntary Resettlement Framework.

implementation is supported by loan assurances and capacity development and institutional strengthening activities under the ASDIP. The LAR activities will be implemented in accordance with the RF and LARPs by the PMO/MCUD along with MOFALI, and PIUs along with the aimag governments.

Impacts on Indigenous People.

The TRTA conducted an analysis of ethnic minority issues,¹⁵⁷ focusing in particular on the case of the Kazakh, the Tuva and the Khoton. The analysis found that the ethnic groups will not be negatively affected by the project. They will all equally benefit from the project provided sufficient communication and community engagement activities are put in place, as detailed in the Social Action Plan, Project Consultation and Participation Plan and Stakeholder Communications Strategy. The Tranche 1 of the MFF is classified as category “C” for Indigenous Peoples because the social assessment does not establish the present ethnic minorities as Indigenous Peoples as per ADB’s SPS (2009)/SR-3, and Tranche 1 will not directly or indirectly affect the dignity, human rights, livelihood systems, or culture of minority ethnic groups.

The Indigenous Peoples Planning Framework (IPPF) was prepared for the facility framework in accordance with ADB’s Safeguard Policy Statement (SPS, 2009) and safeguard Requirements 3: Indigenous Peoples (SPS Appendix 3). The IPPF is aimed to guide the preparation of future subprojects which may affect any Indigenous Peoples. If the projects financed under those tranches are categorized either “A” or “B” for Indigenous Peoples, Indigenous Peoples Plan(s) (IPP) will need to be prepared based on this IPPF and submitted to ADB for concurrence before approving financing under subsequent tranches.

Grievance Redress Mechanism.

A Grievance Redress Mechanism (GRM) is designed within the Involuntary Resettlement Framework and IPPF, which is based on the existing systems at aimag levels, which in turn respond to the procedures set in the “Law on Settlement of Requests and Complaints from Citizens to Government Organizations and Officials” for handling the grievances from the citizens¹⁵⁸.

A separate Grievance Redress Mechanism was developed as part of the IEE. The mechanism is based on three levels of grievance (field level, PMO, MCUD level).

Last, the project-specific grievance redress mechanism that was established for the IEE has been modified for the FIL component of ASDIP to receive, evaluate, and facilitate the resolution of any and all AP concerns, complaints, and grievances about the social and environmental performance of the FI-approved project investments into the GIRAF, as described in the ESMS.

The project-specific GRM will receive, evaluate, and facilitate the resolution of AP’s concerns, complaints, and grievances about the social and environmental performance at the level of the project. The GRM will aim to provide a time-bound and transparent mechanism to voice and resolve social and environmental concerns linked to the project. As part of the consultation process with stakeholders, all project agencies and affected stakeholders will be informed and made aware of the GRM including procedures as to how to access the GRM for any complaints or issues arising out of the project implementation;

The GRM for ASDIP will be harmonized with the existing grievance redress mechanism at the aimags. All the government organizations follow the procedures set in the “Law on Settlement of Requests and Complaints from Citizens to Government Organizations and Officials” for handling the grievances from the citizens. The law provides detailed procedures on how to lodge grievance (in writing, verbally, by telephone or using means such as emails etc.), where and whom to submit, once received how to register, convey to the relevant officials and timing to respond and settle the issues, and approach higher officials or authorities, in case not satisfied with the grievance redress. The Aimag Governor Office and all the local government

¹⁵⁷ See TRTA draft final report Volume VI, Section Analysis of Ethnic Minority Issues.

¹⁵⁸ See TRTA final report, Volume VI, Sections Involuntary Resettlement and IPPF

organizations have GRM, following this law. The Aimag Program Office (APO) shall establish GRM in compliance with the local government organizations GRM and considering the specifics of LAR activities and ASDIP institutional arrangements and implementation. The APO GRM will be integral part of the GRM at the Aimag Governor Office. The APs can lodge their grievance using both the APO or the GRM receiving point at the Governor Office. APO will follow the GRM procedures for reporting and supervision by the Aimag Governor Office and will be providing the GRM statistics and reports to and supervised by this office.

APs will enjoy the right to access the judicial system at any time, if they feel their grievance or concern is not being adequately addressed through the GRM. In addition to the access to the judicial system, if an AP is still not satisfied and believes they have been harmed due to noncompliance with ADB policy and they have made good faith efforts to solve their problems by working with the project authorities and the ADB Project Team, they may submit a complaint to ADB's Office of Special Project Facility or Office of Compliance Review in accordance with ADB's Accountability Mechanism (<https://www.adb.org/site/accountability-mechanism/main>).

The details of the GRM, procedures for registering grievances, response by the project authorities including monitoring of the grievances are detailed in the safeguard frameworks for the program and the IEE, RPs for the subprojects.

G.2. Gender assessment and action plan (max. 500 words, approximately 1 page)

As part of the TRTA, a gender analysis was conducted and a Gender Action Plan (GAP) prepared¹⁵⁹, and main results have been annexed to the Funding Proposal (Annex 8). A wide range of tools has been used to conduct the gender analysis, including surveys, key informant interviews and FGDs.

Considering the wide scope of Tranche 1, with various projects involving different beneficiaries, the analysis was conducted at three levels:

- The ger areas redevelopment project
- The inter-soum centers development
- The regional agri-business development

Each targeted population faced different issues and vulnerabilities:

- In the ger areas, main issues stressed by women are: time-consuming household chores due to poor water, sanitation and heating systems; safety issues in ger areas streets; gender-based violence and need for a women center; lack of social amenities such as playgrounds and kindergartens; and lack of workspaces.
- In the intersoum centers, main gender issues are the lack of sanitation facilities particularly impacting girls and women, the poor conditions of dormitories, and the family issues linked to children schooling.
- In the herding society, wives are responsible for specific activities. Despite their important workload and key contribution to the household, they have little decision power within the households, low levels of participation in community activities and low levels of participation in herders' organizations.

Within the ger area development component, the key gender mainstreaming strategies include (i) positive impacts of provision of utility services on women, optimized through a gender-sensitive IEC strategy, (ii) improved public space and safety, and development of social amenities prioritized by women; community consultations on detailed design preparation and implementation with gender-specific design features for proposed public space and infrastructure development; (iii) Construction of gender-inclusive multi-purpose community development and female participation in community management; (iv) Priority given to female-headed households for TOSK housing units (v) IEC strategy targeting households buying an apartment to encourage women to register their names on the asset property right certificate. In the intersoum centers, WASH facilities will notably have significant impacts on women and girls. Outputs 2 & 3 will lead to (i) improved rangeland management empowering women and protecting their rights over pastureland, (ii) financing of female herders' needs through Community Participation in Procurement (CPP), (iii) female

¹⁵⁹ TRTA final report, volume VI, Section Gender Analysis and Gender Action Plan

herders' social and political empowerment through participation in PUGs, cooperatives and SCCs, (iv) creation of job opportunities benefitting to women.

The GAP details specific indicators and targets. Key expected results include: at least 80% of female-headed households of targeted ger areas streets with improved water, sanitation and heating systems; community centers built and equal gender participation in community management; all intersom centers public buildings equipped with gender-sensitive WASH facilities; at least 50% of TOSK housing units with female ownership; 100% of RUA updated/signed under the project include an Annex where both spouses of signatory households sign the RUA; respectively at least 20%-30% female leadership in PUGs/cooperatives; at least at least 45% CPP-financed projects benefitting to women; GIRAF Participating Enterprises' proposals' include gender elements; at least 20% of jobs created at construction stage and at least 40% of jobs created at operational stage go to women.

G.3. Financial management and procurement (max. 500 words, approximately 1 page)

Financial management assessments were conducted on the executing and implementing agencies in accordance with the relevant ADB guidelines.¹⁶⁰ The Executing Entity and (EE) and Implementing Entities (IE) will follow ADB's financial guidelines and procedures. The financial management risk rating for MCUD and MOFALI is moderate because (i) both agencies have qualified staff with experience in managing projects funded by ADB and other international donors; (ii) their staff have adequate training on ADB's disbursement policies and procedures including the management of advance accounts; and (iii) their accounting, audit, and control systems can readily be configured to support the investment project's accounting and financial reporting requirements. For DBM/AMC-DBM which will implement the FIL component of the project, the financial management risk rating is substantial, but this rating is expected to become moderate as its staff acquires sufficient training and experience under an ongoing ADB-funded project¹⁶¹. The financial management risks identified will be mitigated with the support of financial management consultants and the appropriate capacity development and training program outlined in the action plan for each agency as discussed in the Facility Administration Manual (FAM).

Complex and high-value contracts are expected under the project. However, both MCUD and MOFALI will have adequate capacity to facilitate full compliance with ADB's Procurement Policy (2017, as amended from time to time) and Procurement Regulations for ADB Borrowers (2017, as amended from time to time). The procurement risk is moderate for MCUD, MOFALI and DBM/AMC-DBM as they are all governed by the Procurement Law of Mongolia and the procurement plan in the FAM also complies with ADB's procurement standards. Mitigation measures to address the key risk of delays in contracts awards and disbursements have been incorporated into the project design and their application will be closely monitored during project implementation. The project will provide the necessary training on ADB procurement procedures to enhance the procurement capacity of the agencies concerned.

Regarding the financial management and procurement of the investments under Community Participation in Procurement, an operational CPP manual has been elaborated (draft), which describes the types of activities to be supported, the amount allocated for each Pasture User Group (PUG), the process of community participation in procurement, the flow of funds and the guiding principles¹⁶². In summary, the main rules and procedures are as follows. The maximum amount allocated for each Pasture User Group (PUG) to finance micro-projects depends on the number of PUG members, with a maximum of \$2,000 per PUG household member. PUGs members provide contributions in the form of labor, cash and/or materials. A Soum Local

¹⁶⁰ ADB. 2015. *Financial Management Technical Guidance Note: Financial Management Assessment*. Manila. ADB. 2009. *Financial Due Diligence: A Methodology Note*. Manila. ADB. 2005. *Financial Management and Analysis of Projects*. Manila.

¹⁶¹ ADB. 2018. *Report and Recommendation of the President to the Board of Directors: Proposed Loans and Administration of Loan and Grants Mongolia:* Manila.

¹⁶² This document will be updated and finalized during project implementation. It is annexed to the Volume III of the TRTA final report. The following eligible projects have been identified: protected hay fields; storage facility for wool, hay and fodder; water well and drinking trough with solar panels; winter wind-blocking shelters for animals; small bridge/river/stream crossing and earth road repair; animal combing and shaving equipment/facilities; small equipment for milking, dairy processing and greenhouses for dairy product drying purpose; sewing equipment; ger kindergartens; fences for vegetable growing/small-scale greenhouses.

Development Committee (SLDC) will be formed in each Soum. It includes the soum PUG association and the PUG leaders, the soum cooperatives, the following elected officials and administration staff: the soum governor, the bag governors, the soum pasture management officer, the soum livestock breeding officer, and the soum land management officer, and the APO/Community Procurement and Implementation Support (CPIS) director. The SLDC will meet at least on a quarterly basis to plan, monitor and review CPP activities. It will be supported by the APO/CPIS. Each PUG must have signed a Rangeland Use Agreement (RUA) and formulated a Participatory and Inclusive Herd Management Plan (PIHMP) prior to CPP financing. The PIHMP includes a list of priority projects for the PUG. For each project, a CPP report is elaborated with the support of the SLDC and APO/CPIS. Criteria for project selection have been elaborated. Monitoring will be undertaken by the PIU/consulting services for project implementation (procedures described in the operational manual).

ADB's Anticorruption Policy (1998, as amended to date) was explained to and discussed with the government and the MCUD, MOFALI and DBM/AMC-DBM. The specific policy requirements and supplementary measures are described in the FAM.

A detailed procurement plan has been included as Annex 10 to this Funding Proposal.

G.4. Disclosure of funding proposal

No confidential information: The accredited entity confirms that the funding proposal, including its annexes, may be disclosed in full by the GCF, as no information is being provided in confidence.

With confidential information: The accredited entity declares that the funding proposal, including its annexes, may not be disclosed in full by the GCF, as certain information is being provided in confidence. Accordingly, the accredited entity is providing to the Secretariat the following two copies of the funding proposal, including all annexes:

- full copy for internal use of the GCF in which the confidential portions are marked accordingly, together with an explanatory note regarding the said portions and the corresponding reason for confidentiality under the accredited entity's disclosure policy, and
- redacted copy for disclosure on the GCF website.

The funding proposal can only be processed upon receipt of the two copies above, if containing confidential information.

H. ANNEXES

H.1. Mandatory annexes

- Annex 1 NDA no-objection letter(s) ([template provided](#))
- Annex 2 Feasibility study - and a market study, if applicable
- Annex 3 Economic and/or financial analyses in spreadsheet format
- Annex 4 Detailed budget plan ([template provided](#))
- Annex 5 Implementation timetable including key project/programme milestones ([template provided](#))
- Annex 6 E&S document corresponding to the E&S category (A, B or C; or I1, I2 or I3):
[\(ESS disclosure form provided\)](#)
 - Environmental and Social Impact Assessment (ESIA) or
 - Environmental and Social Management Plan (ESMP) or
 - Environmental and Social Management System (ESMS)
 - Others (please specify – e.g. Resettlement Action Plan, Resettlement Policy Framework, Indigenous People’s Plan, Land Acquisition Plan, etc.)
- Annex 7 Summary of consultations and stakeholder engagement plan
- Annex 8 Gender assessment and project/programme-level action plan ([template provided](#))
- Annex 9 Legal due diligence (regulation, taxation and insurance)
- Annex 10 Procurement plan ([template provided](#))
- Annex 11 Monitoring and evaluation plan ([template provided](#))
- Annex 12 AE fee request ([template provided](#))
- Annex 13 Co-financing commitment letter, if applicable ([template provided](#))
- Annex 14 Term sheet including a detailed disbursement schedule and, if applicable, repayment schedule

H.2. Other annexes as applicable

- Annex 15 Detailed Climate Change Assessment
- Annex 16 Community Contracting
- Annex 17 Emission Reduction Calculation Spreadsheet
- Annex 18 Green and Inclusive Regional Agribusiness Fund
- Annex 19 Rangeland Management Support
- Annex 20 Detailed Implementation Responsibilities
- Annex 21 Procurement Assessment
- Annex 22 Co-financing
- Annex 23 Financial Management Assessment (AMC-DBM)
- Annex 24 Indigenous Peoples Planning Framework
- Annex 25 Compatibility and Synergy for Program Implementation
- Annex 26 Selected appendices in response to iTAP comments
- Annex 27 Capacity Development for Effective Policy Formulation, Implementation and Enforcement

** Please note that a funding proposal will be considered complete only upon receipt of all the applicable supporting documents.*