Sustainable Forest and Rangelands Management in the Dryland Ecosystems of Uzbekistan

Part I: Project Information

GEF ID
10367

Project Type
FSP

Type of Trust Fund
GET

CBIT/NGI
  CBIT **No**
  NGI **No**

Project Title
Sustainable Forest and Rangelands Management in the Dryland Ecosystems of Uzbekistan

Countries
Uzbekistan

Agency(ies)
FAO

Other Executing Partner(s)
State Committee on Forestry; State Committee on land resources, geodesy, cartography and state cadaster

Executing Partner Type
Government

GEF Focal Area
Land Degradation

Taxonomy
Restoration and Rehabilitation of Degraded Lands, Sustainable Land Management, Land Degradation, Focal Areas, Sustainable Livelihoods, Sustainable Pasture Management, Income Generating Activities, Land

Degradation Neutrality, Demonstrate innovative approache, Influencing models, Convene multi-stakeholder alliances, Strengthen institutional capacity and decision-making, Local Communities, Stakeholders, Individuals/Entrepreneurs, Private Sector, Non-Governmental Organization, Civil Society, Community Based Organization, Academia, Behavior change, Communications, Public Campaigns, Awareness Raising, Gender-sensitive indicators, Gender Mainstreaming, Gender Equality, Beneficiaries, Sex-disaggregated indicators, Women groups, Capacity Development, Gender results areas, Participation and leadership, Access and control over natural resources, Capacity, Knowledge and Research, Indicators to measure change, Learning, Field Visit, Knowledge Exchange, Conference, Peer-to-Peer, Knowledge Generation, Targeted Research, Innovation

Rio Markers
Climate Change Mitigation
Climate Change Mitigation 1

Climate Change Adaptation
Climate Change Adaptation 1

Submission Date
10/10/2019

Expected Implementation Start
3/1/2022

Expected Completion Date
2/28/2027

Duration
60In Months

Agency Fee($)
358,809.00

A. FOCAL/NON-FOCAL AREA ELEMENTS

Objectives/Programs	Focal Area Outcomes	Trust Fund	GEF Amount($)	Co-Fin Amount($)
LD-1-1		GET	1,816,941.00	20,400,000.00
LD-1-4		GET	1,550,000.00	13,500,000.00
LD-2-5		GET	410,000.00	3,600,000.00
		Total Project Cost($)	**3,776,941.00**	**37,500,000.00**

B. Project description summary

Project Objective

To promote SLM/SFM and landscapes restoration for achieving LDN commitments of Uzbekistan

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing($)	Confirmed Co-Financing($)

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing($)	Confirmed Co-Financing($)
Enabling Environment for LDN monitoring and target-setting	Technical Assistance	1.1. Policy, monitoring and planning frameworks strengthened at national and sub-national levels to support LDN in production landscapes *Indicator:* *- Sound LDN monitoring system based on SMART indicators in accordance with the STAP LDN Guidelines and national priorities is operational*	1.1.1. Baseline assessment and mapping of LDN indicators (land cover, land productivity and soil organic carbon) at national scale and in Bukhara-Navoi 1.1.2. Monitoring system for LDN indicators at the national level integrated into existing national land-use monitoring systems 1.1.3. LDN decision support system for target-setting, planning and implementation in place (using WOCAT/ DS-SLM, etc.) 1.1.4. LDN Action Plan with voluntary targets defined the in Bukhara-Navoi landscape 1.2.1. Review of strategic regulatory frameworks and territorial planning instruments to enhance local stakeholder participation and mainstreaming of LDN and land tenure at national in Bukhara-Navoi 1.2.2. Inter-sectoral	GET	524,113.00	5,400,000.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing($)	Confirmed Co-Financing($)
2. Demonstrating the LDN approach and scaling out of SLM/ SFM practices in Bukhara-Navoi landscape	Investment	2.1 SLM/SFM technologies and approaches in the Bukhara-Navoi landscape upscaled to achieve LDN *Indicators* *-Number of hectares of productive pasturelands and forestlands applying SLM practices (225,000 ha avoiding degradation, 10,000 ha reducing degradation, and 3,000 ha restored) in Bukhara and Navoi regions* *- 6.1 MTons of CO2 sequestered or avoided in pasturelands and forests* *-Number of farmers with increased social resilience and human well-being*	2.1.1. Gender balanced local multi-stakeholders groups established in Bukhara-Navoi (pasture user associations at district level, etc.) 2.1.2. Participatory integrated land-use plans developed in the Bukhara-Navoi landscape 2.1.3. Innovative SLM practices implemented to enhance the productivity and restore degraded land (grazing of riparian zones, grazing crop residues, pasture rotation, agro-forestry, etc.) 2.2.1. Market access mechanism identified and key value chains (e.g. pistachio, walnut, milk, meat, etc.) strengthened to achieve LDN in the Bukhara-Navoi landscapes 2.2.2. Training program in business	GET	2,664,928.00	27,500,000.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing($)	Confirmed Co-Financing($)
3. Project Monitoring, Evaluation and lesson learned	Technical Assistance	3.1. Knowledge management, M&E and lessons learned disseminated *Indicator:* *-Project produces GEBs and disseminates results in agreement with Results-Based Management principles*	3.1.1 Project mid-term and final evaluation conducted 3.1.2 Global Environment Benefits, co-benefits and costs of SLM monitored, assessed and lessons analyzed. 3.1.3 Knowledge management products developed and disseminated, including a set of manuals for LDN monitoring and implementation through scaling up of SLM 3.1.4 Gender-focused communication strategy developed and implemented to support SLM scaling up to meet LDN targets	GET	399,533.00	2,800,000.00
			Sub Total ($)		**3,588,574.00**	**35,700,000.00**

Project Management Cost (PMC)

	GET		188,367.00		1,800,000.00	
Sub Total($)			**188,367.00**		**1,800,000.00**	

Project Management Cost (PMC)

Total Project Cost($)	**3,776,941.00**	**37,500,000.00**

Please provide justification

FAO requests GEFSEC to consider a PMC equal to 6,2% of the project funds. This waiver is requested to cover the costs of a project team for its 5-year duration (i.e. Coordinator at $1,800 per month and an admin assistant for $1,200 per month; total cost is $179,880) plus the mandatory audits and spot checks of the executions partners (total cost $40,000 over the life of the project).

C. Sources of Co-financing for the Project by name and by type

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Investment Mobilized	Amount($)
Recipient Country Government	State Committee on Forestry	In-kind	Recurrent expenditures	16,500,000.00
Recipient Country Government	Ministry of Agriculture	In-kind	Recurrent expenditures	2,000,000.00
GEF Agency	FAO	Grant	Investment mobilized	900,000.00
GEF Agency	FAO	In-kind	Recurrent expenditures	100,000.00
Recipient Country Government	Ministry of Agriculture	Public Investment	Investment mobilized	18,000,000.00

Total Co-Financing($)   **37,500,000.00**

Describe how any "Investment Mobilized" was identified

State Committee on Forestry: ?Creation of shelterbelts? ($6m); Afforestation activities, including establishment of forest plantations? ($1m); Forest management activities, forest reclamation works, prevention of disease outbreaks and insect control ($500k). Ministry of Agriculture: ?Identification of boundaries of administrative and territorial units and land surveying? ($9m); ?Geobotanical surveys on pastures and hay fields? ($1m) FAO investment mobilized comes from the following programmes under preparation and implementation: -FAO will implement activities addressing land degradation within the ?Improving efficiency of small ruminants? production for reduction of the GHG emission intensity? project funded by Turkey (USD 200,000) -FAO will undertake gender-specific activities under "Leaving no one behind": greater involvement and empowerment of rural women in Turkey and Central Asia project funded by Turkey (USD 200,000) -SFM interventions will be developed and applied under the Forest Restoration Improvement for Environmental Development and Sustainability (FRIENDS) program project with the financial support of Turkey (USD 200,000) -FAO will implement the work package on SLM under Central Asian Desert Initiative (CADI)-Conservation and sustainable use of cold winter deserts in Central Asia project funded by the International Climate Initiative (IKI), which will count as co-financing from the Organization (USD 200,000) -The project ?Linking protected areas with landscape approach for improved biodiversity conservation in central asia? which is under development for funding under FAO-Turkey Forestry Partnership Program (FTFP) (USD 100,000)

D. Trust Fund Resources Requested by Agency(ies), Country(ies), Focal Area and the Programming of Funds

Agency	Trust Fund	Country	Focal Area	Programming of Funds	Amount($)	Fee($)	Total($)
FAO	GET	Uzbekistan	Land Degradation	LD STAR Allocation	3,776,941	358,809	4,135,750.00
				Total Grant Resources($)	**3,776,941.00**	**358,809.00**	**4,135,750.00**

E. Non Grant Instrument

NON-GRANT INSTRUMENT at CEO Endorsement

Includes Non grant instruments? **No**

Includes reflow to GEF? **No**

F. Project Preparation Grant (PPG)

PPG Required   **false**

PPG Amount ($)

150,000

PPG Agency Fee ($)

14,250

Agency	Trust Fund	Country	Focal Area	Programming of Funds	Amount($)	Fee($)	Total($)
FAO	GET	Uzbekistan	Land Degradation	LD STAR Allocation	150,000	14,250	
				Total Project Costs($)	**150,000.00**	**14,250.00**	**164,250.00**

Core Indicators

Indicator 3 Area of land restored

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
13000.00	13000.00	0.00	0.00

Indicator 3.1 Area of degraded agricultural land restored

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)

Indicator 3.2 Area of Forest and Forest Land restored

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
6,500.00	6,500.00		

Indicator 3.3 Area of natural grass and shrublands restored

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
6,500.00	6,500.00		

Indicator 3.4 Area of wetlands (incl. estuaries, mangroves) restored

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)

Indicator 4 Area of landscapes under improved practices (hectares; excluding protected areas)

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
225000.00	225000.00	0.00	0.00

Indicator 4.1 Area of landscapes under improved management to benefit biodiversity (hectares, qualitative assessment, non-certified)

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)

Indicator 4.2 Area of landscapes that meets national or international third party certification that incorporates biodiversity considerations (hectares)

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)

Type/Name of Third Party Certification

Indicator 4.3 Area of landscapes under sustainable land management in production systems

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
225,000.00	225,000.00		

Indicator 4.4 Area of High Conservation Value Forest (HCVF) loss avoided

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)

Documents (Please upload document(s) that justifies the HCVF)

Title	Submitted

Indicator 6 Greenhouse Gas Emissions Mitigated

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
Expected metric tons of CO?e (direct)	5100000	6100000	0	0
Expected metric tons of CO?e (indirect)	0	0	0	0

Indicator 6.1 Carbon Sequestered or Emissions Avoided in the AFOLU (Agriculture, Forestry and Other Land Use) sector

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
Expected metric tons of CO?e (direct)	5,100,000	6,100,000		
Expected metric tons of CO?e (indirect)				

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
Anticipated start year of accounting	2021	2022		
Duration of accounting	20	20		

Indicator 6.2 Emissions Avoided Outside AFOLU (Agriculture, Forestry and Other Land Use) Sector

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
Expected metric tons of CO?e (direct)				
Expected metric tons of CO?e (indirect)				
Anticipated start year of accounting				
Duration of accounting				

Indicator 6.3 Energy Saved (Use this sub-indicator in addition to the sub-indicator 6.2 if applicable)

Total Target Benefit	Energy (MJ) (At PIF)	Energy (MJ) (At CEO Endorsement)	Energy (MJ) (Achieved at MTR)	Energy (MJ) (Achieved at TE)
Target Energy Saved (MJ)				

Indicator 6.4 Increase in Installed Renewable Energy Capacity per Technology (Use this sub-indicator in addition to the sub-indicator 6.2 if applicable)

Technology	Capacity (MW) (Expected at PIF)	Capacity (MW) (Expected at CEO Endorsement)	Capacity (MW) (Achieved at MTR)	Capacity (MW) (Achieved at TE)

Indicator 11 Number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment

	Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)
Female	500	360		
Male	500	840		
Total	1000	1200	0	0

Provide additional explanation on targets, other methodologies used, and other focal area specifics (i.e., Aichi targets in BD) including justification where core indicator targets are not provided

Part II. Project Justification

1a. Project Description

.a Project Description

Global environmental and/or adaptation problems, root causes and barriers that need to be addressed

(systems description)

National land degradation issues

1.   The vast majority of land use in Uzbekistan is associated with pastureland, forestry or unused land (often unofficially used as pasture) which is rapidly degrading. The three largest land categories in Uzbekistan are: agricultural land (45%); forest fund (24%), and lands of the reserve (24%). In total, these land categories cover more than 42 million hectares (95% of the country). Of this area, arable land (including small scale personal plots) make up only about 9.6%. Administratively, Uzbekistan is divided into the Autonomous Republic of Karakalpakstan, 12 regions (vilayets) and 159 districts (toomens).

2.   The main water resources of Uzbekistan are surface runoff, of which about 80% of the flow is formed by the transboundary watercourses of the Amudarya and Syrdarya and their tributaries and the Kashkadarya and Zarafshan rivers. The river runoff is characterized by significant intra-annual and long-term irregularities and in a dry year (90% supply) it is 23 km3 less than in a year of average water availability. The cyclical nature of river flow fluctuations and long periods of low water complicate the economic use of water sources, especially for irrigated agriculture in the lower reaches of the Amudarya River. Irrigated agriculture already consumes over 92% of the total water withdrawal, and demand for water will increase to ensure food security for the country's rapidly growing population. This underlines the importance of regional cooperation for sustainable water resources management in Central Asia and in the Republic of Uzbekistan in particular.

3.   Over the past few years, the difference in living standards between rural and urban population has increased from 8% (2001) to almost 12% (2005-2006). There are also significant differences in the rate of economic and social development not only between rural and urban areas, but also between different regions of the country. In Uzbekistan, the standard of living varies depending on the place of residence and the region. For example, 47% of the southern regions are classified as regions with a lower standard of living, and 27% - as regions with a low standard of living. Since 2001 economic growth has occurred mainly in regions with a sufficiently developed industrial sector, extractive industries, and a modern service sector, resulting in the gap between rural and urban populations. The unemployment rate is still high - 9.1% in 2019 (increase from 4% in 2006). The unemployment rate among young people aged 20?30 years is 15.1%, and 12.7% of women are unemployed. This is mainly due to a reduction in labor force, mainly in the agricultural sector, due to the reorganization of agricultural enterprises.

4.   As a result of the implementation of comprehensive programs and measures to strengthen food security, Uzbekistan has strengthened its position in the world and gradually improved its status in

global rankings. In the Global Hunger Index for 2018, the Republic of Uzbekistan took 52nd place out of 119 countries and with an indicator of 12.1 reached the status of ?moderate?. The World Bank analysis shows that the poverty rate rose to around 10% following the COVID-19 outbreak, adding between 0.45 and 0.88 million people to existing poverty numbers. Food insecurity has shown the share of households reporting reduced food consumption increased to 26% in April 2020[1][1].

5.   Agriculture ranks as the third most important sector in the national economy (17.2% of GDP), employing nearly a third of the population (27%). More importantly, 49.5% of the country's 33.7 million population is rural, for whom agriculture is the main source of livelihood, prosperity and employment. Although reliable estimates of economic losses due to land degradation in Uzbekistan are scarce, the World Bank has estimated decline in productivity due to the lack of updating and maintenance of irrigation and drainage systems, severe salinization of the soil and improper soil management at 1 billion USD.

6.   The Uzbekistan livestock sector is heavily dependent on rain-fed, native pasturelands and rangelands. Livestock production is mostly conducted through the Dehkan farm systems which combine small agricultural plots and small scale animal husbandry, where grazing restricted to local communal fields and individual watering points, with livestock rarely venturing more than 3 to 4 km from these areas. Unsustainable management of these communal grazing areas and their aridity (>60% of rangelands are located in areas classified as ?Drylands? under the UNCCD categories) has led to degradation of these systems, with significant reductions in species composition, ground cover and palatable biomass, while erosion rates and soil loss have increased. Pasture productivity is estimated to decrease by 1.5% annually, having been reduced by 21% since the turn of the century at a national level and up to 42% in the project target Bukhara and Navoi regions. The annual costs of lost production of national rangelands due to land degradation (LD) has been estimated at 91 million USD. As such, the agricultural sector has been unable to adapt to supply feed for the increasing animal numbers (up 230%) or compensate for the loss of access to previous grazing lands (down 13%) as more marginal lands are put under crops.

7.   The causes of land degradation in Uzbekistan are multiple, complex, and vary across regions and landscapes. The natural ecosystems of the country's arid and semi-arid regions have historically been subject to natural soil salinization and environmental degradation that severely disrupt soil functions, such as the soil's ability to act as a buffer and filter, and its role in the hydrological and nitrogen cycles, habitat provision and biodiversity support. The drylands of Uzbekistan are prone to land degradation due to weak vegetation and poor vegetation cover, and that arid ecosystems are highly vulnerable to external influences[2][2].

8.   Analysis of long-term trends in land productivity for the period 2000-2012, carried out within the framework of UNCCD PRAIS (2018)[3][3], shows that, on average, about 21% of all land cover classes are characterized by early signs of declining productivity. Land productivity is stable, but under stress, it is observed on 67% of the total area of the land resources.

9.   Soil salinization is a key indicator of the degradation of arid landscapes, covering vast areas of desert and foothill areas in the basins of the Amudarya and Syrdarya rivers. About 47% of the irrigated area is subject to secondary **soil salinization and/or wetlands**. Wind erosion of soils affects about 56% of all lands, **irrigation erosion** covers 7603 km2 of land, and in some areas, especially on mountain slopes, foothills and hillocks - up to 50-80% of the area. Over 50% of the country's irrigated land is characterized by moderate to **strong soil compaction and crust formation**. Formed in very dry and contrasting conditions, these problematic soils also exhibit other issues such as **low organic matter (<1%)**, low water retention capacity, crusting that inhibits seed germination and root penetration, collapse of I&D infrastructure requiring special management methods. As a result, production capacity

deteriorates and farmers' incomes decline. The more frequent hazardous events such as droughts, floods, landslides also contribute to the increased risks.

10.   Desert rangelands of Uzbekistan are characterized by low productivity of 2-3 c/ha; the yield is unstable, depends on the amount and mode of precipitation, therefore it fluctuates over the years and seasons. Vegetation cover is ephemeral, semi-shrub ephemeral, shrub-herbaceous and saltwort vegetation with a gross supply of forage on average from 0.1 t/ha to 0.5-0.7 t/ha. Foothill and mountain pastures (6.9%) are less affected by drought, but more prone to erosion and natural disasters, including **landslides and mudflows**.

11.   About 73% of the total area (16.4 million hectares) of the pasturelands and hayfields is subject to desertification and soil degradation due to **unsustainable pasture grazing**, other anthropogenic factors and climate change. In the **Kyzylkum desert, the species composition of plants and the value of biomass**, especially rare and endangered species consumed by livestock, have decreased by 2.5 times, affecting provision of important ecosystem services and the profitability of livestock farmers. Concurrently, the number of livestock animals grows quickly, contributing to the development of **mobile sands** (CACILM, 2009, GIZ, 2012)[4][4].

12.   The natural vulnerability of rangeland ecosystems is exacerbated by the actions of local communities, which, in an effort to increase personal income, overexploit rangelands. Such actions include **overgrazing, logging of trees and shrubs**, and large-scale over-exploitation of the road network destroying low-productive desert phytocenoses. The concentration of livestock near the oasis of cultural irrigation on low-productivity desert pastures dramatically affects the vegetation cover, and after 4-5 years of dormancy, the yield decreases by 20% (GIZ/CACILM Farish Pasture project, 2012). Degradation of village pasturelands and areas around watering holes is also expanding (35-40%). As a result of unsustainable grazing, the native vegetation of the deserts within a radius of 2-5 km from the wells changes. Within half a kilometer around the wells the vegetation has completely disappeared.

13.   Moreover, the national geo-botanical research conducted from 1970 to 2017 shows that:

?   the area of degraded pastures increased from 18,000 to 54,000 ha;

?   plant diversity in pastures has decreased from 103 to 79 species;

?   average yield decreased from 3.3 to 2.6 metric tons per hectare;

?   pasture covered by vegetation decreased from 72% to 52%.

14.   Rapid population growth (projected to rise from the current 33.5 million to 37 million by 2050), increasing animal numbers (230% from 2000), and climate change (CC) are putting pressure on increasingly stressed ecosystems. Access to former grazing areas is also decreasing (reduction of 13% from 2000 to 2016) as more demand for agricultural lands and problems of salinity force farmers to open more marginal lands for crop production. Social changes are also eroding cultural and traditional production methods that integrated control mechanisms that maintained pasture recovery times (mobility, grouping of animals, seasonal grazing areas, and drought reserves). This is most apparent in Uzbekistan?s high number of out-migrants (2 million), which is correlated with lack of employment opportunities, labor surplus in rural areas, and constraints in access to agricultural inputs, making rural populations, especially smallholder farmers, some of the most vulnerable groups in the country.

15.   Over the past 15?20 years, pasturelands have begun to suffer from serious degradation due to overgrazing and lack of proper pasture management systems. In May 2019, the country adopted a Pastures Law, but at present, normative documents have not yet been developed to regulate pasture management. However, pasture lands continue to deteriorate and farmers are forced to graze their livestock on pastures located on lands not allocated to agriculture. The structure of the livestock bred by the smallholders has been changing - the smallholders that owned cattle have been replacing them

by small-horned ruminants due to lack of feed, deterioration and changing seasonality of pasturelands. They also switch to goat breeding instead of sheep, which exacerbates the problem, as goats eat up the root system of plants, leaving the land defenseless against the effects of wind erosion. Overgrazing of these types of lands is mainly concentrated in areas located in the immediate vicinity of settlements and around artesian wells.

16.   The territory of Uzbekistan requiring measures to combat desertification exceeds 20 million ha. Land degradation is observed throughout the country, however, the most affected areas are concentrated in areas of the Bukhara and Navoi region and in the lowlands of the Amu Darya and Syr Darya river basins. Thus, the Government selected Bukhara-Navoi as one of the priority hot spots in the LDN Target Setting Report. It is one of the driest regions in Uzbekistan and faces a significant and growing threat of land degradation due to the fact that forestry, grazing, rain-fed and arable farming compete for the same land. This is directly linked to food security and the long-term sustainable development of the region.

17.   Cattle, goat and sheep populations have grown in the area by 128, 198 and 112%, respectively, since 2003. The increased animal numbers and the concentration of grazing to the outskirts of local villages and water points have reduced area ground cover and led to overgrazing and localized extinction of key plant species. The impacts of improper grazing management has been especially apparent in the natural mountainous forests (spruce and pistachio) which need a long time to regenerate. These ecosystems play an extremely important role for protection against soil erosion and conservation of biodiversity and genetic resources.

18.   Forest resources in the country are important for maintaining biological diversity, carbon sequestration with a potential of 2.53 million tons per year[5][5]. In the 1990s, agriculture expansion resulted in logging of shrubs, especially in Bukhara, Fergana and Kashkadarya regions and the Republic of Karakalpakstan. The greatest damage was caused to the Bukhara barrier, where 150,000 hectares of shrubs were cut down, which in the past used to protect the economic centers from sand dunes and aeolian deposits. Large volumes of tugai forests had been lost. At present, the massifs of desert tugai forests have been preserved in small narrow strips and in separate areas along the desert river valleys, with a total area of over 1,660 thousand hectares, and thus serve as important corridors for wildlife.

19.   Forest land (most of which are deserts, dry steppes or deforested foothills) is mainly used as pastures. Cattle breeding is the biggest threat to reforestation both inside and outside the forest. Forestry and rangelands are also closely related to other sectors. Extensive pastures are dependent on irrigated agriculture for feed, and their current insufficiency is the main limiting factor that leads to overgrazing in autumn, winter, and early spring. In addition, the local population in drylands practice informal firewood harvesting for heating and cooking, but this is still not taken into account in the framework of energy policy and is not part of any set goal of forest management.

Leveraging LDN

       National Sustainable Development Goals and LDN agendas

20.   Uzbekistan supported the adoption of the 2030 Agenda for Sustainable Development and the Sustainable Development Goals (SDGs) in 2015. The Government of Uzbekistan (GoU) adopted a Resolution of the Cabinet of Ministers of the Republic of Uzbekistan *On Measures to Implement National Goals and Objectives for Sustainable Development for the Period up to 2030* and approved the National Indicators for achieving SDGs by 2030. A Coordinating Council for the implementation of national goals and objectives in the field of sustainable development has been created, providing cross-

sectoral coordination and an integrated approach to achieving LDN. The main tasks of the Coordination Council are: (i) organizing the effective work of the responsible ministries and departments to implement the national goals and objectives; (ii) ensuring inter-sectoral coordination and an integrated approach to achieving SDGs; (iii) strengthening the integration of the national goals and objectives into sectoral, regional and target development programs and reporting on the implementation and achievement of SDG results. The functioning and coordination of the activities of the Coordination Council are entrusted to the Ministry of Economic Development and Poverty Reduction of the Republic of Uzbekistan (RoU).

21. During a high-level political meeting under the auspices of the United Nations Economic and Social Commission that took place on July 15, 2020 in New York, the RoU for the first time presented its **Voluntary National Review (VNR)** on Agenda 2030. The VNR was prepared by key ministries and departments of the Republic Uzbekistan under the overall coordination of the Ministry of Economic Development and Poverty Reduction and the Institute for Forecasting and Macroeconomic Research. The main sources of information for the report were data from the State Committee of the RoU on Statistics, as well as information received from government agencies and institutions.

22. As an agrarian economy relying on limited water resources, more efficient and effective use the available water and land resources are put forward as key priorities for the long term achievement of the Agenda 2030.The approved *Roadmap for the Implementation of SDG-2030* provides a) design of a development concept for each SDG indicator for the period of 2030 and an annual action plan for the implementation of all SDG indicators; b) development of a system of indicators for the implementation of the SDGs; c) monitoring and reporting on the implementation of national SDGs, including activities on LDN, starting from 2019.

23. As a party to the United Nations Convention to Combat Desertification (UNCCD), Uzbekistan considers the principles of Land Degradation Neutrality (LDN) as a core concept targeting land productivity and ensuring economic and social stability of the population. LDN Target Setting Program (LDN-TSP) provided an opportunity for interaction and coordination between various government bodies and sectors directly and indirectly involved in water, land, and natural resources management. The LDN-TSP process is fully aligned with and supports national policies and development plans at all levels.

24. As a Party to the UNCCD, in 2016 Uzbekistan actively participated in the Inception Workshop, which marked the regional launch of the LDN-TSP[6][6] for the countries of Central and Eastern Europe, Central Asia and the South Caucasus, organized by the UNCCD Secretariat and the Global Mechanism with the support of the Government of Georgia in Batumi. The LDN-TSP's goal was focused on helping countries to set national voluntary targets for land degradation neutrality (LDN) and identifying transformative projects to achieve these goals. This Inception Workshop served as an initial platform for regional exchange of experience and cooperation between countries under the LDN-TSP. The workshop was attended by national coordinators and specialists from nine participating countries, consultants, international partners (UNEP, UNDP, and RECC), UNCCD NCC, and others. During the workshop, participating countries and partners had the opportunity to familiarize with methodological and operational approaches to setting LDN targets, discussed the 2030 Roadmap and how to use the initiative as a vehicle to achieve SDG 15.3.

25. Further, Uzbekistan?s UNCCD Focal Point initiated interagency workshops and expert consultations in 2017-2018 to discuss the results achieved under the LDN-TSP. In particular, the stakeholders highly appreciated and supported LDN approaches, indicators, results of the assessment of the current status, and validation of the remote sensing mapping. A roundtable dedicated to World Day to Combat Desertification (Tashkent, 2017) was attended by representatives of key ministries, departments, deputies of the Legislative Chamber of the Oliy Majlis of the RoU, scientific and public institutions, universities, farmers, local government structures, and the media.

26.   As a member country of LDN-TCP in 2019, the RoU prepared the LDN-TSP report, aimed at assessing the feasibility of using the three global indicators for monitoring LDN and determining the baseline state of land degradation. The objectives of the report were (i) verification of the suitability of using the three global indicators for assessing the baseline and monitoring land degradation within the specific conditions of the Republic; (ii) an overview of the priority land improvement measures; and (iii) analysis of the existing national indicators. The results of the analysis confirmed the acceptability of using the three global indicators for assessing the land degradation trends and will be further discussed in subsequent subsections.

27.   Voluntary SDG Target 15.3 on Land Degradation Neutrality (LDN) adopted by Uzbekistan is *?By 2030, combat desertification, restore degraded land and soil, including land affected by desertification, drought and flooding, and achieve degradation neutrality of land?*. The adopted national indicator was formulated as *?The proportion of land that is degraded (irrigated and not irrigated) over the total land area?*.

Institutional framework for LDN

28.   The Government of Uzbekistan has made significant progress towards sound environmental protection and natural resources management by improving the legislative and regulatory frameworks, creating relevant institutions and implementing strategic initiatives, programs and projects aimed primarily at preserving and protecting natural resources, improving livelihoods, and ensuring food security.

29.   The country has a fairly stable and robust institutional structure with relevant state institutions having the mandates on the environmental protection, management and use of land and natural resources, monitoring and impact assessment. The implementation of environmental protection measures are entrusted to a number of Ministries and entities, whose functions and actions are clearly defined. The responsibilities of these structures include the development and implementation of specialized programs, strategies and action plans in the field of environmental protection and nature management.

30.   Uzbekistan has an effective system of the State Monitoring of the Environment (SME). State Committee for Environmental Protection (Goskomekologiya) is responsible for SME implementation, including improving the accuracy, timeliness, usefulness and reliability of information. Responsibility for environmental monitoring is distributed among several national State institutions under the overall coordination of Goskomekologiya as the following:

?   *Goskomekologiya* conducts monitoring of pollution sources and monitoring of terrestrial ecosystems; coordination of collection, management and dissemination of environmental information; conducts environmental impact assessments and state ecological expertise;

?   *Center for Hydrometeorological Service* conducts hydrometeorological monitoring, monitoring of air pollution, surface water and soil, background monitoring;

?   *Ministry of Water Resources* conducts monitoring of agricultural flows - irrigation and drainage waters; monitoring of soil salinity, mineralization and groundwater level on irrigated lands,

?   *Ministry of Agriculture* conducts monitoring of soil condition and quality of land resources, monitoring of agricultural lands and crops, soil grading and soil quality control;

?   *State Committee for Geology and Mineral Resources* conducts monitoring the condition of groundwater and hazardous geological processes;

?   *Ministry of Health* conducts sanitary and hygienic monitoring of the natural environment.

31.   **The State Committee of the RoU on Ecology and Environmental Protection** (Goskomekologiya) is the main executive body in the field of environmental protection. It is an authorized and coordinating body of the State control and cross-sectoral coordination in the field of

ecology, environmental protection, rational use and reproduction of natural resources and ensuring inter-agency interaction.

32.   **The Ministry of Agriculture (MoA)** is the main governing body that implements the national agriculture and food security policy aimed at the comprehensive the sector modernization, research and development, innovation and introduction of intensive agricultural technologies, and increasing export potential. Key functions of the Ministry are (i) implementation of a unified state agriculture and food security policy; (ii) stimulating the development of value chains for agricultural and food products; (iii) implementation of measures for the widespread introduction of the cluster model of agribusiness; (iv) coordination of measures of state support for agriculture.

33.   **The State Committee on Forestry (SCF)** was established in 2017. It is responsible for the assessment and inventory of forests. SCF, controls all forestland and all forestry activities (including most protected areas) through the Forestry Cadastral Department and Urmonloyiha (Forestry design). In the recent years, the Government has paid a particular attention to forest management. Since 2017, the forest area has increased by 2.3 million hectares, 12 new forestry enterprises under the SCF have been created. In particular, SCF targeted afforestation of the dried up bottom of the Aral Sea, expanding the areas of protective afforestation, increasing the wind-shelter green belts on agricultural lands, updating the monitoring systems, and improving the environmental education programs. The SCF serves as the UNCCD National Focal Point. It is currently developing a gender strategy for the sector and a system of gender focal points.

34.   **The Ministry of Economic Development and Poverty Reduction** was established in 2020. It acts as a main body behind the SDG Coordination Council and coordinates the activities of the line ministries, institutions and agencies involved in the implementation of the SDG goals. The Ministry has a mandate in various sectors of the economy and carries out the analysis and forecasting of macroeconomic indicators, development of proposals for the introduction of market mechanisms for economic management, stimulation of the development of private entrepreneurship, and the development of strategic directions for the development of foreign economic activity in order to increase the export potential of the economy, etc.

35.   **The Ministry of Innovative Development** was established in 2017. It coordinates the activities of government bodies, research, information and analytical institutions and other organizations on the implementation of innovative ideas, developments and technologies.

36.   **The Ministry of Investment and Foreign Trade** was established in 2019. It is an authorized state body responsible for the implementation of a unified state investment policy, coordination of attracting foreign investment, development and implementation of state development programs and investment programs, etc. The Ministry is the legal successor of the Ministry of Foreign Trade and the State Committee of the RoU on Investments on their rights, obligations and agreements, including international ones.

37.   **Center for Hydro-meteorological Service (Uzhydromet)** serves as the UNFCCC National Focal Point. The main tasks of Uzhydromet are 1) development and improvement of the state system of hydro-meteorological observations; 2) hydro-meteorological support of the economy, population and armed forces of the RoU; 3) formation and maintenance of the state hydro-meteorological data fund, the state data fund on environmental pollution, state registration of surface waters; 4) coordination of activities on the creation and maintenance of the state water cadaster; 5) systematic monitoring of air pollution, soil, surface water, as well as the emergence and development of natural hydro-meteorological phenomena; 6) research on improving the short- and long-term weather forecast, watershed management, climate change; coordination of activities on climate change issues.

38.   The scientific research complex of the republic includes more than 360 institutions of an academic, university and industry profile, as well as subordinate scientific and design organizations, a significant part of which directly and/or indirectly participate in environmental protection activities and fulfillment of obligations under the UNCCD. The core of the scientific potential lies with the Academy of Sciences of the RoU.

39.   Several scientific and non-governmental organizations that take part in improving environmental legislation. **The National Association of Non-governmental Organizations of Uzbekistan** was established in 2005 and unites over 300 NGOs. The international non-governmental charitable foundation **Soglom Avlod Uchun** (For a Healthy Generation), the **Health and Charity Fund, the Mahalla Fund,** and others make a special contribution to the implementation of national priorities. In addition to women's public committees, various NGOs are involved in solving women's problems, such as **the Association of Business Women of Uzbekistan.**

40.   **The Senate Commission on Gender Equality** is the main institution that coordinates women?s affairs nationally. In addition, the resolution ?On measures to further strengthen guarantees of labor rights and support for women?s entrepreneurship? envisages the creation of ?Women?s Entrepreneurship Centers? with the status of a non-governmental non-profit organization.[7][7] In 2020 a new Ministry for Mahalla and Family Affairs was created and its deputy Minister will manage the Public Foundation for the Support of Women and the Family The governing bodies of the Women?s Committee of Uzbekistan and the Republican Council for the Coordination of Activities of Citizens? Self-Government Bodies made decisions on the abolition of these organizations.[8][8]

41.   **The Ministry for Support of the Mahalla and the Family**[9][9] is responsible for comprehensive assistance in the full and effective implementation of the principle of ?Comfortable and Safe Mahalla? in society, establishing close cooperation with citizens? self-government bodies to improve the social and spiritual atmosphere in families and mahallas. The governing bodies of the Women?s Committee of Uzbekistan and the Republican Council for the Coordination of Activities of Citizens? Self-Government Bodies made decisions on the abolition of these organizations.

42.   The main stakeholders at the sub-national (provincial/district) levels are (i) regional and district khokimiyats, (ii) regional departments of the ministries of agriculture and water resources, including services responsible for monitoring salinization, waterlogging and reclamation of irrigated lands, and drainage; (iii) BISA, ISA, basin irrigation system authorities (BISAs), irrigation system authorities (ISAs); (iv) research institutes, non-governmental organizations (NGOs), etc.

43.   The main local groups include (i) agricultural producers and the associations; (ii) councils of farmers and citizens' self-government bodies; (iii) non-governmental organizations; and (iv) rural community. Local level beneficiaries conduct independent activities dependent on public policy. They are directly or indirectly affected by land degradation and are interested in introducing and expanding the area under the SLM.

Policy, legal, and regulatory framework for LDN

44.   Uzbekistan is taking concrete and effective measures to improve soil fertility and productivity of irrigated arable land, pastureland forestland restoration and SLM. The key priority of the GoU during the current period of the economic reforms is to provide reliable social security measures and while safeguarding the environment and its provision of the ecosystem services. The Decrees of the President and Resolutions of the Cabinet of Ministers of the RoU, as well as the specialized laws, norms and regulations governing the implementation of national and international agreements provide the strategic policy framework for the harmonious implementation of the reforms in all economic sectors.

45.   The fundamental legislative act establishing the legal, economic, and organizational foundations for the preservation of the natural environment and rational use of natural resources is *the Law ?On Nature Protection?* (1992). Following the Law, a package of laws was subsequently adopted

regulating the protection, conservation and use of natural resources, with a particular attention to the most vulnerable ecosystems. The *Laws ?On the protection of the population and territories from natural and man-made emergencies?* and *?On civil protection?* along with a number of resolutions of the Cabinet of Ministers ensure the vital interests of an individual, the society and the State.

46.   **Land use planning** is regulated by the relevant legislation *?Land Code of the RoU?* (referred to as the Land Code thereafter)**,** *?On Farming?, ?On Dekhkan Economy?, ?On State Land Cadaster?*, and others. The Land Code (1998) establishes basic rules and regulations for all types of land use. The most important legal document for **water resource management** is the *Law ?On water and water use?* (1993). The water resources management reform take root in the *Decree of the President ?On the most important directions of deepening reforms in agriculture?[10]*[10] and resolutions of the Cabinet of Ministers of the RoU on the transition from the administrative basis of the territorial development of water resources to a more flexible ecosystem-based basin management.

47.   Year 2017 marked a new stage of the country's innovative development pathway aimed at transforming the economy and society. Following the Decree of the President[11][11], *?Action Strategy for the Further Development of the RoU in 2017-2021?* and *?State Program for the Implementation of the Action Strategy in the Year of Dialogue with the People and Human Interests?* were approved. Subsequent Presidential Decrees and Government Resolutions identified the main priorities and measures for the implementation of the *Action Strategy* to ensure the **agricultural sector productivity and competitiveness**, sustainable management of pasturelands and forestlands, and strengthening of the relevant State institutions (Table 1).

48.   The new edition of the Law *?On Forest?* was adopted in accordance with the Law *?On Amendments and Additions to the Law of the RoU ?On Forest?*[12][12], and other legislative acts. The initiated reforms of the **forestry** sector made it possible to carry out a large-scale revision and update of the existing acts regarding the use of land for planting, the cultivation of various types of herbs and medicinal and aromatic plants directly in forest areas, etc. The forestry legislation aims to ensure protection, rational use, reproduction, and increase of productivity of forests, as well as protection of the rights of legal entities and individuals. The State Forestry Committee For was established for this purpose. It is also developing a gender strategy for the sector.

49.   The main component of the *National Forest Policy* is the development of strategies for sustainable forest management in the long term. Sustainable forest management in this context implies not only continuous and sustainable management, but also beneficial management that ensures safety, protection, reproduction of forest resources and conservation of biodiversity.

50.   The Law *?On Pastures?* was adopted on April 2, 2019 by the Legislative Chamber and approved by the Senate on May 3, 2019. The purpose of this Law is to regulate the use and protection of **pasturelands**. Amendments have been made to the *?Code of Administrative Responsibility?* concerning the system of penalties for ineffective use of pasturelands, leading to the soils loss or decrease in their fertility, degradation or destruction.

51.   In September 2019, Uzbekistan adopted **the country?s first gender equality law**, *?On Guarantees of Equal Rights and Opportunities for Women and Men?*. Among other provisions, the law confirms that women and men have equal access to economic resources, including movable and immovable property, land, financial assets, loans, public funds and freely chosen types of business activity. *The Labor Code* guarantees **gender equality** in employment and ensures adequate working conditions, pay and promotion. *The Family Code* proclaims equal rights of husband and wife to property. See also the section on Gender Equality and Women?s Empowerment.

52.   *The Labor Code* guarantees **gender equality** in employment and ensures adequate working conditions, pay and promotion. *The Family Code* proclaims equal rights of husband and wife to property.

53.   *The strategy of actions in five priority directions of development of the RoU in 2017-2021*, adopted in 2017, was the most important program document that determined the priority directions of state policy in the medium term for all sectors of the economy and aimed at: (i) improving state and social construction; (ii) ensuring the rule of law and further reforming the judicial and legal system; (iii) development and liberalization of the economy; (iv) development of the social sphere, and (v) ensuring security, interethnic harmony and religious tolerance, implementation of a balanced, mutually beneficial and constructive foreign policy. *The National Commission for the implementation of the Action Strategy* was created, headed by the President of the RoU during 2017-2021. Monitoring and evaluation of the implementation of measures under the State Program is entrusted to the Inter-departmental Commissions established for each of the five directions of the Action Strategy.

54.   The main goals and priority areas of **agricultural policy** for the medium term are focused on (i) the implementation of a unified state policy in the field of agriculture and food security, in the field of plant protection; (ii) stimulating the development of value chains for agricultural and food products; (iii) implementation of measures for the widespread introduction of the cluster model of agribusiness; (iv) coordination of measures of state support for agriculture, etc. The policy also targets digitalizing agriculture, introducing market-based agricultural sector development, modern conservation and intensive agricultural technologies.

55.   As part of the implementation of the *medium-term Program for the Development of Agriculture for 2015-2019*, a phase-based diversification of agricultural crops, further organization and expansion of the intensive gardens, and new non-traditional highly profitable crops continues. The policy paid a special attention to improving the productivity of the irrigated lands, while also contributing carbon sequestration in soils.

56.   By the end of 2020, about 170,000 hectares of the irrigated land under cotton will be released for growing vegetables, fodder, oilseeds, orchards and vineyards. The District governments (khokimiyats) actively support the expansion of intensive orchards and cash crops based on mutually beneficial agreements with farmers. Since 2017, the area of ??diversification of crops has expanded in the irrigated agriculture and the area of ??cotton has reduced[13][13]. Compared to 1991, the area under cotton has been halved in favor of fruit, food and forage crops. The Melioration Fund of Uzbekistan targeted improving the ameliorative condition of more than 2 million hectares of the irrigated land, introducing drip irrigation systems and improved surface irrigation methods on 25,000 hectares and 80,000 hectares, respectively.

57.   There has been significant progress in the development of economic and social reforms, especially in the cluster model of the industry development[14][14]. In 2018, 73 cotton-textile clusters functioned in Uzbekistan, to which 621,627 hectares of land were transferred. The average land area of ??the cluster in the republic was 8,515 hectares. At the same time, there are a number of untapped opportunities for further development of the industry, increasing farmers' incomes, ensuring food security and sustainable use of natural resources. There are also livestock clusters that the project will work with.

58.   *The Strategy for the Development of Agriculture of the RoU for 2020-2030* serves as the main programmatic document of state policy on the agro-food sector. The main reform implementation mechanism is focused on nine strategic priorities, including (i) ensuring food security of the population; (ii) creating a favorable agribusiness climate and value chains; (iii) reducing the role of the state in managing the agricultural sector and increasing investment attractiveness; (iv) ensuring the rational use of natural resources and environmental protection, etc. These priority areas provide the baseline for the

implementation of the LDN goals and the achievement of the SDGs of the RoU, including the SDG-2 *?Zero hunger, ensure food security, improve nutrition and promote sustainable agriculture?*.

59.   *The Strategy for the transition of the RoU to a green economy for the period 2019-2030* aims at achieving sustainable economic progress by integrating the principles of a **green economy** into ongoing structural reforms. The main priority areas of the Strategy include (i) improving the energy efficiency of the basic sectors of the economy; (ii) diversification of energy consumption and the use of renewable energy sources; (iii) adaptation and mitigation of the effects of climate change, increased efficiency in the use of natural resources and conservation of natural ecosystems; (iv) development of financial and non-financial mechanisms to support the green economy. One of the key priorities of the Strategy on CC adaptation and mitigation is to **achieve a neutral balance of land degradation**.

60.   *The strategy for the conservation of biological diversity in the RoU for the period 2019 - 2028* has following priority tasks: 1) expanding the area of ??protected natural areas to 12% of the country's territory; 2) afforestation of the drained bottom of the Aral Sea, bringing the forest area to 1.2 million hectares; 3) breeding gazelles in the Bukhara specialized nursery ?Jeyran? with an increase in their number to 1,000 individuals; 4) creation of a unified system for monitoring biodiversity components with a central link - reference ecosystems of state reserves; 5) creation of a database for state monitoring and state cadaster of biodiversity based on modern GIS technologies; 6) carrying out annual geo-botanical surveys of the vegetation of natural pastures and hayfields on the area of 2 million hectares; 7) integrating biodiversity conservation issues into all sectors of the economy.

61.   The updated *National Program of Action to Combat Desertification* (NPA) (2015) aims to prevent, overcome and, where possible, reverse the negative effects and impacts of desertification, land degradation and drought, in the context of supporting the country's efforts to improve welfare and ensure food and environmental sustainability. The NPA targets 1) strengthening the national awareness of DLDD problems and their impact on socio-economic development, and 2) ensuring appropriate response measures and actions to the challenges, threats and constraints related to land degradation, desertification and drought. Compliance with the priorities and coordinated responsibility of key organizations in decision-making and effective implementation of the country's obligations under the UNCCD in the context of combating DLDD; Develop national capacities to integrate DLDD issues into national and sectoral plans and monitoring systems to implement coherent, participatory action to address DLDD causes. The updated NPA includes the Strategy to combat desertification, land degradation and drought, integrated financial strategy (IFS), and an Action plan for the implementation of the NPA for the short and medium term. Uzbekistan actively participates in the UNCCD Drought Initiative and is currently preparing a *National Drought Plan*.

62.   Uzbekistan has ratified the Paris Agreement on **climate change** to contribute to the achievement of the declared common goal, and developed a long-term strategy for low-carbon development. The GoU show-cased the resource-saving growth model called *Vision of Uzbekistan-2030* that has the following objectives: 1) Strengthen the adaptive capacity by at least 40% in the most vulnerable areas affected by drought, water scarcity, salinization and degradation; 2) increase the efficiency of water use, the water metering system and save water up to 25%; 3) create early warning and risk management systems at all levels; 4) expand the area of ??forest restoration and agroforestry of agricultural land by 30% of the total need; 5) ensure further diversification of the agricultural food production. *Low-Carbon Development Strategy* envisages increasing the adaptive capacity of water and agriculture by about 40% by 2030 in the most vulnerable areas prone to desertification, land degradation and drought[15][15].

63.   Specific **SLM legal and regulatory acts, national strategies, and programs** that serve as a baseline for LDN mainstreaming are presented in Table 1.

Table 1. Relevant legislation and policies

Name of legislation/policy	Relevance
Land Code ? 598-I dated April 30, 1998 (New edition of 04.03.2019)	The regulation of land relations to ensure the benefit of present and future generations, rational use and protection of lands, reproduction and improvement of soil fertility, preservation and improvement if the natural environment, creating conditions for equal development, the protection of legal entities and individuals in relation to land ownership and the rule of law in this area.
Law on ?Nature Protection? No.754 ? XII dated on December 9, 1992	The present Law establishes legal, economic and organizational fundamentals for the preservation of natural environment and rational use of natural resources. It aims at ensuring a balanced harmonic development of relations between the humankind and the nature, protection of ecosystems, natural complexes and separate objects, to guarantee rights of citizens to enjoy a favourable environment and provision of environmental security.
Law on ?Dekhkan economy? No.604-I of April 30, 1998	The law defines the legal basis for the creation, operation and liquidation of dekhkan farms, regulates their rights and obligations, and regulates relationships with other legal entities and individuals.
Law on ? Subsoils? amended by Law ? 444-II dated December 13, 2002	Ensuring rational, integrated use of subsoil to meet the needs for mineral raw materials and other needs, protection of subsoil, the environment, safety of work and protection of the rights of subsoil users, protection of the interests of the individual, society and the state.
Law on ?Farming? No. 602-I of April 30, 1998 amended in August 26, 2004	The purpose of this Law is regulation of the relations in the field of creation, activities, reorganization and liquidation of farms.
Law of RU ?On State Land Cadastre?, August 28, 1998, No. 666-I. (Changes in NL database, 25.07.2018	Establishing the legal basis for maintaining the state land cadastre, using cadastral data for the development of the economy, ensuring guarantees of rights to land plots, rational use, restoration and protection of land.
Law ?About the Forest? ?770-I dated of April 15, 1999; amended by law No 475 of 16.04.2018	Regulation of relations in the field of protection, conservation, cultivation, reproduction, restoration, increase in productivity of forests and their rational use, and regulates the land use within the State Forest Fund.
Law on ?Pastures? No 538 dated May 20, 2019.	Law is regulation of the relations in the field of use and protection of pastures.
Government Resolution No 689 August 19, 2019 on ?Regulation on maximum permissible norms for grazing cattle on pastures, the procedure for maintaining and maintaining pasture rotation?	Regulation on maximum permissible norms for grazing cattle on pastures, the procedure for maintaining and maintaining pasture rotation

Name of legislation/policy	Relevance
Presidential decree # 5742 of 17.06.2019 on ?Measures for effective use of land and water resources in agriculture?	Measures for effective use of land and water resources in agriculture
Government Resolution No. 737 of September 2019 on ?Improvement of the environmental monitoring system in Uzbekistan?	Improvement of the environmental monitoring system, including quality of surface, drainage flow, air, underground water, soil salinity, water table, groundwater quality and other indicators
Presidential Decree # 5065 dated May 31, 2017 on ?Measures to strengthen control over the protection and rational use of land, improve geodesic and cartographic activities, and regulate the maintenance of State cadastres?	The protection and rational use of land, improve geodesic and cartographic activities, and regulate the maintenance of State cadastres
President Decree #5199 dated October 9, 2017 on ?Measures to radically improve the system for the protection of the rights and legitimate interests of farmers, dekhkan farms and owners of farmland and the effective use of agricultural areas under crop?	Protection of the rights and legitimate interests of farmers, dekhkan farms and owners of farmland and the effective use of agricultural areas under crop
Government Resolution No 290 October 20, 2014 on ?Effective Management of Biological Resources?	Management and conservation of biological resources
Presidential Decree No 3932 dated October 2007on ?Measures to radically improve the land reclamation system?	Improvement of the land reclamation system
STRATEGIES AND POLICIES	
Strategy of Actions in five priority directions of development of the RoU in 2017-2021? (2017)	Major priority directions of state policy in the medium term. Direction: ?Modernization and intensive development of agriculture?, including: (i) introduction of modern conservation agricultural technologies, (ii) new varieties of crops, (iii) adoption of systemic measures to mitigate the negative impact of global climate change, etc. This priority area of the Strategy is directly related to the targets of LDN

Name of legislation/policy	Relevance
Agriculture Development Strategy of the RoU for 2020-2030	The strategy is directly aimed at achieving the LDN targets and achieving the SDG goals Key priorities of the Strategy: (i) ensuring food security of the population; (ii) creating a favorable agribusiness climate and value chains; (iii) reducing the role of the state in managing the sector and increasing investment attractiveness; (iv) ensuring rational use of natural resources and environmental protection; (v) developing modern systems of public administration; (vi) phased diversification of public spending in support of the sector; (vii) development of science, education, systems of information and consulting services in agriculture; (viii) (rural development; and (ix) development of a transparent system of sectoral statistics.
Strategy for the transition of the RoU to a Green economy in the period of 2019-2030 dated of October 4, 2019 # 4477.	The main priorities of the Green Economy Strategy in Agriculture are focused on 8 target tasks, including: (i) restoration of degraded pastures and implementation of sustainable pasture management mechanisms; (ii) introduction of organic farming methods; (iii) re-seeding crops to ensure permanent coverage of cropland surface; (iv) diversification of crops (expansion of crops of perennial tree plantations and perennial grasses); (v) attracting investment in production and processing, as well as creating value chains for agricultural and food products, etc. Target indicators for the implementation of the Strategy provide for: (i) reduction of specific greenhouse gas emissions per unit of gross domestic product by 10% from the 2010 level; (ii) doubling energy efficiency and reducing the carbon intensity of gross domestic product; (iii) further development of renewable energy sources, bringing their share to more than 25% of the total electricity generation; (iv) a significant increase in the efficiency of water use in all sectors of the economy, the introduction of drip irrigation technologies on an area of ??up to 1 million hectares and an increase in yield up to 20-40% of crops cultivated on them; (v) achieving a neutral balance of land degradation, and (vi) increasing the average productivity of production of basic food agricultural products to 20-25%.

Name of legislation/policy	Relevance
Supporting Uzbekistan in the transition to the path of low-carbon development of the national economy	The goal is to strengthen the national potential of Uzbekistan for an effective transition to the path of low-carbon development (promoting the development of renewable energy sources), mobilizing resources and implementing low-emission development strategies (LEDS), and using international financing of the carbon market, etc. Capacity building in low-carbon development is closely linked to LDN goals
Strategy for the conservation of biological diversity in the RoU for the period 2019 - 2028	The goal of the Strategy is to develop effective and urgent measures to ensure by 2029 the conservation and sustainable use of biodiversity, the functioning of ecosystems and the provision of key services. Priority tasks of the Strategy: ●expanding the area of ??protected natural areas to 12 % of the country's territory; ●afforestation of the drained bottom of the Aral Sea, bringing the forest area to 1.2 million hectares; ●breeding gazelles in the Bukhara specialized nursery ?Jeyran? with an increase in their number to 1,000 individuals; ●creation of a unified monitoring system for biodiversity components with a central link - reference ecosystems of state reserves; ●creation of a unified information database of state monitoring and state cadaster of biodiversity based on modern GIS technologies; ●an annual geo-botanical survey of vegetation of natural pastures and hayfields in the amount of 2 million hectares; ●integrating biodiversity conservation issues into all sectors of the economy.
ACTION PLANS	

Name of legislation/policy	Relevance
Updated National Program of Action to Combat Desertification (2015)	The aim of the NPA is to prevent, overcome and, where possible, reverse the negative effects and impacts of desertification, land degradation and drought, in the context of supporting the country's efforts to improve welfare and ensure food and environmental sustainability. Objectives of the NPA: To increase national awareness of DLDD problems and their impact on socio-economic development. Ensuring response measures and actions to challenges, threats and constraints related to land degradation, desertification and drought. Compliance with the priorities and coordinated responsibility of key organizations in decision-making and effective implementation of the country's obligations under the UNCCD in the context of combating DLDD; Developing national capacities to integrate DLDD issues into national and sectoral plans and monitoring systems to implement coherent, participatory action to address DLDD causes.
Environmental Action Program (EAP) 1999-2005, 2008-2012, 2013-2017	EAP covers general and cross-cutting measures and actions aimed at reducing environmental pollution, incl. the Aral Sea zone, as well as measures to improve soil fertility, afforestation, introduce low-waste technologies, increase energy efficiency and introduce renewable, environmentally friendly energy sources, and prevent transboundary pollution of the natural environment .The program is directly linked to LDN targets
State program for the development of irrigation, improvement of the reclamation state of irrigated lands and the rational use of water resources for the periods 2008-2012, 2013-2017, 2018-2019	The activities of the Program contribute to the gradual mitigation of land degradation, namely, to reduce the area of saline and wet lands, improve land conditions, prevent wind erosion and desertification, and introduce drip irrigation technologies and other methods of water conservation, in the regions of Uzbekistan. The expected results and activities of the Program as a whole in the country directly target and contribute to the achievement of the overall LDN targets.
State program for the development of the Aral Sea region for 2017-2021	The program aims to implement a set of technical and institutional interventions in the Aral Sea region, attracting internal and external investments and IFI loans, including deposits for combating desertification and managing water and land resources. The Aral Sea area is identified as a ?hot spot? in Uzbekistan's National LDN TSP report and represents a top priority for funding from UN Trust Fund.

64. Uzbekistan?s institutional, legal, policy, and regulatory frameworks substantially regulate and ensure the environmental protection and monitoring of the environment through the established mechanisms and instruments, measures and activities to combat land degradation, desertification and drought. There are regional agreements in place to improve water availability, as well as a set of measures and actions to manage and mitigate the effects of drought, and other natural and climate change phenomena. However, the approaches and mechanisms for planning and incentives are not

flexible enough and are not fully implemented. Insufficient attention is paid to the issues of legal regulation and mobilization of resources for the restoration and maintenance of productivity of rain-fed systems, pasturelands and forestlands, especially in areas affected by drought and desertification.

LDN baseline assessment in the country using satellite imagery

65.   The LDN baseline is the land-based natural capital as measured by the three global indicators at the time of the decision to commit to LDN. The LDN indicators (and metrics) are **Land cover** (land cover change, LCC); **Land productivity dynamics** (LPD; measured as net primary productivity, NPP), and **Carbon stocks** (soil organic carbon, SOC). Each of these indicators assesses a different aspect relevant to LDN: LCC detects the human actions that drive land degradation and its reversal. LPD reflects the impacts of those drivers on plant production as a measure of ecosystem function. Change in SOC stocks, which responds more slowly, indicates the change in productive capacity. The *?LDN baseline?* values on do not show land degradation status[16][16] and differ from *?project baseline?* that specifies the outlines the existing systems or current projects that the GEF project builds on and is described in the relevant section of Project Justification.

66.   Following recommendations from the UNCCD to stabilize or reduce the extent of degraded land within national territories, the Good Practice Guidance[17] **(GAP)** promotes the use of at least the SDG 15.3.1 sub-indicators as means to measure and monitor compliance with voluntary LDN national targets. These sub-indicators are Land Cover Change, Land Productivity and Soil Organic Carbon (SOC; seen as a proxy for carbon stocks above and below ground, 30cm of the soil). Nevertheless, it is also recommended to go beyond this basic approach and to incorporate national datasets and more accurate or tailor-made information and analyses to capture the local context.

67.   Definitions for Land Cover classes under the UNCCD guidelines fall under 7 simplified classes, being ?Tree-Covered, Grassland, Cropland, Wetland, Artificial, Other Land, Water Bodies?. Measurement is typically done using one of the available land cover data sets and re-categorizing the results based on the UNCCD Land Cover definitions. Land Productivity typically relies on estimating a proxy for Net Primary Productivity (NPP) Trend to locate areas of ecological disequilibrium. The SOC trend for the period normally relies on global datasets. There has been some debate on the accurately of the maps produced using these datasets for other PPG design processed conducted in Central Asia, and they typically show a marginal or insignificant change in SOC across those regions analyzed.

68.   Each indicator set is calculated independently using the Trends.Earth software and default datasets for chosen land areas and then the results are divided into 3 categories of ?degraded, stable, and improving?[18][17]. If one of the 3 sub-indicators gives ?degraded? as a result, the entire area is to be considered as degraded under the GPG?s one-out-all-out (1OAO) principle. Issues with the 1OAO principle have arisen and led to the recently published LDN Interpretation Matrix (Sims et al. 2020) which allows to fine tune definitions of Land Degradation by taking into account stakeholder viewpoints and management objectives.

69.   Given these considerations and in accordance with the LDN conceptual framework[19][18] indicating the need for validation of the results and incorporation of local knowledge to offset remote sensing errors, analytical bias and to ensure local objectives and needs are considered before basing decisions on t[20][19]he mapping results, a stakeholder and field survey approach was developed and incorporated to provide context and local stakeholder engagement.

_____

70.   The LDN TCP process in Uzbekistan validated the default data provided from global sources for the period 2000-2013 and evaluated the available national data, using UNCCD PRAIS manual and tools, and FAO LADA-WOCAT. Additionally, an analysis of the trends was carried out using the Trend Earth (QGIS) tool for the period 2001-2018. The quality of information from global sources and the ability to validate/test global products and national data, and Trends Earth have strengthened the contribution to and overall impact of this assessment in the country.

71.   To provide a national context on which to analyse local mapping results, the following mapping processes and results are described below, including:

?   Land Cover

?   Land Cover Change

?   Land productivity dynamics

?   Vegetation productivity

?   Soil Organic Carbon

?   Mountain Cover

LAND ?OVER

72.   Updated information on land cover classifications is an essential variable for decision making, land use planning and capturing baselines for M&E. In that regard the newest and most updated product available was the recent published version 3 of the 100m resolution Copernicus Global Land Service (CGLS-LC100) (Buchhorn et al. 2020). The application of this product provided the results seen in Figure 1 below.

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[1] Uzbekistan Emergency COVID-19 Response Project. World Bank, 2020. Available at https://projects.worldbank.org/en/projects-operations/project-detail/P173827

[2] The GLADIS Reference Base (FAO LADA, 2005)

[3] UNCCD PRAIS, National report of Uzbekistan (2018)

[4] National program for increasing productivity, preserving soil fertility (2004); ADB/GEF CACILM. NF of Uzbekistan (2006)

[5] Third National Report of the Republic of Uzbekistan to the UN Framework Convention on Climate Change.Tashkent, 2016

[6] https://www.unccd.int/actions/ldn-target-setting-programme

[7] See http://www.uzdaily.com/en/post/48426

[8] See https://samarkand.uz/en/press/news/yangi-vazirlik-tashkil-etildi-xotin-qizlar-qomitasi-va-mahalla-kengashi-tugatildi

[9] The Presidential Decree ?On measures to improve the social and spiritual atmosphere in society, further support of the mahalla institute, and also to raise the system of work with families and women to a new level? (PD-5938 dated 18 February 2020)

[10] dated March 24, 2003 No. UP-3226

[11] dated February 7, 2017 No.UP-4947

[12] dated April 16, 2018 No. ZRU-475

[13] national data analysis done during the PPG

[14] "Clusters are geographically concentrated groups of related companies, specialized resource providers, service providers, firms in related industries, and related organizations (eg, universities, standards agencies, trade associations) in specific industries that are competing but at the same time leading joint work. Providing the basis for extraordinary competitive success in certain areas of business, clusters are a pronounced feature of any national, regional and even metropolitan economy. " Source: Michael E. Porter, Professor at Harvard University, USA. "Competition".

[15] Towards sustainable energy: a low-carbon development strategy for the Republic of Uzbekistan. Abstract UNDP project "Support to Uzbekistan in the transition to the path of low-carbon development of the national economy"

[16] https://stapgef.org/sites/default/files/publications/LDN%20Technical%20Report_web%20version.pdf

[17] Developing good practice guidance for estimating land degradation in the context of the United Nations Sustainable Development Goals. Available at https://www.sciencedirect.com/science/article/abs/pii/S1462901118305768
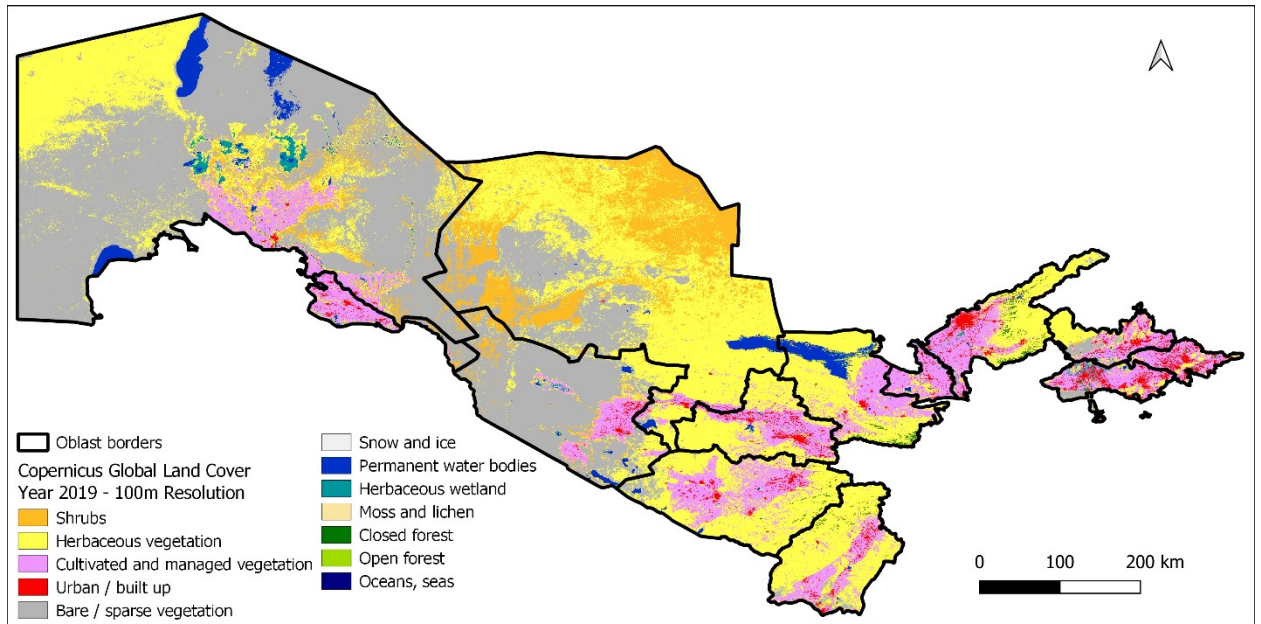
[18] Sims et al. 2020

[19] https://www.unccd.int/news-events/scientific-conceptual-framework-ldn-released-english-french-and-spanish

[20]

Figure 1. Land cover map for 2019 of Uzbekistan 100m resolution according to CGLS-LC100.

73.   These maps are available for the period 2015-2019 and cover the entire Globe, being derived from the PROBA-V 100 m time-series. For this report, the 2019 map was used as a reference point, that in version 3 provides an accuracy of 80% at Level 1. Another advantage is that Copernicus plans for yearly updates from 2020 through the use of a Sentinel time-series. The discrete classification was used in this case, but the product also offers continuous cover fractions for the main land cover types.

74.   UNCCD PRAIS 3 reporting was prepared and set to monitor a cluster of 7 land cover categories, which are also used in the LDN global basic indicators (Sims et al. 2019). For PRAIS 3 the UNCCD used the period 2001 to 2015 and the default Land Covers was derived from ESA Global Thematic Land Cover Product that has a 300m resolution (ESA LCCI 2018)[21][20]. Since CGLS-LC100 was selected by the local experts during a consultation and has newer and higher resolution data, this was used in all future calculations. For that it also was reclassified accordingly to fit the 7 UNCCD categories (Figure 2). A detailed view of the target regions of Navoi and Bukhara of this Copernicus product can be seen in the Figure 3.

Figure 2. Land Cover classes of Copernicus GLC 100m for 2019.
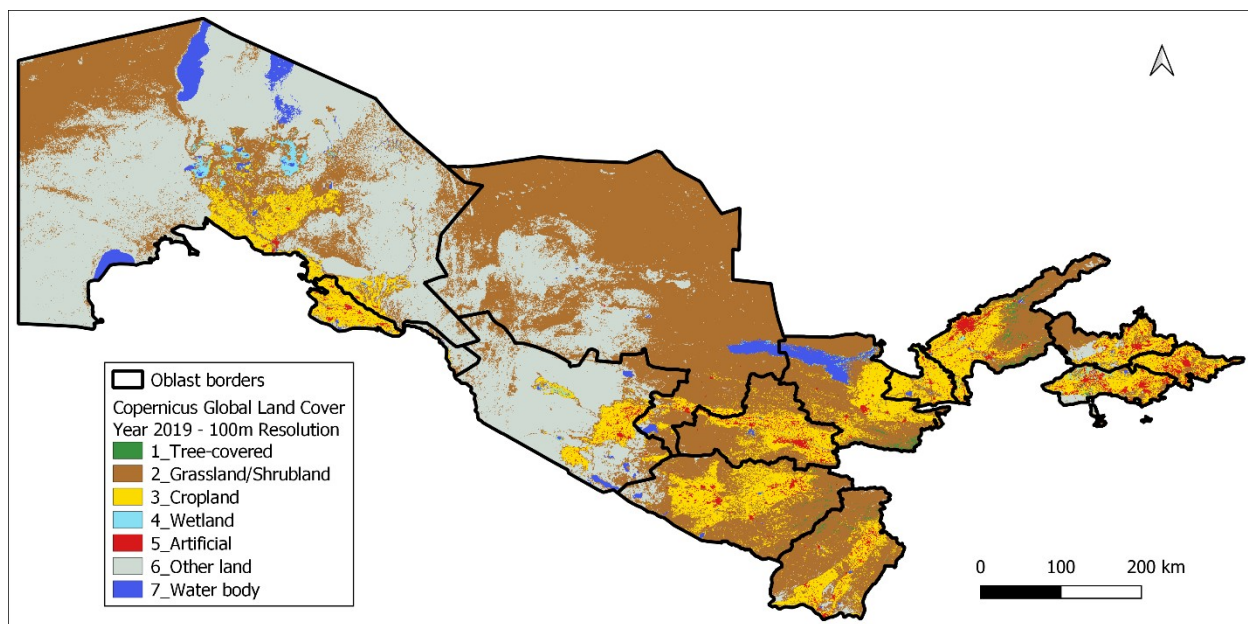
Note: Land cover classes have been classified in the 7 UNCCD categories. The colours were adapted to match Trends.Earth toolbox colour palette

Figure 3. Land Cover classes of Copernicus GLC 100m for 2019
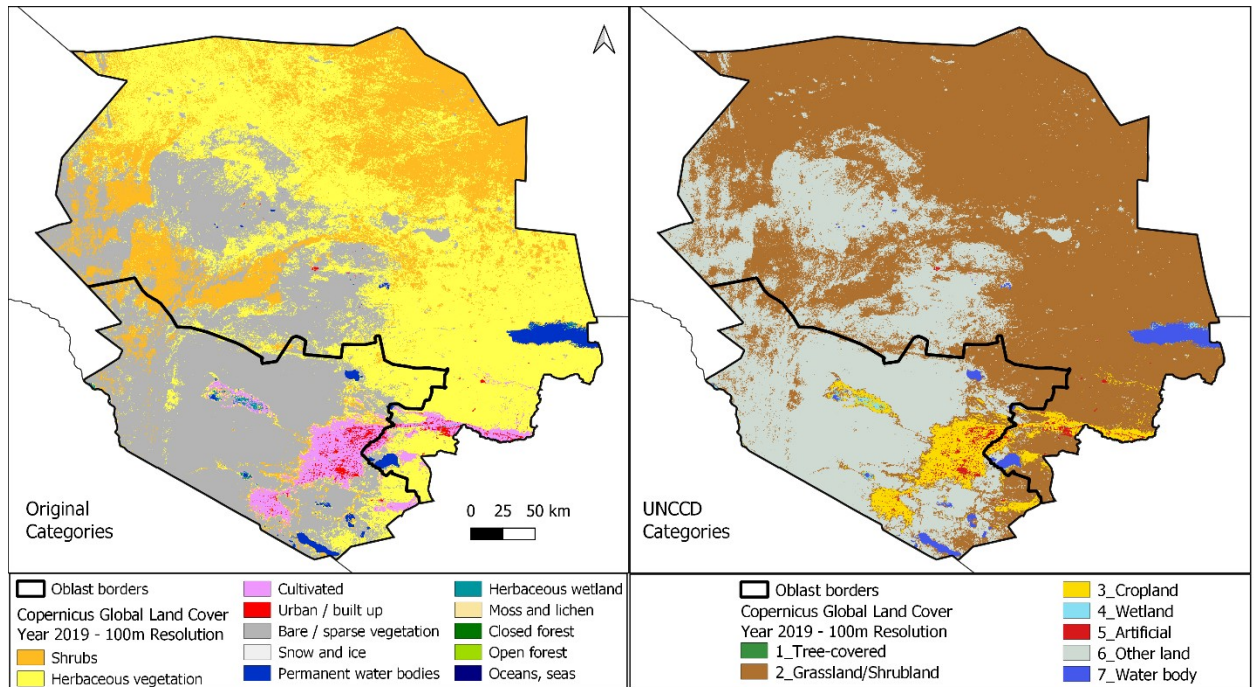
Note: : Original classes and colours to the left and reclassified version to the 7 UNCCD categories to the right, for Navoi and Bukhara Oblast.

LAND ?OVER CHANGE

75.   Land Cover change has been found to be an indicator of human disturbance and Land Degradation as defined by the UNCCD. In recent conversations with practitioners, LDN approaches in some places of Uruguay, Georgia and Angola have provided evidence of its importance as a lead indicator for locating human caused impact through remote sensing activities. However, such has not been the case in some other countries like Argentina, Turkey, Central America and Central Asia where due to different issues the indicator remained rather stable for the last two decades or indicated misleading changes.

76.   To test the situation in Uzbekistan Trends.Earth with default ESA maps for the period 2001 to 2018 was used since it has a longer time series to detect past land cover changes than Copernicus product (2015-2019). The map presented in Figure 4 and the summary results of Table 2, show the Land Cover Change Sub-Indicator (SO 1-1) for the 2001-2018 period as only changing less than 2% of the country surface. This follows similar results for neighboring counties under the same mapping approach.

77.   Most of the areas marked as Degradation correspond to grasslands and croplands that changed to Urban Settlements or Artificial areas. On the other hand, most areas marked as

improvement represent changes from Other Land to Grasslands, which at least in the Navoi Oblast occurred prior to 2003. But that claim is not supported by any of the ancillary analysis performed. .

Figure 4. TrendsEarth Land Cover Change Sub-Indicator map for ESA 2001-2018 transition.
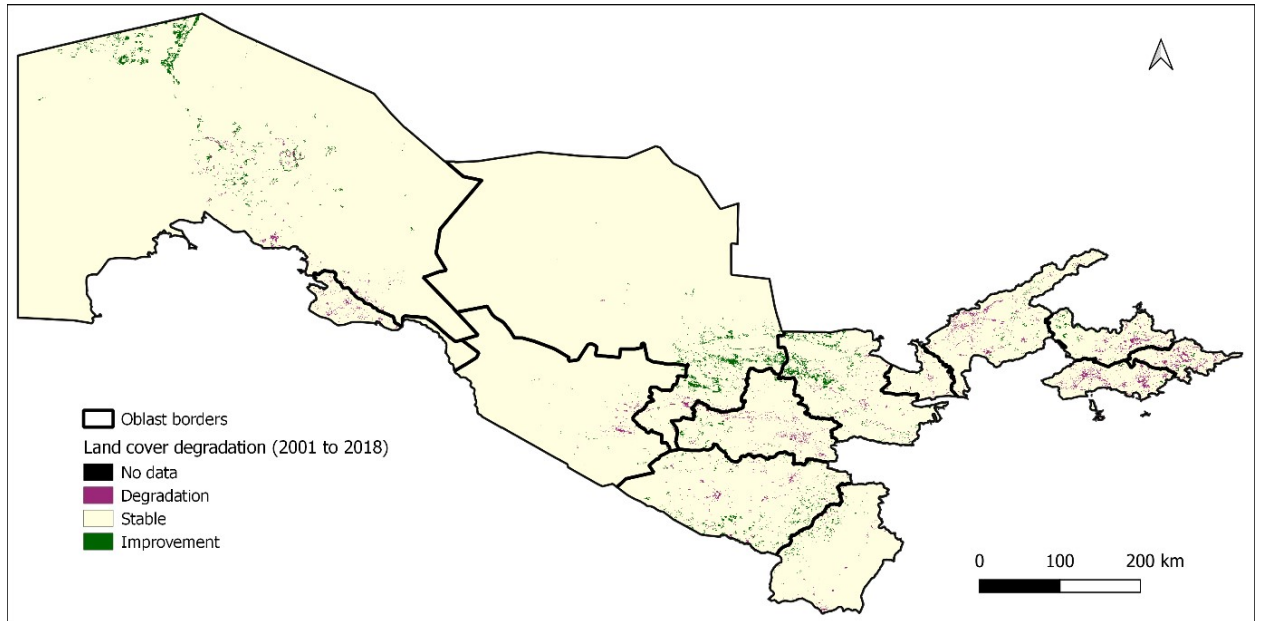
78.   Figure 5 and tables 2 and 3 illustrate the long-term changes in land cover for each land use type for the period 2001-2018. The analysis shows that almost the entire territory of the country is characterized by stable land cover (97.81%), around 1% with improved land cover, and less than 1% with degraded land cover. The most significant changes by land cover type are observed in the increase in the *tree-covered areas* (by nearly 20%) and a decrease in the *water bodies* (by 46%). An increase by nearly 300% is observed in the *artificial areas*, which include urban areas and small settlements. There is insignificant observed change in other land cover classes.

79.   For the target Oblast of this project, the decision based on the remote sensed evidence remains in support of the use of Copernicus GLC 100m to describe the baseline of Land Cover at the start of the project. In these cases, where land cover change analysis is not providing strong results, other indicators proved to be more relevant to detect changes, such is the case of those analyzing Land Productivity, which typically presents more spatio-temporal variability.

Table 2. Land cover change summary (2001-2018) in Uzbekistan

	Area (km2)	**Share of total land area** (%)
Total land area	439,170.3	100
Land area with improved land cover	5,371.1	1.22
Land area with stable land cover	429,568.5	97.81
Land area with degraded land cover	4,230.7	0.96
Land area with no data for land cover	0.0	0.00

Source: National PPG team using data from ESA CCI Land Cover (300 m) and Trend Earth (QGIS) tools

Figure 5. Land cover change map of Uzbekistan
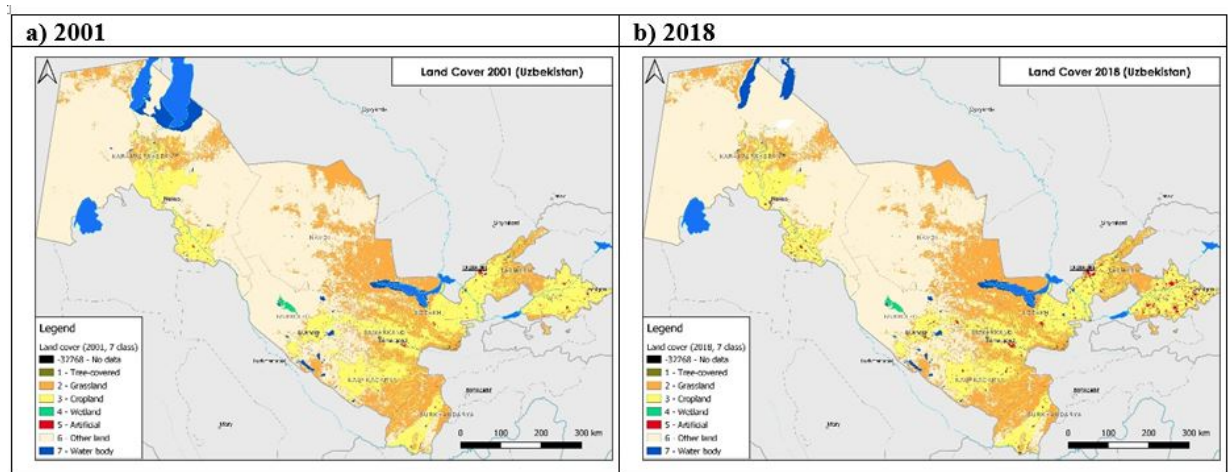
Source: National PPG team using data from ESA CCI Land Cover

Source: National PPG team using data from ESA CCI Land Cover

Table 3. Land cover change by land type in Uzbekistan (2001-2018)

Land type	Baseline area (2001) (sq. km)	Target area (2018) (sq. km)	Change in area (sq. km)	Change in area (%)

Tree-covered areas	679.01	809.93	130.92	19.28%
Grasslands	95,758.50	99,306.46	3,547.96	3.71%
Croplands	87,936.96	85,362.44	-2,574.52	-2.93%
Wetlands	671.74	668.46	-3.28	-0.49%
Artificial areas	1,052.49	4,163.67	3,111.17	295.60%
Other lands	242,834.97	248,858.93	6,023.96	2.48%
Water bodies	18,896.84	8,660.62	-10,236.22	-54.17%
Total:	**447,830.50**	**447,830.50**	**0.00**	

Source: National PPG team analysis

Table 4. Land area by type of land cover transition (sq. km)

		Land cover type in target year							
		Tree-covered areas	Grass-lands	Crop-lands	Wet-lands	Artificial areas	Other lands	Water bodies	**Total**:
Land cover type in baseline year	Tree-covered areas	569.17	70.03	25.40	0.00	0.72	0.27	13.42	679.01
	Grasslands	145.56	94,267.98	741.27	0.00	407.90	117.80	77.99	95,758.50
	Croplands	59.46	838.20	84,250.69	0.00	2,666.85	64.71	57.06	87,936.96
	Wetlands	3.18	0.00	0.00	668.46	0.00	0.00	0.10	671.74
	Artificial areas	0.00	0.00	0.00	0.00	1,052.49	0.00	0.00	1,052.49
	Other lands	13.54	4,075.66	335.59	0.00	35.60	238,247.03	127.54	242,834.97
	Water bodies	19.02	54.60	9.49	0.00	0.10	10,429.12	8,384.52	18,896.84

Total:	809.93	99,306.46	85,362.44	668.46	4,163.67	248,858.93	8,660.62	447,830.50

LAND PRODUCTIVITY DYNAMICS

80. Land productivity characterizes the land?s biological productive capacity as the main source of food, fiber, and fuel that sustains human activity[22][21]. Net primary productivity (NPP) is the net amount of carbon assimilated after photosynthesis and autotrophic respiration over a given period of time[23][22] and is typically represented in units such as kg/ha/yr. NPP is derived by remote sensing analysis.

81. Figure 6 and tables 5 and illustrate land productivity dynamics for the period 2001-2018 using MOD13Q1-coll6 (250 m) and Trends.Earth (QGIS) tools. According to the assessment of the global data, nearly 70% of the territory of the country is characterized as stable productivity, around 10% as improved productivity, and around 18% as declining productivity. Table 6 shows the area of land with stressed productivity by land cover type. The analysis shows that around 92% of the land area with stressed productivity is located in the Grasslands, Croplands and Other lands, 6% of the area is Croplands, and the remaining 2% is distributed among Tree-covered areas, wetlands and other lands. The analysis shows that 99% of the land under productivity stress is located under pastures, arable lands and other land. Lands covered with forest, wetlands, artificial land and water surfaces comprise the rest (1%). Lands under productivity stress remained mainly unchanged from 2001 to 2018.

Figure 6. Land productivity dynamics in Uzbekistan (2001-2018)

Source: National PPG team using data from MOD13Q1-coll6

Table 5. Summary of change in productivity in Uzbekistan (2001-2018)

	Area (km2)	% of total land area
Total land area:	439,170.3	100.00%
Land area with improved productivity:	42,961.6	9.78%
Land area with stable productivity:	303,818.3	69.18%

Land area with declining productivity:	78,653.2	17.91%
Land area with no data for productivity:	13,737.1	3.13%

Table 7. Area of land with stressed productivity by type of land cover transition (sq. km)

		Land cover type in target year							
		Tree-covered areas	Grasslands	Croplands	Wetlands	Artificial areas	Other lands	Water bodies	*Total:*
Land cover type in baseline year	**Tree-covered areas**	23.89	0.29	0.80	0.00	0.00	0.09	0.57	*25.64*
	Grasslands	0.23	3,582.48	2.52	0.00	29.96	13.21	6.57	*3,634.97*
	Croplands	0.42	11.93	929.53	0.00	12.81	4.37	3.56	*962.61*
	Wetlands	0.00	0.00	0.00	15.07	0.00	0.00	0.00	*15.07*
	Artificial areas	0.00	0.00	0.00	0.00	11.04	0.00	0.00	*11.04*
	Other lands	0.00	5.28	0.66	0.00	0.99	11,022.96	7.41	*11,037.31*
	Water bodies	0.05	1.52	0.09	0.00	0.00	131.91	40.78	*174.35*
	Total:	**24.59**	**3,601.50**	**933.60**	**15.07**	**54.79**	**11,172.54**	**58.88**	**15,860.98**

VEGETATION PRODUCTIVITY

82.   The most common proxy for vegetation productivity is the NDVI (normalized difference vegetation index). This index allows to distinguish the live green vegetation from other types of covers and it is based in the fact that plants absorb solar radiation in the photosynthetically active radiation (PAR) spectral region and reflect the near-infrared spectral region. Many plants properties have been related to NDVI, but to properly achieve this ground data is necessary to adjust the models to local conditions.

83.   The MODIS 250m 16-day resolution NDVI product (MOD13Q1) was used for the years 2017, 2018 and 2019 to characterize vegetation condition for the selected Oblast. Values close to zero (or negative) indicate water, artificial and bare areas. In this case the main water bodies were masked beforehand and not processed. The maximum values is 1 and as a reference it can be stated that fully grown wheat at anthesis could reach values of around 0.85[24][23].

84.   The Figure 7 (left) shows the mean average value of a whole year, and clearly pictures a dryland where there are areas with permanent access to water (wetlands or irrigation) that can sustain higher plant activity throughout the year. In contrast, the maximum NDVI (Figure 7, right) was calculated to see which are the areas that get green when there are good climatic conditions, and could potentially feed more livestock.

Figure 7: Mean annual NDVI (left) and Maximun NDVI (Rigth) in the 2017-2019 3-year period for Navoi and Bukhara Oblast.
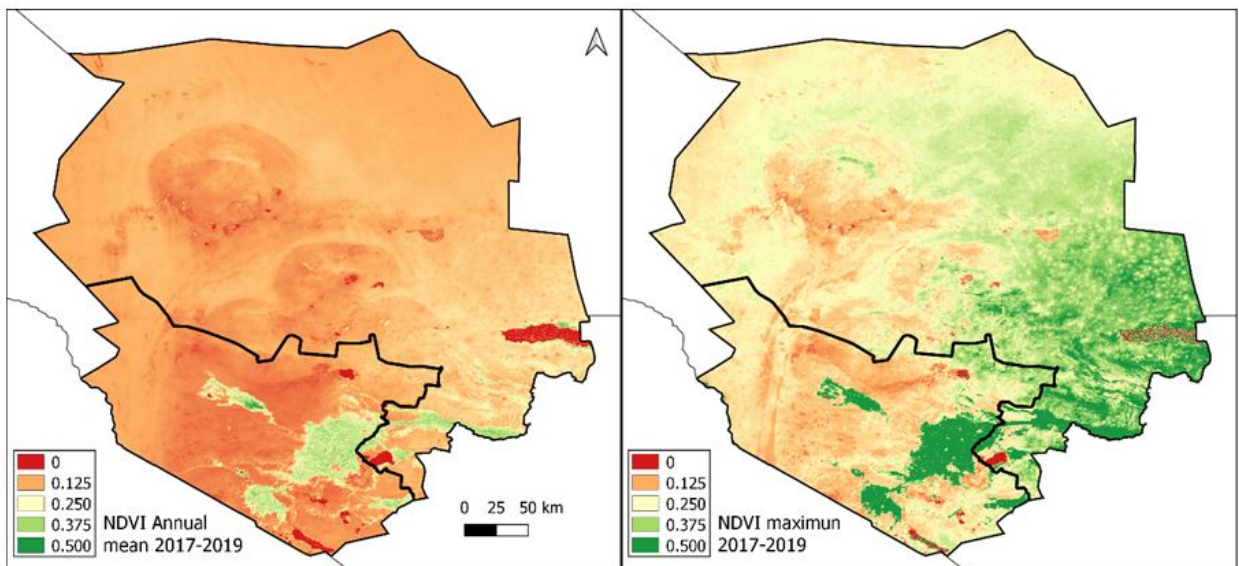
85.   A clear pattern emerges with the maximum and is that from east to west there is a reduction in the vegetation productivity, that also coincides with the pattern visualized in the Land cover maps. Those areas that in the last 3 years have not obtained a Maximum NDVI greater than 0.2 could be considered as areas with very low vegetation cover or Bare (Figure 8). But this number should be further calibrated with local knowledge and field data.

Figure 8. Bare areas marked by Maximum NDVI of less than 0.2 during the 2017-2019 3-year period for Navoi and Bukara Oblast.
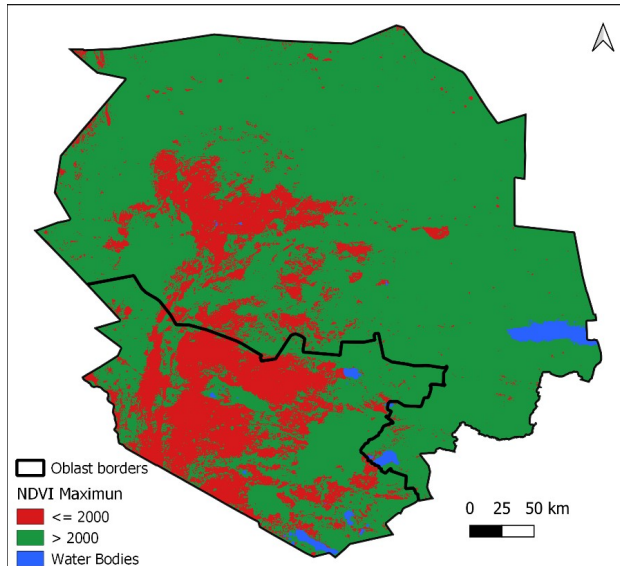
CARBON STOCKS

86.　　As one of the 3 Sub-indicators components of the SDG 15.3.1 and given its importance in ecological pathways, Soil Organic Carbon (SOC) is considered a lead indicator for soil fertility and potential productivity and resilience to degradation processes. However, the use of SOC as an indicator has recognized constrains. Firstly, it should be clear that while Land Cover or Vegetation Productivity can be related directly to satellite readings, SOC cannot, and has to be inferred from ancillary variables; hence it requires much more ground data to build an accurate map. Second, ground data to calibrate the models require a soil sample which is intensive and expensive to obtain, so most of the times the data has limited spatio-temporal coverage.

87.　　At the time of prodoc development there are few global estimates from different institutions but with very few exceptions there is availability of SOC maps from different years that allow to calculate a trend. Even so, Soil Organic Carbon is not a very dynamic variable, so changes in the stock normally require some time (years) to change along with different land use practices.

88.　　The UNCCD and Trends.Earth proposed a method that uses Soil Grids to determine the base stock of SOC in Tons/ha and then using the Land Cover Change map can be multiplied to determine the change in SOC. Basically this is a modified land cover change approach and it becomes a redundant indicator that often does not explain much of the real SOC stock changes. This effect of the land cover method can be seen in the national Sub-Indicator map for SOC Trend.

89.   Figure 8 and tables 8-9-10 show the carbon stocks, as measured by Soil Organic Carbon (SOC), for the period 2001-2018 using Soil Grids (ISRIC) 250m and Trend Earth (QGIS) tools. Almost entire territory of the country shows stable SOC. The SOC storage change from the baseline to target is equal to insignificant value of 0.44%.

Table 8. Summary of change in soil organic carbon in Uzbekistan (2001-2018).

	Area (km2)	Share of total land area (%)
Total land area	439,170	100
Land area with improved soil organic carbon	3,707	0.8
Land area with stable soil organic carbon	432,009	98.4
Land area with degraded soil organic carbon	3,453	0.8
Land area with no data for soil organic carbon	0	0

Source: National PPG team using data from Soil Grids (ISRIC) 250m and Trend Earth (QGIS)

Figure 8. Soil organic carbon change in Uzbekistan (2001-2018)

Soil Organic Carbon Degradation (2001 to 2018)

Legend

Soil organic carbon degradation (2001 to 2018)
- No data (black)
- Degradation (dark red)
- Stable (cream)
- Improvement (green)
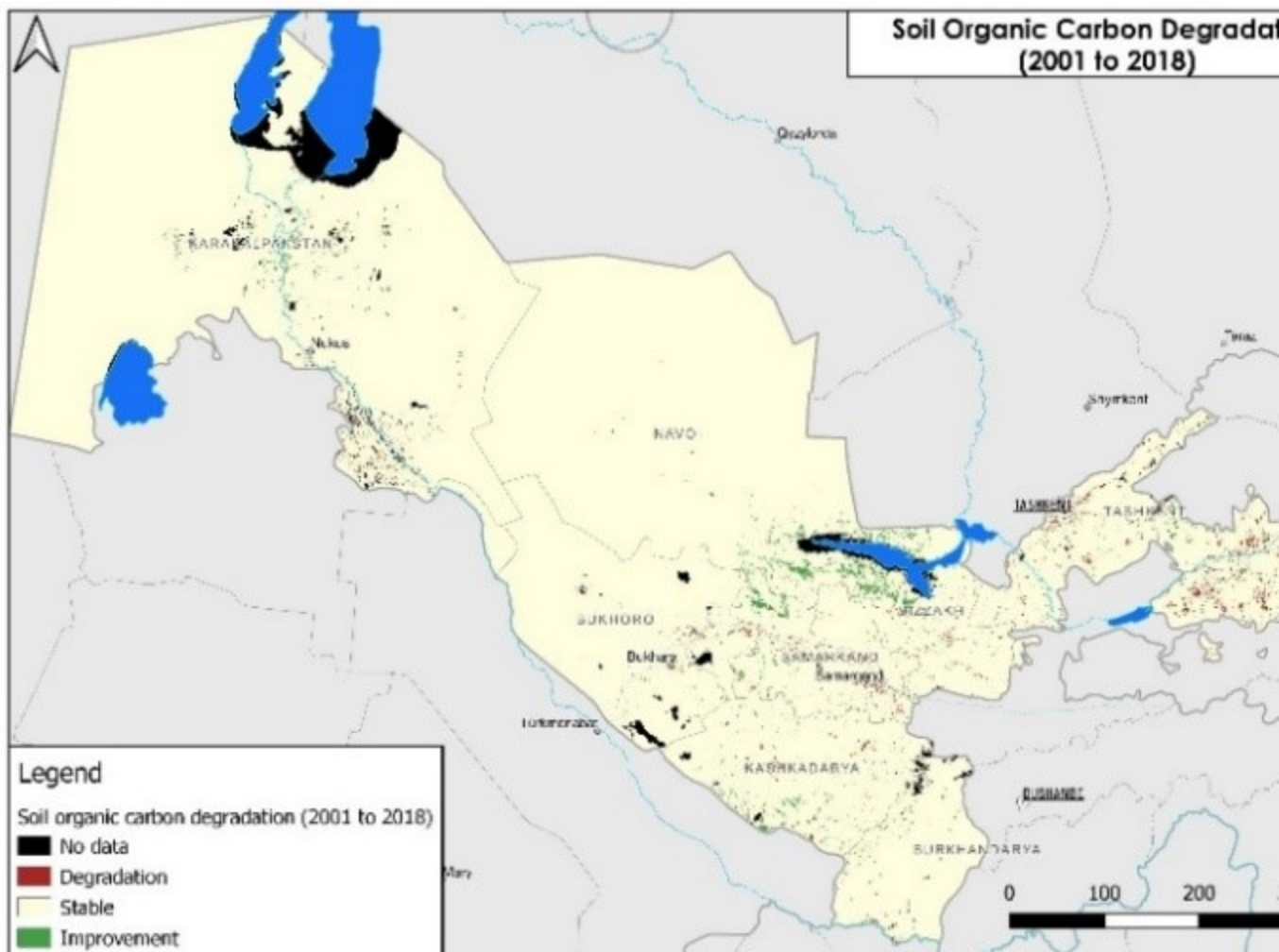
Source: National PPG team using data from Soil Grids (ISRIC)

Table 9. Soil organic carbon change from baseline to target in Uzbekistan (2001-2018)

	Baseline SOC (tonnes / ha)	Target SOC (tonnes / ha)	Baseline area (sq. km)	Target area (sq. km)	Baseline SOC (tonnes)	Target SOC (tonnes)	Change in SOC (tonnes)	Change in SOC (%)
Tree-covered	129.69	129.22	665.59	790.91	8,631,767.82	10,219,796.72	1,588,028.90	18.40
Grasslands	58.28	58.07	95,680.51	99,251.86	557,593,395.88	576,342,346.17	18,748,950.29	3.36

			87,879.9 0	85,352.9 6			- 19,337,217. 22	
Cropland s	54.72	54.08	87,879.9 0	85,352.9 6	480,900,029.1 3	461,562,811.9 0	- 19,337,217. 22	-4.02
Wetlands	71.08	71.08	671.64	668.46	4,773,996.08	4,751,362.72	-22,633.36	-0.47
Artificial areas	51.22	51.22	1,052.49	4,163.57	5,390,359.00	21,323,750.78	15,933,391. 78	295.5 9
Other lands	43.16	43.61	242,707. 43	238,429. 81	1,047,424,501. 17	1,039,792,344. 56	- 7,632,156.6 1	-0.73
		Total :	**428,657. 57**	**428,657. 57**	**2,104,714,049. 07**	**2,113,992,412. 85**	**9,278,363.7 8**	

Source: National PPG team using data from Soil Grids (ISRIC)

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Table 10. Percent change in Soil organic carbon change by land cover type

		Tree-covered areas	Grass-lands	Crop-lands	Wet-lands	Artificial areas	Other lands
Land cover type in baseline year	Tree-covered areas	-0.02%	0.00%	-10.11%		-38.47%	- 63.58%
	Grasslands	-0.28%	0.00%	-10.68%		-52.19%	- 42.83%
	Croplands	3.96%	9.65%	0.00%		-44.93%	- 59.87%
	Wetlands	0.00%			0.00%		
	Artificial areas					0.00%	
	Other lands	31.50%	44.48%	47.75%		0.02%	0.00%

Note: Trends.Earth calculates soil organic carbon change based on annual land cover transitions. This table shows change in soil organic carbon based on the baseline and target years only. The target year soil organic carbon value used to produce this table accounts for all land cover transitions that occurred between the baseline and target years. An empty cell indicates that transition was not observed over the time period.

90.   In line with the conclusion of Land Cover Change Sub-indicator, instead of aiming for a baseline indicator of SOC trend, the best strategy is to obtain the most current/accurate map of Actual SOC and present that as a base value prior to project implementation. With time some new methodologies like the one presented by Heuvelink (et al. 2020) may coalesce in a better method to determine trends from a baseline. Based on experience from other countries and regions, the SOC basemap selected is the Global Soil Organic Carbon Map (GSOCmap v1.5) produced by the Global Soil Partnership[25][24] at a 1km resolution. This approach resulted in the map seen in Figure 9 below.

Figure 9: GSOC Map 1km Resolution and version 1.5.
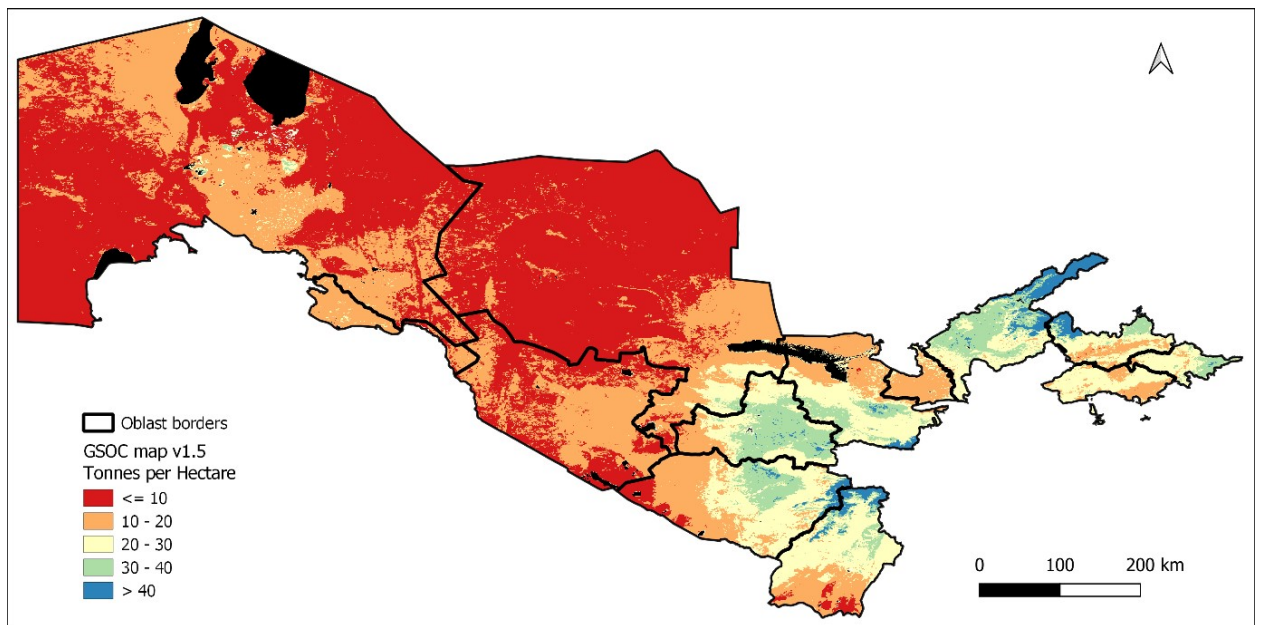
91.   This mapping approach also supports the other mapping outputs and shows the Navoi Oblast area to have land potential that is largely dependent on seasonal cycles and years of increased rainfall to express this potential, while the Bukhara Oblast shows a more stable landscape, yet one of low productivity and potential outside of the irrigated or Oasis environments.

MOUNTAIN COVER

92.   The Figure 10 provides an overview of the Administrative regions of Uzbekistan, and at the same time shows where the Mountain Ranges are located. Mountains are important areas for SDG 15, being directly related to Target 15.4 and Indicator 15.4.2: Mountain Green Cover Index. They also share close links with Target 15.3 and LDN since these are principal sources for water resources and often have steep slopes, low natural ground cover and proneness to erosion events. Additionally, mountains are linked to Forest cover and other natural areas management that are the focus of Target 15.1 and 15.2, which in turn also relates to Land degradation indicators and off-site effects of LD.

Figure 10: Mountain ranges in Uzbekistan
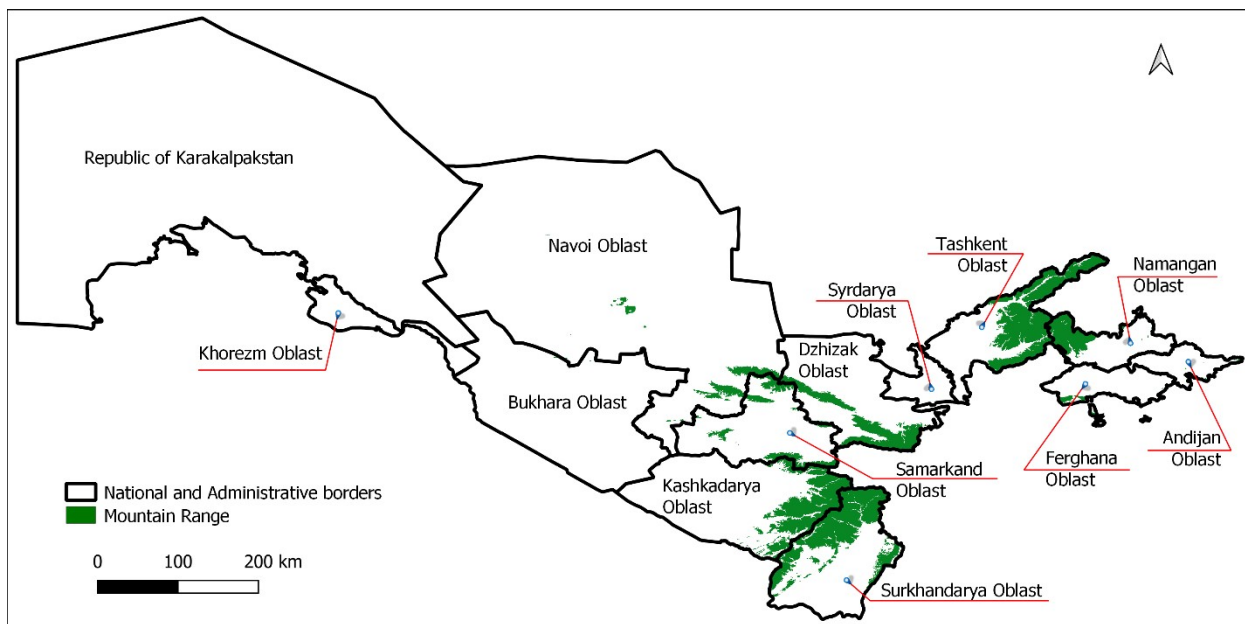
Note: Mountain Ranges where modelled for Uzbekistan using the Mountain Partnership definitions[26][25] and the 90m resolution Digital Elevation Model from CGIAR (Jarvis et al. 2008).

93.   In accordance with common knowledge, the map shows a strong eastern/western divide, with the majority of Uzbekistan?s mountains being located to the east of the country, with foothills and less abrupt formations in the central areas of the country, and open flats and plains being more common in the western reaches of the country. In Bukhara and Navoi regions, this mapping approach shows mountain ranges in the selected project area in the southeast of the Navoi Oblast which will be of importance for overall achieving SDG 15 in the context of this project. In addition to these mountains, other rugged terrain exists within the Navoi Oblast that require specialized land management approaches which take into consideration their needs and potential for growth. These areas are of increased importance for transhumance livestock migration patterns and as biodiversity refuges, given they typically are under extensive management practices and provide for more natural vegetation covers.

National LDN indicators

94.   While assessing the feasibility of setting the LDN targets based on the above mentioned three global indicators, the GoU tested and adapted these indicators to the conditions of Uzbekistan, and identified the main measures used in Uzbekistan to control and improve land conditions. Further field research and grid mapping are needed to validate and test the global indicators included in the future work program at the national level. In particular, the GoU evaluated the following indices to determine the baseline for ?Land productivity? indicator: (1) *soil bonitet rating* - the soil quality index, expressed in classes relative to the soil with the highest potential fertility, the score of which is usually taken as 100%, and (2) *humus content in soil.*

95.   In order to identify additional nationally-appropriate indicators, the national PPG team reviewed and analyzed the data from the available soil surveys, hydro-meteorological observational network, national statistical information and analytical reviews and reports of the responsible institutions and monitoring services, as well as the review of the government programs, long-term strategies and relevant projects on agriculture, and water management and environmental protection. The proposed list of national indicators includes eight indicators, of which four indicators were presented in Uzbekistan's LDN TSP Report, while the remaining four were identified in the course of PPG studies and adopted by the Government of Uzbekistan as key indicators of the *?Agricultural Development Strategy for 2020-2030?* in the context of food security and rational use of natural resources.

96.   These include the following indicators:

- ?   Normalized Difference Vegetation Index (NDVI)
- ?   Soil bonitet, an indicator of soil quality assessed in relation to the soil with the highest fertility potential (expressed in classes relative to the soil with the highest potential fertility, the score of which is usually taken as 100 %)
- ?   Total area of agricultural land under SLM, including water saving technologies and approaches (ha, expansion)
- ?   The share of forage crops in the total structure of the sown area (%)
- ?   Area under the vegetation and forest cover (ha, expansion)
- ?   Share of land with moderate and high salinity (%, reduction)
- ?   Area under tree-nut plantations (pistachio, walnut, almond) (ha, expansion)
- ?   A number of farmers with access to advisory or extension services (total # per administrative district per region)

97.   The proposed indicators will be reviewed in the context of setting up the project and LDN monitoring systems and monitoring systems and will agreed by the relevant stakeholders during project implementation (see *Project Strategy and Theory of Change* for the LDN monitoring system and Annex H for the indicative list of project activities).

Area of intervention: Bukhara and Navoi regions

98.   Generally, drylands often are undervalued for their ecosystem services due to their low biomass productivity and underlying negative associations that accompany them (Liniger & Mekdaschi 2019). However, what they lack in productivity they often compensate by their size, and when properly managed, they can be economically and ecologically productive. For instance, deep-rooting perennial shrubs often form the base of pastures in these areas and provide nutritious, green fodder resources under dry and saline conditions. Desert plants that have low total biomass production are often highly nutritious and when combined with livestock mobility, help to produce healthy, quality livestock as long as enough water can be supplied to complete the grazing objectives established for each area.

99.   The landscapes in Bukhara and Navoi regions represent high priority for the GOU to protect and restore the integrity and services of forest and rangeland ecosystems in accordance with the national LDN targets. The Bukhara and Navoi regions are located in the North and North-East of the country in the middle section of the Amudarya River basin. The Bukhara-Navoi landscapes total 15 million hectares and contain a mosaic of land uses that are dominated by vast rangelands and dry mountain forest, with small tracts of irrigated agriculture along the main water courses. The landscape is a part of the natural belt of cultivation of pistachios, almonds, and walnuts, and located within the boundaries of the north-western spur of the Pamir-Alay mountain system with a length of about 170 km. It is located in the Kyzylkum desert arid zones that are characterized by having low and extremely low content of soil organic carbon (SOC) content (less than 10 t/ha in the upper 30 cm soil layer). Low carbon reserves are due to the natural conditions prone to desertification processes and are associated with climatic features - extreme seasonal temperatures (30-40?C in the summer and -20?C in winter) and scarce precipitation (100-150 mm/year).

100.   Climate in the region is temperate and continental with large variability in daily and annual air temperatures, low precipitation and high solar radiation. The average annual air temperature varies over the territory from 13C to 16C, with the maximum fluctuates in the range of 29-33C. Almost all precipitation falls in the winter and early spring. Spring abruptly turns into a dry hot summer from May, at which point the drought begins. For this reason, agriculture in the region relies on irrigation.

101.   Irrigated oases of Bukhara, Gijduvan and Karakul are located in the southern part of the region (lower reaches of the Zaravshan River). These vast desert landscapes and ecosystems of pastures and tugai forests around ancient irrigated oases are world renowned economic, cultural and ecological areas in the Zaravshan basin - the ?Main Road? (Shahrokh) segment of the Great Silk Road. These vast desert landscapes and ecosystems of pastures and tugai forests around the ancient irrigated oases are world renowned economic, cultural and ecological areas of the ?Main Road? (Shahrokh) segment of the Great Silk Road. Anthropogenic pressures are increasingly threatening endemic native and low-productive desert pastures and ecosystems as growing human and livestock populations move into the areas to use the sparse resources available .

102.   Navoi region borders Kazakhstan?s dryland region of Kyzylorda which is one of the two target regions of the GEF-7 Kazakhstan Resilient Agroforestry and Rangeland Project. Similarity of agro-ecosystems and LD pressures and drivers offers opportunities for regional collaboration. Navoi region has eight districts, five cities, and its 942,800 inhabitants occupy the area of 11 million ha. Bukhara region borders Turkmenistan to the South, has 11 districts, and its 1.85 million inhabitants occupy the area of 4.2 million ha.

          Socio-economic profile of target beneficiaries

103.   The socio-economic analysis baseline report (Annex M) was prepared during the PPG stage to 1) get a better understanding of target project beneficiaries, their livelihoods and constraints, complementing the district-level data, 2) to inform evidence-based beneficiary targeting and understand their behavioral change to provide a tailored socio-economic analysis for the proposed bio-physical technologies and approaches, 3) to derive local gender-disaggregated data that are unavailable at the district level, and 4) advise the LDN policy revision.

104.   Household survey sampling design. The report is based on a Household survey (HHS) carried out in August 2020 in the Bukhara and Navoi regions. The questionnaire content was developed by a team of the PPG experts drawing on the experience of similar surveys in the region. A randomized sampling design was adopted to enable findings to be up-scaled to the entirety of Bukhara and Navoi regions. The findings were also informed by other baseline studies, local stakeholder consultations and discussions with the experts. Since a comprehensive list of HH for each region was not available, a two-stage sampling design, stratified by administrative region, was selected. Basically, at the first stage, a sample of villages was selected for each region independently. The selection was done with probability proportional to the number of HH of each village. Within each sampled village a listing of the HH was carried out, and then a sample of these HH has been selected by means of a systematic scheme. A fixed number of HH was selected in each sampled village so to ensure inclusion probabilities did not vary too much within each region. The sample size for the HHS depended on the level of precision required for key indicators, as well as on resource constraints and logistical

considerations given the COVID-19 pandemic. The survey took place in August 2020 and included 195 respondents. Detailed methodology is described in the Annex 1 of the socio-economic analysis baseline report (Annex M).

105.　　Farming systems and access to land. Most respondents can be described as small farmers operating in family farms of 4-6 people, with plots of up to 0.2 hectares (ha) and likely to be dekhan farmers. Farming is important and farmers are interested in expanding production, but at present it is mostly for home consumption rather than for sale, with almost no value addition being carried out. This may be linked to the fact that small farmers have very little access to farming as well as limited access to non-farm technology (e.g. vehicles, mobiles, and computer). By far the biggest household expenditure item, according to respondents, was related to livestock. They also have limited access to farm/livestock inputs, also confirmed by other studies . Most small farmers plant a mix of seasonal and perennial crops, with vegetables by far the most popular seasonal crop and perennial crops comprised almost exclusively of fruit trees. Small farmers own 1-4 heads of mainly cattle or sheep, but do not have access to quality pasturelands to satisfy either home consumption needs or for surplus production. Land tenure insecurity for small farmers with regard to pasturelands also appears unclear and came up as the most significant constraint that the HHs face. The greatest sector specific livestock challenges faced by small scale farmers is connected with the pastureland quality issues, followed closely by feed issues (mainly affordability). The biggest pastureland issue - as observed by both female and male HHs - was to do with unsustainable grazing (over- and under-grazing), followed by water insufficiency problems.

106.　　Social capital and economic status. Small scale farmers are characterized by low incomes, with 40% of respondents reporting a monthly income for the entire household of less than 1 million Uzbekistan Som (approximately 95 US dollars), which is less than the poverty line of $3.20 a day per person applied to Lower Middle Income Countries. Small scale farmers also suffer from high unemployment levels - 15% of respondents are unemployed. Family farms are facing high operating costs. The biggest household expenditure for small farmers is related to livestock, especially feed, and transport costs are also significant, likely partly due to poor roads. Exacerbating the economic challenges faced by family farms, they also have difficulty in accessing finance for unexpected expenditures ? over ? of respondents feel that access to financial services is very/ reasonably important to meet household needs, yet less than half of those needing external financial support were able to access it. This situation impacts negatively on the resilience of family farms to shocks, including climate shocks - described in the dedicated section on climate change risks and opportunities below - and to invest in farming practices. Around a third of respondents could be classified as ?youth? and 14% as ?female heads of household?. Female headed households generally have greater constraints in all areas ? less/ lower quality land, less access to finance, capacity development, social capital, technology etc. A high proportion of respondents are migrants (46%), reflecting official statistics that indicate that the permanent population is only about 60% in both Bukhara and Navoi regions; although it is not clear whether they have come to these regions for employment, or leave it in search of employment because of a lack of opportunity, field consultations indicate a likelihood that many small farmers do the latter, especially youth. Furthermore, the minimal contribution of remittances to household income would seem to support this interpretation.

107.　　Agricultural value chains. Most HHS do not take any actions to process, add value or maintain the quality of their crop products for sale. For those that do, the most popular action is to

ensure good refrigerated storage (21%). Just 5% of HH process their products, 2% sort their products and 2% process products by drying. The %age of HH using packaging techniques, improved transportation and distribution, rapid cooling, hygienic processing and cleaning is 1% for each category. Slightly more female HH (proportionally) take no action compared to male counterparts. Likewise, the majority of the respondent households take no action to add value to their livestock products for sale, particularly female HHs. Sorting, and making meat and dairy products are carried out by a minority of households.

108.   Knowledge and information access. Most household heads (80%) have not had any agricultural/ farming education or training, and those that have mostly received this training more than 5 years ago. Similarly, family farms have limited access to information on sustainable natural resource management: 72% of respondents said they had no access to such information, and 14% said they accessed this information from media, which is a fairly general resource. Only 10% of respondents access information from local institutions. The situation is very similar with regard to access to information about weather and climate in general and for livestock, as well as information on improved cropping/livestock climate change adaptation practices. For example, many small farmers do not feel it is possible to replace animals or crops with more adapted breeds/species.

109.   Experience of soil quality and land degradation and climate change. Many family farms do not take any actions to improve the quality of soils on their lands despite facing increased pest and weed competition, soil salinization, reduced fertility, wind erosion, and a decline in plant species diversity. Financial expenses are cited the biggest barrier. The few small farmers that do take actions, use a limited number of techniques, and they have limited impact. Small scale farmers also note degradation of the pasturelands, observed through soil salinization processes, followed by degraded grazing lands, a decline in the diversity of species and increased pests and weeds. They face decreased availability of water from their main water source, all the more serious as most only have a single source of water (94%) which limits livestock movement and grazing patterns. Water access on pasturelands is perceived by small scale farmers as expensive, and some take between an hour and half a day to access this water. Despite these problems, the overwhelming majority of family farms do not take any action to improve pastureland quality and the main reasons are lack of knowledge, lack of time, followed by perceptions of there being no need to. Small scale farmers are also facing climate change and natural disturbances such as extreme heat/drought, intense rainfall and sudden temperature changes, animal diseases, pest outbreaks and strong winds. Finally, small farmers experience poor sewage and waste disposal systems.

Climate change risks and opportunities in Bukhara and Navoi

110.   Land is both a source and a sink of GHGs and plays a key role in the exchange of energy, water and aerosols between the land surface and atmosphere. Land ecosystems and biodiversity are vulnerable to ongoing climate change, and weather and climate extremes, to different extents. Sustainable land management can contribute to reducing the negative impacts of multiple stressors, including climate change, on ecosystems and societies[1]. Climate change also exacerbates land degradation processes, particularly in the vulnerable drylands of Bukhara and Navoi regions.

[1] IPCC Special Report on Land. Available at https://www.ipcc.ch/srccl/

111.   To increase the project?s climate resilience[28][26], climate change risks and opportunities at various levels were assessed and incorporated in the project design during the PPG. CC risk screening process used the best available data and included hazard identification, assessment of vulnerability and exposure, risk classification, and defining risk mitigation plan based on a defined scale. Annex R provides a detailed analysis of the historical trends in climate and extreme weather events, future projected changes according to climatic scenarios, impacts on target agro-climatic resources and agro-food systems in the project area and proposed risk mitigation measures for project implementation. This assessment and incorporation of climate considerations at every stage of the project design, ensures that resilience is integrated across the project and targeted measures have been integrated into the project design. A summary of the main findings and considerations are outlined below.

112.   <u>Historical trends.</u> The territories of Bukhara and Navoi, like the entire territory of Uzbekistan, are experiencing rising temperatures, with maximum air temperature increasing about 0.4-0.45?C every 10 years. Over the period 1951 to 2015, the number of days with temperatures above 40?? in the irrigated zone (Bukhara) increased from 3 to 13, and in the desert zone (Tamdy) from 8 to 20 days. Increased frequency of hot days above 40?? will result in crop and livestock stress as well as implications across the entire food value chain. During the winter period, in the irrigated zone, the average date of the last frost in spring shifted from March 30 (1951) to March 16 (2013). The average date of the first frost in autumn has shifted towards winter from 17 October to 9 November, showing a trend toward a longer period without frost. In addition to warming, trends in annual precipitation, starting from 1950 in the regions show very weak tendencies to decrease, about 1.5-2.0 mm for every 10 years against the background of large inter-annual fluctuations[29][27].

113.   <u>Future projections</u> of climate from downscaled CORDEX data[30][28] show that average maximum temperature across the country will continue to rise, following the historical trend, particularly in the Navoi and southern regions. According to the Third National Communication (2016), the risks of formation of extreme low water and drought in Uzbekistan will noticeably increase. All climatic scenarios show that in the runoff formation area, a significant increase in annual and seasonal air temperatures, weak tendencies for a decrease in precipitation and a significant increase in inter-annual variability are expected.

114.   <u>Household surveys</u> in the Bukhara and Navoi regions conducted during the PPG find that small farmers observe climate/natural disturbances and extreme events such as extreme heat/drought, intense rainfall and sudden temperature changes, animal diseases and pest outbreaks. Despite these challenges, the majority of family farms do not take any action to improve pasture quality and the main reasons are lack of knowledge, lack of time, followed by perceptions of there being no need. Most household heads (80%) have not had any agricultural/ farming education/ training, and those that have mostly received this training more than 5 years ago.

<u>Climate resilience measures to respond to the identified risks</u>

(a)   Enabling Environment for LDN monitoring (Component 1)

115.   Baseline assessment and mapping of LDN indicators, including land cover, land productivity and soil organic carbon, in the project areas will include climate-related indicators and climate impact assessment of historical and future climate change on LDN indictors. Some preliminary assessment of climate impacts and modelled future changes are included in the climate change annex.

116.   The project will ensure enhanced engagement of institutions leading national work on climate, water management and early warning in inter-sectoral coordination mechanisms, including 1) Uzhydromet, the state institution responsible for hydrometeorology, collecting, analyzing and disseminating information on hydro-meteorological conditions, natural phenomena, climate change, environmental pollution and natural disaster, 2) Ministry of Emergency Situations, established to protect the population and coordinate efforts in disaster risk management, and 3) the National Drought Monitoring Center, which aims to serve as a coordinating and advisory body for drought preparedness, monitoring, prevention and mitigation of the negative effects of drought.

(b)   Demonstrating the LDN approach and scaling out of SLM/ SFM practices in Bukhara-Navoi landscape (Component 2)

117.   This subsection provides a brief description of SLM technologies and approaches that are recommended for mitigating and adapting agricultural production to the negative impact of climate change and sustainable development of value chains in the project area. These technologies have been tested in similar natural and climatic conditions within the framework of various projects and can be recommended for implementation in project areas.

118.   <u>Dairy.</u> Climate change in future will contribute to a decrease in the productivity of pastures and an increase in heat loads on animals. High temperatures can also increase spoiling and loss of dairy products without proper storage or refrigeration facilities. Value chain interventions will consider increasing temperatures when considering the climate resilient value chain options for dairy. Adaptation options for livestock sector will include increased productivity and to reduce livestock density through communally controlled rotation management and pasture rehabilitation and fodder production to mitigate the effects of drought related shocks. In this way, two key objectives are achieved: i) milk and meat production is maintained or even increased and ii) the pastoral ecosystem is protected from overgrazing and is made more resilient to the impacts of climate variability and change.

119.   In terms of mitigation, livestock breeding results in methane (CH_4) emissions from enteric fermentation of animals, as well as nitrous oxide (N_2O) and CH_4 emissions from manure collection, storage and management systems. In the project areas, large and small cattle make a significant contribution to GHG emissions due to the large number of livestock. Adaptation and mitigation strategies at each level of the value chain include extended value chain (access to insurance for climate risk reduction, data sharing between extension services on best agricultural practices, less carbon-intensive farming inputs with lower GHG emissions, etc.), societal elements (research investment from public and private sector, more energy efficient and resource cooking methods, etc.) and natural

elements (practices aiming at increasing soil and organic matter, carbon sequestration and discouraging of slash and burn practices)[31][29].

120. Beekeeping. A change in temperature upward to abnormal limits significantly reduces the flight activity of bees. At high temperatures, a significant proportion of worker bees gather under the hive to cool their bodies. Introduction and development of beekeeping in the region will consider the climate trends and future impacts to determine timing and geographical location of activities. Research shows that the rise in temperature has caused the formation of toxic substances in nectar and pollen of many plants, which can cause basic melliferous plants to become poisonous to bees. Due to climate change, high temperatures are already putting bees at greater risk of disease and parasites, which will increase even more in future due to climate change. Further research and development will inform interventions in this area.

121. Climate-resilient SLM technologies and approaches. The nut crops value chains (walnuts, almonds, pistachio) is less exposed to the risk of negative impact of CC for the following reasons: walnut trees are relatively frost-resistant, winter frosts in the project area rarely damage these species, and, due to warming, such risks will decrease even more. In addition, walnut trees tolerate drought well, and some species (for example, pistachio) are extremely drought tolerant. Perennial nut trees are, however, sensitive to cool dry periods during flowing and the late onset of winter temperatures can delay flowering and therefore decrease potential yields. The climate analysis should inform the cropping calendars and regions most suitable for nut production. Annex R (section 4.3) further outlines recommendations for the proposed climate-resilient SLM technologies and approaches from WOCAT database that are applicable to the conditions of the proposed landscapes.

122. Due to climate warming, an increase in the duration of the growing season and growing degree days may result in favorable conditions for heat-loving crops (cotton, pomegranates, persimmons, and figs). Warming and reduced frost during winter creates an extension of the growing season which is favorable for early varieties of potatoes, vegetables, melons and gourds.

3) Climate change impacts monitoring (Component 3)

123. Climate change risks, impacts, and opportunities for the project areas will be continuously monitored throughout the project?s lifetime learning whether the proposed indicators are relevant to maximize the project?s impact as part of Output 3.1.2 ?Global Environment Benefits, co-benefits and costs of SLM monitored, assessed and lessons analyzed?. Knowledge materials produced by the project will mainstream climate change risks and opportunities through Output 3.1.3 ?Knowledge management products developed and disseminated, including a set of manuals for LDN monitoring and implementation through scaling up of SLM?. Proposed climate resilience indicators are listed in the project?s Theory of Change.

Context related to Covid-19

LDN baseline assessment in Bukhara and Navoi

124.   Given the urgency and importance of protecting the ecosystems, the Bukhara and Navoi regions have been selected for the initial stages of implementation and fine-tuning of the LDN approach in Uzbekistan. This holistic methodology will aid the understanding and management of the complexities and challenges that land degradation processes presents for local communities and those that work with them. The development and adaptation of the LDN framework to local contexts will later form the basis for scaling up the approach and the SLM solutions to the regional and national level. Following the methodology on baseline mapping of the three global indicators (land cover land productivity dynamics, and carbon stocks) at the national level outlined in the *National Context* section, the indicators were further mapped and analysed in the target regions for the testing of the LDN approach.

125.   To provide a baseline for project implementation of the Land Degradation Neutrality (LDN) conceptual framework and accounting system a remote sensing (RS) approach that was based in on UNCCD definitions proposed in the Good Practice Guidance[32][30] for calculation of the SDG 15.3.1 sub-indicators, and also in the work of the Joint Research Centre: World Atlas of Desertification[33][31], Land-Productivity Dynamics[34][32] and Non-Linear Phenology[35][33]. This was supported by focused stakeholder consultations and field observations.

LAND COVER

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126.   General warming and an increase in the number of days with extremely high temperatures in summer against the background of a downward trend in atmospheric precipitation have a negative impact on the vegetation of the desert territory. ESA CCI Land Cover (300 m) and Trend Earth (QGIS) tools were used to assess the change in land cover of the project areas by land use class in 2001 and 2018. The assessment results are illustrated in Figure 11-12 and Table 11. The results of assessing changes in land coverage for the period 2001-2018 showed that both in Navoi and Bukhara Regions, almost the entire territory is characterized by a stable land cover (98.72 - 99.45%), the land cover at 0.13-0.40% of the area is in the stage of degradation; improvement in land cover was noted in Navoi Region by 1.15% of the area and in Bukhara Region - by 0.40% of the area.

Figure 11. Land Cover by land use classes.

Navoi Region

2001
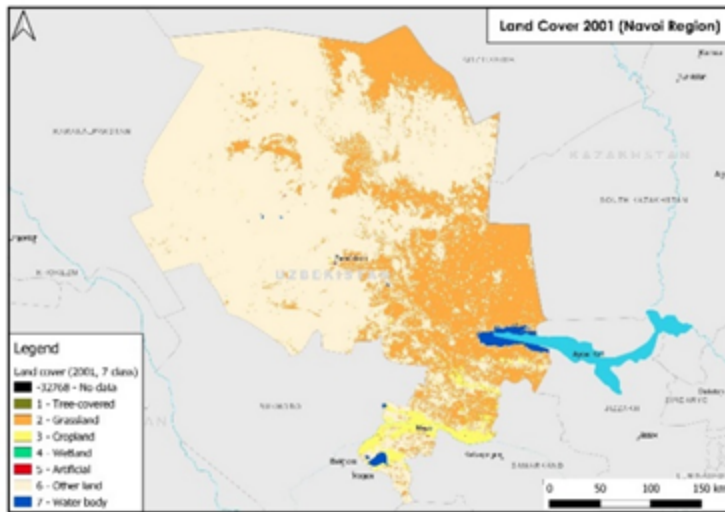
2018
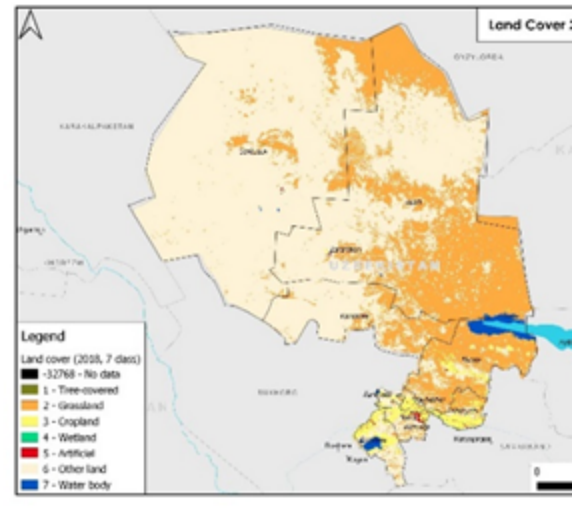
Bukhara Region
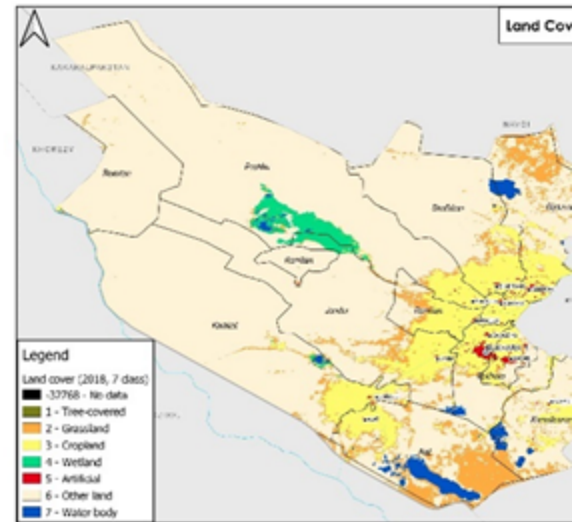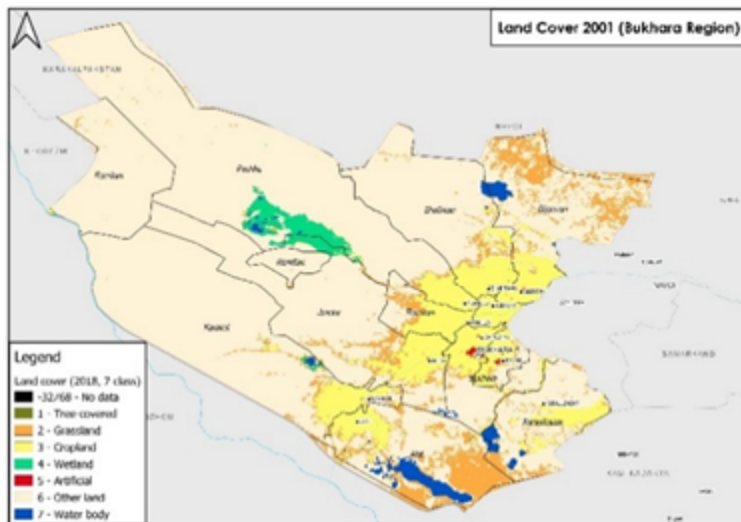
Figure 12. Summary of change in land cover

Navoi Region
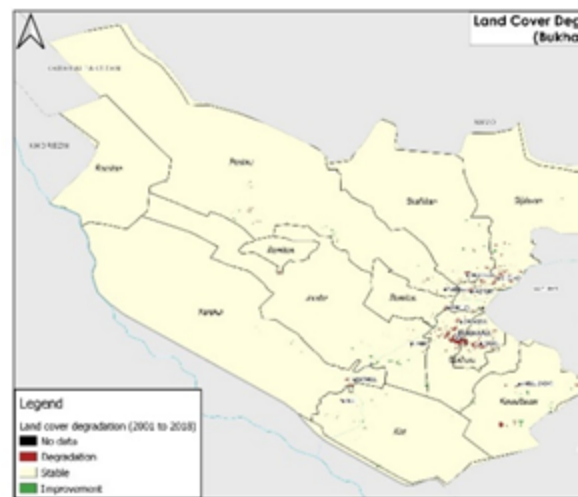
Bukhara Region

Table 11. Summary of change in land cover

	Navoi Region		Bukhara Region	
	Area (km2)	Share of total land area (%)	Area (km2)	Share of total land area (%)
Total land area	108 779.4	100.00	39 529.9	100
Land area with improved land cover	1 252.7	1.15	57.8	0.15
Land area with stable land cover	107 382.9	98.72	39 313.7	99.45
Land area with degraded land cover	143.7	0.13	158.4	0.40

CARBON STOCKS

127.   Soils are the largest terrestrial carbon basin, and their biogeochemical processes regulate the exchange of greenhouse gases with the atmosphere. GHG emissions are closely related to such factors as land use, vegetation cover and soil management. Topsoil stocks of organic carbon (SOC) respond to these factors and can influence on the level of greenhouse gases in the atmosphere.

128.   The dominant processes that govern the balance of SOC stocks are carbon input with plant residues and emissions from decomposition. The inflow is controlled by how much produced biomass is withdrawn as products and how much remains as residues. Outflow is mainly influenced by management decisions that affect microbial and physical degradation, such as the intensity of tillage. In

addition to human activities, soil carbon dynamics are influenced by climate variability and other environmental factors.

129.   In Bukhara and Navoi Regions, the irrational use of land resources in agricultural activities is one of the main reasons for the imbalance in the soil carbon balance. Soil cultivation during cultivation of crops includes annual plowing with a moldboard plow, harrowing, milling, chiseling and cultivation of row spacing after irrigation of row crops. The practice of zero tillage is demonstrated only within the framework of international projects (FAO, GEF Small Grants Program, etc.).

130.   As a rule, all plant debris that could serve as a source of carbon are removed from the fields. However, in some areas, farmers use technology of sowing winter wheat in the row spacing of growing cotton without main tillage, thereby reducing the number of treatments. Irrigation along the ribs screened with polyethylene film, which reduces not only water consumption, but also greenhouse gas emissions, was introduced on the area of ??1800 hectares in Bukhara and 2200 hectares in Navoi Regions in 2018-2019[36][34]. But such resource-saving methods are not normal in current farming practice. It is possible to achieve the growth of soil organic matter by widespread introduction of advanced methods of agronomic practice: reducing plowing to a minimum, preserving agricultural ?remnants? in the fields, mulching the soil surface with organic residues, using manure and other waste products of domestic animals as fertilizers. Due to excess load on pastures, lack of pasture rotation, overgrazing and degradation of vegetation are observed, which in turn leads to a decrease in soil organic carbon reserves.

131.   At present, a very low SOC content is observed in the upper arable layer of soil: in the soils of the Bukhara Region - within 0.56-1.58 kg/m2; in the soils of the Navoi Region varies from 0.50 kg/m2 to 2.59 kg/m2. The key to success is to stop excessive grazing, to create conditions for restoration of pasture flora and to start improving pastures by over seeding various types of grasses, creating pasture shelter belts and other measures. In this case, the growth of carbon content (sequestration) will increase, which will ultimately ensure sustainable use of rangelands. Figure 13 and Table 12 illustrate current SOC stocks in the 0-30 cm soil layer in the project areas.

Figure 13. Soil organic carbon content in the soils of the project area

Table 12. Changes in SOC content across the project areas, kg/m2

Bukhara Region	Navoi Region

District	Min	Max	Mean	District	Min	Max	Mean
Romitan	0,73	1,86	0,97	Tamdi	0,55	1,87	0,87
Karakul	0,72	1,98	0,98	Uchkuduk	0,50	1,45	0,81
Peshku	0,56	1,91	0,97	Kanimekh	0,54	2,30	0,90
Shafirkan	0,58	1,94	1,05	Kyzyltepa	0,53	2,31	1,29
Jondor	**0,65**	**1,92**	**1,18**	Navbakhor	0,91	2,49	1,68
Gijduvan	0,66	2,25	1,12	**Nurata**	**0,79**	**3,02**	**1,60**
Vabkent	1,43	2,02	1,58	Khatyrchi	1,49	3,80	2,59
Kagan	0,70	2,40	1,50	Karmana	0,88	2,39	1,43
Bukhara	0,59	1,91	1,28				
Alat	0,56	1,93	0,99				
Karaulbazar	0,62	2,26	1,15				

Source: R. Ibragimov and other experts, UZGIP institute

Target landscapes: Jondor (Bukhara) and Nurata (Navoi) districts

Landscape selection process overview

132.   Selection of the target landscapes was carried out on the basis of multi-criteria analysis of the available data, findings and results of the previous national SLM projects in various agro-climatic areas and land-utilization systems of the country and the global DS-SLM project. Project specific criteria for the selection of **target landscapes** in Bukhara and Navoi regions in line with the LDN guidelines included the following considerations:

?   Existence of the multiple typical problems regarding natural resource management, such as land degradation due to natural conditions (wind or water erosion) and unsustainable use, complexity of terrain and geographic features, soil conditions, patterns of the local agricultural activities and lack of regulatory mechanisms leading to land degradation;

?   The importance of the agricultural sector to the region (GDP share and share of the population employed);

?	Land degradation severity and hot spots from the UNCCD indicator assessments;
?	Complementarities with other relevant on-going projects;
?	Contribution to the National LDN targets;
?	Existence of SLM practices (bright spots);
?	Diversity of land tenure governance;
?	Established linkages to the SDGs;
?	Degree of impacts in particular vulnerable groups;
?	Possibility of multiple benefits;
?	Landscape and social resilience;
?	Demonstrated community capacity for adaptive learning;
?	Diversity among beneficiary diversity groups;
?	Potential for replication in other municipalities.

133.   Project specific criteria for the selection of **target beneficiary profile** in Bukhara and Navoi regions in line with the LDN guideline include the following considerations:

1) Gender. Overall project goal = 30% women, with specific goals for certain outcomes / outputs as stated above, therefore preference is given to landscapes where they can be achieved

2) Age. 18-45 years and interested in sustainable agriculture, targeting mainly HHs led by people aged up to 45 years

3) Physical access to productive resources:

?   Clearly established access to land for at least 5 years after project end. Not necessarily via ownership but e.g. communal access to pastures, cropping land, unused land etc. 800 individual dekhan hojaligi plots up to approx. 1 hectare, ideally contiguous to each other in the two regions

?   Preference for sites with larger numbers of women farm owners/ female HH heads (in law/de jure) and secondly, where women are effectively managing farms as men migrate or other reasons (de facto HH heads)

?   Possibly also contiguous to with other projects working on SLM in order to maximize GEBs

?   Also ideally proximity to areas with interventions on sustainable value chains so as to boost socio-economic outcomes.

?   Poor/unsustainable access to water for crops and livestock watering points that can be improved through Project intervention

? HHs will have some access to labor (family, neighbors, hired from loans etc.). Likely to have under-employed adults in HH. Project could contribute labor-saving technology and facilitate support, especially to women headed households, for whom the requirement for some access to labor should be waived.

4) Capacities

? Extension services - some access. Project can propose improvements including by private sector, but some ongoing support would be important given long-term nature of LDN

? Markets. Access to big enough markets for proposed value chains after value has been added (distance, roads, transport etc.)

? Technology/ machinery - Few/ obsolete tools at HH level. Project may contribute better/ clean SLWM technologies and assets at both HH and community level e.g. drying/ cooling facilities, cold-storage transport

5) Capital/finance

? Most targeted farmers with low to medium Monthly income around the upper poverty line but not all from agriculture, with some steady income such as from pensions, salary/ remittances

? Presence of medium-size/larger farmers as catalysts of new SLWM practices at scale and as potential employers of agricultural/ agribusiness labor (indirect target beneficiaries)

134. The national experts conducted a comparative analysis of the criteria above and relevant statistical representation indicators on forestry, pasturelands, and irrigated areas for the districts of the Bukhara and Navoi regions (Annex Q) and came up with the long list of five potential target districts, three in Bukhara (**Peshku, Romitan, Jondor**) and two in Navoi (**Nurata, Kanimekh**). The initial long list of five target districts with target landscapes proposed for the project implementation are illustrated Annex O.

135. Pasture regression and overgrazing in rural areas are widespread in Romitan, Jondor, Karakul, Peshkun, and Karaulbazar districts of Bukhara region and Kenemekh and Kyzyltepa districts of Navoi region. Two large districts in Navoi region, Tamdi and Uchkuduk, located in the northeast and central part of the Kyzylkum desert, have large pastures and forest lands, but the largest mining and metallurgical enterprises and various industries have been dominating development in this region. The analysis shows that climate aridity, infertile soil cover, lack of surface water sources and poor infrastructure limit opportunities for improving land-utilization and effective development of the agricultural sector in these areas. The situation is aggravated by institutional barriers and difficulties associated with the low potential of the district departments of the Ministry of Agriculture, the State Committee for Forestry, the lack of scientific and research institutions, weak capacities of organizations responsible for the management and use of pastures and the expansion of SLM. It is necessary to envisage wide involvement of local institutions and specialists from these regions in the LDN's program of activities on institutional capacity building and knowledge management.

136. Further to development of the long list, national consultations were held with the Ministry of Agriculture and the State Committee on Forestry on policy and institutional aspects, including

potential, opportunities and capacities. Based on these, a short list of two target districts was developed and includes **Jondor district (Bukhara region) and Nurata district (Navoi region).**

137.   The selected transect chains that intersect pasture and forest lands in Bukhara and Navoi landscapes are the most typical in terms of the situation faced by desert and semi-desert communities in Uzbekistan. Natural prerequisites for desertification are related to climatic features. Seasonal temperatures are extreme - +30-40C in summer and -20C in winter in both regions. Sands of Kyzylkum desert vary from red to golden color, coarser in fraction and are not so exposed to salinization processes.

138.   The pastureland pressure and SLM and restoration potential in the selected transects in the areas are classified as medium and highly degraded due to anthropogenic impact. Overgrazing around wells and settlements leads to destruction of sandy soils, vegetation covers and formation of small sand dunes near settlements. Deterioration of physico-chemical and agronomic properties and decrease of organic matter content causes deterioration of productivity of irrigated lands, classified mainly as medium and low fertile soils. There are no surface watercourses in the project area, but there are abundant reserves of fresh pressurized groundwater.

Ecological contexts of Jondor and Nurata districts

139.   Jondor and Nurata represent very different ecological contexts. Topography and river network show that Jondor provides headwaters for several lesser tributaries and the Nurata district has a clearly marked catchment areas between the mountainous ridges running east to west. The values the average annual accumulated precipitation are very low, but a spatial pattern can be clearly seen with more rainfall in the Nurata District decreasing in the direction of Jondor District. The maps of Land Cover classifications (Annex U) show clear east/west differences in growth cycles and growth potential under favorable conditions. Specially, the maximum NDVI seems spatially related to precipitation pattern which in this environment is clearly a limiting factor.

140.   Likewise, there is a range of behaviors in the district land cover dominance that will be further explored, but the differences between the two selected districts are clear. As a general rule districts in Navoi have more land classed under the Grassland class while those in Bukhara have larger extents of the Other Land realm.

141.   The consensus map results show negative trends in Nurata on both sides of the Zarafshan River valley (where irrigated agriculture occurs). Many of those areas are grasslands/shrublands and rain-fed agriculture that both in this and the LPD model shows clear signs of decrease in primary productivity. These are the areas that have the most Land Potential, in which soil fertility and soil seed banks allow for vegetation take advantage of rainfall. Most models also show negative situation in the middle part of Jondor, just where the irrigated agriculture ends.

142.   Also, most models agree that to the West there are is more stable situation, in both irrigated land and in the bare/desert areas there are patches of improving condition in many models. The irrigated is actually a cluster with small patches with different behaviors, overall increasing productivity that is clearly related to agriculture intensification that could indicate increase water usage.

But also, negative situations are present at many plots that could indicate different issues affecting land productivity in cropland, i.e. Salinity.

143.   The situation of the bare/desertic lands is something different, though a greening is possible because the vegetation is adapted to respond very quickly to tiny improvement in climatic conditions (more precipitation, less frost). Nevertheless, the driver of this greening may not be ecologically (or productive) significant; it could be a response to increasing atmospheric CO2 concentrations or be just a momentary part of a long-term natural cycle that is not related to human activity.

144.   Jondor has a high number of observed fire points, something worth considering for project implementation and LDN outcomes. Fire activity is interesting from various pastoral perspectives. If crop stubble is being burnt, an available fodder resource is being lost, valuable nutrients are being removed and GHG emissions are increased. If old, dry, oxidized pasture is being burnt by pastoralists to create ?green pick?, then it means grazing opportunities and patterns are not being optimized or planned at a landscape level. Nevertheless, in the case described here, Fire points are associated mostly within Cropland areas and not over large grassland areas.

145.   In Jondor, most of the areas are in stable condition but there is 90,000 ha of Other Land that presents early signs of Decline. In Nurata, on the contrary there are 500,000ha of Grassland undergoing different types of negative trends within the productivity analysis. This is important to consider in the context of LDN where there is a Response Hierarchy that prioritize the following order of actions (avoid>reduce>reverse). A general overview was given in the district analysis with Jondor associated to Avoiding and Nurata to Reducing and Restoring activities, but inside each district there are diverse situations and a smaller scale of analysis could improve land management options.

146.   Key variables of LDN Baseline are shown in Figure 14 and 15 below. Annex U provides methodological details of the analysis and additional maps for consideration by the project team along with the recommendations on how to use/adopt it during project implementation.

Figure 14: Land Cover composition of the districts according to Copernicus GLC 2019.
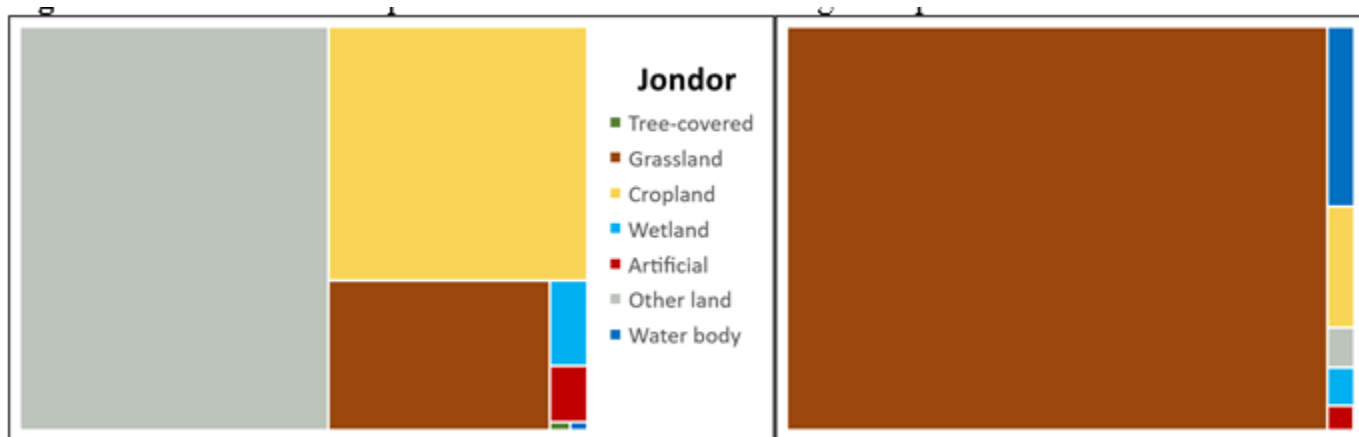
Figure 15: Land Productivity Dynamic class composition for the districts
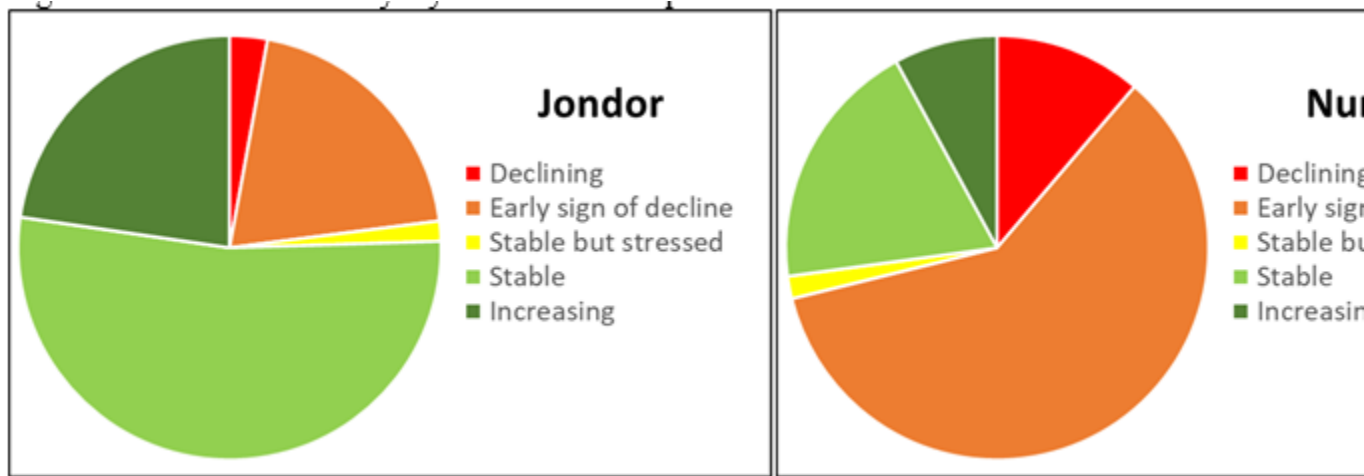
147.   Taking into account the mapping results and observations above, the following considerations are integrated into the project design:

?   From a country-wide, national perspective, those areas that show potential for growth under favorable conditions are the areas showing higher rates of degradation. The less productive areas are typically more stable, yet provide a reduced contribution to livelihoods and economic productivity.

•Activities in the areas with higher potential for biomass growth should also provide higher ROI as compared to those areas classed as stable under Bare lands classifications. However, if clear links can be established to landscape processes, there could be sufficient economic basis to realize activities to increase their ecosystem services.

•Scaling down to the district level of analysis, Nurata is a clear representative of a region that has many interesting features for this type of project, like more mountain, better land potential with more rain and grasslands, but also huge areas with decreasing productivity. Hence this region requires immediate actions to **Reduce** land degradation and **Restore** ecosystem services with sustainable land management practices.

•Using the ?Basin? approach, LD seems to be especially prevalent on mid-slope and foothill areas in Nurata. This should be considered when designing landscape scale management plans.

•Jondor, on the other side represents a region that is naturally less productive due to harder conditions which in turn may be making it exploited and less degraded. This is a type of fragile environment that if overgrazed could quickly lose ecosystem services, making it unusable for further grazing until it recovers. Under this scenario, **Avoiding** degradation should be the aim SLM in this area.

•As mentioned earlier, the low potential productivity needs to be viewed through an economic lens to determine if investments will provide a reasonable ROI. The Basin approach can support this process, especially if activities and investments are targeted to reducing impacts from intensive agricultural practices and inputs.

Participatory landscape selection

148.　　A basic field survey and stakeholder consultation process was conducted to further support the mapping process. Local stakeholder consultations in Nurata district (Navoi region) and Jondor district (Bukhara region) were held by the national PPG team during the summer of 2020. The purpose of these was 1) to raise awareness of local stakeholders about the objectives and expected results of the proposed project, to discuss the current system of pasture management and use, problems and opportunities to overcome them under the conditions of high risk and danger of COVID-19 situation, and to identify jointly with the project beneficiaries the most acceptable and reliable SLM options, using FAO LADA/PRAGA tools for implementation in the project area of Bukhara-Navoi district.

149.　　Over 45 people participated in the stakeholder groups' consultations and meetings in two districts, including the following target groups: 1) Representatives of local authorities, with the participation of decision-makers (representatives of district khokimiyats), 2) Specialists of district branches of agriculture and forestry, 3) Cattle breeders, farmers, dehkans, including women (representatives of rural citizens' councils). Particular issues for discussion included the following:

1. Pasture use, rights and obligations of the users;

2. Access to pastures, dependence of access on social status;

3. The discrepancy between the current system of pasture use and the legal framework;

4. Current status of pastures, factors (natural and social) affecting pasture management. Pasture quality dynamics availability of good quality pasturelands.

5. Availability and types of SLM for pastures (technologies and approaches). Who is involved in pasture improvement?

6. Existing opportunities related to animal husbandry.

7. Priorities for the project focus for pasture management and productivity.

150.　　The consultations were organized in two groups each in two districts, one on pastureland problems and opportunities, and the other on general land degradation problems and opportunities. The summaries of each group are presented below. Detailed overview of the discussions on two topics are presented in two Annexes: Annex O and Annex N. The stakeholder consultation program and the detailed list of participants in Nurata and Jondor is presented in Annex I2.

151.　　Key findings and discussions on general project priorities:

1. Participants in all three stakeholder groups showed great interest for the project and expressed their full support and willingness to cooperate.

2. There is a high demand for assistance from both, the local authorities and pastoralists in regulating the grazing system and technologies for improving pastures and increasing animal productivity.

3. When asked what objectives the project should focus on to improve rangeland management and productivity, many replied that there is a need to expand rural small-scale production, develop value chains (fodder production using valuable drought-resistant fodder crops, halophytes), diversity rural livelihoods, especially for women, because many problems

depend on the financial condition of farms and households to resolve. Development of a system for procuring and processing primary livestock products and marketing was also expresses.

4. The small size of the overwhelming majority of livestock producers creates significant difficulties for the application of modern technologies and limits potential opportunities, which leads to relatively low efficiency of the sector. Therefore, the project should focus on small producers as the most vulnerable groups of livestock producers.

5. To increase female employment, it was proposed to establish weaving shops, which would provide not only employment, but also raise the status of women in the family budget.

152. Key findings and discussions on land degradation technologies and approaches:

1. Issues related to the status of vegetative cover within the transects in Nurata and Jondor districts (?bad?, ?medium?, ?good?) and technologies to restore degraded pastures and improve low productivity pastures were discussed together with the farmers' and dehkan community. The consultants proposed for discussion SLM technologies developed in the framework of scientific programs of the Karakul and Desert Ecology Research Institute (Samarkand) and SGP/GEF projects, FAO, which adapted a number of technologies for local conditions. After discussions, the session participants approved the proposed technologies and their technical feasibility for application in the local conditions (with financial support of the project).

2. Recommended technologies include improving management (rotation and pasture rotation), improving vegetative cover (forest belt, planting seeds of natural grasses/plants), improving forage production through growing drought resistant desert forage plants on rein-fed areas, reforestation and agroforestry reclamation of land, while contributing to climate change mitigation. The overview of the proposed technologies and approaches can be found below.

153. Available 22 field survey points for the Jondor and Nurata Districts characterizing the land use, coordinates, altitude, vegetation type, average shrub cover, physical description, and stakeholder inputs are presented in Annex U. The results for the stakeholder surveys show emphasis on diversification of agricultural activities and an overall lack of integral, participatory processes that encompass land users, provide equal access and set stakeholder-endorsed goals for commonly managed natural resources. In spite of producing the vast majority of livestock-based products, smallholder Dekham farmers often do not have sanctioned access to local pasture areas or infrastructure. The proposals obtained from the stakeholder consultations were also commonly based on individual needs and objectives rather than shared goals or collective action proposals. The field surveys for the most part supported the mapping results but also provided clues to the extent of abandoned croplands in the districts. These areas today are commonly used as ad hoc grazing areas, yet without investments in infrastructure or fodder plants needed to successfully transition the area to a new production type that could provide economic returns and sustainable livelihoods.

Land degradation assessment in target landscapes

154.   Assessment of land degradation hot spots was conducted based on the adapted LADA-regional methodology at the subnational level for the major classes of land use systems using available data, field materials and a set of vector and GRID mapping. As the first step, a Land Use System map was prepared for the two target regions[37][35].

155.   For integration of national units of land use into FAO LUS system compiling the information on climate, soils, landscapes and land use was conducted and digitizing of thematic maps, such as: (i) vegetation, (ii) forests, (iii) pastures, (iv) protected areas were implemented. The present borders of irrigated and rain-fed lands, cities and settlements and open water surfaces were defined with using MODIS 2008 satellite images. NSIU specialists have then prepared map of land use system in two formats: (i) Vector map ?ACILM LUS and (ii) FAO LUS map in GRID format.

156.   Attributes of vector maps ?ACILM-1 LUS and FAO LUS in GRID format are described in the Annex O. The national map of Land Use System consists of 25 classes of land use, each of them is divided into 3-4 sub classes depending on biophysical attributes of ecosystem, land use attributes and socio-economic features:

  ?   Biophysical attributes? a class of temperature regime, growing duration of crops, dominate soil units and landscapes

  ?   Attributes of land use ? dominant cattle type, cattle density, dominant crops

  ?   Social-economic attributes: population density, poverty.

157.   As the next step, online meetings and consultations with local and national specialists were conducted to identify the status of land degradation in target LUSs. The results of the local land degradation assessment using the LADA-WOCAT rapid land degradation assessment methodology by land-utilization system classes in Bukhara and Navoi regions are presented in the Annex O.

Proposed SLM technologies and approaches

158.   Figure 16-17 summarizes the results of the analysis on status of land degradation in target landscapes and the proposed promising SLM technologies and approaches and their costs using the LDN hierarchy of response measures (avoid>reduce>reverse).
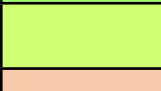
Figure 16. Map of the proposed SLM options in the Jondor transect (Bukhara region)
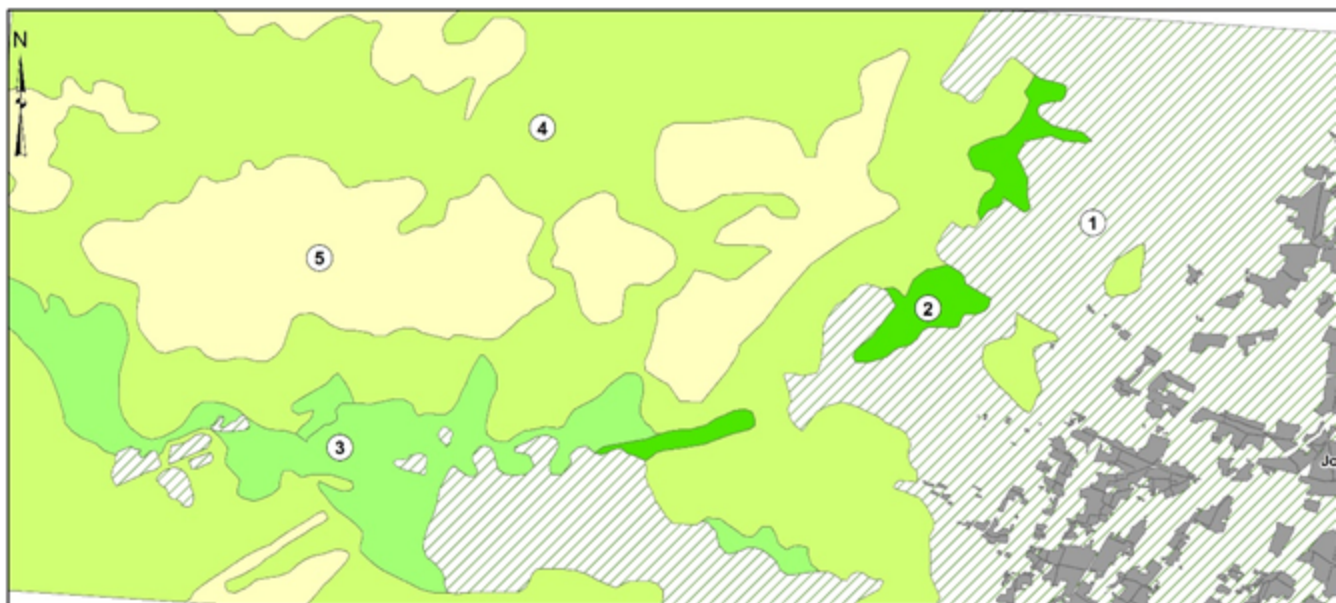
Source: *Source:* R. Ibragimov and other experts, UZGIP institute

Legend of SLM technologies in the Jondor transect

Polygon number	Colour	Contour characteristics	Degree of LD	Numbers of recommended technology	Cost Rate
1	☒	Irrigated land	Salt effected	9,10,11,13-17,19	High cost
2		Pasture with good density of vegetation cover	not degraded	1, 2, 5, 19	Low cost
3		Pasture with good density of vegetation cover	not degraded	1, 2, 5, 19	Low cost
4		Pastures with sparse vegetation	moderately degraded	1, 2, 5, 19	Moderate cost
5		Pastures with very sparse vegetation	moderately degraded	1-5, 19	High cost

Figure 17. Selected SLM options in the Nurata transect (Navoi region)
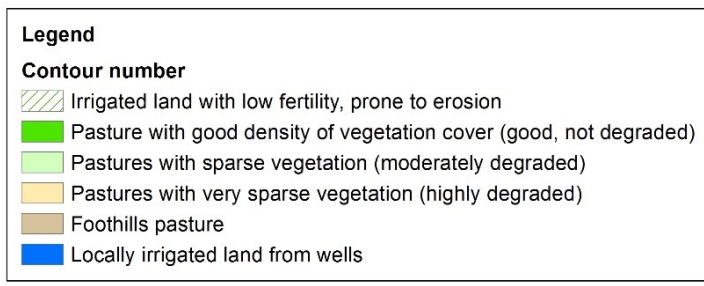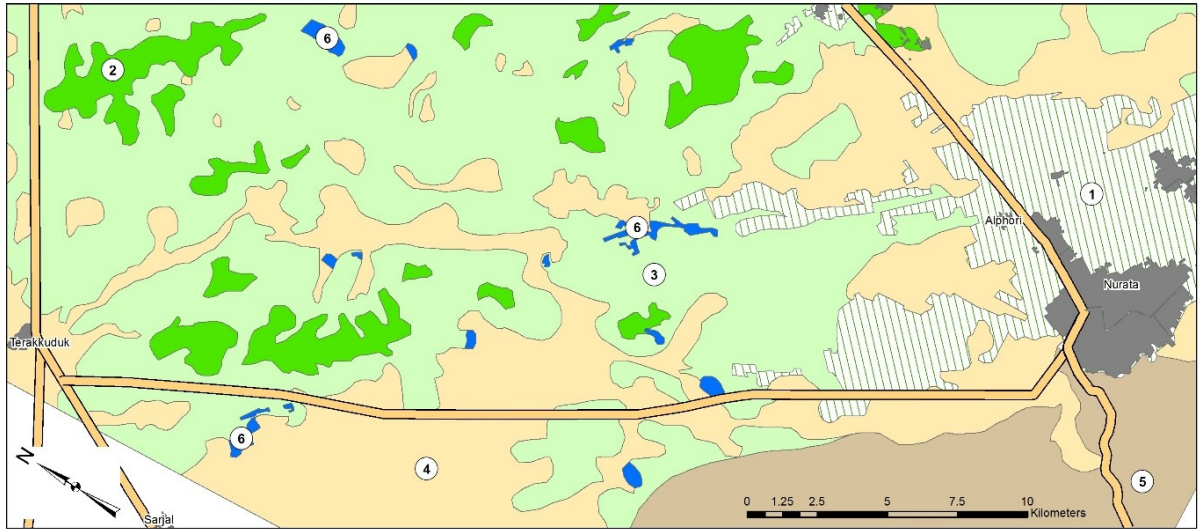
Source: R. Ibragimov and other experts, UZGIP institute

Legend of SLM technologies and approaches in the Nurata transect in accordance with the land degradation status and LDN hierarchy of responses

Polygon number	Colour	Land cover classes	Degree of LD	LDN hierarchy of response measures	Numbers of selected SLM technologies (see Table 13 below)	Cost Rate
1	❌	Irrigated land with low fertility, prone to erosion	moderately degraded	Reduce LD	9,10, 12-17, 19	High cost

2		Pasture with good density of vegetation cover (good)	not degraded	Avoid LD	1, 2,4-8, 19	Low cost
3		Pastures with sparse vegetation	moderately degraded	Reduce LD	1, 2,4-8, 19	Moderate cost
4		Pastures with very sparse vegetation	highly degraded	Reverse LD	1-8, 19	High cost
5		Foothills pasture	moderately degraded	Reduce LD	4, 7, 8	Moderate cost
6		Locally irrigated land from wells	moderately degraded	Reduce LD	13, 17-19	Moderate cost

Table 13. List of suggested climate-resilient SLM technologies and approaches

#	Name
Pasturealnds (desert and foothills)	
1	Pasture rotation
2	Creation of improved autumn-winter pastures in the foothill by sowing the seeds of natural plants
3	Accelerated rehabilitation of severely degraded pastures through fencing and production of seeds for over seeding
4	Cultivation of desert drought-resistant crops for fodder production
5	Pasture shelter forest belts in the desert areas
6	Planting of trees and shrubs on small terraces to increase productivity of eroded soils
7	Planting of trees and shrubs on terraces on land with large slopes
8	Improvement of land under arid conditions through the creation of pistachio plantations
Irrigated agriculture	
9	Crop diversifications on the salt effected soils introduction legumes
10	Forest strips to protect fields
11	Laser land leveling to rise on-farm water use efficiency
12	Contour ploughing on low slope land
13	Using compost as organic fertilizer
14	Production of biogas and use of waste from its production as bio-fertilizer
15	Drip irrigation and improved watering by furrow
16	Conservation agriculture (zero tillage, minimum tillage)
17	Afforestation for rehabilitation of degraded irrigated croplands
Local irrigation plots with artesian wells in the remote desert area	
18	Use of mineralized artesian water to organize irrigated crop farming in the Kyzylkum
Capacity building tools and other	
19	Farmer field schools (FFS)

159.   These technologies are listed in the SLM Global Database of WOCAT[38][36] that provides free access to the documentation of field-tested SLM data including SLM practices and maps from around the world. SLM practice can be either an SLM technology (a physical practice that controls land degradation and/or enhances productivity, consisting of one or several measures) or an SLM approach (ways and means used to implement one or several SLM technologies, including technical and material support, stakeholder engagement, and other). A brief outline of the sample of proposed climate-resilient SLM technologies and approaches is presented below. They have been tested in similar natural and climatic conditions within the framework of various projects, and screened for climate change risks and impacts during the project design. An elaborated long list and description, including visual diagrams, of the proposed technologies and approaches can be found in Annex R.

Technology 1. Rotation of pastures in the desert conditions of Uzbekistan[39][37]

160.   The pasture around the wells, where flocks of sheep are grazed, is divided into two sectors. The first sector is used in the spring, and the second one in summer. Each sector is divided into three rotational segments in which grazing is performed in turn. In the autumn, herd is driven to the second watering well, where two sectors are also used for grazing on a rotational basis, in autumn and in winter respectively. Based on traditional methods and approaches, the technology ensures balance between meeting the needs of local community of stock breeders and the need of pastures for self-restoration. The proposed technology was developed and implemented within the framework of the UNDP-GEF and the GoU project ?Achievement of stability of ecosystems on degraded lands in Karakalpakstan and the Kyzyl Kum desert? (2008-2011).

Technology 2. Creation of autumn-winter pastures in the foothill area[40][38]

When creating autumn-winter pastures, the allocated area is divided into strips 12m wide each with spaces of 12m or 25m between the strips. Spaces between the strips of 12m wide are left with poor grass stand, and 25m, when the grass stand of pastures is satisfactory, and it should be enriched with plants for autumn-winter grazing. In order to increase the productivity of pastures, the following types of desert forage plants are used: saxaul (*Haloxylon aphyllum*), prostrate summer cypress (*Kochia prostrat?*), eurotia (*Ceratoides eversmanniana*), keyreuk (haying) (*Salsola ?rientalis*), chogon (*Aellenia subaphylla*), wheat grass (*Agropyron desertorum*), atriplex (*Atriplex undulata*). The technology has been developed and is being implemented by the Research Institute on Karakul Breeding and Desert Ecology (Samarkand).

Technology 3. Accelerated rehabilitation of mid-mountain, highly degraded pastures[41][39]

161.   To restore the vegetative cover, the pasture area is fenced off, then, and then in the spring, seeds are sown with simultaneous spreading of mineral fertilizers. To restore pastures, it is preferable to over-seed with natural grass seeds. Grazing and cutting of grasses are not been carried out on this area for two years. Only the mowing of annual and perennial vegetation that is not eaten by livestock is carried out. At the end of the second year, the fence is removed and a new pasture area is fenced. In the following years, seeds are collected from the fenced-in areas to enrich other degraded pasture areas. After the restoration of pastures, introduction of pasture rotation and compliance with the load per unit of area is required, taking into account the state and productivity of a specific area of pastures.

161.

Technology 4. Cultivation of desert drought-resistant crops on dry land to increase forage production[42][40]

162.   For the population living in the rain-fed area, animal husbandry is the main source of livelihood, the share of which in the family budget is 80-95%. Creating a solid forage base for development of animal husbandry while mainstreaming biodiversity conservation meeting the livelihood needs of the population. Growing desert forage plants on dry land, such as prostrate summer cypress (*Kochia prostrata*), chogon (*Halothamus subaphylla*), eurotia (*Ceratoides Ewersmanniana*), atriplex (*Atriplex undulata*), etc., which are maximally adapted to soil and air drought, will create additional forage reserves, reduce the pressure on pastures and ensure a balanced nutrition for animals. Sowing of desert drought-resistant plants on the area is carried out in strips 5m wide with alternating different species. Such sowing arrangement ensures biodiversity and optimal density of vegetation cover. The technology has been introduced within the scope of GEF/FAO/WOCAT Project ?Supporting Decisions for the Promotion and Diffusion of Sustainable Land Management (DS-SLM) (2016-2018).

Technology 5. Pasture shelter forest belts in the desert areas[43][41]

163.   Pasture shelter forest belts create and improve conditions for the growth and development of native vegetation. They soften the microclimate and contribute to the accumulation of soil moisture, reduce the speed of winds, and protect the soil. Shelter belts are laid with a width of 25 m from large shrubs (saxaul, cherkez and kandym), with a density of 600-1200 pcs/ha. Landings are located perpendicular to the direction of the prevailing winds. Between the strips, natural vegetation is left, 200-250 m wide (for every 100 hectares of pastures, there are 10-12.5 hectares of forest belts). Forest belts form 10-12 c/ha of phyto mass and are a guaranteed autumn-winter forage for sheep and camels. The technology was developed at the Research Institute on Karakul Breeding and Desert Ecology (Samarkand) for restoration and improvement of natural ephemerous-ephemeroid vegetation on degraded pastures.

163.

<u>Technology 6. Planting almonds on shallow terraces to improve the efficiency of rain-fed lands and prevent erosion[44][42]</u>

164.   The rain-fed lands in Uzbekistan are located in the foothill zone characterized by low precipitation. Agriculture is limited by lack of natural moisture and soil erosion. Finding alternative solutions to improve the living standards of the local communities, whose main occupation is rain-fed agriculture and livestock raising, is important. Plantations of drought-resistant fruit trees on slope lands will increase the productivity of rain-fed agriculture and income of the local population. The proposed technology for improving the use of rain-fed arable land includes making shallow terraces on the slopes with planting almonds and other local drought-resistant tree species. An isolated area of agroforestry is fenced off from damage by livestock. The technology was applied within the scope of GEF/FAO global project ?Support for decisions to promote and disseminate sustainable use of land resources? (DS-SLM) (2015-2018).

<u>Technology 8. Improvement of land in arid conditions through creation of pistachio varietal plantations[45][43]</u>

165.   At present, the foothills are used mainly as pastures and as dry arable land. Due to insufficient rainfall, crop yields on dry land are low and unstable; pastures are mostly degraded due to overgrazing. For the rehabilitation of lands in the foothill zone and their further use on a sustainable basis, an alternative method of management is recommended that involves afforestation, in particular pistachios. Growing pistachios is 50 times more profitable than producing wheat on rain-fed lands. The technology is based on the use of the biological feature of pistachios to bear fruit in extremely arid conditions without irrigation; implemented within the framework of GEF SGP jointly with the SPC of decorative gardening and forestry.

<u>Technology 13. Using compost as organic fertilizer[46][44]</u>

166.   Compost is a high quality organic fertilizer containing nitrogen (1.4-2%), phosphorus (0.6-1.0%), potassium (1.0-1.5%), calcium (3.0-4.0%), humus (2-4%), organic matter (60-70%), and microelements and microorganisms that increase the biological activity of soil. Compost is used for all agricultural crops, especially for vegetables, as well as mulch. Compost increases soil moisture holding capacity, improves soil structure, water-physical properties and thus soil fertility. Any organic waste is used for production of compost, such as straw, rotten hay, sawdust, chopped bark, ash, paper, cardboard, weeds, fallen leaves, thin branches, vine clippings, reed stalks, corn cobs, potato vine, etc., by adding the layers of soil. The compost heap (height up to 2m, width up to 3m and random length) is laid in a shaded place on a layer of branches and vines, approximately 10cm thick., The compost is turned over to allow air to enter the heap and periodically moistened at least two times a month. After

each watering, it is covered with plastic wrap on top leaving openings for air access. With the onset of cold weather, the compost heap is covered with a layer of soil of 10-15 cm. Compost matures within 6-12 months. To accelerate maturation, it is also necessary to improve the quality of the compost by providing good oxygen access and to add fresh manure, slurry, liquid poultry manure to it.

Technology 14. Production of biogas and use of waste from its production as bio-fertilizer[47][45]

167.   In order to reduce GHG emissions from animal husbandry during storage and use of manure, a biogas production technology is proposed. This technology is also important for farms for their own energy supply and soil enrichment with humus in order to increase the yield of forage crops. In the process of biogas production, a concentrated organic fertilizer is recovered, free of weed seeds and pathogenic microflora. It contains 2-4 times more nutrients than conventional organic fertilizers, as well as humic acids, plant growth stimulants, amino acids. Liquid waste from biogas production, diluted with water in a ratio of 1:20, is used as plant nutrition at a rate of 1 t/ha per season. In 2015, the GoU adopted a decree on stimulating the construction of biogas plants. Production of biogas from livestock and the use of waste as bio-fertilizer of soil under fodder crops has been successfully completed within the scopes of a number of UNDP and GEF SGP projects.

Technology 16. Conservation agriculture[48][46]

168.   A no-till system is based on no tillage. To start zero tillage, the field must be carefully prepared: deep loosening, plowing, harrowing, milling, laser leveling. Zero-tillage crushes the straw after harvest and distributes it evenly across the field. No-till requires as much mulch as possible. Sowing is carried out with a special direct sowing seeder. Crop rotation is one of the key elements of no-till system; green manures play a large role in the crop rotation. To combat weeds and protect plants, pesticides are used. Advantages of no-till: saving fuel, fertilizers, labor costs, time, preserving and restoring fertility, reducing/completely preventing erosion, accumulating moisture in soil and, as a result, reducing the dependence of crop on weather conditions. The technology is widely adopted throughout Central Asia.

SLM Approach 19: Farmer Field Schools (FFS) [49][47]

169.   The majority of agricultural land in Uzbekistan is subject to degradation processes, among which the most widespread are (i) secondary salinization of irrigated lands, (ii) loss of soil organic matter; (iii) erosion of slopes and deflation of desert lands. The FFS approach promotes sustainable land use as it aims to educate farmers on best practices and techniques for rehabilitating degraded land and using it sustainably. The approach was applied in the framework of FAO TCP/UZB/2903 project ?Integrated management for sustainable use of saline and gypsum-bearing soils? (2002-2004) and can

be recommended for increasing the capacity of pasture users and local communities in Bukhara and Navoi Regions.

Target value chains: dairy, bee-keeping, and medicinal plants

170.   The socio-economic household survey conducted during the PPG revealed that the small-scale farmers are characterized by low incomes, with 40% of respondents reporting a monthly income of less than 1 million Uzbekistan Som (approximately 95 US dollars), which translates into less than the poverty line of $3.20 a day applied to Lower Middle Income Countries.[50][48] Small farmers also suffer from high unemployment levels - 15% of respondents are unemployed. Family farms are facing high operating costs. Most respondents can be described as *small farmers operating in family farms* of 4-6 people, with plots of up to 0.2 hectares (ha) and likely to be dekhan[51][49] farmers. Farming is important and farmers are interested in expanding production, but at present it is mostly for home consumption rather than for sale, with almost no ?value addition? being carried out.

171.   The project focus on value chain provides livelihood opportunities while releasing the pressures on land resources. Jondor and Nurata target districts are located in the desert zone where the main occupation of local population is animal husbandry. The practiced animal husbandry is directly relies on the use of the surrounding deserts as pastures and hayfields that also serve as sources honey and medicinal plants. The value chain begins with the production of the primary goods, ends with the consumption of the final product, and includes all economic activities carried out between these phases, such as: processing, supply, wholesale and retail trade[52][50]. The term ?value chain? refers both to a set of interdependent types of economic activity and to a group of vertically related economic agents.

172.   Criteria for the selection of the project target VCs overlapped with the criteria for the selection of the target landscapes. Extensive available data analysis complemented by the stakeholder consultation resulted in the prioritization of the dairy, bee-keeping, and medicinal plants value chains. Suitability for women?s participation was a key criterion (e.g. cultural acceptability, physical feasibility to ensure accessibility even for female heads of households with minimal labor, co-benefits for household food security and nutrition). The analysis conducted during the project preparation phase (available in Annex S) covered the socio-economic context of the value chain, demand for products in the value chain, analysis of institutional structure, analysis of markets for means of manufacture and products, functional analysis of value chain, economic analysis of value chain.

Jondor district

173.   The population of the district is actively involved in animal husbandry, traditional processing of livestock products, and crops growing. Stakeholder consultations with the district administration and local baseline conditions indicate a significant economic potential of generating incomes through

improved agricultural production, in particular beekeeping for self-consumption and sale. Demand for the processed **dairy** products is relatively high. Over 97% of Jondor district is produced by the households. Farms are other livestock farms and produce the other three %. Likewise, the households own 95% of all cows in the district[53][51]. Around 4% of milk in the district is processed by industrial methods[54][52].

174.   The region has a milk processing plant and the milk is also sold to other neighboring areas for processing. A local system for collecting milk from dealers is relatively established, and the purchase prices for milk are sufficient to satisfy the parties. At the same time, the difference between the purchase price and the selling price is about 40%, which is a significant argument for the population's interest in adding value through local milk processing. In addition, the local population possesses traditional experience in primary milk processing, and the demand for products such as chakki (local sour cream) and homemade butter is high in local markets. The prices for these products are higher at local markers are than in other regions of Uzbekistan.

175.   Almost 40% of the households of the district to one degree or another, are engaged in **beekeeping**. The project will work along the value chains focusing on improved honey production practices and development of cooperation with the agricultural farms and dehkan (small-scale) farms in order to pollinate their cultivated crop fields.

Nurata district

176.   The main types of employment are permanent jobs in local institutions, textile and other medium-sized enterprises, and seasonal construction and agricultural work. About 5% of the population moved abroad for remittances. Over 95% of Jondor district is produced by the households. Farms are other livestock farms and produce the other five %. Likewise, the households own 93% of all cows in the district. Only 0.3% of milk in the district is processed by the industrial methods by two regional milk processing facilities[55][53].

177.   Local stakeholder consultations and household visits conducted during the PPG indicate a significant role of dairy farming in the family's economic activities. While the regional demand for dairy products is low, certain part of milk is sold and makes up a bulk of funds for the purchase of concentrated feed and fodder. Despite being labor-intensive and the high costs of feed, household heads are keenly interested in dairy farming to increase the family income. Both local authorities and local residents expressed the interest for the project to create industrial milk processing opportunities by creating a cooperative or by attracting private entrepreneurs from among local residents.

Target value chains

178.   Beekeeping has a potential to improve the incomes of the local population and deliver ecosystem services. One bee colony can provide the bee-keeper with income of UZS 350,000 (appr.

US$30) and each colony has the potential to increase the yield by pollination in the amount of UZS 3.2 million ($300)[56][54]. Lack of skilled human resources low quality land for the forage crops production are the main constraints for the development of the VC. Beekeeping is associated with relatively high risks associated with the complexity of knowledge and skills, climate and climate change factors, as well as diseases and extermination by birds and other pests. Building on the VC analysis conducted during the PPG (Annex XX), the feasibility of beekeeping expansion in the desert areas should be further analyzed. Overall in the country, 89% of honey is produced by the local population; 15% of honey in Uzbekistan is produced in the Bukhara region, and 8% in Navoi.

179.   Dairy has a potential to improve the incomes and food security of the local population and release pressure on the nearby pastures. The bulk of livestock production falls on the households. Non-dairy cattle grazes on the nearby and remote desert pasturelands, while dairy cows are raised in stables. Milk markets in the country are limited to the boundaries of the village. Large wholesale buyers do not buy milk because they are not sure about the quality. At the moment, the range of milk products is limited to fresh and sour milk. The lack of incentives for the sustainable transition of dairy cattle to intensive breeding, changes in the breeding composition of animals and a lack of skills in commodity production, a lack of the sufficient feed base, insufficient attributes of cooperation in marketing and processing milk are the main barriers for the development of the VC. Information about the possibilities of obtaining loans is insufficient for registration, although limited funding from the government programs exist.

180.   The district administrators are interested in creating feed production facilities within the households and/or their integration with larger farms. Opportunities include the production of cream, butter, cottage cheese and require investment, access to improved production practices to reduce labor costs, and improvements in the local marketing channels for skim milk. As 80% of milk is produced by women, improved dairy VC will increase opportunities to incased women?s incomes. Preliminary assessments conducted during the PPG include the following indicators:

?   Reduced production costs by 20

?   Increased incomes by 25% compared to the baseline levels

?   Increased number of dairy products to 10 types, in accordance with the quality and marketing standards

181.   Medicinal plants. The collection of medicinal plants to date is disordered and does not include determining the composition and quality of plants. Plants are often collected from the forestry areas (leshoz) and taken to the collection points raw. ?Shifobakhsh? LLC further collects the products, processes them and sells throughout the country. Local processing and packaging of medicinal plants is limited. Therefore, a significant part of the value created on the basis of medicinal plants does not remain at the local level. Local population is also engaged in collection of medicinal plants according to the local traditions, which often lacks any standards, definition of the plan composition or quality (traces of elements). The collection is often carried out in areas with a high degree of pollution, such as roadsides. Streamlined collection and sale of medicinal plants for dekhan farms and larger farms will

increase livelihood opportunities and improve environmental benefits by reducing unplanned depletion of forest resources.

Barriers to LDN

Institutional weakness

182.   At the policy level there are serious gaps related to integrated management of grasslands and forests, and a lack of a harmonized agro-environmental strategies and financing mechanisms that could support the implementation of LDN and institutions lack relevant information to mainstream SLM. Despite being integrated within the boundaries of the landscapes and administrative units, the responsible Government agencies do not have a joint operational framework and instruments for spatial, local and administrative planning, and tools for agro-ecological zoning are lacking. Pasture planning, monitoring, and management is therefore not practiced at local, sub-national and national scales. Moreover, land tenure issues urgently need to be addressed: while 90% of animals are in private ownership, access/rent of pastures is unclear at various levels ? from decision-makers to the farmers, and often utilisation of rangeland resources is not legally sanctioned for Dehkan famers, though they constitute the majority of national livestock production.

183.   Unlike dehkan farms, farm enterprises are legal entities, and their activities are strictly regulated by the law. They are models that the GoU promotes as efficient production units. However, they constitute a minor fraction of national production. Therefore, to ensure sustainable intensification of livestock development, there are a number of policy gaps that must be addressed to allow the sector to stabilise and grow, with especial attention to two primary issues affecting land-use:

   (i) Negligible access to pastures or communal livestock support infrastructures. It is a fact that livestock production of cattle, sheep, and goats and to a lesser extent camel takes place on rangeland and forested areas around urban settlements and farm units under precarious conditions. Regular sector restructuring (on average, every 5 years) in the name of efficiency and to maintain national cotton and wheat quotas led to Dehkan farmers to invest in Horticulture and animal husbandry as refugee production types and livelihoods. In spite Dehkans being responsible for the vast majority of livestock and their products, they have not received support to transition to these livelihood strategies, nor have a legal basis for utilizing local resources.

   (ii) Policy constraints to diversification and investment in forage production on irrigated lands. From a policy perspective, there exist clear disincentives to forage production on irrigated land that can range from not receiving water in times of scarcity, to not being capable of accessing farm inputs in the form of fertilizers, pesticides or other soil amendment additives. This took the form of a decrease from 1 million ha or 24 % of total sown area under fodder crops in 1992 to only 333,000 ha in 2016, in spite of consistent growth in animal numbers over the same time period. The impact has been especially hard on the Uzbekistan?s landrace Alfalfa varieties that were traditionally planted in rotation with cotton or wheat.

Indeed, the majority of those surveyed in the HHS stated that access to feeds/forage were significant barriers to increased production and growth of HH industries.

iii) Action strategy for priority areas of development for 2018-2021 and the Concept for Agricultural Development by 2030 are directly aimed at promoting SLM, but SLM extension models by development stage are not planned

Lack of a unified, real time data collection and monitoring systems to inform landscape planning at local, sub-national and national scale and the scientific knowledge

184.　Most data needed for decision-making on land management is outdated, fragmented and/or relevant to one land cover system or irrelevant or unfit as a baseline indicator. The most recent geo-botanical assessments were done in the 1970s. There is only one institute in the entire country that works on desert pasture ecosystems (Samarkand); the capacity is insufficient to raise the importance of the issue, nor connect the results into a larger DSS. Adaptive livestock management standards or knowledge does not exist and there is no data on the number of functioning or defunct wells, their status or funding strategies to improve on existing watering resources. A comprehensive pasture inventory (quantitative and qualitative) does not exist. Access to technological and practical know-how limits responses oriented towards resilience. The local communities have no access to knowledge-based materials on alternative practice and their benefits. In addition, there?s a lack of reliable information, accounting and monitoring of livestock. Accurate record of number of animals in the republic should be kept by veterinarians, but they also have not entirely reliable information on the number of livestock in the population.

High perceived risk of new technologies

185.　Consistent sector restructuring, reallocation of lands at expense of official lease agreements, limited access and cost of agricultural inputs, machinery and materials, a general lack of knowledge of SLM or agricultural Best Practice and a national legislation that priorities larger, intensive production models has led to a rural population that is overly cautious in their investments and efforts in innovation and value-adding. In fact, the majority of the rural HH interviewed did nothing to value add their products and consumed most of their production output within the HH.

At the same time, those interviewed viewed the lack of access to markets due to physical infrastructure and roadways, indicates most view the area as having limited business opportunities and returns on investment. Therefore risk, either real or perceived, is a substantial barrier to introducing SLM or innovative VCs to the pilot areas.

186.　This is especially true for extensive livestock management on lands that have ill-defined tenure systems or capacity to enforce by-laws and national regulations. SLM concepts in dryland pastures under communal management are not oriented towards resilient production systems based on the integrated landscape approached. Small farmers predominantly believe that the best way to minimize risk is to maximize the number of livestock, with little regard for pasture or ecological health and function. This increases when future access to the area could be restricted at any point.

187.   Furthermore, small farmers are generally risk averse even under optimistic socio-economic conditions, hence they are slow and reluctant to adopt new technologies or practices believing that they result in higher investment with low results. This is also coupled with the absence of real efforts to scale-out and/or introduce improved technologies and approaches on pasture management. The production of livestock products in the dekhan farms is of great social importance, since it is an important source of income and consumption for a significant number of families. However, the small size of the livestock production facilities makes it difficult to adopt and use modern technologies and to reach ?economies of scale?.

Lack of awareness on ecosystem services derived through extensively managed rangeland and pastureland areas at various levels, from upper decision-makers to farmers

188.   Pastures, rangelands, drylands, deserts and the various expressions of shrublands and forest are not perceived to generate important ecosystem services. This stems from traditional viewpoints of productivity based strictly on rainfall patterns and intensive European-based farming standards. Evidence of this is the fact that 54% of respondents to the HHS said that ecological trends in the area had remained the same, 23% said that LD had decreased in the area and only 14% said LD and its impacts were worsening.

189.   However, this undervalues the services that are provided. Desert shrubs and grasses are often highly nutritious forages that can survive and produce palatable biomass under extreme conditions. They lock mobile sands, protect soil resources from extreme temperatures, sequester carbon and provide organic matter to soils and support local biodiversity. Water resources are also a component of dryland areas, although we tend to overlook rangeland contributions; for example, the Wadi Jizan in Saudi Arabia is around 1,100 km? and the estimated surface flow to Jizan Dam is 90 million cubic meters per year, although it is found in an area that typically receives around 100mm of rainfall a year. Linked to value are issues of care and maintenance; in order to increase the latter, value must be perceived by those who manage the resource on a daily basis.

Lack of capacity and inefficient extension services

190.   According to HHS results, the majority of project beneficiaries and stakeholders have completed University or at least secondary schooling, yet 80% of respondents have not been trained in agricultural production or business management. Those that did (19%) received such training 5-10 years ago. Membership by locals in farmer associations or outreach groups is limited. 72% of respondents they had no access any source of information on agricultural methods and practice and those that did generally obtained information from the media or internet sources. At the same time, internationally recognized research institutions have operated within the country, providing key information and knowledge on issues of land productivity and breeding. However, from the different sources accessed during project design, extension work and translation of this knowledge and

experience to the Dehkan and other small-scale farms and producers is a significant gap. Deficiencies also imply a lack of human and physical resources needed for capacity building at the scales needed to transition rural communities to more sustainable, value-added agricultural production systems and value-chains.

Difficulty in accessing finance and technologies

191.   Like other regional neighbours, the Uzbek agricultural sector has steadily lost importance in relation to GDP. Most respondents to the HHS supported these claims, with the majority of households relying on off-farm employment or other income as their primary sources of HH income. Within the agricultural options, livestock were the assets that provided the primary source of income. Around a third of respondents also reported a need for external financial support when facing unexpected expenditures, and access to financial services was stated to be important or very important. For those who were not able to access financial services, it was apparent that investments in expanding or improving existing agricultural production systems were not considered as priority and only a small %age owned or had access to farm equipment. Lack of demand and offer of investment in the agricultural sector typically points to underlying structural problems that are closely linked to the other barriers presented above.

2) Baseline scenario and any associated baseline projects

192.   In Uzbekistan, a number of policies, laws, regulations, and strategies are addressing sustainable agriculture and pasture and forest management. They are outlined in the relevant section above. The following instruments and initiatives will constitute the baseline for the proposed project:

Economic instruments:

?   International Fund for Saving the Aral Sea

?   Forest development fund

?   Fund for ecology and environmental protection

?   Fund for land improvement of irrigated lands

?   Fund for state support of agriculture

?   State support of investments of national sectoral programs related to intensification, introduction of resource-saving technologies, energy efficiency and low carbon emissions

? State Program for Improvement of the Ameliorative State of Irrigated Land and Rational Use of Water Resources for 2008-2012, 2013-2017, 2018-2019

Baseline initiatives led by the State Committee on Forestry (SCF)

193. Investments in the forestry sector are covered by the state budget and by of each forestry organization?s own funds. The SCF has an annual budget of $7.5m. Presidential Resolution ? PP-2966 on ?Organization of activities of the State Committee on Forestry of the RoU?, which covers the period 2017-2021, stipulates the following activities for the target landscape:

194. *?Creation of shelterbelts?* ($6m). The Decree of the President of the RoU of August 23, 2019 No PP-4424 ?On Additional Measures to Improve Forest Use Efficiency? in the Republic? approved indicators for the creation of protective forest stands for protection against wind and water erosion, aimed at increasing the productivity of agricultural land and around land reclamation in 2020-2024, according to which it is planned to plant in an area of 1,100 hectares in the Bukhara region, in Navoi It is planned to plant a region on an area of 695 hectares.

195. In addition, according to the Order of the Cabinet of Ministers of the RoU dated May 4, 2018, No. 357-f was instructed to reduce the impact of wind storms and preventing the movement of sand and soil erosion in the regions of the Bukhara region to create during the period 2018-2020 years of protective forest belts (Bukhara green screening) on the area of 2012 thousand hectares. The Order provides for the transfer of 3 thousand hectares of the Green Screen area to the State Forest Fund, the establishment of a plantation of medicinal plants (Shumgiya wa Issirik) in an area of 3 thousand hectares.

196. The Resolution of the Cabinet of Ministers of the RoU dated July 24, 2018 ?On measures for the development of forestry in the Navoi region? according to which a decision was made to create a ?Scientific Center for the Development of Forestry in the Desert Territories? in the Navoi Region. The work of the Center includes the following issues: conducting research on the development of agricultural technologies for growing plants in saline and arid lands; development of measures to restore degraded pasture lands; development of innovative and promising methods of growing plantings; improving the condition of the lands of the forest fund; introducing innovative methods for creating protective forest belts, developing technologies to prevent the movement of sand and wind erosion, conducting scientific research on the creation of plantations of medicinal plants, introducing plants resistant to drought and the effects of diseases and pests.

197. *Afforestation activities, including establishment of forest plantations?* ($10m). Approx. 50,000 ha under the Bonn challenge are in the target area. A resolution by the President of the RoU dated August 23, 2019 under No. PP-4424 ?On additional measures to increase the efficiency of forest use in the Republic?, according to which the indicators for 2020-2024 were approved, including the following:

? Creation of forests on the lands of the forest fund in the Bukhara region from 8,676 hectares to 9,652 hectares, in the Navoi region it is planned to plant from 10,380 to 10,867 hectares of forest.

? Harvesting of seeds of trees and shrubs, in the Bukhara region the annual harvest is 133-151.6 thousand tons, in the Navoi region it is planned to harvest 99.4-113.3 thousand tons annually.

? 8,850-13,820 thousand units are planned for growing seedlings and seedlings annually in the Bukhara region, 6,050-8,790 thousand units in the Navoi region, including 9,138 thousand mulberry trees in the Bukhara region. Navoi region ? 5,483 thousand units.

198. Forest management activities, forest reclamation works, prevention of disease outbreaks and insect control ($500,000). A resolution by the President of the RoU dated August 23, 2019 No. PP-4424 ?On Additional Measures to Improve Efficiency of Forest Use in the Republic? introduced indicators for 2020-2024 as the following: on the creation of a bio-laboratory to combat diseases of wild trees in state forestry, including 9 bio laboratory in Bukhara region, in Navoi region 6 bio laboratory.

Baseline initiatives led by the Ministry of Agriculture (MoA) (absorbing functions of the State Committee for Land Resources, Geodesy, Cartography and State Cadastre)

? ?Identification of boundaries of administrative and territorial units and land surveying? ($9m). The investment follows a Resolution dated April 23, 2018 N 299 ?On measures for further improvement of administrative-territorial units, registration of land resources and geo-botanical survey of pastures and hayfields?. The resolution has a purpose of strengthening the state control over the protection and rational use of lands, systematizing the accurate record of land resources, increasing the effectiveness of agricultural land, including irrigated, non-irrigated and pasture lands.

? ?Geobotanical surveys on pastures and hay fields? ($1m)

? Land management program - loan from the World Bank

? State program on livestock, which aims to increase the number of sheep and goats by 4% (relative to 2017)

? Presidential decree No. 3603 on ?Measures for accelerated development of Karakul sheep breeding industry?

International baseline projects

199. Uzbekistan, as a signatory of the UNCCD, is committed to set and implement measures that meet the global commitments of LDN, and in this way, contribute to goal 15.3 of the SDGs to achieve LDN by 2030. Uzbekistan considers the concept of LDN as a tool aimed at preserving land productivity and ensuring economic sustainability and social stability of the population. The voluntary LDN target adopted by Uzbekistan is to ?By 2030, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world?. In accordance with the same Decree of the Cabinet of Ministers ?On Measures for Implementation of National Sustainable Development Goals and Targets for the Period up to 2030?, a Coordination Council on the implementation of national goals and targets in the field of sustainable development was created, ensuring inter-sectoral coordination and an integrated approach to achieving the SDGs. Subsequently, a Road Map was adopted to work out annual action plans, the system of indicators, and monitoring and reporting for each SDG. In addition to the three suggested

UNCCD indicators, a number of national indices were considered, concluding that while the methods and data are able to provide preliminary estimates, and further analyses were needed.

200.   In conclusion, the project builds on a solid baseline for each component with national policies, laws, regulations, and strategies that address sustainable agriculture and pasture and forest management already in place. However, better integration across the key sectors is required in order to design LDN interventions. In addition, investments need to take more of a landscape approach to scaling up in order to set and meet sub-national LDN targets for key land types, such as pastures, forests and agriculture. Learning and dissemination of good SLM and SFM practices also need to be strengthened in order to meet SDG15.3 targets.

3) Proposed alternative scenario with a brief description of expected outcomes and components of the

project and the project?s Theory of Change

201.   Sustainable and pasture and forest management using the landscape approach is required to restore the vast drylands of Uzbekistan and to increase the productivity and efficiency of the livestock sector. According to the recently released IPCC report on Land, SLM, including sustainable forest management, can prevent and reduce land degradation, maintain land productivity, and sometimes reverse the adverse impacts of climate change on land degradation[57][55]. Using an LDN approach can avoid, reduce and reverse land degradation, at scales from individual farms to entire watersheds, can provide cost effective, immediate, and long-term benefits to communities and support several SDGs with co-benefits for adaptation to and mitigation of climate change. The project will therefore promote SLM/SFM and landscapes restoration for achieving LDN commitments of Uzbekistan. Moreover, using the landscape approach[58][56] to integration across sectors and scales increases the chance of maximizing co-benefits and minimizing trade-offs.

3.1. Project strategy and Theory of Change

202.   The project will set a framework for the LDN targets implementation in two regions of Bukhara and Navoi in the drylands of Central Uzbekistan for upscaling at national level in line with SDG Target 15.3. The Theory of Change (ToC) for the project was developed to provide to assure quality of the intervention in the complex and multi-causal contexts. The ToC diagram (Figure 18) outlines a set of key causal pathways arising from the project activities and the assumptions underlying

these causal connections. It ensures stakeholder engagement throughout the lifecycle of the project; helps define and analyze monitoring data that contribute to continuous learning through the intervention; constraints the flexibility boundaries in the project to genuine adaptability justified by thoughtful amendments to the ToC and consistent with agreed goals, rather than being a result of arbitrary deviations; frames ex post evaluation; and aids learning that informs subsequent projects[59][57]. The ToC follows the STAP guidelines on the scientific conceptual framework for LDN[60][58] and takes a phased approach adapting the DPSIR framework[61][59] to the project needs.

Figure 18. Project?s Theory of Change (See File Uploaded in Portal under Documents)

Setting the vision and system characterization

203.   First, at PIF stage the country has selected two target regions of Bukhara and Navoi based on the national priorities, and the target landscapes of Jondor and Nurata districts (based on transparent selection criteria and stakeholder prioritization) at the PPG stage. The target regions, landscapes, and the selection criteria are outlined in the *National Context* chapter.

Setting the LDN baseline

204.   The LDN baseline is the land-based natural capital as measured by three global voluntary LDN indicators (land cover change (LCC), Net primary productivity (NPP), and SOC) and additional national impact, process, and stress-reduction indicators (See *LDN Monitoring System* in the ToC diagram). The ?LDN baseline? values on do not show land degradation status and differ from ?project baseline? that specifies the outlines the existing systems or current projects that the GEF project builds on and is described in the relevant section of Project Justification.

205.   Each of the *impact indicators* assesses a different aspect relevant to LDN: LCC detects the human actions that drive land degradation and its reversal; land productivity reflects the impacts of those drivers on plant production as a measure of ecosystem function; and change in the SOC stocks, which responds more slowly, indicates the change in productive capacity. The project document provides details on the proposed methodologies for measuring the indicators. Additional national impact indicators have been proposed by the GoU and further verification, including methodological development for participatory data collection and assigning the responsible parties within the Government. This will be carried out under Component 1 (see Annex H Work Plan). National Indicators section of the National Context chapter outlines further details.

206.   National *impact indicators* include the following:

?   Area under tree-nut plantations (pistachio, walnut, almond) (ha, expansion)

?   Share of forage crops in the total structure of the sown area (%)

?   Area under the vegetation and forest cover (ha, expansion)

?   ?Soil bonitet rating? ? a soil quality index

?   Soil humus content

?   Rangelands productivity (PRAGA methodology)

?   Share of land with moderate and high salinity (%, reduction)

207.   *Process indicators* include the following:

?   Adoption of the LDN monitoring framework

?   Strengthened LDN monitoring framework:

o   Improved governance for pastureland systems

o   Number of sectoral and local authorities that report on improved legal framework supporting sustainable pasture management

o   Number of participatory land management plans

o   Number of people trained on SLM on pasturelands and investment planning (broken by group)

208.   *Stress-reduction indicators* include the following environmental and socio-economic indicators:

Environmental:

?   Increased amount of productive pasturelands and forestlands (13,000 ha restored and 225,000 ha under climate-resilient SLM) in Jondor and Nurata

?   Increased CO2 sequestration in pasturelands and forests (5.1 Mton CO2-eq)

?   Increased climate resilience of the landscapes

Socio-economic:

?   A number of farmers with access to advisory or extension services (total # per administrative district per region)

?   Increased investments in SLM

?   Number of awareness raising activities

?   Increased livelihoods and economic resilience through improved climate resilient bee-keeping, medicinal plants, and milk value chains

?   Improved food security

?   Increased social resilience and human well-being (Gender equality, access to information and finance)

?   Improved access to finance for small-holder farmers

?   Increased climate resilience of the local farmer communities

Establishing mechanism for neutrality

209.   Achieving LDN requires land managers to monitor land use decisions that may impact the neutrality, and estimate their likely cumulative impacts, so that these can be counter-balanced by reversing land degradation on the same land type, elsewhere. While Uzbekistan does not have established land use planning processes, the project will develop participatory integrated land-use plans in Bukhara and Navoi (Output 2.1.2) and manage counter-balancing at the level stipulated in the plans. To ensure that counterbalancing measures do not diminish the well-being of land users, a statistically-sound socio-economic baseline analysis has been carried out in Bukhara and Navoi region (See *Socio-economic profile of the target beneficiaries* section of the *Area of intervention: Bukhara Navoi landscape* chapter). The aim of the study was to 1) get a better understanding of the target project beneficiaries, their livelihoods and constraints, complementing the district-level data, 2) to inform evidence-based target beneficiary behavioral change and to provide a tailored socio-economic analysis for the proposed bio-physical technologies and approaches, 3) to derive local gender-disaggregated data that are unavailable at the district level, and 4) advise the LDN policy agenda.

210.   Clear physical boundaries of the grasslands and pasturelands as well as land tenure boundaries are essential to prevent conflicts and avoid illegal changes of land use (e.g. from pasture to arable land). The status and condition of pastureland is important for leasing purposes. A detailed inventory (qualitative and quantitative) and land tenure measures will be put in place (Component 1. See Annex H Work Plan).

<u>LDN planning and implementation</u>

211.   To ensure technical coherence of the framework, the land degradation status and types were identified in the land use systems and transects of the Bukhara and Navoi regions (see *Land degradation assessment in Bukhara and Navoi* section of the *Area of intervention: Bukhara Navoi landscape* chapter). Building on the stakeholder-driven approach for the assessments, the project applies a participatory process for implementation by including land users and relevant representatives of local government and extension. The project will strengthen the enabling environment for LDN, land-use planning processes, and security of tenure rights with the specific focus on pasturelands and forest lands. It will be followed by development of LDN Decision Support System (DSS) using the proposed hierarchy of responses (avoid>reduce>reverse) implemented under Output 2.1.3 Innovative SLM practices implemented to enhance the productivity and restore degraded land and based on the status of land degradation in target land use systems.

212.   This phase also involves balancing of the anticipated losses from impacts of pastureland and forestland use decisions through restoration of degraded pasturelands and forestland (land use of the same type), thus achieving LDN on the ground generating the GEBs and socio-economic co-benefits. The counter-balancing of the LDN will be done at the same scale as land use planning process that will be established under the land management plans (Output 2.1.2). This will be followed by scaling up the select approaches within Bukhara and Navoi regions and elsewhere in the country using and targeted capacity building programs and scaling out strategy (Component 2).

<u>Monitoring neutrality</u>

213.   The final phase will include setting up the LDN monitoring system. It will include the three global LDN indicators, additional national impact, process, and stress-reduction indicators. Local knowledge and continuous learning will be applied to validate/interpret the data, and anticipate/adjust/create new steps ? closing the LDN loop (Component 3).

3.2. Project Objectives, Outcomes and Outputs

214.   The project objective will be achieved through implementation of three interlinked components that will strengthen the enabling environment for SLM/SFM to achieve LDN, and scale out successful SLM/SFM technologies and approaches in the target landscape. This will be underpinned by strengthened knowledge management that will facilitate further scaling up and out at the national level of LDN. The Gender Action Plan (Annex P) sets out how the project will address gender dimensions by outcome and activity.

Component 1. Enabling Environment for LDN monitoring and target- setting

215.   **Outcome 1.1. Policy, monitoring and planning frameworks strengthened at national and sub-national levels to support LDN in production landscapes.** LDN is a framework that acts transversal to many processes (Ecological, Political, Administrative, Economic, Social, and Educational). It is included in the SDG and Reported to UNCCD under the Target 15.3 that uses as indicator % of Degraded Land over Total Area. This simplification and the use of a well-defined remote sensing approach to produce national reports leads to concentrate all the attention. Nevertheless, this Change of State indicators are just one dimension in the LDN impact Pathway, and as such are a limited view that frequently is not sensitive enough[62][60] to capture the efforts made in such transversal process. To monitor LDN along its entire impact pathway there is the need to include also Process/Response indicators that are related to strengthening of the enabling environment, which includes legislation, capacities of stakeholders and information /monitoring systems. Also, there are the Stress Reduction/Change of Pressure indicators, these ones are the improved management of natural resources, sustainable management practices, land-use planning activities, that in time may produce or not a Change of State, but surely will act in avoiding and reducing land degradation.

216.   Given the above-mentioned conclusions and recommendations and in accord with GEF project requirements on M&E and Best Practice, a number of linked baseline indicator and monitoring approaches have been developed to support monitoring and analysis of project impact and efficiency. In this case, the GEF Core Indicators methodology tracking is based on four pillars:

1) The first M&E strategy for measuring project impact and effectivity would be the use an adapted participatory monitoring system that developed in close coordination with land users. This would initially require identification of monitoring areas, indicators, regularity of data collection and the DSS that would accompany it. Possible indicators for the plot areas that have activities undertaken within their boundaries would provide field data on indicators such as ground cover, SOC, LD rates and extent and other soil surface observations plus overviews of dominant plant species and vegetation structure/stratification, if present. Those plot areas outside project influence or activities can act to inform analysis and decision-making. The need to integrate locals and existing government policy should be considered when designing and promoting a long-term landscape monitoring system which requires field surveys and data analysis.

2) Participatory inputs on pasture health and productivity, represented by the delineation of the locally recognized pasture management units and their ranking on a 1-3 scale (Good, Moderate, Bad), based on the adapted PRAGA approach. This early baseline can be regularly reassessed by local stakeholders to determine the state and evolution of locally recognized pasture units and provides a good indicators of project impacts both on-ground and within the local mindset. It also is highly cost-effective and serves to increase stakeholder interactions, inputs and knowledge of project activities.

3) Participatory Impact Monitoring (PIM) for rangelands to measure stakeholder satisfaction and project impact in target communities. The third pillar to the project M&E system as applied to rangeland and pastureland situations would be a participatory evaluation system similar to others used in past GEF projects as Tracking Tools. The PIM survey proposed in this regard would rely on 4 questions and be undertaken at the end of each year of project implementation, interviewing 25 women and 25 men that had participated in one or more project activities that year in each participant district, giving a total of 50 surveys conducted in the months of November or December. The survey proposal is outlined in Annex U.

4) Use of adapted remote sensing outputs based on the GPG. Given the current emphasis on remote sensing within the LDN concept, it will most likely constitute an integral part of the final M&E proposal. However, most of this information will only be useful for the GoU. Remote sensing outputs that rely on satellite imagery have not been efficient in providing data or products at the scales land users typically use. Use of this system to monitor project impact is also hindered further given the difficulty in relating project impact and activities conducted in smaller areas to wider landscape change and trends. However, continued use of the Good Practice Guidance and LDN mapping and analysis should continue to remain part of the package.

217.   The outcome will be achieved through four outputs.

1.1.1. Baseline assessment and mapping of LDN indicators (land cover, land productivity and soil organic carbon) at national scale and in Bukhara-Navoi. Activities include:

?   Assessment and mapping of entry points to include the LDN indicators and prototype monitoring system in the current national land use monitoring systems

?   Develop a stakeholder-endorsed prototype model for measuring and monitoring LD through remote sensing technologies that meets UNCCD guidelines

?   Introduce of prototype system to establish baselines for national scale and for Bukhara and Navoi Oblast

?   Develop a simplified stakeholder consultation and field survey methodology/guideline, to be based closely on available FAO participatory methodologies and adapted to local resources and needs

?   Test and verify baseline indicator status using prototype stakeholder and field survey approach

?   Conduct mapping of boundaries of communal pastures (land tenure) (with the support of FAO)

1.1.2. Monitoring system for LDN indicators at the national level integrated into existing national land-use monitoring systems. Activities include:

?   Conduct targeted capacity needs assessment and provide concrete recommendations on LDN monitoring system based on the existing land-use monitoring systems

?   Conduct a workshop in Tashkent on benefits of integral landscape management, role of LDN indicators (land cover, land productivity, and soil organic carbon) and their drivers (soil erosion, soil

salinity, soil carbon sequestration potential) based on the participatory needs identification and Gender Action Plan

? Develop a national LDN monitoring system (based on the national impact, process, and stress-reduction indicators) following the LDN impact pathway

? Integrate CC indicators in the LDN monitoring system

? Test the national LDN monitoring system on Bukhara-Navoi landscape, including integrating CC indicators identified in the PPG baseline study

? Calibrate and scale out the national LDN monitoring system (based on the national impact, process, and stress-reduction indicators) based on the validated model on Bukhara-Navoi landscape

? Integrate LDN monitoring system in the existing land use monitoring system

? Introduce an efficient and effective prototype for the national pastureland inventory system (for qualitative and quantitative indicators and monitoring) in line with the nationally agreed definitions

? Identify metrics and disseminate an effective and economic approach for soil organic carbon monitoring based on the PPG baseline studies (using FAO methodology) and calibrate it for CC risks

? Verify metrics for Land Productivity based on the PPG baseline studies

1.1.3. LDN decision support system for target-setting, planning and implementation in place (using WOCAT/ DS-SLM, etc.). Activities include:

? Apply baseline remote sensing and monitoring analysis to Bukhara and Navoi Oblasts to identify/validate identified LD hotspots and at risk areas

? An assessment of possible solutions, and their marginal reactions/return-on-investment is conducted through DSS

? Develop and demonstrate national guidelines on LDN targets planning and implementation in line with the LDN principles (based on WOCAT SLM database, FAO SLM mainstreaming guidelines, tools, and action plans)

? Verify the list of the proposed national indicators at the LDN Forum

? Develop the methodologies and fact sheet for the final list of the national LDN indicators

1.1.4. LDN Action Plan with voluntary targets defined the in Bukhara-Navoi landscape. Activities include:

? Based on the results of the previous activity, an initial 12-month plan is prepared through the participatory methodologies developed under output 1.1.1

? SLM solutions and land restoration activities are tested through DSS model and validated with key stakeholders

? Voluntary LDN targets are negotiated and developed with stakeholders for participant communities in Jondor and Nurata district for integration in Bukhara and Navoi sub-national plans

? Draft Action Plan for investment/scaling out and implementation in Bukhara and Navoi conducted with clear links to national-level LDN target setting

218. **Outcome 1.2. LDN mainstreamed in national policies and planning processes at multiple levels to support SLM in production landscapes with focus on pastures.** LDN principles will be integrated into the national frameworks with the focus on desert pastures landscapes. Inter-sectoral coordination mechanisms for SLM and LDN will be strengthened, especially between the Ministry of Agriculture and the Committee on Forestry. In addition, the new pasture and tenure law will be aligned with LDN principles through support to establishment of a normative bassline. The focus on the national policies as well as monitoring systems will ensure its sustainability from an institutional perspective. The outcome will be achieved through three outputs:

1.2.1. Review of strategic regulatory frameworks and territorial planning instruments to enhance local stakeholder participation and mainstreaming of LDN and land tenure at national level and in Bukhara-Navoi. Activities include:

? Review and recommendations on policies and regulations related to land resources, forestry and agriculture, with special attention to disincentives regarding diversification of cropland and policies restricting forage production on irrigated lands

? Integrated SLM extension model Concept and Road map into the work plans of the Agricultural Development Strategy 2020-2030 implementation phases

? Integrate SLM/LDN principles into the Programme for the improvement of the ameliorative state of land in vulnerable areas using FAO LADA, WOCAT, PRAGA, etc.

? Identification of entry points for strengthening of stakeholder participation in LDN target setting and implementation at sub-national level, including gender sensitive analysis

? Development of the concept of regulatory framework for mainstreaming of ?Feed Clusters? and Pasture User Associations, which solicit and channel inputs and production of forage and feed options for growing livestock trade

? Conduct a rapid land tenure assessment in Bukhara and Navoi regions and identify the main sources of tenure insecurity with pasture access, building on the PPG socio-economic analysis (with the support of FAO)

? Based on the assessment, develop land tenure policy recommendations for national and local levels (with the support of FAO)

? Prepare a brochure and a poster clarifying the rights and obligations of pasture users/ community members with special attention to tenure (with the support of FAO)

? Present the results to key Ministerial stakeholders

? Information dissemination meetings with the central administrative and strategic planners of LDN-related institutions and the administrative and planners of local institutions

1.2.2. Inter-sectoral coordination mechanisms strengthened (horizontal ? between line ministries; vertical between different levels of administration/monitoring centers and local communities). Activities include:

?   Based on results from Output 1.1.1, develop a roadmap for an inter-ministerial DSS system in line with the LDN conceptual framework

?   Development of new TORs for the existing UNCCD coordination mechanism that integrate LDN implementation and strengthening of its mandate

?   Establish a national pastureland platform

?   Create a national online forum on LDN for stakeholder engagement

?   Establish an inter-agency Working Group to coordinate, supervise and monitor the implementation of SLM extension activities in project areas, in coordination and partnership with NGOs and local stakeholders

1.2.3. Pasture Law aligned with LDN priorities. Activities include:

?   Develop recommendation on the adjustments of the Pasture Law on respective roles of the stakeholders, simplified micro-crediting for small-holder livestock owners, cooperatives, livestock insurance, land tenure

?   Develop Pasture Law amendments

219.   **Outcome 1.3. Enhanced capacity at national and sub-national levels to achieve LDN in Bukhara-Navoi.** Given the results of the socio-economic analysis (households survey) and the Field Surveys, enabling environment for LDN and SLM practices seems rather important. There is little awareness of land users about land degradation and loss of ecosystem services, while there is a lack of integral and participatory actions toward land management. Increasing the awareness by mainstreaming information and capacity building about the impacts that LD and SLM have on livelihoods and ecosystem services could also help to produce entry points to project activities during implementation, while improving land management and scaling up of activities in the future.

220.   This recommendation also faces challenges. According to HHS, most Dekham and professional farmers have received higher education, yet the majority have not received further education from that time or in the last 5 to 10 years, and agriculture extension services are lacking in most areas. This also produces concerns regarding the availability of facilities and educators, in addition to motivation or availability of potential beneficiaries. Farmer Field Schools, or their livestock equivalent the AgroPastoral Field Schools (APFS) are capable of functioning under these circumstances. Innovative approaches or other forms of media in addition to traditional training exercises should be considered in to support wider understanding of LD and its effects on productivity.

221.   This outcome focuses on enhancing the capacity of technical staff in Ministry of Agriculture, the Committee on Forestry and the Ministry of Agriculture at the national level, and extension staff and local communities in the Bukhara-Navoi landscape in LDN implementation that achieves a positive net balance in productive land through SLM. A total 1,200 people (of which 30% are women) will be trained to get enhanced capacity in LDN at national and sub-national levels. It will be achieved through three outputs:

1.3.1. LDN training material for decision makers as well as practitioners developed. Activities include:

?   Development of training module on LDN principles, concepts and key indicators targeting decision makers and technical staff

?   Development of training module targeting technical staff as well as local communities (through the extension service)on integral landscape management under the LDN conceptual framework and how targeted SLM actions and green infrastructure can contribute to improved ecosystem function to achieve LDN targets at national and sub-national level

?   Conduct training on VGGT guidelines on land tenure for decision-makers

1.3.2. Capacity development program in place for LDN target setting, implementation and monitoring for national and local government staff. Activities include:

?   Informative meetings for the central administrative and strategic planners of LDN-related institutions

?   Training in LDN concept and practice of decision makers and technical staff at the national level on baseline assessment and LDN monitoring, land tenure issues, etc. utilizing established baseline and monitoring prototype developed under output 1.1.1

?   Training in LDN concept and practice of local government staff on baseline assessments, participatory monitoring, SLM and involvement of local stakeholders

?   Conduct a National LDN Multi-stakeholder Symposium

?   Domestic technical training trips for examining the best SLM and SFM applications related to LDN

1.3.3. Capacity building program on SLM to achieve LDN at local level for farmers in the Bukhara-Navoi landscape (using FFS, LADA, WOCAT, etc.). Activities include:

?   Establish two FFS (one in Bukhara and 1 in Navoi) to engage farmers in SLM development, improved forage and other livelihood resource development and improved rangeland management based on the FAO respective guidelines and experiences

?   Farmer exposure visits for demonstration of best practices on SLM and SFM

? Training of registered farmers in use of practical tools, such as Planned grazing and other WOCAT tools, to identify suitable SLM interventions that will contribute to LDN targets (at least 50% of participants are women)

? Group organizations (field demonstrations/farmers meetings/exhibitions/competitions/ field days)

Component 2. Demonstrating the LDN approach and scaling out of SLM/ SFM practices in Bukhara-Navoi landscape.

222.   **Outcome 2.1 SLM/SFM technologies and approaches in the Bukhara-Navoi landscape upscaled to achieve LDN.** Participatory integrated land-use plans will be developed and used as a basis for scaling up of good practices. SLM/SFM will upscaled to cover 225,000 ha and restore 13,000 ha of degraded land, which will contribute to sequestration of 5.1 Mton of CO2eq. In terms of socio-economic benefits, there will be 1,200 direct beneficiaries of which 30% will be women. There will be a strong focus on engaging stakeholders and ensure gender-balanced benefits.

223.   The out will determine with project stakeholders the optimal ?land management unit? to be used for project planning activities. This unit should allow for grouping according to land cover and other traits and scaling of M&E results to national scales, to better understand trends and concentrate activities and investments in those areas with increased ROI. Among potential options for determining units for management that would allow for both landscape and socio-economic indicators to be considered and measured within the LDN conceptual framework would be the use of River Basin or Watersheds, more specifically sub-catchment areas, as described briefly in section E. This same methodology and datasets could be used to sort the basins inside the districts. However, this approach would face limitations. Communities rarely think or plan by River catchment or watershed boundaries. While determining watershed boundaries in mountainous terrain is rather simple, communities in the flatter, open plains might also need support to correctly identify and delineate watershed limits. Movement of materials in the flatter open areas is also more commonly transported by wind rather than water. Moreover, administrative boundaries in Central Asia either use important rivers as territorial boundaries, effectively dividing the catchment or watershed area into multiple land tenure and policy systems, or have boundaries that are separate from any geographical features. However, it does remain an important element to consider when faced with integral landscape management and planning, if only in a theoretical scenario.

224.   Another tool, and one that most likely adapts better to this purpose is the Participatory Assessment of Land Degradation and Sustainable Land Management in Grassland and Pastoral Systems (PRAGA) developed by FAO and IUCN for such work[63][61]. This methodology first uses participatory inputs to map de facto and de jure management units as understood by land users, in addition to collecting data on users, drivers and other socio-economic contexts. Field plot survey are designed to be rapid yet collect vital information on pasture/vegetation health and allow users to cover

large areas of land. Finally, remote sensing is used to provide a larger lens and where possible aid land users and administrators in decision-making and resource allocation.

225. Leguminous, fast growing tree and shrub species offer multiple ecosystem services and products in addition to the green fodder, and the increase in animal production and fuel resources would increase household income/farm resources and have direct gender benefits in the case of the Dehkan households, as more women take on responsibilities for livestock production and male counterparts migrate for better employment opportunities. Mobile fencing units will also be introduced, which can dramatically increase native pasture forage production and ground cover. If agroforestry works are undertaken with strategically targeted grazing applications on salt affected agricultural lands, then work to restore soil fertility while producing an economic return from the land could be achieved. These forage trees and shrubs could also be inter-spaced with other fruit and nut trees and alfalfa. The introduction of the leguminous species would provide for improved soil conditions and fertility, create a more climate resilient production system and diversify income options. The outcome will be achieved through three outputs:

2.1.1. Gender balanced local multi-stakeholders groups established in Bukhara-Navoi (pasture user associations at district level, etc.). Activities include:

? With clear links to activities in Component 1, use baseline data and participatory tools to inventory landscape resources within Bukhara and Navoi Oblasts

? Under the guidance of the recommendations outlined within the Pasture Policy review (Output 1.2.3), mobilize community members and use participatory methodologies and DSS to assign an validate landscape priorities, with links to voluntary LDN targets

? While developing priorities with stakeholders, include market access mechanisms and transitional and long-term key value chain infrastructure and resources that increase revenue of local population

? Ensure that the project Gender Action Plan and other mechanisms developed for project implementation are followed and contribute to at least 30% participation of women in project activities and multi-stakeholders groups established in Bukhara-Navoi (pasture user associations at district level, FFS, VCs, etc.)

? Development and implementation of training programmes in business management and economic planning for key actors and women entrepreneurs that perform critical functions along selected value chains.

? Establish Pasture User Commission Association in Bukhara and Navoi based on land tenure principles

2.1.2. Participatory integrated land-use plans developed in the Bukhara-Navoi landscape. Activities include:

? Identify/ map land cover classes and land use systems in the Bukhara and Navoi regions

? Conduct land degradation assessments (hot spots and bright spots) in the land use systems in Jondor and Nurata using the transect methodology developed under the PPG

? Draft and validate integrated land-use plans in Jondor and Nurata using a participatory approach and based on priorities identified by the DSS (Target: 225,000 ha under improved practices)

? Use data collected during process to inform sub-national and national LDN interventions and developments

2.1.3. Innovative SLM practices implemented to enhance the productivity of degraded land (grazing of riparian zones, grazing crop residues to allow vegetation recovery, pasture rotation, agroforestry, etc.). Activities include:

? Demonstration of sustainable agricultural practices for the sustainable pasturelands management within the ILU plans and taking into account climate change risks and opportunities, such as for example:

o Rotation of pastures in the desert conditions of Uzbekistan

o Creation of autumn-winter pastures in the foothill area

o Cultivation of desert drought-resistant crops on dry land to increase forage production

o Production of biogas and use of waste from its production as bio-fertilizer Mulching, composting, manure or green fertilizer application

o Forage management and improvements from the currently used composition of straw, bran and corn (quality improvement, useful additives, pressing and ensiling of forage)

o Breeding animal breeds adapted to climatic stresses

o Restoration of animal watering points

? Demonstration of sustainable forest and agroforestry management practices within the ILU plans and taking into account climate change risks and opportunities, such as for example:

o Planting almonds and pistachio on shallow terraces to improve the efficiency of rain-fed lands and prevent erosion

o Improvement of land in arid conditions through creation of desert-prone varietal plantations

o Creation of green belts (desert zone, mountainous landscapes)

o Creation of forest seed and sapling nurseries

? Demonstration of sustainable agricultural practices for the **efficient soil and water management** within the ILU plans and taking into account climate change risks and opportunities, such as for example:

o Introduction of innovative technologies such as drip irrigation;

o Rainwater harvesting;

o Conservation Agriculture (minimal, zero or gentle tillage; vegetation cover, mulching, crop rotation);

o Strict record and control of water use;

o Resource-saving pumps on machine irrigation systems.

?   Demonstration of sustainable innovative agricultural practices for the **sustainable cropland management** within the ILU plans and taking into account climate change risks and opportunities, such as for example:

o Diversification of crops and use of crop rotations;

o Repeated and combined crops (for example, with legumes);

o Mulching or vegetation;

o Increase in the share of perennial crops and grasses;

o Cultivation of nitrogen-fixing crops;

o Integrated pest, disease and weed control;

o Breeding and introduction of drought and salt tolerant species and varieties

?   Restoration of degraded areas of pastures in target districts, such as for example:

o Accelerated rehabilitation of mid-mountain, highly degraded pastures

o Pasture shelter forest belts in the desert area

?   Recommendation and improvement in the weather alert systems in target districts

?   Field tests and developments are documented and shared with project stakeholders and networks

226.   **Outcome 2.2. Increased investments in pasture and rangeland management to achieve LDN.** Local communities? access to markets will be improved through strengthening of at least two value-chains that will result in increased incomes from agroforestry and livestock. At least one value chain will target women and their capacity in business planning will also be strengthened.

227.   The second component of the value chain work would focus on the manufacturing or conversation of raw materials, principally milk and meat given their importance in rural economies, into a saleable goods. The lack of understanding of hygienic controls and processes from the milk stool or abbatoir to the consumers? plate often leads to food waste or a reduction in income, as the products cannot be stored for more than a day or two before being sold and consumed. The incorporation and training in the use of hygienic utensils and production processes for household and cooperatives would

increase marketing options and allow for development and investment in quality improvements. Within this package would be work to determine the viability and return on investment of passive solar or underground cold storage structures for local consumption or solar powered cooling devices and transport for village cooperatives wanting to transport and sell goods in more lucrative urban markets.

228.   Investments from donors and other funding mechanisms will also be identified and mobilized and at least two LDN project proposals will be developed. The project will seek to improve value chains to develop self-sustaining business models that will ensure the sustainability of project investments. This will be achieved through three outputs:

2.2.1. Market access mechanism identified and key value chains (e.g. pistachio, walnut, milk, meat, etc.) strengthened to achieve LDN in the Bukhara-Navoi landscapes. Activities include:

?   Verification of three target value chains (dairy, bee-keeping, and medicinal plants) based on environmental and socio-economic sustainability criteria (selected during the PPG) within established project fora

?   Targeted capacity building program on bee-keeping (in Jondor district)

?   Selection of the value chains sections to be supported

?   Technical support provided to developing Feed Clusters, Pasture user groups and FFS to establish synergies around selected VCs

?   Jondor: Piloting collective transport system from the HHs to the milk processing plant in Jondor

?   Milk VC: small scale production of feeds (introduction of enhanced processing)

?   Dairy value chain/ Dairy livestock production

o Conducting trainings/workshops/FFS on sustainable intensification of milk production, focusing mostly on zero-grazing and limited grazing systems. The topics will include: feeding, feeds production, genetics, herd management, health management, housing etc.

o Conducting master classes on storage and home processing of milk, with an emphasis on attracting women.

o Provide households with small mechanization equipment such as milking machines, drinking water supply equipment, separators, feeds processing equipment etc.

o Raising awareness of decision-makers on the development of family-based dairy farming in the district level by engaging in seminars, trainings and exchange of experience at the national and international level.

o Establishment of demonstration sites for the use of organic waste, including the production of bioenergy, bio-humus, and bio-thermal sources

o Assess the economic and environmental benefits (using LEAP guidelines) of stall-fed dairy farming and prepare recommendations for distribution as an alternative to pastoralism

?   Dairy value chain/ Cooperation of households

o Organization of two cooperatives based on the association of households engaged in dairy farming.

o Support the cooperatives with development of business plans;

o Provide cooperatives with milk coolers, milk analysers, AI equipment, vet equipment etc.

o Launch and use of a workshop (aka community kitchen) for storage, processing, and packaging of dairy products within the cooperative.

o Assist the cooperative with obtaining all operation permits, food safety certificates, etc.

o Creating a mechanism for transporting milk and market dairy products through the cooperative.

o Creation of a mechanism of joint purchase of feed and other means of production, veterinary and consulting services.

o Develop a marketing system (including development of a village brand) and opportunities for joint sales of dairy products.

?   Beekeeping value chain

o Trainings workshops to raise awareness of the local population and management about the benefits of beekeeping.

o Introduction of the pollination services provided by smallholder beekeepers? cooperatives for large farms to increase crop productivity

o Assessment of the economic and environmental benefits of beekeeping development and preparation of recommendations for dissemination on the ground.

o Develop a marketing plan for local beekeeping products, including development of a local brand;

o In close cooperation with the Association of Beekeepers of Uzbekistan promote use of the spatial information exchange system (developed under FAO TCP).

?   Medicinal plants value chain

o Establishment of a local cooperative for processing and packaging of medicinal plants to increase the income of the population by increasing the value of medicinal plant products (in Nurata district)

o Conducting farmer field schools for smallholders on intensive cultivation of highly-valued medicinal plants

o Establishment of a sustainable seed base for the medicinal plants

o Impact assessment of the improved medicinal plants? production;

o Develop a marketing plan for local herb products, including development of a local brand.

?   Installation of biogas collections on larger livestock farms to harvest methane

2.2.2. Training program in business planning for women entrepreneurs that perform critical functions along selected value chains. Activities include:

? Training of women entrepreneurs in business management, marketing and processing of selected value chains

? Training of extension staff and women groups in certification of value-chains required to access new markets

? Technical and material support provided to FFS and Pasture User Ass. members to develop cooperatives or invest in value-adding material and apparatus

? Creation of a department of pasture studies in Samarkand Institute of Veterinary Medicine, opening of specialties in colleges of districts

2.2.3. LDN local transformative projects, including resource mobilization plans developed in Bukhara-Navoi. Activities include:

? Identification of possible sources of financing for scaling up of SLM and SFM to achieve LDN at national and sub-national levels, including from line ministries, donors, climate finance, private sector, in-kind contributions from communities, cooperatives, private sector, etc.

? Development of resource mobilization plans at national and sub-national level to scale up LDN.

? Development of two transformative LDN projects

Component 3. Project Monitoring, Evaluation and lesson learned.

229. **Outcome 3.1. Knowledge management, M&E and lessons learned disseminated.** For stakeholder and field survey inputs, the optimal situation would be that the land users themselves are assessing and monitoring agreed indicators and reporting this in a simple manner, yet this is rarely the case. In those exceptions where Pasture Users Associations are required by law to monitor and present annual results (Kyrgyzstan), users have stated that the process was complex, time-consuming and did not provide clear management recommendations. Land is most likely monitored by users in a continuous manner, yet these are mental records and are not recorded. However, given the policy situation and fact that the majority of Dekhan livestock producers do not in fact have legally sanctioned access to those areas they graze their animals, it is more likely that decisions are being made using criteria that do not include landscape function, plant health or LD consequences. Therefore, there is a real need to provide a very simple, standardized recording system that meets basic management needs and provides data for local, district and national LDN monitoring.

230. This could be supported by a more targeted, technical M&E approach conducted by specialist once every 3 to 5 years as noted. New and improved GIS datasets are allowing for improved remote

sensing but most have at least 15 to 20 years of data history available and therefore do not need to be annually conducted. PRAGA methodology could provide a starting point for such surveys.

231.   This outcome includes a functioning project M&E system and mid-term and final evaluation. Global environmental benefits generated by the project will also be assessed together with co-benefits and costs of SLM. It also includes the project?s knowledge management and knowledge products will be widely disseminated to support out and upscaling of the LDN approach. It will be generated by four outputs:

3.1.1 Project mid-term and final evaluation conducted. Activities include:

?   Project mid-term evaluation

?   Project final evaluation

3.1.2 Global Environment Benefits (GEBs), co-benefits and costs of SLM monitored, assessed and lessons analyzed. Activities include:

?   Monitoring of GEBs, including area under SLM/SFM and carbon benefits.

?   Monitoring of socio-economic benefits using gender disaggregated data.

?   Assessment of GEBs and co-benefits for reporting to the GEF and for the mid-term and final evaluations.

3.1.3 Knowledge management products developed and disseminated, including a set of manuals for LDN monitoring and implementation through scaling up of SLM. Activities include:

?   Development of project briefs with lessons learned related to LDN monitoring and implementation as well as SLM/SFM best practices (

?   Development of manuals for LDN monitoring (Application of innovative communication tools)

?   Mass media campaigns on LDN

3.1.4 Gender-focused communication strategy developed and implemented to support SLM scaling up to meet LDN targets. Activities include:

?   Development of communication strategy in consultation with key national and sub-national stakeholders.

?   Adoption of the communication strategy by the national LDN coordination mechanism that will be established under outcome 1.2.2.

4) Alignment with GEF focal area strategies

232.   The proposed project is aligned with the Land Degradation Focal Area Strategy Objective 1-1 *?Maintain or improve flow of agro-ecosystem services to sustain food production and livelihoods through Sustainable Land Management (SLM)?*, LD 1-4 *?Reduce pressures on natural resources from competing land uses and increase resilience in the wider landscape?* and Objective 2-5 *?Create enabling environments to support scaling up and mainstreaming of SLM and LDN?*. The project will support the implementation of SLM in Bukhara-Navoi landscape in order to (i) reduce pressure from livestock on pastureland and forest ecosystems, (ii) increase the productivity of the land and improve prospects for food security for local (low income) communities, (iii) reduce the risk of farmland expansion into the neighbouring grasslands, and (iv) reduce the risk of overexploitation of natural resources. In addition, the project will support efforts to restore productivity of degraded lands identified above to meet LDN targets at national and sub-national level.

5) Incremental/additional cost reasoning and expected contributions from the baseline, the GEFTF, and

co-financing

233.   The project?s incremental reasoning adds value to the ongoing efforts in the country and enables conditions towards achieving LDN by 2030. It follows a phased approach: 1) Setting the LDN (impact, process, and stress-reduction indicators) and project baseline; 2) Establishing mechanism for neutrality by monitoring land use decisions that may impact the neutrality, and estimate their likely cumulative impacts, so that these can be counter-balanced by reversing land degradation on the same land type, elsewhere; 3) LDN planning and implementation applying a participatory process by including land users and relevant representatives of local government and extension, strengthening the enabling environment for LDN, land-use planning processes, and security of tenure rights with the specific focus on pasturelands and forest lands, followed by development of LDN Decision Support System (DSS); 4) Monitoring neutrality setting up the LDN monitoring system, while applying local knowledge and continuous learning to validate/interpret the data, and anticipate/adjust/create new steps ? closing the LDN loop.

234.   Without GEF support, baseline interventions would lack the landscape-level planning layer needed to identify landscape restoration hotspots and define LDN priorities emphasizing the restoration

of ecosystem services and the sustainable use through innovative SLM/SFM approaches and technologies and sustainable value chain development that brings socio-economic co-benefits. This would increase the environmental and social risks from drivers of land degradation, aggravating pressures on the vulnerable ecosystems of Bukhara and Navoi regions.

235.   With GEF funding, the project will complement baseline interventions with: (i) additional resources to capacitate key stakeholders for an integrated planning and implementation of sustainable landscape-level interventions and for mainstreaming LDN into relevant policies and practices, enabling the upscaling/outscaling of SLM and SFM; (ii) enhancing agricultural know-how and leveraging investments for sustainable value chains with focus on gender and youth inclusion, diversification of production, and restoration climate-resilient SLM measures.

Table 14. Incremental cost reasoning and the expected contributions from the baseline.

Project component	Baseline scenario	With-project scenario

Project component	Baseline scenario	With-project scenario
Component 1. Enabling Environment for LDN monitoring and target- setting	Policies that support sustainable agriculture and ecological restoration are in place at national level. In the baseline, however, policies still have limited reach and scope, and there is a lack of holistic, integrated approach for landscape level planning. Local administrative planning system lack of SLM criteria and coordination and collaboration across sectors and scales. In May 2019, the country adopted a Pastures Law, but at present, normative documents have not yet been developed to regulate pasture management. Pasturelands continue to deteriorate and farmers are forced to graze their livestock on pastures located on lands not allocated to agriculture. Unclear land tenure is the biggest obstacles for SLM as reported by the households. In particular also, there is limited capacity and knowledge on LDN, and the role that SLM can play in strengthening resilience of farmland and landscapes. The country has a fairly stable and robust institutional structure with relevant state institutions having the mandates on the environmental protection,	GEF funds will be invested to integrate landscape management principles into sector strategies and ensure strong linkages between sectors to generate environmental and socio-economic benefits, as well as to engage multiple stakeholders at multiple scales, as per LDN requirements. GEF support will strengthen capacities at national and sub-national level to achieve LDN and no net loss of productive land. A monitoring and decision-support system for the LDN will be put in place. GEF funds will be invested in strengthening capacities for integrated landscape management (ILM) and restoration based on multi-stakeholder, science-based planning.

Project component	Baseline scenario	With-project scenario
Component 2. Demonstrating the LDN approach and scaling out of SLM/ SFM practices in Bukhara-Navoi landscape	In the baseline, there are limited interventions that support comprehensive SLM to achieve LDN. Current sustainable production practices are still mostly limited to demonstrations. Inefficient use and management of forests and pasturelands is widespread. While pastureland productivity is estimated to decrease by 1.5% annually, the households do not taking any actions to improve the value of agricultural products or improve the land degradation status. Unsustainable grazing (over- and under-grazing), low quality feed is reported by both, female and male households. The observed land degradation trends will lead to further loss of ecosystem services and global environmental goods and loss of socio-economic opportunities for local communities. There is also no systematic effort to strengthen value chains and access to rural finance, and strengthen local public-private partnerships and private sector engagement, in support of sustainable production.	The GEF project will make targeted investments in planning and implementing ecological restoration through climate resilience SLM under integrated land use plans, such as: Sustainable pasturelands management: ? Rotation of pastures in the desert conditions of Uzbekistan ? Creation of autumn-winter pastures in the foothill area ? Cultivation of desert drought-resistant crops on dry land to increase forage production ? Production of biogas and use of waste from its production as bio-fertilizer ? Mulching, composting, manure or green fertilizer application ? Forage management and improvements from the currently used composition of straw, bran and corn (quality improvement, useful additives, pressing and ensiling of forage) ? Breeding animal breeds adapted to climatic stresses ? Restoration of animal watering points Forest and agroforestry management practices: ? Planting almonds and pistachio on shallow terraces to improve the efficiency of rain-fed lands and prevent erosion ? Improvement of land in arid conditions through creation of desert-prone varietal plantations ? Creation of green belts (desert zone, mountainous landscapes) ? Creation of forest seed and sapling nurseries Efficient soil and water management: ? Introduction of innovative technologies such as drip irrigation; ? Rainwater harvesting; ? Conservation Agriculture (minimal, zero or gentle tillage; vegetation cover, mulching, crop rotation); ? Strict record and control of water use; ? Resource-saving pumps on machine irrigation systems. Sustainable cropland management: ? Diversification of crops and use of crop rotations; ? Repeated and combined crops (for example, with legumes); ? Mulching or vegetation; ? Increase in the share of perennial crops and grasses; ? Cultivation of nitrogen-fixing crops; ? Integrated pest, disease and weed control; ? Breeding and introduction of drought and salt tolerant species and varieties The GEF supported SLM/SFM measures will also enhance the resilience of the Bukhara-Navoi landscape in the

Project component	Baseline scenario	With-project scenario
Component 3. Project Monitoring, Evaluation and lesson learned	In the baseline, the MoA and SCF, universities and research organizations, international organization, and other actors, are contributing to knowledge creation and exchange with regard to SLM within the country and at the regional level using the CACILM-2 regional platform. There is, however, no systematic effort to share knowledge and coalesce action towards the LDN.	GEF investments will fund the incremental costs of systematic information and knowledge sharing at local, sub-national, and national levels. Furthermore, regular meetings and exchanges will be organized under the PSC, to ensure that lessons learned are compiled, shared, and used to inform policies at the national and sub-national levels. Project inception workshops in the capital and in Bukhara and Navoi regions, project completion workshop, and project related monitoring and evaluation will be funded.

6) Global environmental benefits (GEFTF)

236.   The project will generate a range of global environmental benefits in the land degradation focal area by using LND hierarchy of responses with co-benefits related to climate change mitigation through increased carbon sequestration in land use systems. Thanks to development of land-use plans, land degradation will be avoided on 225,000 ha, significantly reduced on 10,000 ha, and reversed on 3,000 ha in accordance with the baseline status of land degradation using the climate-resilient SLM and restoration technologies and approaches proposed in the Annex H Work Plan. During the project preparation, the GoU has indicated interest in scaling out the LND approach to other regions of the country in the lifetime of the project implementation (see *Chapter 7. Innovativeness, sustainability, potential for scaling up and capacity development* below).

237.   The global environmental benefits thus include the following:

?   Increased amount of productive pasturelands and forestlands (13,000 ha restored and 225,000 ha under climate-resilient SLM plans) in in Bukhara and Navoi regions

?   Sequestration of 5.1 Mton of CO2eq thanks to SLM/SFM within an LDN framework

238.	In addition, strengthening of key value-chains will lead to improved income generation opportunities and more diversified livelihoods for around 1,200 people (of which 30% are women) in the target landscape. Section 10 *Benefits* outlines the additional socio-economic benefits resulting from the project.

7) Innovativeness, sustainability, potential for scaling up and capacity development

Innovation

239.	Innovation will be scaled-up over time, across geographies, among institutional actors using the LDN approach, which is new to Uzbekistan. New restoration methods will be linked to the concept of LDN to balance gains and losses within the same land types supported by continues monitoring of land productivity and soil organic carbon and different scales. The SLM measures implemented will be based on respective land degradation status in target land use systems (Annex O) and involve combination of forest reproduction, while simultaneously increasing pasture productivity using LDN hierarchy of responses (avoid>reduce>reverse).

240.	In the selected landscapes of Jondor and Nurata districts of Bukhara and Navoi regions, the most cost-effective measures of restoring degraded pastures and forest land will be used, and new and innovative methods to improve their species diversity and water-use efficiency will be tested. In this way, new approaches to phyto-amelioration and re-cultivation of disturbed lands will be demonstrated. The project will investigate the feasibility of applying drones to identify areas affected by desertification and drought and map land tenure. The drone technology is currently not practiced in Uzbekistan and presents a promising opportunity to be applied in the vast desert landscapes of Uzbekistan. Community-based approaches to identifying and designing measures to strengthen dairy, bee-keeping, and medicinal plants value chains is new and innovative in Uzbekistan (Annex S). The possibility of applying the LDN approach on entire target value chains (for example, land degradation neutral dairy value chain) will be further analyzed during project implementation.

241.	The proposed LDN monitoring system builds on the national SDG agenda and global data and integrates additional national indicators (see National Context chapter). The scaling out strategy (see below) is also innovative and will be based on the combination of the previous studies and analysis of the potential to work in other regions of Uzbekistan using satellite imagery conducted during the PPG (see Annex U).

242.	The project will create strategic opportunities for private sector engagement to ensure scaling up. Private sector entities will be serve as key project stakeholders involved in stakeholder consultations for policy development and capacity building. The project will work towards recent Government reforms moving to market-driven economy and establish Feed Clusters that in the future will be the key investors for the livestock farmers? support.

<u>Sustainability</u>

243.   The project approach related to LDN and scaling up of investments on SLM/SFM will be integrated into national policies and programmes as well as monitoring systems that will ensure its sustainability from an institutional perspective. The project will seek to improve value chains to develop self-sustaining business models that will ensure the sustainability of project investments. Capacity development and training of policy-makers as well as technical staff in implementation and monitoring of LDN will further support the sustainability of the project approach and be supported by strengthened capacities and participation at the sub-national level of extension staff and local communities in reaching LDN targets. Two Master?s and PhD students will be supported by the project to support the studies on land degradation neutral value chains to ensure long-term sustainability of the project results.

244.   To increase the project?s climate resilience[64][62], climate change risks and opportunities at various levels were assessed and incorporated in the project design during the PPG. Annex R provides a detailed analysis of the historical trends in climate and extreme weather events, future projected changes according to climatic scenarios, impacts on target agro-climatic resources and agro-food systems in the project area and proposed risk mitigation measures for project implementation. This assessment and incorporation of climate considerations at every stage of the project design, ensures that resilience is integrated across the project and targeted measures have been integrated into the project design. A summary of the main findings and considerations are outlined *Climate change risks and opportunities* section of the prodoc.

245.   The project will also collaborate and take advantage of the experience of international partners working in the region (ICBA, ICARDA, GIZ, Succow Foundation, and others), and will coordinate with the work being carried out under CACILM-2 program and SFM SCF/FAO project.

<u>Scaling up</u>

246.   The project will achieve large-scale impact and transformative change in the Bukhara and Navoi regions of Uzbekistan through operationalizing the landscape and LDN approaches in a target landscapes of Jondor and Nurata districts. The project?s ToC (see section 3.1. *Project strategy and Theory of Change*) is integral to guiding longer-term scaling of impact. **Scaling up** to national level will be supported by policy and institutional strengthening as well as effective monitoring, knowledge management and capturing of best SFM and SLM practices and lessons learned. **Scaling up** will also be supported by development of a resource mobilization strategy and of transformative LDN project proposals (Component 2).

247.   The **scaling out** strategy rests on the results of the Similarity Analysis[65][63] conducted under CACILM-2 program to support the dissemination of SLM in Central Asia. The CACILM-2 team collected and synthesized SLM technologies and approaches utilizing various sources that cover four

target agro-ecosystems (irrigated, mountain, rain-fed and rangeland). SLM option were collected, synthesized, analyzed, shortlisted, and based on similarity packaged by groups for each agro-ecosystem of each of the Central Asian country. Each package has a core technology (i.e. raised bed in irrigated agro-ecosystem) and proposes other technologies that could be associated with the core technologies to help in adapting to local conditions within the context of the core technology. For example, seed treatment or soil additive, integration of plastic lining for irrigation in the furrow or placement of the seeding row can be integrated with the raised-bed technology to overcome damage from soil salinity accumulation. The similarity criteria and similarity maps were eventually used to identify scaling out potential for the SLM packages in the four agroecosystems.

248.   The Similarity Analysis was taken into account during the project preparation and was further complemented with the participatory identification of LD hot and bright spots in the Bukhara and Navoi target land use systems (Annex O) and the LDN baseline. It will be used for **scaling out** of the project.

249.   Annex U shows significant potential to **scale out** the SLM within Bukhara and Navoi and other regions of the country using recent globally-available satellite imagery. To describe how the described districts differ to each other in regard to this multilevel of data and information, a Cluster analysis and Principal Component Analysis (PCA) was performed. All the data presented and some ancillary variables were obtained to perform the multivariate analysis. A Cluster analysis was performed to produced 3 different groups (Figure 19), indicating a way in which the districts can be grouped according to the results.

Figure 19. Cluster of districts according to their behavior on the set of studied variables.

Complete linkage

Distance: (Euclidean)

Khatyrchi	
Nurata	
Karmana	
Kyzyltepa	
Karaulbazar	
Kanimekh	
Gijduvan	
Kagan	
Jondor	
Romitan	
Bukhara	
Alat	

0.00   2.72   5.45   8.17   10.89
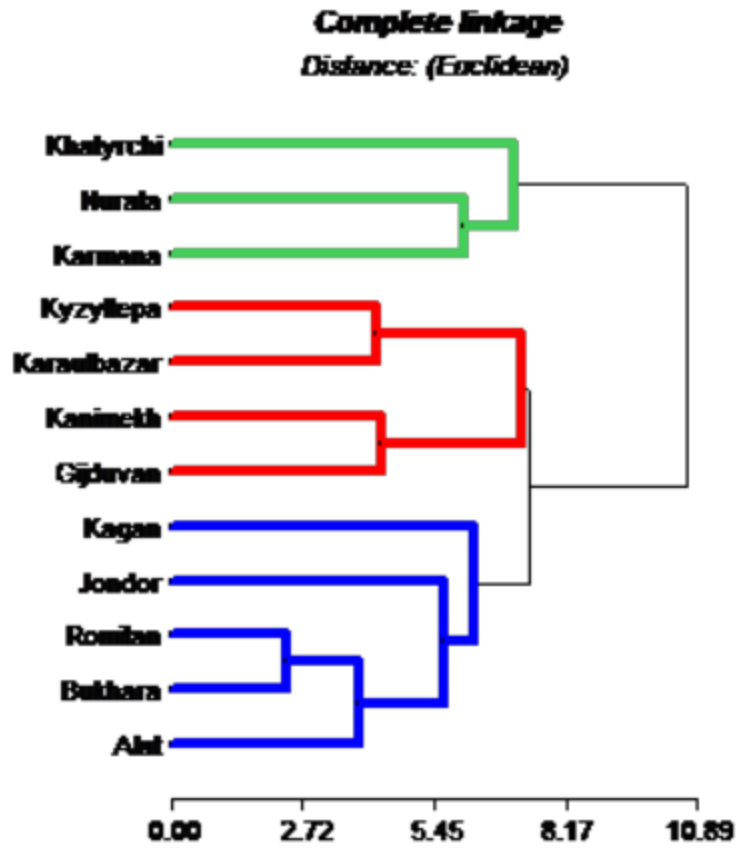
250.   A Principal Component Analysis (PCA) was used to further evaluate the relation that each variable has with the districts groups resulting from the cluster (Figure 20).

Figure 20:Cluster analysis of districts.
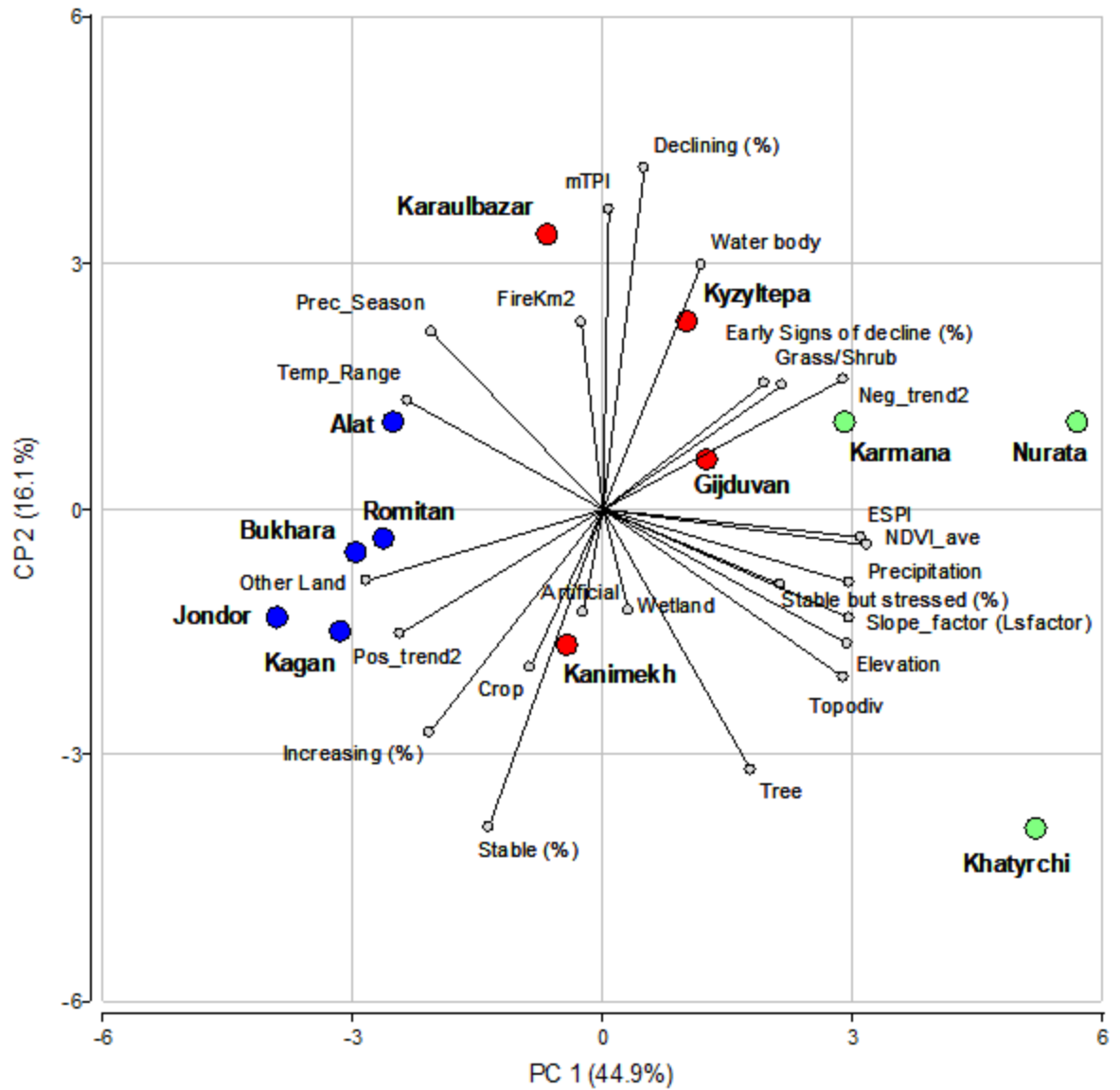
Note: The PCA shows Districts painted with the color of the groups obtained in the Cluster analysis and grey dots show the variables positions in the synthetic axis

251.   From right to left, the groups portrayed in the PCA can be described as follows and visualized in the Figure 21:

Figure 21: District groupings showing commonality in the multivariate space.
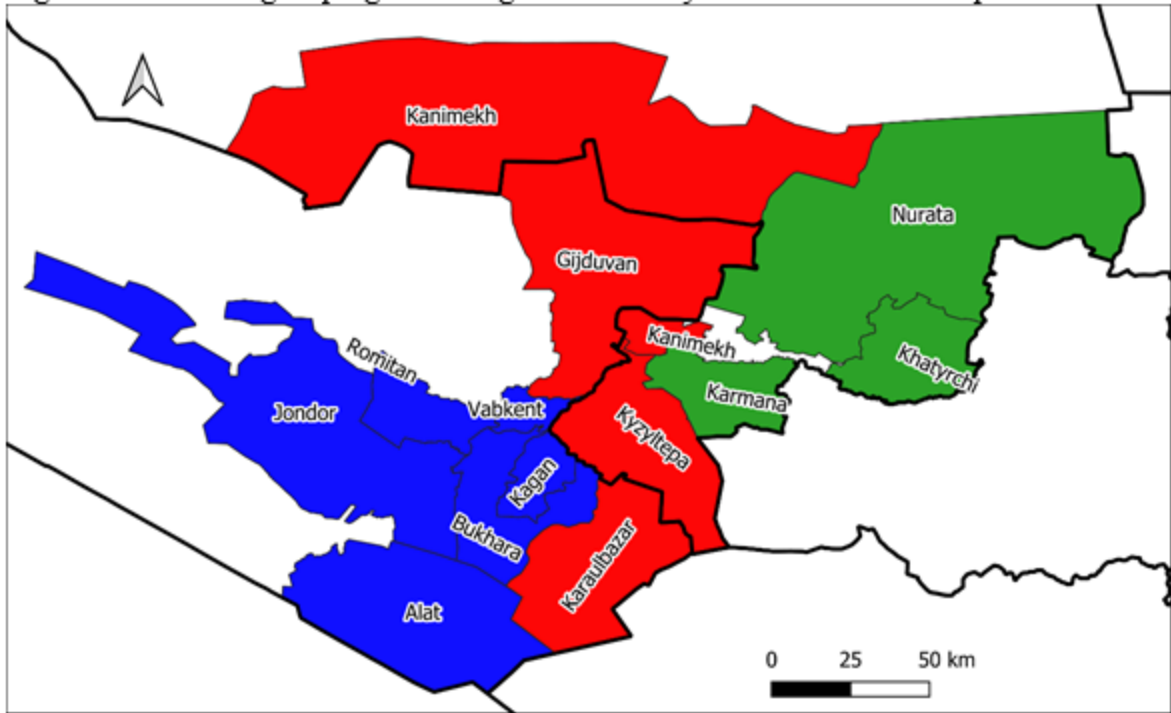
252.   The project will strategically build on the overview of the SLM incentives mechanisms[66][64] developed under the CACILM-2 project to **scale up and out** in other regions of Uzbekistan and Central Asia region. The Central Asian countries are currently in the process of greening their economies and have a vast array of incentive mechanisms already in place. Several financing and incentive mechanisms are in place, many of them are still focusing on subsidies to support agriculture, including livestock management. The report proposes to strengthen policies and existing mechanisms through mainstreaming of SLM approaches and technologies - or the creation of new innovative financing and incentive mechanisms, liaising existing schemes, funded from different sources, including public budgets and private sources and implemented at different levels.

8) Summary of changes in alignment with the project design with the original PIF

253.   There are no major changes in the CEO Endorsement. The document reflects recent political changes merging the ministries. Changes from the PIF are shown directly in the GEF Portal.

[1] Uzbekistan Emergency COVID-19 Response Project. World Bank, 2020. Available at https://projects.worldbank.org/en/projects-operations/project-detail/P173827

[2] The GLADIS Reference Base (FAO LADA, 2005)

[3] UNCCD PRAIS, National report of Uzbekistan (2018)

[4] National program for increasing productivity, preserving soil fertility (2004); ADB/GEF CACILM. NF of Uzbekistan (2006)

[5] Third National Report of the Republic of Uzbekistan to the UN Framework Convention on Climate Change.Tashkent, 2016

[6] https://www.unccd.int/actions/ldn-target-setting-programme

[7] See http://www.uzdaily.com/en/post/48426

[8] See https://samarkand.uz/en/press/news/yangi-vazirlik-tashkil-etildi-xotin-qizlar-qomitasi-va-mahalla-kengashi-tugatildi

[9] The Presidential Decree ?On measures to improve the social and spiritual atmosphere in society, further support of the mahalla institute, and also to raise the system of work with families and women to a new level? (PD-5938 dated 18 February 2020)

[10] dated March 24, 2003 No. UP-3226

[11] dated February 7, 2017 No.UP-4947

[12] dated April 16, 2018 No. ZRU-475

[13] national data analysis done during the PPG

[14] "Clusters are geographically concentrated groups of related companies, specialized resource providers, service providers, firms in related industries, and related organizations (eg, universities, standards agencies, trade associations) in specific industries that are competing but at the same time leading joint work. Providing the basis for extraordinary competitive success in certain areas of business, clusters are a pronounced feature of any national, regional and even metropolitan economy. " Source: Michael E. Porter, Professor at Harvard University, USA. "Competition".

[15] Towards sustainable energy: a low-carbon development strategy for the Republic of Uzbekistan. Abstract UNDP project "Support to Uzbekistan in the transition to the path of low-carbon development of the national economy"

[16] https://stapgef.org/sites/default/files/publications/LDN%20Technical%20Report_web%20version.pdf

[17] Developing good practice guidance for estimating land degradation in the context of the United Nations Sustainable Development Goals. Available at https://www.sciencedirect.com/science/article/abs/pii/S1462901118305768

[18] Sims et al. 2020

[19] https://www.unccd.int/news-events/scientific-conceptual-framework-ldn-released-english-french-and-spanish

[20]

[21] The links in Bibliography section and the main site of this product (https://www.esa-landcover-cci.org/?q=node/175) could not be could not be accessed at the time of this report preparation, since a Potential Security Issue was reported by most browser during the past months, blocking the site.

[22] United Nations Statistical Commission, 2016.

[23] Clark et al. 2001

[24] Thapa et al. 2019

[25] http://www.fao.org/global-soil-partnership

[26] http://www.fao.org/mountain-partnership/about/definitions/en/

[27] IPCC Special Report on Land. Available at https://www.ipcc.ch/srccl/

[28] STAP guidance on climate risk screening. 2019. Available at https://stapgef.org/stap-guidance-climate-risk-screening

[29] Assessment of historical data from Uzhydromet detailed in Annex R

[30] Assessment by FAO detailed in Annex R

[31] UNEP/Uzhydromet (2016). 3rd National Communication of the Republic of Uzbekistan on the UN Framework Convention on Climate Change

[32] Sims et al. 2017

[33] Cherlet et al. 2018

[34] Ivits and Cherlet 2013

[35] Ivits et al. 2013

[36] On State Program for Development of Irrigation and Improvement of Reclamation State of Irrigated Lands for the Period of 201-2019. ? ??3405 dated 27.11.2017

[37] Based on FAO LADA (2009) Guide ?*Mapping of land use system in global and national scales for assessment of land degradation?*, as well as global products - FAO LADA, GLC-2000, AgroMaps, SRTM data

[38] https://qcat.wocat.net/en/wocat/

[39] *https://qcat.wocat.net/ru/wocat/technologies/view/technologies_1527/*

[40] https://qcat.wocat.net/ru/wocat/technologies/view/technologies_4040/

[41] *https://qcat.wocat.net/ru/wocat/technologies/view/technologies_3670/*

[42] *https://qcat.wocat.net/ru/wocat/technologies/view/technologies_3650/*

[43] *https://qcat.wocat.net/ru/wocat/technologies/view/technologies_4037/*

[44] *https://qcat.wocat.net/ru/wocat/technologies/view/technologies_3654/*

[45] *https://qcat.wocat.net/ru/wocat/technologies/view/technologies_1116/*
[46] *https://qcat.wocat.net/ru/wocat/technologies/view/technologies_3667/*
[47] *https://qcat.wocat.net/ru/wocat/technologies/view/technologies_3645/*

[48] *http://www.cawater-info.net/best-practices/ru/base/marker/153?print=true*

[49] *https://qcat.wocat.net/en/wocat/list/?type=approaches&filter__qg_location__country=country_UZB*

[50] Source: BOX 1.1 Different Measures for Understanding Poverty in World Bank. 2020. Poverty and Shared Prosperity 2020: Reversals of Fortune.

[51] Small-scale family based farm, based on household plot operation, with lifetime inheritable possession. Dekhan farmers are free to grow what they choose.

[52] Lorenzo Giovanni Bell?. Value Chain Analysis for Policy Making Methodological Guidelines and country cases for a Quantitative Approach. F??, 2013.

[53] Calculated by the national PPG economist on the basis of the passport of the Jondor district for 2019. The data source is the district administration.

[54] Agricultural department of the Jondor District administration.

[55] Agricultural department of the Nurata District administration

[56] Association of Beekeepers of Uzbekistan

[57] IPCC Special Report on Land available at https://www.ipcc.ch/srccl/

[58] Landscapes for life. Approaches to landscape management for sustainable food and agriculture. FAO, 2017. Available at http://www.fao.org/3/i8324en/i8324en.pdf

[59] Stafford Smith, M. 2020. Theory of Change Primer, A STAP Advisory Document. Scientific and Technical

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[61] DPSIR is a causal framework for describing the interactions between society and the environment: Drivers, Pressures, State, Impact and Response of an intervention.

[62] Gonzalez-Roglich et al. 2019

[63] https://www.iucn.org/theme/ecosystem-management/our-work/global-drylands-initiative/gdi-projects/participatory-assessment-land-degradation-and-sustainable-land-management-grassland-and-pastoral-systems-praga

[64] STAP guidance on climate risk screening. 2019. Available at https://stapgef.org/stap-guidance-climate-risk-screening

[65] Similarity Analysis to Support the Dissemination of Sustainable Land Management Options in Central Asia. ICARDA. Knowledge Management in CACILM Phase II. Available at http://cac-program.org/files/CA_similarity_report_eng.pdf

[66] Bastidas S. FAO, 2020. Scaling up Sustainable Land Management Through Financing and Incentive Mechanisms in Central Asia. Developed under CACILM-2 project. Unpublished report.

1b. Project Map and Coordinates

Please provide geo-referenced information and map where the project interventions will take place.

The project intervention sites can be seen in the following App:

https://projectgeffao.users.earthengine.app/view/uzbekistan-ldn
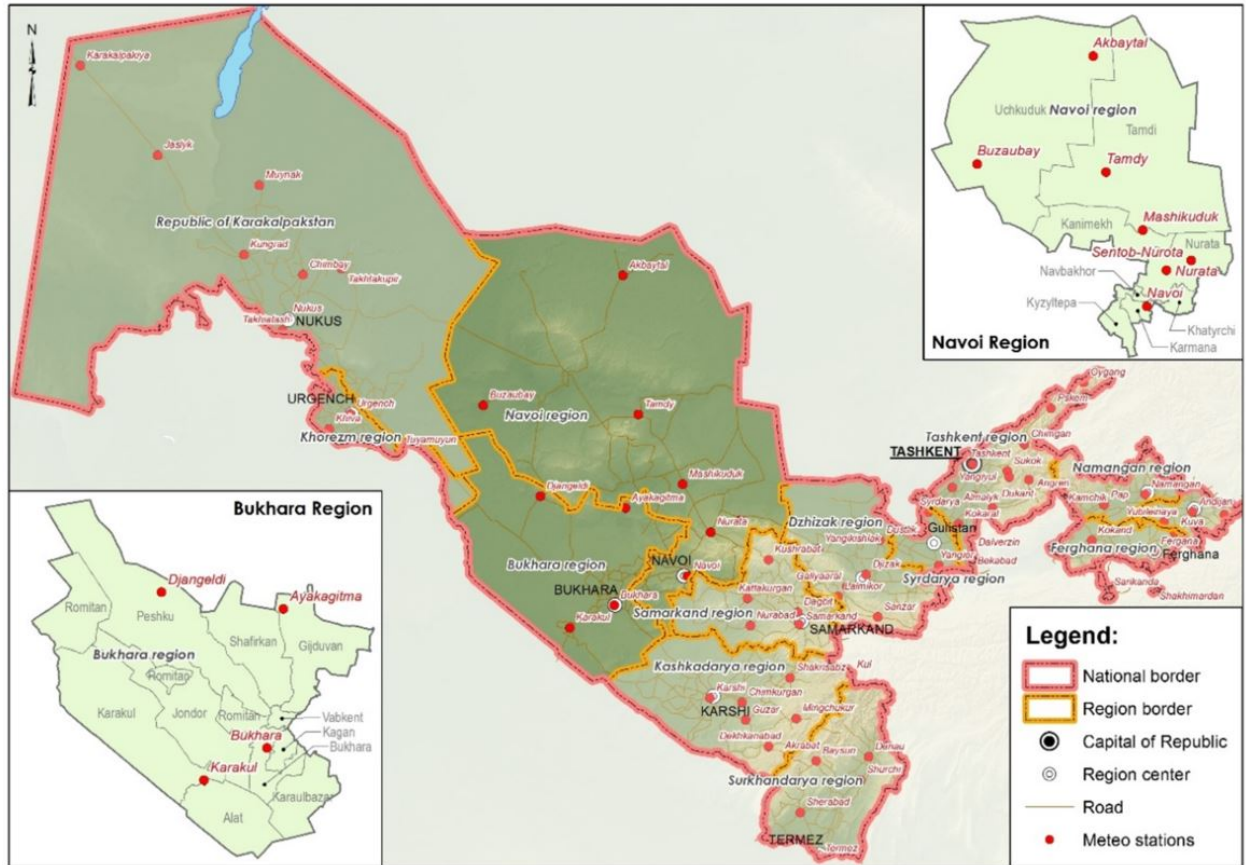
1c. Child Project?

If this is a child project under a program, describe how the components contribute to the overall program impact.

Not applicable

2. Stakeholders
Select the stakeholders that have participated in consultations during the project identification phase:

Civil Society Organizations Yes

Indigenous Peoples and Local Communities Yes

Private Sector Entities Yes

If none of the above, please explain why:

Please provide the Stakeholder Engagement Plan or equivalent assessment.

1.   The timing of the PPG work coincided with the Covid-19 pandemic in the year 2020. For the most part, this led to an increase role of remote sensing and ?virtual stakeholder engagements?; it also meant that field consultations and surveys were limited in both time and number. Nonetheless, the overall approach and subsequent results met with expectations from different stakeholders and does provide a basis on which to inform the project development and design.

2.   The COVID situation and previous experience in the region led the project team responsible for this report to develop a stepwise approach early in the PPG phase. Within this context, collaborative approaches were developed to reduce travel and repetition of activities (Table 15).

Table 15: Steps followed for development of report and results

STEPS	ACTIVITIES
STEP 1:	- Int. & Nat. Team selection - Initial planning meetings - Discussion on methodologies (including the scale of the assessment), initial indicator sets and other baseline criteria - Agreement on indicators, methodologies and calendar
STEP 2:	- Literary review (country contexts, previous interventions + results) - Remote Sensing (LDN indicators)
STEP 3:	- National Stakeholder engagements - 1st round of RS validation and refinement - Proposal and discussion on Pilot District selection criteria - District selection (LDN Framework protocols + partner and stakeholder inputs)

STEP 4:	- Local inception WS
	- Review of Remote Sensing (map) results for area and refinement
	- Selection of pilot landscape intervention areas (LDN Framework protocols + stakeholder inputs)
	- Household surveys
STEP 5:	- Regional/local consultations and field data collection
STEP: 6	- Completion of agreed indicator sets with information obtained
	- Linkage to finalized maps
	- Linkage to LDN indicators sets
	- Selection of landscape-specific WOCAT/SLM options with estimated costs for project budgeting purposes
STEP: 7	- Validation of findings based on the Household survey and final partner and stakeholder inputs and recommendations
	- Peer review from colleagues and national/international experts
STEP: 8	- Drafting of finalized reports with clear recommendations for PRODOC development. Note: this in particular includes the following: 1) summary of stakeholder consultations, 2) baseline data and information, 3) proposals for the field implementation technologies/approaches with budgetary estimates, 4) inputs to the Initial Work Plan, 5) inputs to the Log Frame
STEP 9:	- Continued support during PRODOC revision and submission to the donor

Below is a list of stakeholders that were consulted during project preparation.

1) **Stakeholder Consultation summary in project formulation**

Stakeholder Name	Stakeholder Type	Stakeholder profile	Consultation Methodology	Consultation Findings	Date	Comments

Mr. AbduvokhidZakhadullaev, UNCCD Focal Point/ Head of Intn?l and Ecotourism Development Dpt. of the State Forestry Committee of Uzbekistan **Mr. Sobirjon Umarov,** Head of Dpt. on Combatting Desertification, State Forestry Committee of Uzbekistan **Mr. KhojimuradTolipov**, Forest Management Specialist in Dpt. on Combatting Desertification, State Forestry Committee of Uzbekistan	Partner	National Government Institution body	Zoom Meeting	**According to the representatives of the committee, the Nurata district is suitable in the Navoi region,** given that it is included in the state program for the creation of pistachio plantations. AZ also proposed **including the Koshrabad district of the Samarkand region as the project site** taking into account similarity of the ecosystems with the Nurata district. **In the Bukhara region, the committee proposed the Jondor district.** AZ emphasized that Jondor district is also the target district selected for the state program ?Green shield? on establishing green belt of saxaul (Hal?xylon) plantations in Bukhara province to stop desertification and dust storms. The Committee team also suggested including the followings in the project activities:	13 August 2020	

			Meeting	State Land Committee has a significant institutional capacity. It participated in formulation and development of the Law on Pastures adopted in Uzbekistan. State Land Committee has mandate for the three main directions: - land inventory; - delimitation of settlements; - monitoring of rangelands The Committee started survey of the geobotanical composition of rangelands in 2018. Inventory of 10 mln ha of agricultural lands completed In order to maintain 5 ha rangeland area per livestock head, 2.5 mln ha of highland rangelands should be used in livestock production Highland rangeland zone in the Zomin district of the Jizzakh province of Uzbekistan is proposed as a potential project site. However, this proposal cannot be accepted, as it is not located in the initially selected two	26 August 2020	*The State Committee on Land Resources, Geodesy, Cartography and State Cadaster has been restructured by Presidential Decree ? 06/20/6061/1262 dd 07.09.2020.* *All functions of the former committee related to agricultural lands, crop planning and other agricultural activities will be incorporated into the Ministry of Agriculture. And the functions related to residence land plots, apartments and houses will be managed by the State Tax Committee*
Mr. MaksudRuzmetov, Deputy Chairman of the State Committee on Land Resources, Geodesy, Cartography and State Cadaster of Uzbekistan (SCLR)	Partner	National Government Institution body				

| | | | Meeting | Survey of the geobotanical composition of rangelands is undertaken by this institute

Expanded capacity building program is implemented including PhD and Master students | 26 August 2020 | |
|---|---|---|---|---|---|---|
| **Mr. RukhiddinTurayev**, State Scientific and Design Institute ?UZLANDDESIGN? under SCLR | Partner | National Government Institution body | | | | |
| **Mr. RakhmonSaidov**, Deputy Governor (*Khokim*) on Agriculture of the Jondor district, Bukhara province | Partner | Local Government Institution/body | Meeting | Jondor is the biggest cotton producing district in Bukhara province

Land degradation is a very important issue in the Bukhara province;

Local needs in the Jondor district include provision of water pumps for 4 wells to provide drinking water for local population and livestock

Promising areas for development include greenhouses, introduction of drip irrigation for intensive agricultural production and sheep wool processing taking into account local agricultural cooperative with a flock of 15,000 sheep | 24September 2020 | |

			Meeting	Stakeholder consultations should include local authorities from the very beginning of PPGs to better meet local needs In Nurota district: -several agricultural cooperatives have been established; -alley cropping can be applied in gardens for melon and vegetable production; -new cluster for medicinal plants production will be established Mainly groundwater is used for agricultural production in the Nurota district However, the recent data on locally available groundwater resources indicate the diminishing trend that might put entire agricultural production at risk, unless water saving technologies are applied.	26 September 2020	
Mr. SadulloIstamov, Deputy Governor(Khokim) on Agriculture of the Navoiyprovince	Partner	Local Government Institution/body				

			Meeting	Functions of the State Committee on Land Resources, Geodesy, Cartography and State Cadaster of Uzbekistan related to agricultural lands have been taken over by the Ministry of Agriculture as a result of restructuring; The project team should seriously consider **inclusion of the Koshrabad district of the Samarkand province as a project site.** The mentioned district is located in the neighbourhood of the Nurata district already selected as a pilot area; The issue of land degradation puts enormous pressure on the available land resources taking into account growing population, increasing income level and high demand for meat and other agricultural products. In this regard, MoA welcomes efforts directed to addressing issues of preventing and neutralizing adverse impact	05October 2020	
Mr. MaksudRuzmetov, Deputy Minister of Agriculture of Uzbekistan **Mr. Alisher Shukurov,** Advisor to the Minister of Agriculture of Uzbekistan	Partner	National Government Institution body				

| The Ministry of Agriculture, State Committee on Forestry | Project partners | National Government Institution body | Zoom meeting | The project design expert presented the PPG progress and status of the prodoc. SFC has requested to include training to Component 1 on LDN and strengthening of the LDN WG based on the national indicators. | 11 December, 2020 | |
| The Ministry of Agriculture, State Committee on Forestry | Project partners | National Government Institution body | Zoom meeting | The project design expert presented the indicative project Work Plan and discussed the implementation arrangements. It was agreed that the soft component will be executed by the MoA and the hard component by the SCF. The overall feedback is positive. Additional activiites were added as a result of the consultation (use of drones, further strengthening of the LDN monitoring system through methical approach to the national indicators. | 23 December, 2020 | |

(+) Add stakeholders as necessary

Stakeholder Consultation in target regions of Bukhara and Navoi in project formulation

#	Date	Forum	Subject
1	08/27/2020	Karmaninsky district.	Discussion of the action plan with the representative of the regional khokimiyat, the head of the agricultural industry of the region Rashidov Alisher (tel +998981115511)A meeting was held with the khokim of the district Umarov Fakhridin Samatovich (tel. +99879 532 2838, 98 2781109) and the specialists of the area, assistant khokim Boltaev Shokhrukh (+987785570), Deputy khokim for agricultural Sattorov Sohib (795322934, 795521846) The khokim of the district noted that the selected SSG "Narpai" is located within the city of Navoi and will soon move to the border of the city. He proposed to conduct a survey in the western part of the district, bordering the Kyzyltepa district, towards the village of Khazor, where there is an opportunity to develop agricultural production.
2	08/27/2020	Karmaninsky district	Meeting with the leaders of the SSG "Narpai" Khasan Eshmuratov and "Pakhtaobod" Zhumakulov Nuriddin (933112009)
3	28.08.2020.	HHS	A survey of the population of the SSG "Narpai" of the Karmaninsky district of the Navoi region, 24 households was carried out. During the survey, it was revealed that these settlements do not border on forestry areas and do not have near-village pastures, animal husbandry is underdeveloped, out of the seven households we interviewed, some of them had a small number of farm animals (cattle and small cattle). The main activity of the local population is irrigated agriculture and partly gardening on household lands. The population of this region proposes to organize, with the help of the FAO project, small greenhouses that could provide a small additional income for households.

4	08/29/2020	Kenimekh district.	A meeting was held in the district khokimiyat with the district khokim Egamkulov Muratkhan Alimovich and district specialists. Meeting at the khokimiyat of the district Muratkhon Olimovich Egamkulov (943701964)
			Yuldashev Gavkharbek 943781966
			Nurzhalbayev Nurlan 943703047 Head of the Agricultural Inspection
			Raistat Kurbanbaev Zhumagali 934624743
			Head of the SSG Mairali Bulabaev 942250556

08/30/2020. As a result of a survey among the population of 24 households of the SSG ?Shurkul? of the Kenimekh district of the Navoi region, it was found that one of the main sources of livelihood for the local population is animal husbandry, but it is carried out using extensive methods. Animals in their mass are unproductive, selection and breeding work is practically not carried out, the level of feeding is low, there is no guaranteed fodder base, there are no points for processing livestock products and sustainable distribution channels, local livestock breeders do not possess effective technologies for keeping animals. The yield of pastures is directly dependent on the amount of atmospheric precipitation, animals are grazed haphazardly, part of the pastures is degraded, and their water supply is uneven.

Unfortunately, the territory is mainly used for pasture maintenance, which is based in regions with low natural resource potential, its technological cycle is extensive, and depends entirely on the natural and forage conditions of the region. At the same time, it should be borne in mind that dekhkan farms are not allocated pastures at all for keeping animals, while the bulk of pastures is transferred to farmers, and dekhkan farms are not legally allocated pasture lands 5at all, so they are forced to graze their livestock on pastures and on land farms, resulting in a conflict between them.

The khokim of the Kenimeh district, Egamkulov Muratkhan Alimovich, personally participated in this event and proposed to restore, with the help of the FAO project, the interfarm feed complex for cattle that previously existed in this Shurkul region, which provided employment for about 300 - 350 people. He offered to cover the cost of purchasing breeding stock from the area. It can be concluded that the standard of living of the population living here and its well-being largely depend on the state of animal husbandry. In this regard, one of the main problems in the development of the region is to ensure the formation of Sustainable Livestock.

5	08/29/2020	Bukhara district	Discussion of the action plan with the representative of the regional khokimiyat, the head of the agricultural industry of the region Mirzaev Ilkhom (tel +99898 2740802)
6	09/01/2020	Alat district	Meeting at a seminar with farmers of the region with the deputy khokim of the region for agriculture Hikmatov Sanatillo Nusratovich and the khokim of the Alat region Nargiza Isomiddinovna Nematova.
7	09/01/2020	Alat district	A survey was conducted of the population of 24 households of the SSG ?Pakhtakor? of the Alat district of the Bukhara region, during the survey it was revealed that the local population is engaged in vegetable gardens and orchards, as well as temporary or seasonal work on farms. Livestock raising is underdeveloped and in an unsatisfactory state. Some of the interviewed deputies had a small number of farm animals, it was noticed that some of the interviewed live below the poverty line, they do not even have a single head of cattle and small cattle in their household. Residents of this region are asking for help to create conditions for breeding livestock, broiler poultry and cage rabbit breeding in households. This will ensure food security of the region and employment of the local population. In order to compensate for the damage from the natural disaster, local residents were allocated slate for the repair of roofs and up to 1.0 million soums of compensation.
7	02.09.2020	Romitan district.	A meeting was held with the khokim of the district and specialists of the district
8	03.09.2020	Romitan district.	A meeting was held in the JCC ?F. Kurbonov ?and a survey of the population of 24 households The local population is engaged in irrigated agriculture and partly in gardening on household plots. The population of this region offers to organize small greenhouses that could provide additional income for households. A team of craftsmen has been organized, for which it is necessary to build a furniture shop, for which it is necessary to allocate land for construction and where up to 10 people will work. Isroil Bozorov (97 3024080)
9	04.09. 2020	Bukhara district	A meeting was held with the deputy khokim of the district and specialists of the district

			Galaosiyo, SSG "Dustlik" conducted a survey of the population of 24 households
10	08/05/2020	HHS	The local population is engaged in irrigated agriculture and partly in gardening on household plots. Contains a small amount of MPC at home. Part of the makhalla population lives in multi-storey buildings.
11	09/06/2020	Kagansky district.	Meeting with the khokim of the district Mukhiddin Turdievich Esanov and district specialists
	09/07/2020	Kogon district	A meeting was held in the JCC ?Ziyo Kobilov? and a survey of the population of 24 households was conducted
			The local population is engaged in irrigated agriculture and partly in gardening on household plots. Contains a small amount of cattle and small cattle at home.
			The settlements of the VSS do not border on forestry areas and do not have near-village pastures, animal husbandry is poorly developed.
			Meeting with the head and specialists of the Bukhorokarakuli association of the Bukhara region Mamarizaev Nemat Asadovich
	09/08/2020	Vabkent district.	A meeting was held with the deputy khokim of the district and specialists of the district
			A meeting was held in the SSG ?R. Khusenov ?and a survey of the population of 24 households
			In the village there is a ZOOVET service point "Imom Kozikhon", along the roads the road workers have planted paulownia trees.
			The local population is engaged in irrigated agriculture and partly in gardening on household plots. Contains a small amount of cattle and small cattle at home.
	09.09.2020.	Gijduvan district.	A meeting was held with the deputy khokim of the district and specialists of the district

	09/10/2020.	Gijduvan district.	A meeting was held in the JCC ?H. Olimjon ?and a survey of the population of 24 households. The local population is engaged in irrigated agriculture and partly in gardening on household plots. Contains a small amount of small cattle at home. About 90% of young people are working in Russia (Tyumen). The Kuvonchbek Dyori farm is engaged in the production of cotton and grain crops. Farmer Sadullaev Kuvondik (91 4115757). It is necessary to repair the pump and build sheds for agricultural machinery. The farm "Sulaimon bobo" livestock-raising direction has alfalfa crops -32 hectares, pedigree livestock, a garden and a reservoir of 10 x 10 m for fish farming, 4 m deep. The total land is 39 hectares. Farmer Tursunov Okil (91 9774930). The problem for the development of the economy is the lack of water. Local resident Saidov Nemat (91 2475557) proposes to create a peach garden on 1 hectare. In general, for this village, local residents raised the problem of lack of water and very bad roads.
	09/10/2020	HHS	A survey of 192 households was conducted: When interviewing the districts of Bukhara region, local residents raised the problem of lack of water and very bad roads, asking to asphalt roads, especially to schools. The problem of raising water from canals and kododtsy with pumps. Water distribution and cleaning of the irrigation system and canals. Unemployment. High feed prices and unavailability of feed. Almost all settlements selected for the survey do not border on forestry areas and do not have near-village pastures, animal husbandry is poorly developed, from among the households we surveyed, only a few had a small number of farm animals (cattle and small cattle), which are mostly kept at home.
	09/16/2020	Nurata district	Meeting in the khokimiyat of the Nurata district with the khokim with Umarbek Yakhshimuradovich Khalilov (tel. +99891 1645431) and with the district specialists. The khokim of the district suggested planting 200 hectares of pistachio plantations on the territory of the forestry, and planting perennial drought-resistant forage crops such as izen and tereseken between rows. Ecotourism facilities are planned to be built near 50 hectares

	09/16/2020	Nurata district	Meeting with Khazratov Sobir, a forestry specialist (+9732177716). The entrepreneur is interested in the reproduction of Paulownia trees, plans to plant on 5 hectares, asks for a powerful water spray for a private farm for jet irrigation of agricultural crops
	09/16/2020	Nurata district	A conversation with the shepherd of the MChZh "Istiklol" Abdukhamid Sherov, Owns 550 heads of Karakul sheep; says there is an ephemeral - essential association with rare wormwood bushes.
	09/17/2020	Nurata district	Conversation with the shepherds of the MChZh "Istiklol" Rakhimov Idiboy (97 3669926) (700 head), including young animals and Safarov Zavki (94 257 7643) (720 head).Shepherds note the problem with water, the repair of wells and the high cost of feed. Tamarix plants, as shepherds note, appeared after the cultivation of these lands for vegetable crops, now these lands are used for grazing.
	09/17/2020	Nurata district	Meeting with the heads of the MChZh of karakul farms "Kizilcha" Abdiev Ikrom Kholniyozovich (tel. +99893 3185773) and specialists of the farm Zhumaev Aktam (93 4381402). Existing problems: it is necessary on the territory of 4-5 wells, the creation of a 100 hectare site for primary seed production of perennial drought-resistant forage crops, such as izen and teresken.
	09/17/2020	Nurata district	Meeting with "Nurota" Kurbonov Hazrat (+99893 5512780) and farm specialists, Zhuzbaev Uroz (99 3825770) To improve breeding work, 50 heads of pedigree rams from the Kashkadarya region
	09/18/2020	Nurata district	Meeting with the head of the Uzbekkorakuli association in the Navoi region Khalilov Ulugbek Yakhshimuradovich Existing problems: it is necessary to organize a feeding station for 500 heads, 200 hectares of saxaul forests with semi-shrub species. Wool processing shop, ZOOVET item.
	09/18/2020	Nurata district	Meeting with director of Zhondor forestry enterprise with the chief forester Khamroev Khasan (93 9662646) Cadastre of the forestry enterprise Yadgarov Rustam (99 7062466)Khudaykulov Zhasur (97 3076464) Meeting in the forestry enterprise

| | 09/18/2020 | Nurata district | Conversation with the representative of the farm Khalimov Hakim.

Grow Cotton and grain. Pastures are located 3-4 km from the village. Drinking water is transported to the village on a GAZ-53 water carrier, the cost of 5 tons is 100,000 soums. |
|---|---|---|---|
| | 09/18/2020 | Nurata district | Meeting in the Department of Agriculture with the Deputy Khokim for Agriculture Rahmon Saidov (90 9945632) and with the specialists of the district, Samadov Sobir, Head of the Livestock Department of the District (97 3033615) |
| | 09/19/2020 | Nurata district | Meeting with the head of the Karakul breeding MChZh "Amir Timur" Odil Sherov (94 3200571). Discussion with the MChJ of the dislocation of flocks on pastures, the problem of repairing wells that were built 80 years ago, providing drinking water, pumps, degradation of pastures, a decrease in productivity. Problems of selling wool, problems of feed processing by granulation. |
| | 09/19/2020 | Nurata district | Meeting with a specialist in agriculture and veterinary medicine of the region Khuzhanazarov Shukurullo (93 4751911) |
| | 09/19/2020 | Nurata district | Meeting with the veterinarian of the Ibodov Kandier district (930833009), The problem of laboratory equipment, mobile movement around the territory of the district, the creation of additional ZOO veterinary posts. |
| | 09/19/2020 | Nurata district | Meeting with the head of the regional Center "Marifat va Manaviyat (Enlightenment and Spirituality)" Ergasheva Lola Farkhodovna (99 3518129), discussion of the problems of women in the region. |
| | 09/19/2020 | Nurata district | Valuation of pastures of LLC "Amir Timur" |

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[1] See FAO Operational Guidelines for Stakeholder Engagement

In addition, provide a summary on how stakeholders will be consulted in project execution, the means and timing of engagement, how information will be disseminated, and an explanation of any resource requirements throughout the project/program cycle to ensure proper and meaningful stakeholder engagement

Key stakeholders, their mandates, and roles in the project

The project will work with a wide range of stakeholders, from international, central government, to sub-national and local levels. The main stakeholders and their roles are summarized in Table 16 below.

Table 16. Key stakeholders, their mandates, and roles in the project

Stakeholder	Mandate	Role in the project
Cabinet of Ministries (CM)	Provides management of the economy, implementation of laws and decisions of the Oliy Majlis (Supreme Council), Decrees and orders of the President of the RoU, pursues a unified policy to maintain the proper state of the environment and regulates the use of natural resources.	General coordination and overseeing compliance with Decisions and Resolutions of the Government in the field of environmental and agricultural policy and innovative practice.
The State Forestry Committee	Provides management and rational use of forest resources, introduces advanced scientific and technical achievements in the industry.	Responsible for project execution/ Consulting on the broader environmental and landscape issues, and technical assistance on LDN target setting, SLM/SFM practices and decision support for scaling out.

Stakeholder	Mandate	Role in the project
Ministry of Agriculture (MOA)	Carry out a unified agricultural policy, coordinate activities to reform agriculture, responsible for the efficient and rational use of land resources for the introduction of modern agricultural technologies and the creation of a monitoring system for agricultural production, soil and water quality, soil fertilities, etc./	Responsible for project execution. MOA will participate in a activities dedicated to land use planning processes, including the integration of joint pasture-forest management, introduction of the SLM technologies and lead creation of a monitoring system. Consulting on livestock and landscape issues and ensure coordination with agricultural private sector lending initiatives, technical assistance and activities.
State Committee for Environmental Protection (Goskomekologiya)	Carries out control over the implementation of laws and regulations related to environmental protection and environmental management in the Republic. Main body to oversee environmental monitoring.	Consulting on the environmental protection measures and policies and technical assistance in project activates.

Stakeholder	Mandate	Role in the project
Local government bodies (khokimiyats) at the regional and district level	The body of executive and representative power, ensures the implementation of laws and decisions of the Government and the President, has the highest influence on the target groups at the local level.	Ensuring the consolidation efforts of the local communities, families and women for implementation of the local initiates? in collaboration with citizens' self-government bodies.
Councils of farms, dehkan farms and owners of garden plots and pasture user associations of Uzbekistan (Farmer?s Council)	An association representing farmers, protection and representation of their interests in state and other organizations.	Consulting on the interests of farmers, including how to make extensions services and access to finance more relevant to women/ youth. Carry out a systematic review of land use, pasture and agroecosystem services and benefits to farms.
Research Institute of Karakul Sheep Breeding and Desert Ecology	The institution is responsible for the development of scientific approaches and the practical implementation of innovative technologies in the field of pasture management and animal husbandry in desert regions	Ensuring scientifically based locally available approaches and practices to improve pasture management; providing support in the supply of seeds, fertilizers, seedlings, breeding stock; consulting and advice in training , etc.
Forestry Research Institute	The Institute unites five forest experimental research stations. The Institute is responsible for forest research and related activities.	Consulting on locally available technologies and approaches on the forestry issues.

Stakeholder	Mandate	Role in the project
Academy of Sciences, scientific and scientific-production organizations and associations, departments and laboratories (Research Institute of Forestry, Plant Protection, etc.) Agricultural Consulting Centers at Universities	Conduct scientific research on SLM technologies and innovations, provide advice and training for land users. Provide various agricultural advisory/extension services to land users.	Consulting on selection and scaling up of the SLM practices and innovations; to conduct advice and training program farmers, women, land users and local decision makers.
Agencies and organizations of mass media	Disseminate information and form public understanding of the role and importance of SLM	Assistance in ensuring transparency, raising awareness of government agencies, households and decision makers about the role and benefits of SLM, and replication of the best practices, l as in developing public interaction with the mass media.
Rural Council of Citizens (RCC)	An independent self-government body carries out public initiatives and events at the local level, can assist in ensuring the participation of local communities in the expansion of SLM, and monitor implementation at the local level.	Assistance in the scaling out of the SLM practices and implementation of the project activities with involving local Consulting/Extension Services.
Private sector actors and associations e.g. of bee-keepers	They conduct independent agricultural activities, which directly depend on government policy. They directly or indirectly experience the negative impact of land degradation and are interested in expanding SLM	Collaboration along value chains, including through backward linkages to farmer groups for mutual benefit.

The Stakeholder Engagement Plan is provided in Annex I2 of the PRODOC. It consists of the consultations that have taken place in project formulation (1) and consultations that will take place during implementation (2).

The table below summarizes stakeholder engagement during project implementation

Stakeholder Name	Stakeholder Type	Stakeholder profile	Consultation Methodology	Expected timing	Comments
Local Community Councils in Jondor district, Bukhara province	**Direct beneficiary**	Local community	Individual meetings, focus group discussions, stakeholder workshops	Regular monthly	
Local Community Council in Nurata district, Navoi province	**Direct beneficiary**	Local community	Individual meetings, focus group discussions, stakeholder workshops	Regular monthly	
Khokimiyat (local authorities) and agricultural departments of Jondor district, Bukhara province	Partner	Local Government Institution/body	Individual meetings, stakeholder workshops	Regular monthly	
Khokimiyat (local authorities) and agricultural departments of Nurata district, Navoi province	Indirect Beneficiary	Local community	Individual meetings, stakeholder workshops	Regular monthly	
Council of Farmers, Dekhkan Farms and Landowners of Uzbekistan (Farmers? Council)	Indirect Beneficiary	National Government Institution body	Consultation meetings and workshops (offline and online) on project activities related to farmers and smallholders	Regular monthly	
Association of Women Agrarians	Indirect Beneficiary	Non-Gonvernmental Organization	Consultation meetings and workshops (offline and online) on gender mainstreaming of project activities	Regular quarterly	

Business Women?s Association	Indirect Beneficiary	National Government Institution body	Consultation meetings and workshops (offline and online) on gender mainstreaming of project activities	Regular quarterly	
State Committee on Forestry of Uzbekistan	Indirect Beneficiary	National Government Institution body	Individual meetings, visits to the project sites, workshops	Regular weekly	
Ministry of Agriculture of Uzbekistan	Indirect Beneficiary	National Government Institution body	Individual meetings, visits to the project sites, workshops	Regular weekly	
State Committee on Ecology and Environmental Protection	Indirect Beneficiary	National Government Institution body	Individual meetings, workshops	Regular quarterly	
Soil Research Institute, Uzbekistan	Indirect Beneficiary	Other	LDN related discussions, consultations at meetings and workshops	Regular quarterly	
World Bank	Other	Resource Partner/Donor	Individual meetings, stakeholder consultation workshops	Regular quarterly	
German Society for International Cooperation	Other	Resource Partner/Donor	Individual meetings, stakeholder consultation workshops	Regular quarterly	
Turkish Cooperation and Coordination Agency	Other	Resource Partner/Donor	Individual meetings, stakeholder consultation workshops	Regular quarterly	
Japan International Cooperation Agency	Other	Resource Partner/Donor	Individual meetings, stakeholder consultation workshops	Regular quarterly	

Korea International Cooperation Agency	Other	Resource Partner/Donor	Individual meetings, stakeholder consultation workshops	Regular quarterly	
Asian Development Bank	Other	Resource Partner/Donor	Individual meetings, stakeholder consultation workshops	Regular quarterly	

Select what role civil society will play in the project:

Consulted only;

Member of Advisory Body; Contractor; Yes

Co-financier;

Member of project steering committee or equivalent decision-making body;

Executor or co-executor; Yes

Other (Please explain)

3. Gender Equality and Women's Empowerment

Provide the gender analysis or equivalent socio-economic assesment.

1. This analysis draws mainly on the Country Gender Assessment by the FAO[1], but also the PPG socio-economic baseline report, field consultations and desk research. Constraints included a lack of up-to-date-district level sex-disaggregated data such and limited field consultations due to the coronavirus pandemic. Please also see the Gender Action Plan. The Project builds on a recognition of women?s practical needs associated with their traditional gender roles but also seeks windows of opportunity to expand these.

2. **Gender in policies**. Selected policy provisions are given below.

   ? *International.* Uzbekistan has nationalized goals and indicators including for the SDGs, target 5.A (?Expand programs to support women in the realization of their rights and interests in the socio-economic sphere?), target 5.B (?Make more active use of high-performance technologies, in particular information and communication technologies, to

help empower women?) and target 5.5 (?To ensure the full and effective participation of women and equal opportunities for women to leadership at all levels of decision-making in political, economic and public life?). [2] Uzbekistan acceded to the *Convention on the Elimination of all Forms of Discrimination Against Women* in 1995. In its concluding observations on the 5th periodic report, the Committee recommended that the government enhance women?s awareness of their rights and the remedies available to them to claim violations of their rights under the Convention, including to rural women. A need for wider understanding of women?s substantive equality was highlighted.

?   *National*. The principles of non-discrimination and equal rights for women and men are enshrined in the Constitution.[3] The country has also integrated gender dimensions of the Beijing Declaration and Platform for Action, some of which are set out below.[4] Uzbekistan also approved 16 national SDGs and associated targets for delivery by 2030. A national set of indicators was developed and approved to facilitate the monitoring of the progress in the implementation of the SDGs. Out of 206 adopted indicators, 32 are gender-related. A dedicated website (http://nsdg.stat.uz/) helps to track implementation. Furthermore, a gender strategy is being developed until 2030, according to which each organization should adopt its own policy, based on 54 gender indicators tied to the SDGs.[5] Indeed, and importantly for this Project, the State Committee on Forestry is developing its own sectoral gender strategy, supported by the FAO, to ensure equal consideration of the interests of women and men living in forest areas, ensure sustainable forest management, social justice, national and international obligations, as well as to effectively implement the tasks of the Committee.[6] The FAO will ensure close coordination between the two projects. In September 2019, Uzbekistan adopted the country?s first gender equality law, ?Guarantees of Equal Rights and Opportunities for Women and Men?. The law covers political, economic, social, educational and familial spheres and defines what gender-based discrimination is, as well as the legal actions that can be taken to counter it. Among other provisions, the law confirms that women and men have equal access to economic resources, including movable and immovable property, land, financial assets, loans, public funds and freely chosen types of business activity. The government has also showed concern for women?s employment including through home-based options for rural women in the resolution ?On measures to further strengthen guarantees of labor rights and support women?s entrepreneurial activity? (2019). The resolution is the basis for the creation of the country?s Commission on Gender Equality. In 2019, another law ?On Protection of Women From Harassment and Abuse? also marked an important milestone in protecting women from all forms of harassment and abuse.[7] Despite these advances, and as in many contexts, gaps exist ? of particular relevance to the project, a recent Law on Pastures (2019) also omits any specific provisions on pasture access for women or vulnerable people.[8]

3.   **Women?s informal/ invisible contribution to farming**. In Uzbekistan, farming is typically considered a ?male? profession, and there is often a gendered division of labor, with most farms and holdings are registered in men?s names. Bukhara and Navoi have 2.3% and 2.6% female farm heads respectively according to 2013 data, although the figures do not appear to include women who head *dehkan* farms, of which there may be a larger number. [9] *Dekhan* farms are also mainly registered to

and managed by men though while women play a significant role, including as unpaid labor. Typically, men do most of the work involving machinery/ technology (e.g. ploughing land) while women carry out manual labor (e.g. weeding/ sowing seeds. Some tasks on family plots are performed jointly (e.g. fertilizing, or harvesting fruit and vegetables or fodder for animals). It is important to note that although most farmers are both the registered owners and managers of their farms, some farmers are not the formal owners and their land plots are registered to other family members. It is possible that women make up a large share of women fall ito this category, so that while a woman may manage a farm *de facto*, legally the enterprise is registered in the name of a male relative, and she may not be counted as the farm head for statistical purposes. In addition to formal farm structures, rural households undertake farming activities on individual household plots (?kitchen gardens? or *tomorka*). These are especially important for household consumption but likely also contribute to income generation. Female and male family members undertake work on *tomorka* plots, but if men out-migrate, the burden falls more intensively on women. Women?s labor in kitchen gardens, as well as in family orchards, are not considered a formal part of agricultural production. The informality of women?s contributions may also mean that rural advisory services aimed at people who farm as a business, fail to reach women.

4.   **Gender and decision making.** In traditional and multi-generational households, younger family members usually defer to the head of household, typically the eldest man in the family. When traditional gender roles are adhered to strictly it can mean limited opportunities for especially younger females, e.g limited mobiliy or pemission to work outside the home. Younger unmarried males may also be expected to obey the head of household?s decisions e.g. on questions about labor migration. When women are involved in making decisions, this likely to be in ?women?s issues? e.g. children?s upbringing while men mainly make the decisions about how profits from farming are used. In some families, the mother-in-law plays the main role in intra-household income distribution. But even when a woman is the household head, if she is divorced or widowed, her adult sons often take on the decision-making role or other relatives are consulted. *Project implications: all training for beneficiaries will include gender dimensions, including the importance of women?s contribution to decision making in the home and key institutions e.g. in the pasture groups established. Key messages will include that women should be able not only to jointly make decisions on farming and livelihoods strategies for the family, but that they should also have a voice in how profits are spent.*

5.   **Gender gaps in access to assets/ productive resources.** Some significant gaps are set out below.

> ?   *Land and natural resources* As outlined above, women?s formal access to land is very limited; although updated formal data was not located for this analysis, this is the consensus of various studies. For example, female-owned property composes only about 22% of the total value of property registered with the National Agency on Land and property Cadastre.[10] Rural households are traditionally headed by men, so most property is registered to men and other assets are also traditionally owned by men.[11] The socio-economic baseline survey during the PPG found that proportionally more female headed households stated they did not access any land in general, and that slightly more female headed households proportionally feel they do not have enough access to pastures for either home consumption or for surplus production. The baseline survey also found that the lands of proportionally more female headed households surrounded by sandy/salinized areas, indicating that they access poorer quality lands. The PPG baseline survey found that

proportionally more female headed households take over half a day to access water on pastures that they access. *Project implications: various measures e.g. promote women?s access to pastures and forests, 30% quota for women?s participation in local multi-stakeholder groups e.g. pasture user associations. Training on VGGT includes gender dimensions, including the importance of building a database of land ownership by sex/sizes of land plots in Project areas.*

?   *Credit* While there are no direct barriers to women accessing rural finance, they face particular constraints due to their status and prevailing gender norms. These include: (i) typically, women are not the registered owners of land or other property and so lack the collateral needed (ii) women usually have more limited knowledge about loan applications and about business planning (iii) women have more time constraints due to household chores, and may not have the capacity to navigate loan application processes, especially during the harvest season (iv) interest rates are high, especially for women whose businesses tend to be micro and small (v) women see not being able to repay loans as a high risk. *Project implications: facilitate women?s credit access by linking with providers/ other projects. Value chain selection criteria include low risk and minimal additional inputs so as to be accessible to women and minimize their need for external financial support. Women to be specifically targeted in business training (e.g. how to make loan applications) as part of value chain support. The Project will also encourage credit providers to develop products targeting women/ youth, including for any formal groups that are established.*

?   *Technology* Most agricultural labor is not mechanized and involves rather heavy physical and repetitive work. This especially impacts women, and especially if male family members have migrated away. *Project implications: assess and prioritize land management and value chain technologies/ practices that can be operated by women, are relevant to their needs, and could reduce their work burden e.g. milking machines. The assessment will also take into account possible negative impacts e.g. no till approaches may mean increased weeds and increase the work burden of women to clear weeds, so support to buy/ lease weeding machines could be provided. Wherever possible, approaches will build on local innovation, such as a weeding machine developed in Uzbekistan by a woman.[12]*

?   *Agricultural extension services, training and information.* There are no official data about female/male farmers? use of extension services but international organizations that support training for farmers indicates that unless women are specifically targeted, they are underrepresented when topics concern farming technologies. The PPG baseline survey found that proportionally fewer female headed households have access to information on natural resource management and climate events. Rural women also have very limited access to computers and use of internet-enabled mobile.[13]*Project implications: to target women explicitly and equitably, through ensuring that topics, venues, timings and other practicalities are genuinely accessible to women e.g. ensure extension/ climate service take into account women?s lesser access to information and communication technologies and drawing on tools such as ?Gender and ICTs - Mainstreaming gender in the use of information and communication technologies (ICTs) for agriculture and rural development?*

(FAO, 2018). The Project will also support the Council of Farmers to increase the gender responsiveness of their services through gender training related to land management and support to develop a gender strategy/ action plan in Project areas, so that women are better able to contribute to LDN.

6. **Gender dimensions of potential value chains.** The Project commits to target women in sustainable value chains and brief analysis on possible value chains is presented below.

?   *Forest products* In households near forests, men tend to be engaged in the collection of firewood and non-timber forest products (including medicinal herbs, seedlings and some fruits) and cattle grazing, while women are more likely to use forest land to gather non-timber forest products. Women process non-timber forest products, spending time that is additional to their household duties, and men usually are the ones to sell such products. The use of forest land is regulated by tickets and men form the majority of ticket holders; women rarely enter into formal negotiations with forest enterprises.[14] At the time of writing, the State Committee for Forestry is developing a sectoral gender strategy and developing gender coordinator positions in forest enterprises, so promoting women?s value chain participation in forest based enterprises is a promising option. FAO focus group discussions related to the forestry sector identified a need to engage with women in order to ensure that they have a voice in forest management and build on their capacities in related income-earning activities.

?   *Dairy and livestock.* Most rural households keep livestock. Men are generally more involved in the sale, slaughter and breeding of livestock, but women usually graze and feed livestock, particularly when grazing areas are near the home, and they are also responsible for milking animals and preparing dairy products, as well as the informal sale of surplus products e.g. milk, eggs. As pasture users, women are key actors in the dairy sector with have primary responsibility for household nutrition; they therefore have an important stake in sustainable pasture management. Poor quality, unsustainable pastures have both commercial and health implications: they translate into poor quality milk and into sub-optimal nutrition/ economic benefits for the household. The dairy sector has been identified by World Bank study as culturally acceptable for women, which is confirmed by field consultations during the PPG.[15]

?   *Crops and horticulture* Women cultivate wide variety of crops, including vegetables and fruit, and although rural women are interested in processing vegetables and fruit locally (e.g. through mini-factories, and adding value through products from *dehkan* farms to make jams, juices, fruit purees for children, marinades and pickles) there are not enough processing plants.

7. A more comprehensive analysis of gender issues in agriculture is found in the FAO Country Gender Assessment for the country (2019), which will be a key guiding resource throughout implementation, including in the compulsory training on gender for all project staff and consultants.

8.   Based on this gender analysis and consultations, the GAP in Annex P has been developed. The **GAP goal is to** promote gender responsive SLM/SFM and landscape restoration to achieve LDN commitments of Uzbekistan and promote increased access to natural resources, economic benefits from these resources, increased participation in decision making related to these resources, and reduced workloads for women.

Operational principles of the GAP are:

1.   All relevant project data will be disaggregated by sex

2.   Women?s equal participation in project activities (consultations, training etc)

3.   Minimum 30% participation of women in all organizations, fora and similar

4.   All methodologies to include provisions to identify gender differences

5.   Gender dimensions analyzed in all Project supported reviews, analyses (including gender differences, opportunities, risks to women/ men)

6.   All training will include the gender dimensions of the topic in question

7.   Gender specific recommendations integrated in all policy recommendations

8.   Gender training for all Project staff/ consultants and key stakeholders

9.   Gender included in the Terms of Reference (TOR) for all staff and consultants/contractors

10. GEF gender policy/ guidelines, FAO gender policy and safeguards related to gender, UN Women/ UNCCD LDN gender manual[16] and emerging Gender Strategy of the State Forestry Committee of the Republic of Uzbekistan for 2021-2025 are to inform Project actions.

9.   The Project will identify a gender focal point within the team in order to coordinate actions, track adherence to these operational principles, and report on the GAP implementation. Overall responsibility for the GAP lies with the Project Director. In addition, the Project will hire a gender specialist in order to ensure implementation of the GAP and carry out specific actions e.g. gender training and make gender related inputs in other activities.

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[1] FAO, 2019

[2] See http://nsdg.stat.uz/goal/8 (Russian)

[3] Asian Development Bank. 2018. Uzbekistan Country Gender Assessment Update.

[4] The following national report has more details: ?Report of the Implementation of the Beijing Declaration amd Platform for Action? (2019).

[5] Strategy for Achieving Gender Equality in the Republic of Uzbekistan 2020-2030. Source: https://strategy.uz/index.php?news=745&lang=en

[6] See https://www.uzdaily.uz/en/post/61980

[7] See https://lex.uz/docs/5147718

[8] According to informal translation of Law at https://cis-legislation.com/document.fwx?rgn=115786

[9] The programme, ?Establishment of extension information and advisory services to support women in agriculture through training, leadership development, capacity building, exchange of experience and promotion of export-oriented products?, conducted by the Central Asia and the Caucasus Association of Agricultural Research Institutions (CACAARI), the International Center for Agricultural Research in the Dry Areas (ICARDA) and the Ministry of Agriculture and Water Resources, included a survey of 458 female farmers.

[10] From data provided by the Chamber of Commerce and Industry to the Asian Development Bank in September?October 2017 for their 2018 Country Gender Assessment Update.

[11] Asian Development Bank. 2018. Country Gender Assessment Update.

[12] See https://www.unicef.org/uzbekistan/en/stories/girls-can-invent-and-innovate

[13] Asian Development Bank. 2014. Uzbekistan: Country Gender Assessment 2014.

[14] FAO. 2017. Gender, rural livelihoods and forestry: stakeholder and gender analysis in the forestry sector in Uzbekistan (unpublished).

[15] World Bank. 2017. Diagnostic Study of Barriers for Strengthening Livelihoods of Low-Income Rural Women in Uzbekistan.

[16] UN Women, Global Mechanism of The UNCCD and IUCN. 2019. A Manual For Gender-Responsive Land Degradation Neutrality Transformative Projects and Programmes.

Does the project expect to include any gender-responsive measures to address gender gaps or promote gender equality and women empowerment?

Yes
Closing gender gaps in access to and control over natural resources; Yes

Improving women's participation and decision making Yes

Generating socio-economic benefits or services or women Yes

Does the project?s results framework or logical framework include gender-sensitive indicators?

Yes

4. Private sector engagement

Elaborate on the private sector's engagement in the project, if any.

1.   The proposed project directly target smallholders whose livelihoods depend on the desert ecology and who are to use over 70% of pastures as agriculture land. Jondor and Nurata target districts of Bukhara and Navoi regions are located in the desert zone where the main occupation of local population is animal husbandry. The practiced animal husbandry is directly relies on the use of the surrounding deserts as pastures and hayfields that also serve as sources honey and medicinal plants.

2.   Household survey conducted during the PPG revealed that the small-scale farmers are characterized by low incomes, with 40% of respondents reporting a monthly income of less than 1 million Uzbekistan Som (approximately 95 US dollars), which translates into less than the poverty line of $3.20 a day applied to Lower Middle Income Countries.[1] Small farmers also suffer from high unemployment levels - 15% of respondents are unemployed. Family farms are facing high operating costs. Most respondents can be described as *small farmers operating in family farms* of 4-6 people, with plots of up to 0.2 hectares (ha) and likely to be dekhan[2] farmers. Farming is important and farmers are interested in expanding production, but at present it is mostly for home consumption rather than for sale, with almost no value addition being carried out.

3.   The project will be involved in community-based land use management (i.e. pasture management) in Jondor and Nurata districts of Bukhara and Navoi regions to harness the cumulative economic value of small-scale forest and farm producers. Participatory approaches for the identification of land degradation hot and bright spots, rangeland health, and land use planning and management are central to the project strategy.

4.   The project will directly target dairy, bee-keeping, and medicinal plants value chains as they that provide concrete livelihood opportunities while releasing the pressure on land resources, and are accessible to both women and men. The analysis conducted during the project preparation phase (available in Annex S) covered the socio-economic context of the value chains, demand for products in the value chain, analysis of institutional structure, analysis of markets for means of manufacture and products, functional analysis of value chain, economic analysis of value chain. While the project directly targets rural Dehkan households, it will also engage private farm enterprises in the consultation process on Components 1 and 2, and trainings (Component 2).

5.   The Government is undergoing structural reforms in the agriculture sector strengthening the role of the private sector. For example, the GoU is in the process of replacing the State production targets and procurement prices for wheat with public grain stocks and stronger role of private sector linking the producers to markets[3]. Until now, nationally produced wheat was collected by the State

and separated based on gluten content before being stored in large silos[4]. Under the reform, new private sector entities ?Wheat Clusters? have been formed to serve large and small wheat producers as the main investors, input and extension providers. Following this trend, the project will also establish the Feed Clusters that in the future will be the key investors for the livestock farmers? support (see Annex H Work Plan).

6.　　　　A detailed outline of the target districts beneficiaries? private sector engagement potential and project opportunities and private sector indicators are provided in *Dairy, bee-keeping, and medicinal plants target value chains section* of the *Target landscapes: Jondor (Bukhara) and Nurata (Navoi) districts* Chapter of the project document.

[1] Source: BOX 1.1 Different Measures for Understanding Poverty in World Bank. 2020. Poverty and Shared Prosperity 2020: Reversals of Fortune.

[2] Small-scale family based farm, based on household plot operation, with lifetime inheritable possession. Dekhan farmers are free to grow what they choose.

[3] Public Grain Stocks in Uzbekistan: How Should They Look Like? World Bank. January 21, 2020

[4] Miller Magazine. 2018. Grain and Flour Market in Uzbekistan.

http://www.millermagazine.com/english/grain-and-flour-market-in-uzbekistan/

5. Risks to Achieving Project Objectives

Elaborate on indicated risks, including climate change, potential social and environmental risks that might prevent the project objectives from being achieved, and, if possible, the proposed measures that address these risks at the time of project implementation.(table format acceptable):

1.   Risk management is a structured, methodical approach to identifying and managing risks for the achievement of project objectives. The risk management plan will allow stakeholders to manage risks by specifying and monitoring mitigation actions throughout implementation. Part A of this section focuses on external risks to the project and Part B on the identified environmental and social risks from the project.

Section A: Risks <u>to the project</u>

In the section below, elaborate on indicated risks **to the project**, including climate risks, COVID-19, and potential social, environmental, political or fiduciary risks that might prevent the project objectives from being achieved and the proposed measures that address these risks at the time of project implementation.

Risk	Rating	Mitigation Measure

Risk	Rating	Mitigation Measure
Lack of close cooperation between key institutional stakeholders, such as the State Committee on Forestry, the State Committee on Ecology and Environmental Protection, and the Ministry of Agriculture	Low	This risk will be mitigated under Component 1 of the project that will strengthen the inter-sectoral coordination mechanism to enhance cooperation on LDN. As the UNCCD focal point, the SCF will lead the inter-sectoral coordination.
Lack of political support to LDN and SLM with focus on grasslands	Low	Political support is high for SLM and LDN, which is demonstrated by the existing policies related to land and forestry. This project will provide an opportunity to strengthen the LDN framework that requires inter-sectoral coordination and to demonstrate good practices in the field.
Low technical capacity in operationalizing LDN at national and regional level halting the project?s progress	Low	Capacity development for LDN will be provided under Components 1 and 2, which will mitigate the risk. Component 3 will in addition provide capacity building for replication of the LDN in other landscapes.
Lack of commitment of local stakeholders at the community level to adopt SLM/SFM to achieve LDN	Low	Implementation will be undertaken through community-based participatory approaches that address local cultural, socio-economic and ecological concerns. The project will provide incentives to farmers to engage in various activities that target LDN, involving both capacity building, awareness, and value-chain strengthening. PPG consultations with the target districts demonstrate a strong commitment of the local population.
limitations in co-finance from the government	Low	The programs used as cofinancing are either backed by presidential decrees or linked to international commitments. These programs will support upscaling of activities. For instance, the project will seek to develop pilot activities that can be upscaled via the World Bank Agriculture Modernization Project.

Risk	Rating	Mitigation Measure
Climate change risks	Moderate	To increase the project?s climate resilience, climate change risks and opportunities at various levels were assessed and incorporated in the project design during the PPG.
		Future projections of climate from downscaled CORDEX data show that average maximum temperature across the country will continue to rise, following the historical trend, particularly in the Navoi and southern regions. According to NC-3 (2016), the risks of formation of extreme low water and drought in Uzbekistan will noticeably increase. All climatic scenarios show that in the runoff formation area, a significant increase in annual and seasonal air temperatures, weak tendencies for a decrease in precipitation and a significant increase in inter-annual variability are expected.
		Household surveys in the Bukhara and Navoi regions conducted during the PPG find that small farmers observe climate/natural disturbances and extreme events such as extreme heat/drought, intense rainfall and sudden temperature changes, animal diseases and pest outbreaks. Despite these challenges, the majority of family farms do not take any action to improve pasture quality and the main reasons are lack of knowledge, lack of time, followed by perceptions of there being no need.
		Annex R provides a detailed analysis of the historical trends in climate and extreme weather events, future projected changes according to climatic scenarios, impacts on target agro-climatic resources and agro-food systems in the project area and proposed risk mitigation measures for project implementation. These include target climate resilience policy measures and monitoring of CC indicators within the context of LDN achievement (Component 1), climate-resilient SLM measures and value chains (Component 2), and knowledge management products and project monitoring (Component 3).

Risk	Rating	Mitigation Measure
COVID-19	Moderate	World Bank analysis shows that the poverty rate rose to between 8.7 and 10 % following the outbreak, compared to pre-COVID estimates of 7.4 %, which adds between 0.45 and 0.88 million people to existing poverty numbers. Food insecurity has shown the share of households reporting reduced food consumption increased to 26 % in April 2020[1]. Nevertheless, Uzbekistan?s outlook remains positive as reforms continue to shift the economy toward greater resource efficiency and private sector growth. The relevant state agencies are currently drafting Poverty Reduction and Employment Strategies that will define further measures the Government will take until 2030 to protect the most vulnerable. The project directly supports the small-holder farmer communities to improve their livelihoods through dairy, bee-keeping, and medicinal plants value chains and participatory SLM measures. Specifically for the dairy VC, the PPG preliminary assessments target reduction in the production costs by 20 % and increasing incomes by 25% compared to the baseline levels.
Low participation of women/ limited benefits to women	Moderate	The GAP contains measure to minimize risks and maximize benefits to women as well as men.
Challenges related to restrictions in mobility	Moderate	This is considered a medium risk given the low COVID-19 vaccination rate at the time of project preparation. In order to address this challenge, the project will adhere to UN and national norms related to travel security and interpersonal distance. It will also work with local contractors when possible to minimize travel and to strengthen local capacity. In addition, lessons learnt from other programs and projects implemented in the country (including GEF-financed) by the project?s executors and implementation agency under COVID 19 restrictions contribute to better planning, as well as to the identification and implementation of appropriate risk-mitigation measures and remote tools and methodologies in order to reach project beneficiaries, including carrying out face-to-face activities.

[1] Uzbekistan Emergency COVID-19 Response Project. World Bank, 2020. Available at
https://projects.worldbank.org/en/projects-operations/project-detail/P173827

Section B: Environmental and Social risks <u>from the project</u>.

Corresponding to section 9 in CEO Endorsement module of the GEF Portal.

Environmental and Social Risk Classification: low risk X

This section is based on the risk matrix obtained during risk screening in the concept note (in FPMIS) and based on further update and revision by the PTF under the responsibility of the LTO.

Project Risk Certification

Entity Number: 666661
Project Title: Sustainable Forest and Rangelands Management in the Dryland Ecosystems of Uzbek
Recipient Country(ies):   Uzbekistan
Estimated total budget in USD: 3,776,941 $

Risk Certification

Certified by: Ziadat, Feras Mousa Salameh (CBLDD)

Date: 10-Oct-2019

The proposed action is classified as: **Low**

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[1] Uzbekistan Emergency COVID-19 Response Project. World Bank, 2020. Available at
https://projects.worldbank.org/en/projects-operations/project-detail/P173827

6. Institutional Arrangement and Coordination

Describe the institutional arrangement for project implementation. Elaborate on the planned coordination with other relevant GEF-financed projects and other initiatives.

1.   The State Forestry Committee (SFC) will have the overall executing and technical responsibility for the project, with FAO providing oversight as GEF Agency as described below. The SFC will act as the lead executing agency and will be responsible for the day-to-day management of project results entrusted to it in full compliance with all terms and conditions of the Operational Partnership Agreement signed with FA. As OP of the project the SFC is responsible and accountable to FAO for the timely implementation of the agreed project results, operational oversight of implementation activities, timely reporting, and for effective use of GEF resources for the intended purposes and in line with FAO and GEF policy requirements.

Figure 23. The project organization structure.
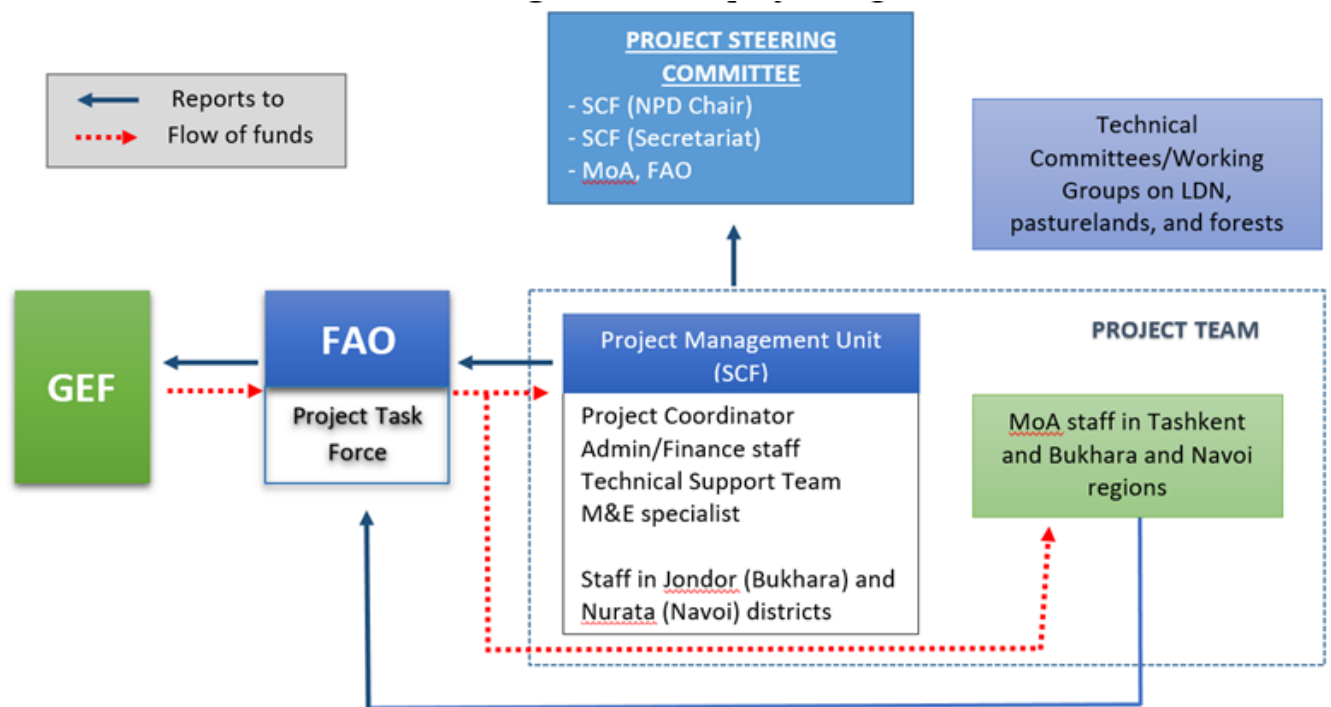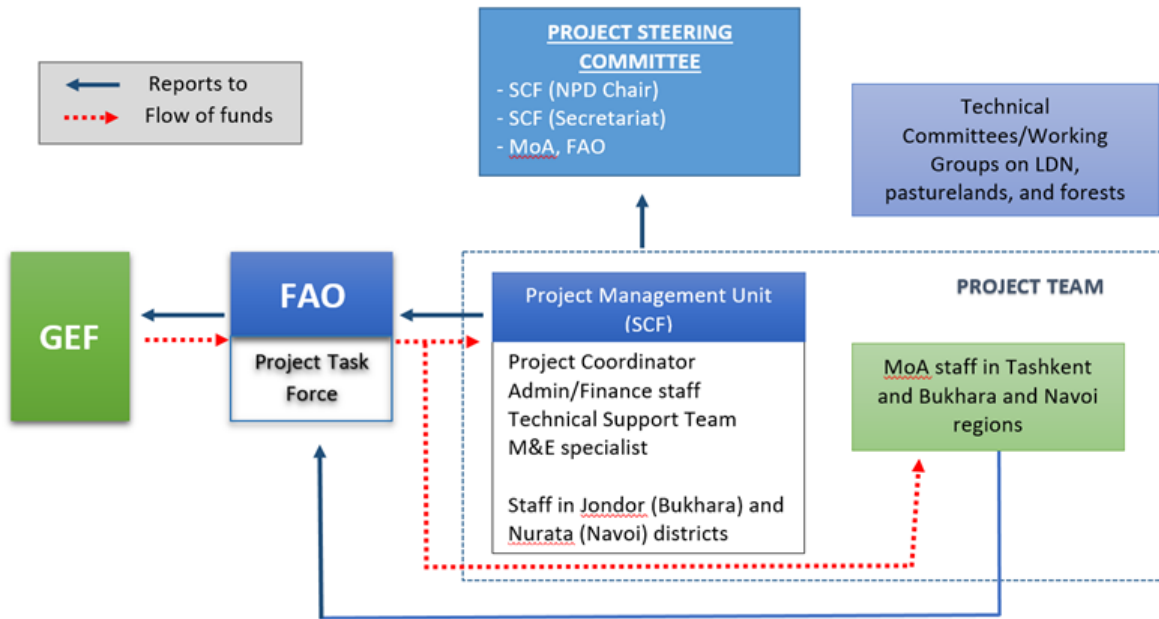
2.	1.	The government will designate a **National Project Director (NPD)**. Located in the SCF, the NPD will be responsible for coordinating the activities with all the national bodies related to the different project components, as well as with the project partners. S/he will also be responsible for supervising and guiding the Project Coordinator (see below) on the government policies and priorities.

2.   The NPD (or designated person from lead national institution) will chair the Project Steering Committee which will be the main governing body of the project. The PSC will approve Annual Work Plans and Budgets on a yearly basis and will provide strategic guidance to the Project Management Team and to all executing partners.

3.   The PSC will be comprised of representatives from the MoA, SCF, and FAO.

4.   The members of the PSC will each assure the role of a Focal Point for the project in their respective agencies. Hence, the project will have a Focal Point in each concerned institution. As Focal Points in their agency, the concerned PSC members will: (i) technically oversee activities in their sector; (ii) ensure a fluid two-way exchange of information and knowledge between their agency and the project; (iii) facilitate coordination and links between the project activities and the work plan of their agency; and (iv) facilitate the provision of co-financing to the project.

5.   The **National Project Coordinator** (see below) will be the Secretary to the PSC. The PSC will meet at least twice per year to ensure: i) Oversight and assurance of technical quality of outputs; ii) Close linkages between the project and other ongoing projects and programmes relevant to the project; iii) Timely availability and effectiveness of co-financing support; iv) Sustainability of key project outcomes, including up-scaling and replication; v) Effective coordination of governmental partners work under this project; vi) Approval of the six-monthly Project Progress and Financial Reports, the Annual Work Plan and Budget; vii) Making by consensus, management decisions when guidance is required by the National Project Coordinator of the PMU.

6.   A **Project Management Unit** (PMU) will be co-funded by the GEF grant and established within SFC. The main functions of the PMU, following the guidance of the Project Steering Committee, are to ensure overall efficient management, coordination, implementation and monitoring of the project through the effective implementation of the annual work plans and budgets (AWP/Bs). The PMU will be composed of a National Project Coordinator (NPC) who will work full-time for the project lifetime. In addition, the PMU will include a project coordinator, administrative/finance staff, technical specialists, and M&E specialist.

7.   The **National Project Coordinator** (NPC) will oversee daily implementation, management, administration and technical supervision of the project, on behalf of the Operational partner and within the framework delineated by the PSC. S/he will be responsible, among others, for:

   i)   Coordination with relevant initiatives;

   ii)   Ensuring a high level of collaboration among participating institutions and organizations at the national and local levels;

   iii)   Ensuring compliance with all Operational Partners Agreement (OPA) provisions during the implementation, including on timely reporting and financial management;

   iv)   Coordination and close monitoring of the implementation of project activities;

   v)   Tracking the project?s progress and ensuring timely delivery of inputs and outputs;

vi)   Providing technical support and assessing the outputs of the project national consultants hired with GEF funds, as well as the products generated in the implementation of the project,;

vii)   Approving and managing requests for provision of financial resources using provided format in OPA annexes;

viii) Monitoring financial resources and accounting to ensure accuracy and reliability of financial reports;

ix)   Ensuring timely preparation and submission of requests for funds, financial and progress reports to FAO as per OPA reporting requirements;

x)   Maintaining documentation and evidence that describes the proper and prudent use of project resources as per OPA provisions, including making available this supporting documentation to FAO and designated auditors when requested;

xi)   Implementing and managing the project?s monitoring and communications plans;

xii)   Organizing project workshops and meetings to monitor progress and preparing the Annual Budget and Work Plan;

xiii) Submitting the six-monthly Project Progress Reports (PPRs) with the AWP/B to the PSC and FAO;

xiv)   Preparing the first draft of the Project Implementation Review (PIR);

xv)   Supporting the organization of the mid-term and final evaluations in close coordination with the FAO Budget Holder and the FAO Independent Office of Evaluation (OED);

xvi)   Submitting the OP six-monthly technical and financial reports to FAO and facilitate the information exchange between the OP and FAO, if needed;

xvii) Informing the PSC and FAO of any delays and difficulties as they arise during the implementation to ensure timely corrective measure and support;

xviii) Ensuring implementation of the Gender Action Plan.

8.   A part-time **Finance Assistant** will be hired with GEF funds and will be seated in SCF. The Assistant will be responsible for the financial management, contract and day-to-day operations of the project activities implemented by the project. S/he will be responsible for procurement and financial actions as well as their monitoring, documentation and preparation of financial reports. S/he will be responsible for the timely delivery of inputs needed to produce results.

9.   A full time **Administrative Assistant** will provide direct interpretation services when needed for day-today operations of the project and in project meetings, workshops and other events related to project. Provide other support to PIU such as preparing/typing documents and meeting arrangements. S/he will provide other support to PMU such as preparing/typing documents and meeting arrangements.

10.   A part-time **Translator** will be hired with project funds and placed at the PMU in SCF. Translator/secretary will closely work with the Project Coordination Unit, under direct supervision of PC. Translator/secretary will be responsible for direct translation services to the project team on a daily basis, for project related documents such as progress reports, work plans, terms of references and other materials and correspondence, project meetings, workshops and other events related to project.

11.   Gender aspects will be coordinated by a gender focal point, possibly the M&E specialist.

12.   FAO will be the GEF Implementing Agency (IA) for the Project, providing project cycle management and support services as established in the GEF Policy. As the GEF IA, FAO holds overall accountability and responsibility to the GEF for delivery of the results. In the IA role, FAO will utilize the GEF fees to deploy three different actors within the organization to support the project (see Annex J for details):

?   The Budget Holder, which is usually the most decentralized FAO office, will provide oversight of day to day project execution;

?   The Lead Technical Officer(s), drawn from across FAO will provide oversight/support to the projects technical work in coordination with government representatives participating in the Project Steering Committee;

?   The Funding Liaison Officer(s) within FAO will monitor and support the project cycle to ensure that the project is being carried out and reporting done in accordance with agreed standards and requirements.

13.   FAO responsibilities, as GEF agency, will include:

?   Administrate funds from GEF in accordance with the rules and procedures of FAO;

?   Oversee project implementation in accordance with the project document, work plans, budgets, agreements with co-financiers, Operational Partners Agreement(s)and other rules and procedures of FAO;

?   Provide technical guidance to ensure that appropriate technical quality is applied to all activities concerned;

?   Conduct at least one supervision mission per year; and

?   Reporting to the GEF Secretariat and Evaluation Office, through the annual Project Implementation Review, the Mid Term Review, the Terminal Evaluation and the Project Closure Report on project progress;

?   Financial reporting to the GEF Trustee.

6.b Coordination with other relevant GEF-financed projects and other initiatives.

14.   The Project will be implemented by the Ministry of Agriculture (MoA) and the State Committee on Forestry (SCF) that will be responsible for project execution and overall coordination. The SCF will be technically leading land degradation assessment, introduction of technologies, and LDN monitoring systems. It will also lead the land use planning processes, including the integration of joint pasture-forest management, and take the lead in establishing a monitoring system for land use and land use change.

15.   Uzbekistan is already implementing a number of projects aimed at sustainable land management and close coordination will be ensured with these projects to exchange experiences and realize synergies, but their funding will not be considered as co-financing:

•GEF/UNDP/State Committee on Ecology Project ?Sustainable Use of Natural Resources and Forestry in Key Mountain Areas Important for Globally Significant Biodiversity?, 2017 - 2021.
•GEF/FAO/State Committee for Forestry Project ?Sustainable Management of Mountain and Valley Forests?, 2018-2021.
•GEF/FAO CACILM program ?Integrated Natural Resources Management in Drought-Prone and Salt Affected Agricultural Production Landscapes (CACILM-2)?, 2018-2021.
•Sustainable and climate sensitive land use for economic development in Central Asia (Germany) that has an objective to adopt integrated, economically and ecologically sustainable forms of land use, taking climate change into account[1].

?   The project will coordinate with the Regional Exchange Mechanism for Central Asia established under the Drylands Sustainable Landscapes Impact Programme (DSL). It will actively collaborate with DSL countries in the region (Kazakhstan and Mongolia) as well as with stand-alone LDN (Turkey, Azerbaijan, Georgia and Armenia) and FOLUR projects (eg. Uzbekistan) in the region. The proposed project will help build knowledge in the region by (i) sharing experiences on land use planning methods both nationally and regionally, (ii) by ensuring that SLM/SFM technologies and approaches are shared with WOCAT and the REM, and (iii) by making its pilot sites available for knowledge exchange (i.e. field visits to and from other projects in Uzbeksitan and in the region). Finally, project management and beneficiaries will participate in knowledge exchange activities organized under the DSL.

16.   The project will coordinate with the Regional Exchange Mechanism for Central Asia established under the Drylands Sustainable Landscapes Impact Programme (DSL). It will actively collaborate with DSL countries in the region (Kazakhstan and Mongolia) as well as with stand-alone LDN (Turkey, Azerbaijan, Georgia and Armenia) and FOLUR projects (eg. Uzbekistan) in the region. The proposed project will help build knowledge in the region by (i) sharing experiences on land use planning methods both nationally and regionally, (ii) by ensuring that SLM/SFM technologies and approaches are shared with WOCAT and the REM, and (iii) by making its pilot sites available for knowledge exchange (i.e. field visits to and from other projects in Uzbeksitan and in the region). Finally, project management and beneficiaries will participate in knowledge exchange activities organized under the DSL.

17.   Navoi region borders Kazakhstan?s dryland region of Kyzylorda which is one of the two target regions of the GEF-7 *Kazakhstan Resilient Agroforestry and Rangeland Project*. Similarity of agro-ecosystems and LD pressures and drivers offers opportunities for regional collaboration and opens up the opportunity for Uzbekistan to tap into the global platforms established under the Drylands IP.

18.   Internationally, the project will establish linkages to the Global Agenda of Action in Support of Sustainable Livestock Sector Development (GASL). The Project?s Outcomes and Outputs will be disseminated through the different activities of the GASL. At the same time, the project will benefit from experiences and lessons learnt in similar projects carried out in the framework of GASL.

19.   In light of the complex mix of stakeholders and the project?s intent to effect change across large landscapes, Project Steering Committee (PSC) will be established and led by the SCF and be composed of representatives of key agencies and initiatives that share interests with the proposed project. The following national actors will be involved in the PSC: Ministry of Agriculture; State Committee on Ecology and Environmental Protection; Association of Farmers of Uzbekistan; and other organizations. The PSC coordination and oversight mechanism was established under the PPG and the key stakeholders reviewed and commented on the full prodoc to ensure it is compatible with the implementation environment and builds upon best practices.

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[1] https://www.giz.de/en/worldwide/14210.html

7. Consistency with National Priorities

Describe the consistency of the project with national strategies and plans or reports and assesments under relevant conventions from below:

NAPAs, NAPs, ASGM NAPs, MIAs, NBSAPs, NCs, TNAs, NCSAs, NIPs, PRSPs, NPFE, BURs, INDCs, etc.

1.   The proposed project is in line and is supportive of existing national strategies and priorities. The existing supportive enabling environment is outlined in the *Policy, legal, and regulatory framework for LDN* section of *Leveraging LDN* chapter. It is strongly aligned with the priorities of the UNCCD and the SDG 15.3 target on LDN (see *Sustainable Development Goals and LDN* and *National LDN agenda* sections of the *Leveraging LDN* chapter), as well as priorities established under other relevant multilateral environmental agreements (MEAs) as follows:

LDN TSP goal:

•The voluntary LDN target adopted by Uzbekistan: ?*By 2030, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world?*.

CBD National Targets:

•National Target 5: By 2025, a set of measures to reduce the rate of degradation and fragmentation of the most vulnerable natural ecosystems is developed and is in the process of implementation.
•National Target 8: By 2025, the state programme for conservation and sustainable use of agricultural biodiversity is developed.

UNFCCC NDC:

Adaptation of agriculture and water management sector

•Improvement of the climate resilience of the agriculture through diversification of food crops production pattern; conservation of germplasm and indigenous plant species and agricultural crops resistant to droughts, pests and diseases; development of biotechnologies and breeding new crop varieties adopted to conditions of changing climate.
•Improvement of irrigated lands affected by desertification, soil degradation and drought, increase in soil fertility of irrigated and rain-fed lands.
•Further improvement of water management practice in irrigated agriculture with wide use of integrated water resources management approaches and innovative technologies for water saving, including broad introduction of drip irrigation systems.
•Improvement of pasture productivity and fodder production in desert and piedmont areas.
•Adaptation of ecosystems
•Restoration of forests in mountain and piedmont areas, conservation of indigenous plant species in semi-deserts and deserts;
•Conservation, restoration and maintenance of ecological balance in the protected nature territories;
•Improvement of sustainability in management of fragile desert ecosystems.
•Social:
•Widening the participation of the public, scientific institutions, women and local communities in planning and management

Bonn Challenge

•National commitment to forest landscape restoration: 500,000 ha (2011-2030).

8. Knowledge Management

Elaborate the "Knowledge Management Approach" for the project, including a budget, key deliverables and a timeline, and explain how it will contribute to the project's overall impact.

1.   The project Knowledge Management (KM) approach follows FAO?s Knowledge Management Strategy[1] and relies on sound knowledge management practices throughout the project cycle. Proposed SLM measures for project implementation (Output 2.1.3) (see *Proposed SLM measures* section) have been tested in similar natural and climatic conditions within the framework of various projects. These technologies are listed in the SLM Global Database of WOCAT[2] that provides free access to the documentation of field-tested SLM data including SLM practices and maps from around the world.

2.   The proposed project will develop a set of manuals and media products that describe the improved practices, measures and technologies, for use by extension workers and producers (Output 3.1.3). These products will document lessons learnt, share validated technical options developed under Component 2. In addition, Output 3.1.3 will strengthen existing local networks for sharing lessons with national, regional and international partners. All KM products will explicitly include gender dimensions, and the Project will also produce gender-specific KM products.

3.   The activities implemented under Component 3 - Effective Knowledge Management (KM) through Result Based Management (RBM), Monitoring and Evaluation - will result in Outcome 4.1 elaboration of Knowledge Management System for sharing project results and replicating tested methodologies in other districts on Bukhara and Navoi regions and other regions across the country. KM system will contribute to scaling up and replication using various types of knowledge products produced including thematic case studies, evaluation and learning reports and briefs; strategic papers, educational and informational materials in printed and digital forms.

4.   In order to achieve this outcome the following work will be delivered and/or implemented by the project team: Project mid-term and final evaluation conducted (Output 3.1.1); Knowledge management products developed and disseminated, including a set of manuals for LDN monitoring and implementation through scaling up of SLM (Output 3.1.3); Gender-focused communication strategy developed and implemented to support SLM scaling up to meet LDN targets (Output 3.1.4). Key deliverables and a timeline for KM can be found in Annex H Work Plan, and relevant KM budget can be found in the project budget.

5.   The project?s broad participation process, involving relevant policy making, research, private sector, extension and education institutions, will ensure that knowledge is shared efficiently within the country. MoA and SFC will be important partners for lesson sharing and knowledge management. Internationally, FAO?s relevant platforms (Pastoralist Hub, Global Agenda for Sustainable Livestock, Global Farmer Field School Platform, CACILM-2 regional platform, and others) will be used for lessons sharing.

6.   Finally, the project builds on the strong technical foundation incorporating lessons learned from previous interventions supporting improving land use and implementation of SLM for combating desertification, land degradation, and drought; climate change adaptation; water resources management;

capacity development and pro-poor policy reform to improve the welfare of the population; and improving living standards and poverty reduction of the population in Uzbekistan. The Central Asian Countries Initiative on Land Management (CACILM1-2) is of particular strategic (policies, drought integration into SLM vision and policy, coordination mechanism, a regional platform) and field-level (SLM practices in similar LUSs) importance to the proposed project to integrate and share lessons learned at sub-national, national, and Central Asia wide levels. An important contribution to supporting the activities of local communities and NGOs on the implementation of sustainable land use and environmental protection is conducted by the GEF Small Grants Program (SGP), implemented by the MoA with the support of the UNDP office in Uzbekistan. Annex T provides details of 115 ongoing and previous national and sub-national projects of the same context which will serve as the core of the project?s knowledge management strategy.

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[1] FAO?s Knowledge Management Strategy requires formulators and implementers to consider sound knowledge management practices throughout the project cycle.

[2] https://qcat.wocat.net/en/wocat/

9. Monitoring and Evaluation

Describe the budgeted M and E plan

1.   The project will ensure transparency in the preparation, conduct, reporting and evaluation of its activities. This includes full disclosure of all non-confidential information, and consultation with major groups and representatives of local communities. The disclosure of information shall be ensured through posting on websites and dissemination of findings through knowledge products and events. Project reports will be broadly and freely shared, and findings and lessons learned made available.

2.   The monitoring and evaluation of progress in achieving the results and objectives of the project will be based on targets and indicators in the Project Results Framework (Annex A). Project monitoring and the evaluation activities are budgeted at 212,000 USD (see Monitoring & Evaluation Summary table below). Monitoring and evaluation activities will follow relevant FAO and GEF policies and guidelines. The monitoring and evaluation system will also facilitate learning and replication of the project?s results and lessons in relation to the integrated management of natural resources.

Oversight and monitoring responsibilities

3.   The monitoring and evaluation roles and responsibilities specifically described in the Monitoring and Evaluation table (see Table 17 below) will be undertaken through: (i) day-to-day monitoring and project progress supervision missions (PIU); (ii) technical monitoring of indicators to measure a reduction in land degradation (PIU and LTU in coordination with partners); and (iii) monitoring and supervision missions (FAO).

4.   At the beginning of the implementation of the GEF project, the PIU will establish a system to monitor the project?s progress. Participatory mechanisms and methodologies to support the monitoring and evaluation of performance indicators and outputs will be developed. During the project inception workshop, the tasks of monitoring and evaluation will include: (i) presentation and explanation (if needed) of the project?s Results Framework with all project stakeholders; (ii) review of monitoring and evaluation indicators and their baselines; (iii) preparation of draft clauses that will be required for inclusion in consultant contracts, to ensure compliance with the monitoring and evaluation reporting functions (if applicable); and (iv) clarification of the division of monitoring and evaluation tasks among the different stakeholders in the project. The M&E and Communications Expert will prepare a draft monitoring and evaluation matrix that will be discussed and agreed upon by all stakeholders during the inception workshop. The M&E matrix will be a management tool for the PC and the Project Partners to: i) six-monthly monitor the achievement of output indicators; ii) annually monitor the achievement of outcome

indicators; iii) clearly define responsibilities and verification means; iv) select a method to process the indicators and data.

5.   The **M&E Plan** will be prepared by the M&E and Communication Specialist together with local communities in the three first months of the PY1 and validated with the PSC. The M&E Plan will be based on the M&E summary table and the M&E Matrix and will include: i) the updated results framework, with clear indicators per year; ii) updated baseline, if needed, and selected tools for data collection (including sample definition); iii) narrative of the monitoring strategy, including roles and responsibilities for data collection and processing, reporting flows, monitoring matrix, and brief analysis of who, when and how will each indicator be measured. Responsibility of project activities may or may not coincide with data collection responsibility; iv) updated implementation arrangements, if needed; v) inclusion of data collection and monitoring strategy to be included in the final evaluation; vi) calendar of evaluation workshops, including self-evaluation techniques.

6.   The day-to-day monitoring of the project?s implementation will be the responsibility of the PC and will be driven by the preparation and implementation of an AWP/B followed up through six-monthly PPRs. The preparation of the AWP/B and six-monthly PPRs will represent the product of a unified planning process between main project stakeholders. As tools for results-based management (RBM), the AWP/B will identify the actions proposed for the coming project year and provide the necessary details on output and outcome targets to be achieved, and the PPRs will report on the monitoring of the implementation of actions and the achievement of output and outcome targets. Specific inputs to the AWP/B and the PPRs will be prepared based on participatory planning and progress review with all stakeholders and coordinated and facilitated through project planning and progress review workshops. These contributions will be consolidated by the PC in the draft AWP/B and the PPRs.

7.   An annual project progress review and planning meeting should be held with the participation of the project partners to finalize the AWP/B and the PPRs. Once finalized, the AWP/B and the PPRs will be submitted to the FAO LTO for technical clearance, and to the Project Steering Committee for revision and approval. The AWP/B will be developed in a manner consistent with the Project Results Framework to ensure adequate fulfillment and monitoring of project outputs and outcomes.

8.   Following the approval of the project, the PY1 AWP/B will be adjusted (either reduced or expanded in time) to synchronize it with the annual reporting calendar. In subsequent years, the AWP/Bs will follow an annual preparation and reporting cycle.

Reporting schedule

9.   Specific reports that will be prepared under the monitoring and evaluation program are: (i) Project inception report; (ii) Annual Work Plan and Budget (AWP/B); (iii) Project Progress Reports (PPRs); (iv) Annual Project Implementation Review (PIR); (v) Technical reports; (vi) Co-financing reports; and (vii) Terminal Report. In addition, the GEF-7 Core Indicator Worksheet will be completed and will be used to compare progress of project Core Indicator 3: ?Area of land restored?, Core Indicator 4: ?Area of landscapes under improved practices?, as well as Core Indicator 11: ?Number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment? with the baseline established during the preparation of the project.

10.   **Project Inception Report**. After FAO internal approval of the project, an inception workshop will be held. Immediately after the workshop, the PC and SCF will prepare a project inception report in consultation with the FAO Representation in Uzbekistan and other project partners. The report will include a narrative on the institutional roles and responsibilities and coordinating action of project partners, progress to date on project establishment and start-up activities and an update of any changed external conditions that may affect project implementation. It will also include a detailed first year AWP/B and the M&E Matrix. The draft inception report will be circulated to, FAO, the PSC and for review and comments before its finalization, no later than three months after project start-up. The report will be cleared by the FAO BH, LTO and the FAO/GEF Coordination Unit. The BH will upload it in FPMIS.

11.   **Annual Work Plan and Budget(s) (AWP/Bs).** The PC will present a draft AWP/B to the PSC no later than 10 December of each year. The AWP/B should include detailed activities to be implemented by project Outcomes and Outputs (including from the Gender Action Plan) and divided into monthly timeframes and targets and milestone dates for Output and Outcome indicators to be achieved during the year. A detailed project budget for the activities to be implemented during the year should also be included together with all monitoring and supervision activities required during the year. The FAO Representation in Uzbekistan will circulate the draft AWP/B to the e and will consolidate and submit FAO comments. The AWP/B will be reviewed by the PSC and the PIU will incorporate any comments. The final AWP/B will be sent to the PSC for approval and to FAO for final no-objection. The BH will upload the AWP/Bs in FPMIS.

12.   **Project Progress Reports (PPR)**. The PPRs are used to identify constraints, problems or bottlenecks that impede timely implementation and take appropriate remedial action. PPRs will be prepared based on the systematic monitoring of output and outcome indicators identified in the Project Results Framework (Annex A), AWP/B and M&E Plan. Each semester the Project Coordinator (PC) will prepare a draft PPR, and will collect and consolidate any comments from the FAO PTF. The PC will submit the final PPRs to the FAO Representation in Uzbekistan every six months, prior to 10 June (covering the period between January and June) and before 10 December (covering the period between July and December). The July-December report should be accompanied by the updated AWP/B for the following Project Year (PY) for review and no-objection by the FAO PTF. The Budget Holder has the responsibility to coordinate the preparation and finalization of the PPR, in consultation with the PIU, LTO and the FLO. After LTO, BH and FLO clearance, the FLO will ensure that project progress reports are uploaded in FPMIS in a timely manner.

13.   **Annual Project Implementation Review (PIR)**. The PC, under the supervision of the LTO and BH and in coordination with the national project partners, will prepare a draft annual PIR report covering the period July (the previous year) through June (current year) no later than July 1st every year. The LTO will finalize the PIR and will submit it to the FAO-GEF Coordination Unit for review by July 10th. The FAO-GEF Coordination Unit, the LTO, and the BH will discuss the PIR and the ratings. The LTO is responsible for conducting the final review and providing the technical clearance to the PIR(s). The LTO will submit the final version of the PIR to the FAO-GEF Coordination Unit for final approval. The FAO-GEF Coordination Unit will then submit the PIR(s) to the GEF Secretariat and the GEF Independent Evaluation Office as part of the Annual Monitoring Review of the FAO-GEF portfolio. The PIR will be uploaded to FPMIS by the FAO-GEF Coordination Unit

14.   **Technical reports.** The technical reports will be prepared as part of the project outputs and will document and disseminate lessons learned. Drafts of all technical reports must be submitted by the Project Coordinator to the PSC and FAO Representation in Uzbekistan, which in turn will be shared with the LTO for review and approval and to the FAO-GEF Coordination Unit for information and comments before finalization and publication. Copies of the technical reports will be distributed to the Liaison Committee and the PSC and other project stakeholders, as appropriate. These reports will be uploaded in FAO FPMIS by the BH.

15.   **Co-financing reports**. The PC will be responsible for collecting the required information and reporting on in-kind and cash co-financing provided by all the project co-financiers and eventual other new partners not foreseen in the Project Document. Every year, the PC will submit the report to the FAO Representation in Uzbekistan before July 10th covering the period July (the previous year) through June (current year). This information will be used in the PIRs.

16.   **Core Indicators worksheet**. In compliance with GEF policies and procedures, at project mid-term and completion, Agencies report achieved results against the core indicators and sub-indicators used at CEO Endorsement/ Approval.

Evaluation Provisions

17.   Two independent project evaluations, a **Mid-Term Review (MTR)** in the 3rd quarter of project year 3 and a **Final Evaluation (FE)** three months prior to the project end date, will be carried out. The FAO BH will arrange an independent MTR in consultation with the PSC, the PMU, the LTO and the FAO-GEF Coordination Unit. The MTR will be conducted to review progress and effectiveness of implementation in terms of achieving project objective, outcomes and outputs. The MTE will allow mid-course corrective actions, if needed. The MTE will provide a systematic analysis of the information on project progress in the achievement of expected results against budget expenditures. It will refer to the Project Budget (see Annex A2) and the approved AWP/Bs. It will highlight replicable good practices and key issues faced during project implementation and will suggest mitigation actions to be discussed by the PSC, the LTO and FAO-GEF Coordination Unit.

18.   The GEF evaluation policy foresees that all medium and large size projects require a separate final evaluation. Such evaluation provides: i) accountability on results, processes, and performance; ii) recommendations to improve the sustainability of the results achieved and iii) lessons learned as an evidence-base for decision-making to be shared with all stakeholders (government, execution agency, other national partners, the GEF and FAO) to improve the performance of future projects.

19.   The FE will aim to identify the project impacts, sustainability of project outcomes and the degree of achievement of long-term results. The FE will also have the purpose of indicating future actions needed to expand on the existing Project in subsequent phases, mainstream and up-scale its products and practices, and disseminate information to management authorities and institutions with responsibilities in food security, conservation and sustainable use of natural resources, small-scale farmer agricultural production and ecosystem conservation to assure continuity of the processes initiated by the Project. The FE will pay special attention to outcome indicators and will be aligned with the GEF 7 Core Indicators 3, 4, 6 and 11. The GAP progress will be explicitly assessed

20.   The Budget Holder will be responsible to contact the Regional Evaluation Specialist (RES) within six months prior to the actual completion date (NTE date). The RES will manage the decentralized independent final evaluation of this project under the guidance and support of OED and will be responsible for quality assurance. Independent external evaluators will conduct the terminal evaluation of the project taking into account the ?GEF Guidelines for GEF Agencies in Conducting Terminal Evaluation for Full-sized Projects?. FAO Office of Evaluation (OED) will provide technical assistance throughout the evaluation process, via the OED Decentralized Evaluation Support team ? in particular, it will also give quality assurance feedback on: selection of the external evaluators, Terms of Reference of the evaluation, draft and final report. OED will be responsible for the quality assessment of the terminal evaluation report, including the GEF ratings.

21.   After the completion of the terminal evaluation, the BH will be responsible to prepare the management response to the evaluation within four weeks and share it with national partners, GEF OFP, OED and the FAO-GEF Coordination Unit.

22.   **Final Report**. Within two months prior to the project?s completion date, the Project Coordinator will submit to the PSC and FAO Representation in Uzbekistan a draft final report. The main purpose of the final report is to give guidance to authorities (ministerial or senior government level) on the policy decisions required for the follow-up of the project, and to provide the donor with information on how the funds were utilized. Therefore, the terminal report is a concise account of the main products, results, conclusions and recommendations of the Project, without unnecessary background, narrative or technical details. The target readership consists of persons who are not necessarily technical specialists but who need to understand the policy implications of technical findings and needs for ensuring sustainability of project results. Work is assessed, lessons learned are summarized, and recommendations are expressed in terms of their application to the integrated landscape management in the three pilot sites, as well as in practical execution terms. This report will specifically include the findings of the final evaluation. A project evaluation meeting will be held to discuss the draft final report with the PSC before completion by the Project Coordinator and approval by the BH, LTO, and FAO-GEF Coordination Unit.

Table 17. Summary of the main monitoring and evaluation reports, parties responsible for their publication and time frames.

M&E Activity	Responsible parties	Time frame/ Periodicity	Budget
Field-based impact monitoring	PC; project partners, local organizations	Continuous	To be carried out by M&E expert within the PMU

M&E Activity	Responsible parties	Time frame/ Periodicity	Budget
(Supervision visits and rating of progress in PPRs and PIRs	SCF, PC; FAO-GEF Coordination Unit may participate in the visits if needed	Annual, or as needed	FAO visits will be borne by GEF agency fees Project Coordination visits shall be borne by the project?s travel budget
Project Progress Reports (PPRs)	SCF and MoA, PC, FAO Representation in Uzbekistan with stakeholder contributions and other participating institutions	Six-monthly	SCF and MoA and FAO staff time
Project Implementation Review (PIR)	Drafted by the PC, with the supervision of the LTO and BH. Approved and submitted to GEF by the FAO-GEF Coordination Unit	Annual	FAO staff time financed though GEF agency fees. PIU time covered by the project budget.
Co-financing reports	PC with input from other co-financiers	Annual	PC staff time
Technical reports	PC; FAO (LTO, FAO Representation in Uzbekistan)	As needed	GEF Agency fees
M&E Specialist			USD 132,000
Independent mid-term review	PC and PIU; FAO Representation in Uzbekistan; FAO-GEF; FAO technical staff no participating in project implementation	Midpoint of year 3 of project	USD 40,000
Final Evaluation	The BH will be responsible to contact the Regional Evaluation Specialist (RES) within six months prior to the actual completion date (NTE date). The RES will manage the decentralized independent terminal evaluation of this project under the guidance and support of OED.	At least six months before end of project	USD 40,000
Total budget			**USD 212,000**

10. Benefits

Describe the socioeconomic benefits to be delivered by the project at the national and local levels, as appropriate. How do these benefits translate in supporting the achievement of global environment benefits (GEF Trust Fund) or adaptation benefits (LDCF/SCCF)?

1.   The project promotes full and productive employment and decent work in rural areas, aiming at the progressive realization of their right to Decent Rural Employment[1]. Strengthening of key value-chains and introduction of target SLM measures will lead to improved income generation opportunities and more diversified livelihoods for around 1,200 people (of which 30% are women) in the target landscape. Additional socio-economic benefits include the following and will be calculated during initial stages of project implementation:

?   A number of farmers with access to advisory or extension services (total # per administrative district per region)

?   Increased investments in SLM

?   Number of awareness raising activities

?   Increased livelihoods and economic resilience through improved climate resilient bee-keeping, medicinal plants, and milk value chains. *Note:* Milk VC initial benefits include Reduced production costs by 20% and Increased incomes by 25% compared to the baseline levels, Increased number of dairy products to 10 types, in accordance with the quality and marketing standards)

?   Improved food security

?   Increased social resilience and human well-being (Gender equality, access to information and finance)

?   Improved access to finance for small-holder farmers

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[1] Specific guidance on how FAO can promote the Four Pillars of Decent Work in rural areas is provided in the Quick reference for addressing decent rural employment (as well as in the full corresponding Guidance document). For more information on FAO?s work on decent rural employment and related guidance materials please consult the FAO thematic website at: http://www.fao.org/rural-employment/en/.

11. Environmental and Social Safeguard (ESS) Risks

Provide information on the identified environmental and social risks and potential impacts associated with the project/program based on your organization's ESS systems and procedures

Overall Project/Program Risk Classification*

PIF	CEO Endorsement/Approval	MTR	TE
	Low		

Measures to address identified risks and impacts

Elaborate on the types and risk classifications/ratings of any identified environmental and social risks and impacts (considering the GEF ESS Minimum Standards) and any measures undertaken as well as planned management measures to address these risks during implementation.

The project is classified as low risk and thus did not conduct the Environmental and Social Risk Analysis or Environmental and Social Management Plans. Nonetheless, a climate risk assessment was prepared and is appended here.

Project Risk Certification

Entity Number: 666661
Project Title: Sustainable Forest and Rangelands Management in the Dryland Ecosystems of Uzbek
Recipient Country(ies):   Uzbekistan
Estimated total budget in USD: 3,776,941 $

Risk Certification

Certified by: Ziadat, Feras Mousa Salameh (CBLDD)

Date: 10-Oct-2019

The proposed action is classified as: `Low`

Supporting Documents

Upload available ESS supporting documents.

Title	Module	Submitted
ES Screening Checklist	**CEO Endorsement ESS**	
Risk Certification	**CEO Endorsement ESS**	
Climate change assessment	**CEO Endorsement ESS**	

ANNEX A: PROJECT RESULTS FRAMEWORK (either copy and paste here the framework from the Agency document, or provide reference to the page in the project document where the framework could be found).

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
Project objective: Promote SLM/SFM and landscapes restoration for achieving LDN commitments of Uzbekistan.							
Component 1: Enabling Environment for LDN monitoring and target- setting							
Outcome 1.1: Policy, monitoring and planning framewors strengthened at national and sub-national levels to support LDN in production landscapes	Sound LDN monitoring system based on SMART indicators in accordance with the STAP LDN Guidelines and national priorities is operational	Partial data and information on the LDN is available	A monitoring system for the LDN indicators drafted at national and local levels	A monitoring system for the LDN indicators in place at national and local levels	According to the outputs	Assumptions of the outputs	MoA
1.1.1. Baseline assessment and mapping of LDN indicators (land cover, land productivity and soil organic carbon) at national scale and in Bukhara-Navoi	Calibrated metrics for global LDN indicators	Information on the three LDN indicators ? land cover, SOC and productivity ? is available but needs to be calibrated	Calibrated data on land cover, SOC and productivity available for the Bukhara and Navoi	Calibrated data on land cover, SOC and productivity available for the whole of Uzbeksitan	Database with LDN indicators	Data for assessing LDN is available in Uzbeksitan and has sufficient resolution for field application	MoA

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
1.1.2. Monitoring system for LDN indicators at the national level integrated into existing national land-use monitoring systems	A LDN monitoring system developed incorporating global and national indicators	There is data on the three global indicators and partial data on additional eight indicators	LDN monitoring system framework/structure developed and agreed by the stakeholds, including fact sheets and methodologies for all proposed indicators	LDN monitoring system applied in the target districts on Nurata and Jondor and fine tuned	Reports with model results	Strong cooperation between Government institutions and local stakeholders to make the data on national indicators available	MoA
1.1.3. LDN decision support system for target-setting, planning and implementation in place (using WOCAT/ DS-SLM, etc.)	LDN-DSS developed incorporating three LDN and national indicators, piloted/tested for target regions	No LDN-DSS exists at local and/or national levels	LDN-DSS based on three LDN and national indicators is developed and piloted/tested for each target region	Decision-making framework is developed for integration of LDN into sectoral planning and decision-making processes	Tethnical reports on LDN-DSS adaptation and piloting/testing; LDN-DSS Technical Description	Wilingness of the Government to integrate LDN-DSS in decision-making processes	MoA
1.1.4. LDN Action Plan with voluntary targets defined the in Bukhara-Navoi landscape	Implementation plan for achieving LDN targets in Bukhara and Navoi regions	No such plan exists	1 implementation plan for achieving LDN targets in Bukhara or Navoi region	2 implementation plans for achieving LDN targets in Bukhara and Navoi regions	Published plan State budget document and budgetary reports from varous stakeholders working on the national priorities	Capacity exists in MoA and SFC to prepare such a plan	MoA

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
1.2. LDN mainstreamed in national policies and planning processes at multiple levels to support SLM in production landscapes with focus on pastures	LDN principles integrated into the national frameworks with the focus on desert pasture landscapes in accordance with the STAP LDN Guidelines and national priorities	LDN principles are not yet integrated in the existing national legal and policy frameworks related to agricultural lands	LDN priniples are formulated in response of national priorities and context and agreed with stakeholders for further integration into national legal, policy, and institutional frameworks	National legal and policy frameworks for LDN with the focus on the implementation of SLM/SFM following LDN hierarchy of responses are developed	Policy documents; Draft legal laws and sub-laws/regulation; Technical reports	Assumptions of the outputs	MoA/SCF
1.2.1. Review of strategic regulatory frameworks and territorial planning instruments to enhance local stakeholder participation and mainstreaming of LDN and land tenure at national in Bukhara-Navoi	Policy review recommendations for the LDN developed and discussed at national and sub-national levels	Policy analysis conducted at PPG; however the recommendations are not available	Recommendations are discussed at public fora	Recommendations are mainstreamed in the Government plans	Minutes of the meetings	There is sufficient interest in the GoU to strategically integrate LDN into various frameworks	MoA

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
1.2.2. Intersectoral coordination mechanisms strengthened (horizontal ? between line ministries; vertical between different levels of administration/monitoring centers and local communities)	Number of central and local governmental institutions, professional asssosiations, civil society and non-governmental organizations, academia, businesses, youth and gender groups and experts involved in the multi-stakeholder coordination mechanism on sustainable pastureland management	No pastureland and limited LDN coordination mechanism exists at national level	Multi-stakeholder coordination mechanism structure is agreed with key stakeholders and mechanism established working on regular basis (based on the TORs)	Coordiantion mechanism established and fully functioning between all key ministries and committees and local levels with agreed terms of reference	Technical workshop and working meeting reports; Terms of references and web-portal on pastureland management.	There is willingness of key stakeholders to be involved, participate, and cooperate	SCF

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
1.2.3. Pasture Law aligned with LDN priorities	Drafts of the pastureland management legislation	Pasture Law adopted by the Government in 2019 but lacks LDN principles	Recommendations on the adjustments of the Pasture Law on respective roles of the stakeholders, simplified micro-crediting for small-holder livestock owners, cooperatives, livestock insurance, land tenure	Pasture Law amendments developed	Technical reports from validation and stakeholder dialogue and public hearing workshops	Legislation is developed and coordinated by the Government in participatory manner	MoA
1.3. Enhanced capacity at national and sub-national levels to achieve LDN in Bukhara-Navoi	# beneficiaries (of which 50% are women) with enhanced capacity in LDN at national and sub-national level	Capacity on LDN is limited at all levels	100 people (of which 50% are women) with enhanced capacity in LDN at national and sub-national level	**Core indicator 11:** 200 people (of which 50% are women) with enhanced capacity in LDN at national and sub-national level	According to the outputs	Assumptions of the outputs	
1.3.1. LDN training material for decision makers as well as practioners developed	Knowledge products developed on SLM/SFM and LDN principles (number, type)	No knowledge products available integrating LDN principels	3 knowledge product	10 knowledge products	Handouts, guidelines, video tutorials, publications, brochures	There is an interest of stakeholder in knowledge materials	MoA/SCF

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
1.3.2. Capacity development program in place for LDN target setting, implementation and monitoring for **national and local government staff**	Number of institutional training courses that integrate LDN Number of people trained at local and central level National and international symposia	Knowledge on LDN and how to operationalize it at local and national level is limited	At least one institutional training programme that integrates LDN At least 30 people trained at central level and 15 at local National LDN symposium At least 40 people participate in national symposium related to LDN	At least two central-level training programmes and one local that integrate LDN At least 150 people trained (at least 50 women) At least 50 people participate in national symposium related to LDN	LDN training manuals and modules Reports from training courses; participants lists Reports from symposia Reports on attendance Reports on education	Key institutions and staff have the interest and capacity to access and internalise new knowledge on LDN	MoA

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
1.3.3. Capacity building program on SLM to achieve LDN **at local level for farmers** in the Bukhara-Navoi landscape (using FFS, LADA, WOCAT, etc.)	Number of Farmer Field Schools (FFS) established on modern and sustainable production methods Number of local people trained, including how many women Mass media campaigns on LDN A number of farmers with access to advisory or extension services (total # per administrative district per region)	Knowledge of modern and sustainable production methods is limited at local village level No mass media campaigns on LDN	At least 1 FFS established At least 30 local people trained of which 50% are women At least 1 mass media campaign	At least 2 FFS established At least 60 local people trained of which 30% are women At least 2 mass media campaign XX number of farmers with access to advisory or extension services (total # per administrative district per region) ? to be verified during project implementation	FFS training manuals and modules Reports from training courses; participants lists Reports on campaign	Local people are interested in and motivated to participate in FFS	MoA
Component 2: Demonstrating the LDN approach and scaling out of SLM/ SFM practices in Bukhara-Navoi landscape							

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
2.1 SLM/SFM technologies and approaches in the Bukhara-Navoi landscape upscaled to achieve LDN	Number of hectares of productive pasturelands and forestlands applying SLM practices following LDN hierarchy (13,000 ha restored and 225,000 ha under climate-resilient SLM) in Bukhara and Navoi regions Tons of CO2 sequestered or avoided in pasturelands and forests Number of farmers with increased social resilience and human well-being (Gender equality, access to information and finance), with a target of 1,000 farmers (30% women)	0	As per the outputs below	**Core indicator 4:** 225,000 ha avoided LD **Core indicator 3:** (i) 10,000 ha significantly reduced LD, and (ii) 3,000 ha reversed LD **Core Indicator 6:** 6.1 Mton of CO2eq sequestered in AFOLU systems **Core Indicator 11:** 1,000 direct beneficiaries (of which 30% are women)	According to the outputs	Assumptions of the outputs	SCF

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
2.1.1. Gender balanced local multi-stakeholders groups established in Bukhara-Navoi (pasture user associations at district level, etc.)	Gender Action Plan for the Bukhara and Navoi landscape At least one municipal multi-stakeholder group is established in each target municipality	GAP is drafted during the PPG No municipal multi-stakeholder groups exist in target municipalities	Gender Action Plan fully operational Memorandums of Understandings (MoUs) are signed in Bukhara and Navoi for cooperation on pasture management issues	Gender Action Plan fully operational One regional multi-stakeholder group established and functional in each target region	Report with Gender Action Plan Signed MoU?s with municipal authorities	Women in Bukhara and Navoi are willing to participate and identify their priorities in a participatory manner	SCF

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
2.1.2. Participatory integrated land-use plans developed in the Bukhara-Navoi landscape	Land degradation levels in Land Use Systems of in the Bukhara and Navoi verified Participatory integrated land-use plans developed to avoid land degradation	Land degradation levels in the Bukhara and Navoi have been determined in one transect during the PPG, but need verification and scale out to the rest of the region No participatory integrated land-use plans exist that meet LDN criteria	Land degradation levels Bukhara and Navoi verified in target land use systems 1 participatory integrated land-use plan that meets in Jondor or Nurata district that LDN criteria	Land degradation levels Bukhara and Navoi verified in target land use systems Participatory integrated land-use plans developed in the Bukhara-Navoi landscape that avoid 225,000 ha of land degradation	Reports Land cover and land degradation maps Participatory land-use plans Special development plans	The existing information on land cover is still relevant and can easily be verified Local authorities and land users are willing to participate and priorities identified by the DSS are found to be relevant	SCF
2.1.3. Innovative SLM practices implemented to enhance the productivity and restore degraded land	Area under demonstration of climate-resilient SLM/SFM best practices	Cliamte-resilient SLM and SFM practices have been identified during the PPG and require participatory prioritization	5,000 ha significantly reduced land degradation 1,500 ha reversed land degradation CO2eq sequestered in AFOLU systems ? to be calculated at MTR	10,000 ha significantly reduced land degradation 3,000 ha reversed land degradation ==6.1 Mton== of CO2eq sequestered in AFOLU systems	Field surveys	Local land users willing to demonstrate new and innovative practices	SCF

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
2.2. Increased investments in pasture and rangeland management to achieve LDN	Increased livelihoods and economic resilience through improved climate resilient bee-keeping, medicinal plants, and milk value chains # direct beneficiaries with strengthened liveslihoods and sources of income Increased investments in SLM	As per the outputs	As per the outputs	As per the outputs	As per the outputs	As per the outputs	SCF

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
2.2.1. Market access mechanism identified and key value chains strengthened to achieve LDN in the Bukhara-Navoi landscapes	# small scale farmers (households) with strengthened liveslihoods and sources of income through improved bee-keeping, medicinal plants, and milk value chains VCs

Dairy VC:

- Reduced production costs compared to the baseline levels

- Increased incomes compared to the baseline levels

- Increased number of dairy products in accordance with the quality and marketing standards | 0

Dairy VC:

- Production costs assessed during the PPG and should be validated in the initial stages of project implementation

- Incomes assessed during the PPG and should be validated in the initial stages of project implementation

- Three types of dairy products produced in target regions without the quality or marketing standards

The main product is only honey, the | 100 small scale farmers (households) with strengthened liveslihoods and sources of income through improved bee-keeping, medicinal plants, and milk value chains VCs

Dairy VC (to be verified):

- Reduced production costs by 10% compared to the baseline levels

- Increased incomes by 10% compared to the baseline levels

- Increased number of dairy products to 5 types, in accordance with the quality and marketing standards

Mastering production of at least 2 types of additional beekeeping products | 200 small scale farmers (households) with strengthened liveslihoods and sources of income through improved bee-keeping, medicinal plants, and milk value chains VCs

Dairy VC (to be verified):

- Reduced production costs by 20% compared to the baseline levels

- Increased incomes by 25% compared to the baseline levels

- Increased number of dairy products to 10 types, in accordance with the quality and marketing standards | Project progress reports

Reports from the pilot farms

Contract and reports | The project interventions will develop sufficient capacity among farmers, local cooperatives and companies to implement interventions

Population pilot farms, beekeepers? | SCF |
| | **Beekeepin** | | | | | | |

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
2.2.2. Training program in business planning for women entrepreneurs that perform critical functions along selected value chains	Training program for women on VCs	0	1 training program	2 training programs	Reports from the training/workshops Published training materials	Women are interested in participating in the training	SCF
2.2.3. LDN local transformative projects, including resource mobilization plans developed in Bukhara-Navoi	# business model/resource mobilization plan developed for each target region Improved access to finance for small-holder farmers	No business models to encourage investments in pastureland management to implement SLM and achieve LDN available in target regions for small scale farmers	Two business model/resource mobilization plans drafted for each target region Improved access to finance for small-holder farmers ? baseline and mid-term target to be defined in the initial stages of project implementation	Two business model/resource mobilization plans developed for each target region Improved access to finance for small-holder farmers ? to be developed in the initial stages of project implementation	Technical reports on submission of business models to national governmental and international financial institutions	National governmental and international financial institutions have wilingness to consider and fund submitted business models to encourage investments in pasturel and management	SCF
Component 3: Project Monitoring, Evaluation and lesson learned							

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
3.1. Knowledge management, M&E and lessons learned disseminated	Project produces GEBs and disseminates results in agreement with Results-Based Management principles	As per the outputs	As per the outputs	As per the outputs	As per the outputs	As per the outputs	SCF
3.1.1 Project mid-term and final evaluation conducted	Mid-term and final evaluation reports	0	Mid-project review recommendations implemented	Final evaluation	Evaluation reports (FAO evaluation office)	Adequate funding allocated to evaluations	SCF
3.1.2 Global Environment Benefits, co-benefits and costs of SLM monitored, assessed and lessons analyzed	M&E system ensuring timely delivery of project benefits and adaptive results-based management	0 0	Project M&E system delivers expected reports and informs project management	Project M&E system delivers expected reports and informs project management	GEF LD Tracking Tool PIRs PPRs, Midterm Review and Final Evaluation	PMU functioning and adequate funding allocated to M&E	SCF

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
3.1.3 Knowledge management products developed and disseminated, including a set of manuals for LDN monitoring and implementation through scaling up of SLM	Knowledge products developed on sustainable management of pasturelands in line with LDN principles (number, type)	No knowledge products available	5 knowledge products	15 knowledge products and training/awareness raising materials on SLM and LDN (50% tailored to women)	Handouts, guidelines, video tutorials, publications, brochures	There is an interest of stakeholder in knowledge materials	SCF
3.1.4 Gender-focused communication strategy developed and implemented to support SLM scaling up to meet LDN targets	Number of appearances in local media, partners/regions and partner websites # awareness raising activities	0	Draft prepared and agreed with the stakeholders	Gender-focused communication strategy is fully operational # awareness raising activities ? to be determined during initial stages of project implementation	Articples in local media, apperance in TV, website and social media statistics	National lead agencies and other stakeholders support M&E processes, and are committed to continuous learning and exchange of knowledge on LDN	SCF

ANNEX B: RESPONSES TO PROJECT REVIEWS (from GEF Secretariat and GEF Agencies, and Responses to Comments from Council at work program inclusion and the Convention Secretariat and STAP at PIF).

Comment	Government of Uzbekistan and Agency response
Germany	

The full proposal should clearly identify how local populations and land users can fully participate in land use planning and the implementation of the plan, as a key to successful action for land degradation neutrality.

As the core pillar to for the LDN, the project participatory approach is central for its implementation strategy as outlined in the Alternative Scenario and Annex H indicative work plan.

LDN is a framework that acts transversal to many processes (Ecological, Political, Administrative, Economic, Social, and Educational). It is included in the SDG and Reported to UNCCD under the Target 15.3 that uses as indicator % of Degraded Land over Total Area. This simplification and the use of a well-defined remote sensing approach to produce national reports leads to concentrate all the attention. Nevertheless, this Change of State indicators are just one dimension in the LDN impact Pathway, and as such are a limited view that frequently is not sensitive enough to capture the efforts made in such transversal process. To monitor LDN along its entire impact pathway there is the need to include also Process/Response indicators that are related to strengthening of the enabling environment, which includes legislation, capacities of stakeholders and information /monitoring systems. Also, there are the Stress Reduction/Change of Pressure indicators, these ones are the improved management of natural resources, sustainable management practices, land-use planning activities, that in time may produce or not a Change of State, but surely will act in avoiding and reducing land degradation.

Given the above-mentioned conclusions and recommendations and in accord with GEF project requirements on M&E and Best Practice, a number of linked baseline indicator and monitoring approaches have been developed to support monitoring and analysis of project impact and efficiency. In this case, the GEF Core Indicators methodology tracking is based on four pillars:

1) The first M&E strategy for measuring project impact and effectivity would be the use an adapted participatory monitoring system that developed in close

FAO should ensure that component 3 on monitoring does not only match reporting requirements to UNCCD but can be useful to decision makers, e.g. in land-use planning.	For stakeholder and field survey inputs, the optimal situation would be that the land users themselves are assessing and monitoring agreed indicators and reporting this in a simple manner, yet this is rarely the case. In those exceptions where Pasture Users Associations are required by law to monitor and present annual results (Kyrgyzstan), users have stated that the process was complex, time-consuming and did not provide clear management recommendations. Land is most likely monitored by users in a continuous manner, yet these are mental records and are not recorded. However, given the policy situation and fact that the majority of Dekhan livestock producers do not in fact have legally sanctioned access to those areas they graze their animals, it is more likely that decisions are being made using criteria that do not include landscape function, plant health or LD consequences. Therefore, there is a real need to provide a very simple, standardized recording system that meets basic management needs and provides data for local, district and national LDN monitoring.

This could be supported by a more targeted, technical M&E approach conducted by specialist once every 3 to 5 years as noted. New and improved GIS datasets are allowing for improved remote sensing but most have at least 15 to 20 years of data history available and therefore do not need to be annually conducted. PRAGA methodology could provide a starting point for such surveys. |
| Consider possible synergies with German funded ?Programme for sustainable and climate sensitive land use for economic development in Central Asia?. | Thank you for sharing this excellent initiative. It will be very useful for Component 1 of the project and has been added to the list of projects for coordination. |

In this context, Germany would appreciate additional information on the following issues: How are existing approaches from other donors, agencies and NGOs considered, especially on regional level in Bukhara-Navoi?	The project considers all relevant international and national initiatives. The description can be found in several sections of the prodoc: baseline co-financing (when the on-going initiatives serve as co-financing), national context (for general context, information, data), coordination with on-going initiatives, and knowledge management (learning from the previous initiatives).
Concerning intersectoral coordination: How will decisions be taken? Which role does the focal point to UNCCD play, as the leading entity to LDN coordination? Which mechanism will moderate conflict of interests in intersectoral coordination?	The State Committee on Forestry (UNCCD focal point) will serve as Chair of the LDN Coordination Mechanism that will be established as a part of Component 1. The TORs for the Mechanism will be developed during the early stages of project implementation. The TORs will outline, among other elements, the mechanism of coordination and potential conflict of interest between all relevant Ministries and Committees (Central Government) and regional and local levels.
STAP	
Firstly, the project needs to develop a theory of change, including identifying assumptions, and feedback loops (positive and negative) between the variables. STAP's primer on theory of change is one source that can be used: http://www.stapgef.org/publications	The project?s ToC was designed taking into account latest STAP guidance.
Secondly, climate change is expected to increase temperatures in Uzbekistan, and rainfall is expected to be variable across different agroecological and climate zones. The project needs to use climate data to design its interventions. Below, STAP recommends how to design the project based on the projected climate change risks, and its effect on natural resources (e.g. water shortage). Guidance on methods is also provided.	A comprehensive analysis of the historical data on CC, future projections, and risks and opportunities for the project interventions has been undertaken during the PPG. The summary can be found in the respective section in the National Context chapter, and the full analysis with recommendations in the Annex R.
Lastly, STAP recommends strengthening component 3 focused on monitoring, evaluation and knowledge. Currently, knowledge is focused on the development of products, and their outreach. STAP encourages FAO to think of knowledge management as part of the theory of change - that is, confirming and, or, revisiting the theory of change as needed - including to respond to assumptions ? to generate learning, and knowledge, and reach the project objective.	The ToC has been revised to align it with the latest LDN guidance, baseline studies validating the assumptions in the PIF, with the overall objective to ensure learning and managing the knowledge to reach the project objective. Please see the response to Germany?s comment on the M&E.

Is the objective clearly defined, and consistently related to the problem diagnosis? Yes. The various drivers of unsustainable pasture management are described, though hardly any reference is provided to substantiate the claims around drivers, pressures and state of the environment. The description of the driers and pressures is well linked to the objective of achieving land degradation neutrality (LDN). As a multifaceted approach, the LDN conceptual framework is considered a valuable methodology to address across scales the drivers of degradation, and improve the efficiency and productivity of the land systems this project will address.	The drivers, pressures and state of the environment sections have been updated with the PPG baseline studies, summary of which can be found in the National Context Chapter, and the full text in the Annexes to the prodoc. The sources of information include the analysis of the satellite imagery, stakeholder consultations, and field surveys.
Is the problem statement well-defined? Yes. To complement the problem context, the project developers may wish to use the following paper describing challenges associated with water management and soil salinization in the target area: https://doi.org/10.1016/j.quaint.2017.11.043 "Status quo and present challenges of the sustainable use and management of water and land resources in Central Asian irrigation zones - The example of the Navoi region (Uzbekistan)"	Thank you for sharing the excellent article! It has been taken into account when designing the project, along with the targeted assessments on the land degradation hot and bright spots in the target landscapes, followed by several stakeholder consultations at the national and local levels. A project-tailored household has been conducted during the PPG to understand challenges and opportunities of the households.
Are the barriers and threats well described, and substantiated by data and references? Yes, the barriers are well described. In the complete project, STAP recommends adding the citations (e.g. IPCC paper on land, page 11) and references to other publications to support the barrier analysis.	Thank you for the recommendations which have been embedded into the project design throughout the document.

are the lessons learned from similar or related past GEF and non-GEF interventions described. In section 1 (project description) and section 6 (coordination), STAP recommends describing lessons from relevant projects. Currently, the projects are identified briefly in section 6, but the lessons are not described.	The project builds on the strong technical foundation incorporating lessons learned from previous interventions supporting improving land use and implementation of SLM for combating desertification, land degradation, and drought; climate change adaptation; water resources management; capacity development and pro-poor policy reform to improve the welfare of the population; and improving living standards and poverty reduction of the population in Uzbekistan. The Central Asian Countries Initiative on Land Management (CACILM1-2) is of particular strategic (policies, drought integration into SLM vision and policy, coordination mechanism, a regional platform) and field-level (SLM practices in similar LUSs) importance to the proposed project to integrate and share lessons learned at sub-national, national, and Central Asia wide levels. An important contribution to supporting the activities of local communities and NGOs on the implementation of sustainable land use and environmental protection is conducted by the GEF Small Grants Program (SGP), implemented by the MoA with the support of the UNDP office in Uzbekistan. Annex T provides details of 115 ongoing and previous national and sub-national projects of the same context which will serve as the core of the project?s knowledge management strategy.
What is the sequence of events (required or expected) that will lead to the desired outcomes? Strengthening policies on LDN and landscape management at the sub-national and national level, combined with sustainable land and forest management and monitoring and evaluation of these interventions are expected to lead to the goal of achieving LDN. The project components describe the correct sequence of events, and STAP recommends the theory of change includes stakeholder needs analysis.	Despite the C-19, the stakeholder needs have been carefully studied during the PPG and the finding reflected throughout the prodoc sections.

Are indicators, or methodologies, provided to demonstrate how the global environmental benefits will be measured and monitored during project implementation? Yes. LDN indicators will be used to measure and monitor global environmental benefits. However, the STAP recommends more clarity in the indicators to be used to ascertain if the estimated CO_2eq are to be achieved. The LDN conceptual framework, includes a module to monitor progress. STAP recommends the adoption of subnational, complementary indicators for monitoring implementation as suggested in the LDN Conceptual framework.	The National Context chapter outlines a set of eight relevant national indicators that the GoU has decided to use for the LDN monitoring, along with the three global indicators, and process and stress-reduction indicators. The summary is also provided in the ToC. Annex U provides additional information and recommendations on supporting indicators that rely on satellite imagery.
Is the project innovative, for example, in its design, method of financing, technology, business model, policy, monitoring and evaluation, or learning? Yes, the project is innovative. LDN methods will be used to measure and monitor project activities and outcomes. In addition, LDN will be applied to as a restoration method balancing gains and losses within the same land types, while monitoring for land productivity and soil organic carbon. Given the project identifies the private sector as a group of stakeholders that are important to this project, the STAP recommends exploring innovative methods of finance such as public-private partnerships. The section on 'private sector engagement' provides indication of the latter, though it can be enhanced. STAP also recommends cross-fertilisation of ideas and experiences with the project that FAO proposes for Armenia, as several proposed activities are similar (e.g. use of value chain)	The innovation and private sector engagement sections have been further strengthened with the baseline studies, also reflecting this comment.

Is there a clearly-articulated vision of how the innovation will be scaled-up, for example, over time, across geographies, among institutional actors? Yes. LDN will be used to scale landscape management across geographies. More elaboration is needed on the approach to be adopted to ensure effective scaling up among institutional actors.	The innovation and scale up sections have been further strengthened with the baseline studies, also reflecting this comment. Scaling up to national level will be supported by policy and institutional strengthening as well as effective monitoring, knowledge management and capturing of best SFM and SLM practices and lessons learned. Scaling up will also be supported by development of a resource mobilization strategy and of transformative LDN project proposals (Component 2). The scaling out strategy rests on the results of the Similarity Analysis conducted under CACILM-2 program to support the dissemination of SLM in Central Asia. The Similarity Analysis was taken into account during the project preparation and was further complemented with the participatory identification of LD hot and bright spots in the Bukhara and Navoi target land use systems (Annex O) and the LDN baseline. It will be used for scaling out of the project. Annex U shows significant potential to scale out the SLM within Bukhara and Navoi and other regions of the country using recent globally-available satellite imagery. To describe how the described districts differ to each other in regard to this multilevel of data and information, a Cluster analysis and Principal Component Analysis (PCA) was performed. All the data presented and some ancillary variables were obtained to perform the multivariate analysis. A Cluster analysis was performed to produced 3 different groups, indicating a way in which the districts can be grouped according to the results.

Different types of maps land use change, and land degradation are provided in the annex, though some of them are of poor quality. STAP recommends providing the georeferencing information where the project interventions will take place. Currently, the coordinates are missing.	Comprehensive analysis of the indicators relevance and importance to the LDN in Uzbekistan has been conducted during the PPG using the satellite imagery analysis. The relevant Annex S can be accessed for detailed maps.
Have all the key relevant stakeholders been identified to cover the complexity of the problem, and project implementation barriers? a very general list of relevant stakeholders is provided. As per LDN methodology, STAP recommends the list is revised as part of the preparatory activities that 'set the stage' for implementation of LDN interventions (enabling environment). STAP recommends describing the stakeholders' roles in relation to the project outcomes. Additionally, it would be valuable to identify how the different stakeholders will contribute to learning and knowledge generated by the project interventions.	Relevant stakeholders have been further outlined and described with their respective roles and responsibilities in the project.
During the gender analysis, STAP recommends for the gender analysis to consider whether the participation of an important stakeholder group is being hindered ? and what measures will be taken to address the obstacles.	The gender analysis and action plan have been prepared for the project, which takes into account this comment.
Yes. The project developers are encouraged to describe the climate projections (temperature and precipitation) for Uzbekistan - particularly for the intervention area. The PIF provides some climate data but it is uncertain whether it is for the country, or the project area. STAP also recommends for the project developers to consider: 1) the period of time the intervention is expected to contribute to global environmental benefits, and how the activities may be affected by climate change; 2) how each intervention will be impacted by climate variability, or weather-related disasters (e.g. droughts); and, 3) how might climate, and non-climate stressors (e.g. social changes mentioned in the PIF), interact to exacerbate climate risks? The project proponents may wish to refer to the World Bank's Climate Knowledge Portal to obtain climate project data for designing the project: https://climateknowledgeportal.worldbank.org/country/uzbekistan Similarly, the project developers may wish to refer to U.S. AID's Climate Risk and Management tool: https://www.climatelinks.org/resources/climate-risk-screening-management-tool; and STAP's guidance on climate risk assessment: http://www.stapgef.org/stap-guidanceclimate-risk-screening	A comprehensive analysis of the historical data on CC, future projections, and risks and opportunities for the project interventions has been undertaken during the PPG. The summary can be found in the respective section in the National Context chapter, and the full analysis with recommendations in the Annex R.

Are the project proponents tapping into relevant knowledge and learning generated by other projects, including GEF projects? Yes, it appears as if the project is connecting to relevant initiatives. It is uncertain, however, how the knowledge and learning from these projects will be used to design this new project. STAP recommends to describe clearly how knowledge and learning from past, or on-going, initiatives will be used in this new project.	The project builds on the strong technical foundation incorporating lessons learned from previous interventions supporting improving land use and implementation of SLM for combating desertification, land degradation, and drought; climate change adaptation; water resources management; capacity development and pro-poor policy reform to improve the welfare of the population; and improving living standards and poverty reduction of the population in Uzbekistan. The Central Asian Countries Initiative on Land Management (CACILM1-2) is of particular strategic (policies, drought integration into SLM vision and policy, coordination mechanism, a regional platform) and field-level (SLM practices in similar LUSs) importance to the proposed project to integrate and share lessons learned at sub-national, national, and Central Asia wide levels. An important contribution to supporting the activities of local communities and NGOs on the implementation of sustainable land use and environmental protection is conducted by the GEF Small Grants Program (SGP), implemented by the MoA with the support of the UNDP office in Uzbekistan. Annex T provides details of 115 ongoing and previous national and sub-national projects of the same context which will serve as the core of the project?s knowledge management strategy.
What overall approach will be taken, and what knowledge management indicators and metrics will be used? The PIF describes mainly products and outreach based on lessons learned. In addition to this activity, STAP encourages the proponents to consider how knowledge will be used for adaptive management purposes, and for scaling-up results. Currently, the PIF does not describe a knowledge management plan that addresses scaling up results and lessons. STAP encourages the project proponents to elaborate a knowledge management plan that goes beyond communication and outreach of best practices.	Please see above.

ANNEX C: Status of Utilization of Project Preparation Grant (PPG). (Provide detailed funding amount of the PPG activities financing status in the table below:

PPG Grant Approved at PIF:			
Project Preparation Activities Implemented	*GETF/LDCF/SCCF Amount ($)*		
	Budgeted Amount	*Amount Spent to date*	*Amount Committed*
Travel	18,000	2,050	0
Contracts	0	0	4,275
Professional Salaries	20,000	0	0
Training	20,000	0	0
Expandable Procurement	0	1,500.43	0
General Operating Expenses	1,000	0	0
Consultants	91,000	133,992.89	3,538.4
Total	150,000	137,543.32	7,813.4

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ANNEX D: Project Map(s) and Coordinates

Please attach the geographical location of the project area, if possible.

The project intervention sites can be seen in the following App:

https://projectgeffao.users.earthengine.app/view/uzbekistan-ldn

Also, please refer to Annex U in the PRODOC for detailed satellite imagery assessment of land degradation in the project location sites.

ANNEX E: Project Budget Table

Please attach a project budget table.

Please refer to budget in excel uploaded in the portal

FAO Cost Categories	Unit	No. of units	Unit cost	Component 1 Outcome 1.1	Outcome 1.2	Outcome 1.3	Subtotal	Component 2 Outcome 2.1	Outcome 2.2	Subtotal	Component 3 Outcome 3.1	Subtotal	Subtotal Project components	PMC	Total GEF	M&E (accounted for under 3.1)	Year 1	Year 2	Year 3	Year 4	Year 5
5011 Salaries professionals																					
5011 Sub-total salaries professionals																					
5012 GS Salaries																					
5012 Sub-total GS salaries																					
5013 Consultants																					
(International consultants)																					
Value Chains development expert	person-day	100	450	0			0	45,000		45,000		0	45,000		45,000		45,000				
Gender expert	person-day	60	450				0	3,000	14,000	17,000	10000	10,000	27,000		27,000		27,000				
LDN DSS and monitoring system expert	person-day	80	450	36,000			36,000			0		0	36,000		36,000		36,000				
Pastureland Management and Monitoring expert	person-day	200	350	6,000	11,500	6,000	23,500		46,500	46,500		0	70,000		70,000		70,000				
LDN policy expert	person-day	60	450				0		27,000	27,000		0	27,000		27,000		27,000				
Farmer Field School Master Trainer	person-day	200	450				0		90,000	90,000		0	90,000		90,000		90,000				
GIS specialist	person-day	80	350				0		28,000	28,000		0	28,000		28,000		28,000				
Sub-total international Consultants				42,000	11,500	6,000	59,500	48,000	205,500	253,500	10,000	10,000	323,000	0	323,000		323,000	0	0	0	0
(National consultants)																					
Chief Technical Advisor	p-month	60	2500	16,000	17,000	17,000	50,000	50,000	50,000	100,000		0	150,000		150,000		30,000	30,000	30,000	30,000	30,000
Technical Assistant	person-day	562	85				0	23,885	23,885	47,770		0	47,770		47,770		15,923	15,923	15,923		
Community/APFS facilitators (2) (672 days each)	person-day	1344	50				0		67,200	67,200		0	67,200		67,200		16,800	16,800	16,800	16,800	
FFS dairy specialists (2) (133 days each)	person-day	266	70		5,133		5,133		13,487	13,487		0	18,620		18,620		9,310	9,310			
National Value Chains expert (dairy, beekeeping, medicinal plants)	person-day	265	80				0	21,200		21,200		0	21,200		21,200		10,600	10,600			
National feed expert	person-day	528	70		36,960		36,960			0		0	36,960		36,960		12,320	12,320	12,320		
National LDN-DSS coordinator	person-day	200	120				0	24,000		24,000		0	24,000		24,000		12,000	12,000			
National Pasture expert	person-day	880	70			61,600	61,600			0		0	61,600		61,600		15,400	15,400	15,400	15,400	
Agro-Pastoral Farmer Field School (APFS)+ Demonstration site Coordinator (2) (968 days each)	person-day	1936	70			135,520	135,520			0		0	135,520		135,520		33,880	33,880	33,880	33,880	
National dairy cooperative expert	person-day	66	90				0		5,940	5,940		0	5,940		5,940		2,970	2,970			
Beekeeping center organizer	person-day	88	68				0		5,984	5,984		0	5,984		5,984		2,992	2,992			
National LD expert (NPP)	p-month	48	1800				0	86,400		86,400		0	86,400		86,400		21,600	21,600	21,600	21,600	
National GIS expert	p-month	352	75				0		26,400	26,400		0	26,400		26,400		5,280	5,280	5,280	5,280	5,280
National Project Coordinator (Project Team Leader)	p-month	60	1800				32,400			0		32,400	64,800	43,200	108,000		21,600	21,600	21,600	21,600	21,600
Administrative and Financial Assistant	p-month	60	1198				0			0		0	71,880	71,880	71,880		14,376	14,376	14,376	14,376	14,376
National Forestry Advisor	p-month	60	1800				0	54,000	54,000	108,000		0	108,000		108,000		21,600	21,600	21,600	21,600	21,600
Forest field assistant	p-month	60	1200				0	36,000	36,000	72,000		0	72,000		72,000		14,400	14,400	14,400	14,400	14,400
M&E specialist	p-month	60	2200				0			0	132000	132,000	132,000		132,000	132,000	26,400	26,400	26,400	26,400	26,400
Communications specialist	person-day	180	85				0			0		0	15,300	15,300	15,300		3,060	3,060	3,060	3,060	3,060
Translator (part time)	person-day	200	250				0			0	50,000	50,000	50,000		50,000		10,000	10,000	10,000	10,000	10,000
National Gender Expert	person-day	100	80				0		4,047	4,047	3,953	3,953	8,000		8,000		2,000	2,000	2,000	2,000	
National LDN consultant	person-day	150	120				0	18,000		18,000		0	18,000		18,000		9,000	9,000			
Sub-total national Consultants				16,000	59,093	214,120	321,613	313,485	286,943	600,428	201,253	233,653	1,155,694	115,080	1,270,774	132,000	311,511	311,511	264,639	236,396	146,716
5013 Sub-total Consultants				58,000	70,593	220,120	381,113	361,485	492,443	853,928	211,253	243,653	1,478,694	115,080	1,593,774	132,000	634,511	311,511	264,639	236,396	146,716
5650 Contracts																					
Selection of sustainable agricultural practices (pasturelands management, forest and agroforestry and efficient soil and water management) considering climate change risks and opportunities. LoA to include testing and validation of the proposed technologies.	Contract	1	95,000				0	95,000		95,000		0	95,000		95,000		95,000				
Construction of demonstration sites for the use of organic waste, including the production of bioenergy, vermicompost, bio-thermal sources	Lumpsum	1	30,000				0		30,000	30,000		0	30,000		30,000			30,000			
Climate-smart investments in value-chains	Contract	2	40,000				0	80,000		80,000		0	80,000		80,000			80,000			
Land restoration contracts	Lumpsum	4					0			0		0	0		0						
Land management plans	Contract	2	30,000				0	60,000		60,000		0	60,000		60,000		60,000				
Monitoring of socioeconomic indicators	Contract	2	30,000				0		60,000	60,000		0	60,000		60,000			60,000			
Inventory of landscape resources within Bukhara and Navoi Oblasts	Contract	1	95,000				0	95,000		95,000		0	95,000		95,000		95,000				
Soil analyses	Contract	4	20,000				0	40,000	40,000	80,000		0	80,000		80,000		40,000	40,000			
1 PhD and 1 Master's dissertation on LDN VC in the local university	Lumpsum	1	6,000				0		6,000	6,000		0	6,000		6,000			6,000			
Mid-term Evaluation	Contract	1	40,000				0			0	40,000	40,000	40,000		40,000	40,000			40,000		
Final Evaluation	Contract	1	40,000				0			0	40,000	40,000	40,000		40,000	40,000					40,000
Terminal report	Contract	1	6,880				0			0	6,880	6,880	6,880		6,880						6,880
OPIM Spot checks	Contract	8	3,000				0			0		0	0	24,000	24,000		5,500	5,500	5,500	5,500	2,000
OPIM Audit	Contract	4	4,000				0			0		0	0	16,000	16,000						16,000
5650 Sub-total Contracts				0	0	0	0	370,000	136,000	506,000	86,880	86,880	592,880	40,000	632,880	80,000	295,500	221,500	45,500	5,500	64,880
5021 Travel																					
DSA, international travel	Lumpsum	60	3,850	77,000			77,000	77,000	77,000	154,000		0	231,000		231,000		46,200	46,200	46,200	46,200	46,200
DSA, national travel	Lumpsum	40	3,000	20,000			20,000	60,000	25,000	85,000	15,000	15,000	120,000		120,000		24,000	24,000	24,000	24,000	24,000
PMU supervision missions, DSA only (4 people, 4 days each)	each	50	1,000	20,000			20,000	20,000		20,000	10,000	10,000	50,000		50,000		10,000	10,000	10,000	10,000	10,000
Workshops, meetings, non-staff travel, study tours, etc.	Lumpsum	100	1,000	20,000			20,000	46,000		46,000	34,000	34,000	100,000		100,000		20,000	20,000	20,000	20,000	20,000
5021 Sub-total travel				137,000	0	0	137,000	203,000	102,000	305,000	59,000	59,000	501,000	0	501,000	0	100,200	100,200	100,200	100,200	100,200
5023 Training																					
Agro-Pastoral Field School Master Training of Facilitators	session	8	3,500				0	28,000	28,000		0	28,000		28,000		28,000					
SLM technologies and approaches prioritization and application	session	5	5,000				0	25,000	25,000		0	25,000		25,000		10,000	15,000			
Business classes to increase the range and quality of dairy products	session	12	5,000				0	60,000	60,000		0	60,000		60,000		30,000	30,000			
Cooperatives trainings	session	4	5,000				0	20,000	20,000		0	20,000		20,000			10,000	10,000		
LADA & Participatory Pasture Assessment Workshops	session	2	5,000				0	10,000	10,000		0	10,000		10,000		5,000	5,000			
Pasture Management Trainings and Workshops	session	8	5,000				0	40,000	40,000		0	40,000		40,000		10,000	10,000	10,000	10,000	
Exchange visits (study tours)	session	6	5,000				0	30,000	30,000		0	30,000		30,000		7,500	7,500	7,500	7,500	
LDN indicator measurement and analysis Workshops (GIS and SDG 15.3.1 indicator capacity building)	session	2	5,000				0	10,000	10,000		0	10,000		10,000		5,000	5,000			
Awareness raising workshops on the national LDN indicators		2	10,000				0	20,000	20,000		0	20,000		20,000		10,000		10,000		
Dairy VC training	session	8	4,000				0	32,000	32,000		0	32,000		32,000		16,000	16,000			
Medicinal plants training	session	2	4,000				0	8,000	8,000		0	8,000		8,000		4,000	4,000			
Bee-keeping training	session	4	15,000				0	60,000	60,000		0	60,000		60,000		30,000	30,000			
District/APFS exchange visits	session	4	5,000				0	20,000	20,000		0	20,000		20,000		5,000	5,000	5,000	5,000	
Annual Project Steering Committee Meetings	session	5	5,000				0	25,000	25,000		0	25,000		25,000		5,000	5,000	5,000	5,000	5,000
Inception workshop	session	1	10,000				0	10,000	10,000		0	10,000		10,000		10,000				
Collect Earth training	session	1	30,000				0	30,000	30,000		0	30,000		30,000		30,000				
Rural Invest training	session	1	30,000				0	30,000	30,000		0	30,000		30,000		30,000				
Other trainings and workshops	Lumpsum	1	18,000			6,000	6,000	6,000	6,000	12,000		0	18,000		18,000		3,600	3,600	3,600	3,600	3,600
5023 Sub-total training				0	0	6,000	6,000	6,000	464,000	470,000	0	0	476,000	0	476,000	0	239,100	146,100	51,100	31,100	8,600
6100 Non-expendable procurement																					
Mini-processors for feed crushing, processing and briquetting	each	20	1,000				0	20,000	20,000		0	20,000		20,000			20,000			
Milk processing micro factory	each	2	25,000				0	50,000	50,000		0	50,000		50,000			50,000			
Equipment and inventory for a pilot farm of school of beekeepers	each	1	40,000				0	40,000	40,000		0	40,000		40,000			40,000			
Equipment for processing and packaging of medicinal plants.	each	2	20,000				0	40,000	40,000		0	40,000		40,000			40,000			
IT Equipment for the PMU and OPs (3)	set	3	10,000				0			0		0	30,000	30,000		30,000				
Equipment for the soil laboratory (under MoA)	set	1	120,000				0	60,000	60,000	120,000		0	120,000		120,000			120,000			
Vehicles for field visits to project sites	each	2	60,000				0		120,000	120,000		0	120,000		120,000		120,000				
Other non-expendable items	each	20	0	0	0	0	0			0		0	0		0		0	0	0	0	0
6100 Sub-total non-expendable procurement				0	0	0	0	180,000	210,000	390,000	0	0	390,000	30,000	420,000	0	150,000	270,000	0	0	0
5028 GOE budget																					
GOE	Lumpsum	1	3,287				0			0		0	0	3,287	3,287		1,096	1,096			1,096
6300 Sub-total GOE budget				0	0	0	0	0	0	0	0	0	0	3,287	3,287	0	1,096	1,096	0	0	1,096
TOTAL				195,000	70,593	226,120	524,113	1,180,485	1,484,443	2,664,928	367,133	399,533	3,588,574	188,367	3,776,941	212,000	1,450,407	1,080,407	491,439	403,196	351,492

SUBTOTAL Comp 1	524.113
SUBTOTAL Comp 2	2,664,928
SUBTOTAL Comp 3	399,533
Subtotal	3,588,574
Project Management Cost (PMC)	188,367	4.99%
TOTAL GEF	3,776,941
M&E (Comp 3)	212,000	5.6%

ANNEX F: (For NGI only) Termsheet

<u>Instructions</u>. Please submit an finalized termsheet in this section. The NGI Program Call for Proposals provided a template in Annex A of the Call for Proposals that can be used by the Agency. Agencies can use their own termsheets but must add sections on

Currency Risk, Co-financing Ratio and Financial Additionality as defined in the template provided in Annex A of the Call for proposals. Termsheets submitted at CEO endorsement stage should include final terms and conditions of the financing.

N/A

ANNEX G: (For NGI only) Reflows

Instructions. Please submit a reflows table as provided in Annex B of the NGI Program Call for Proposals and the Trustee excel sheet for reflows (as provided by the Secretariat or the Trustee) in the Document Section of the CEO endorsement. The Agencys is required to quantify any expected financial return/gains/interests earned on non-grant instruments that will be transferred to the GEF Trust Fund as noted in the Guidelines on the Project and Program Cycle Policy. Partner Agencies will be required to comply with the reflows procedures established in their respective Financial Procedures Agreement with the GEF Trustee. Agencies are welcomed to provide assumptions that explain expected financial reflow schedules.

N/A

ANNEX H: (For NGI only) Agency Capacity to generate reflows

Instructions. The GEF Agency submitting the CEO endorsement request is required to respond to any questions raised as part of the PIF review process that required clarifications on the Agency Capacity to manage reflows. This Annex seeks to demonstrate Agencies? capacity and eligibility to administer NGI resources as established in the Guidelines on the Project and Program Cycle Policy, GEF/C.52/Inf.06/Rev.01, June 9, 2017 (Annex 5).

N/A