Part I: Project Information

GEF ID
10819

Project Type
MSP

Type of Trust Fund
GET

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

Project Title
Enhancement of agro-ecological management system through promoting ecosystem-oriented food production

Countries
T?rkiye

Agency(ies)
FAO

Other Executing Partner(s)
Ministry of Agriculture and Forestry (MoAF)

Executing Partner Type
Government

GEF Focal Area
Land Degradation

Sector
AFOLU

Taxonomy

Land Degradation Neutrality, Focal Areas, Land Degradation, Sustainable Land Management, Influencing models, Private Sector, Type of Engagement, Stakeholders, Communications, Gender results areas, Gender Equality, Gender Mainstreaming, Capacity, Knowledge and Research, Learning, Carbon stocks above or below ground, Land Cover and Land cover change, Land Productivity, Sustainable Livelihoods, Restoration and Rehabilitation of Degraded Lands, Improved Soil and Water Management Techniques, Ecosystem Approach, Sustainable Pasture Management, Income Generating Activities, Sustainable Agriculture, Convene multi-stakeholder alliances, Demonstrate innovative approache, Strengthen institutional capacity and decision-making, Beneficiaries, Awareness Raising, Participation, Information Dissemination, Consultation, Partnership, Individuals/Entrepreneurs, Local Communities, Access to benefits and services, Knowledge Generation and Exchange, Capacity Development, Participation and leadership, Women groups, Sex-disaggregated indicators, Gender-sensitive indicators, Indicators to measure change, Adaptive management, Theory of change

Rio Markers

Climate Change Mitigation

Significant Objective 1

Climate Change Adaptation

No Contribution 0

Biodiversity

No Contribution 0

Land Degradation

Principal Objective 2

Submission Date

6/2/2021

Expected Implementation Start

10/1/2022

Expected Completion Date

9/30/2025

Duration

36In Months

Agency Fee($)

66,825.00

A. FOCAL/NON-FOCAL AREA ELEMENTS

Objectives/Programs	Focal Area Outcomes	Trust Fund	GEF Amount($)	Co-Fin Amount($)
LD-1-1	LD 1-1 Maintain or improve flow of agro-ecosystem services to sustain food production and livelihoods through Sustainable Land Management (SLM)	GET	455,318.00	3,700,000.00
LD-2-5	LD 2-5 Create enabling environments to support scaling up and mainstreaming of SLM and LDN	GET	248,107.00	2,300,000.00
		Total Project Cost($)	**703,425.00**	**6,000,000.00**

B. Project description summary

Project Objective

To develop an integrated and comprehensive agro-ecological management strategy in Bolu, T?rkiye.

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing($)	Confirmed Co-Financing($)
Component 1. Improving Enabling Environment for sustainable agro-ecosystem and land management	Technical Assistance	1.1. Strengthened policies and strategic plans for promotion of the Agro-Ecosystem approach within the national LDN strategy.	1.1.1. National Agro-Ecological Management Strategy Developed and aligned with National LDN Strategy	GET	106,408.00	1,506,780.00
		Indicators: *A national Agroecological Management Strategy developed and adopted* *10 ministerial and 10 provincial extension level staff and 45 smallholders (15 female and 30 males) trained*	1.1.2. Ministerial staff, extension officers and farmers are trained on land degradation and agro-ecological approaches in plant, crop and food production.			

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing($)	Confirmed Co-Financing($)
Component 2. Strengthening Agro-ecosystems and Sustainable Land Management (SLM)		2.1. Promoted agroecological practices, applying integrated agroecosystem and sustainable land management and LDN practices in Bolu province. *Indicators: ?* *An integrated agroecosystem management plan for Bolu Province developed and adopted* *5,000 ha of landscape under SLM (GEF core indicator 4)* *66 ha of land restored (GEF core indicator 3)* *334,537 tCO2eq. direct* (and 399,731 indirect) *Carbon sequestered by SLM (tCO2eq.) (GEF core indicator 6)* *365 farmers (175 female*	2.1.1. Current status of agricultural production and agroecosystem management practices analyzed, and priorities defined for improvement in Bolu province 2.1.2. An agro-ecosystem management and LDN plan developed and piloted in Bolu province in line with national LDN strategy 2.1.3. Selected agro-ecological and LDN practices are demonstrated at district level 2.1.4. Training programs conducted on integrated agro-ecosystem approaches and LDN	GET	341,505.00	3,013,561.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing($)	Confirmed Co-Financing($)
Component 3. Scaling up best practices, monitoring and evaluation	Technical Assistance	3.1 Best practices promoted, and lessons learned disseminated Indicators: *5 knowledge exchange products* *300 rural network members* *200 trained farmers (100 women and 100 men)* 3.2 Project implementation is supported by an M&E strategy <u>*Indicators:*</u> *Project M&E system in place and functioning* *Mid-term and Final*	3.1.1 Policymakers are informed on value of agro-ecosystem management and LDN 3.1.2 A rural network is established as an exchange platform for upscaling 3.1.3. Knowledge products are shared and disseminated widely 3.1.4. An exit strategy developed defining options for further upscaling of best practices 3.2.1 M&E strategy developed and implemented clearly defining the expected outcomes and implementation timeframe, and objectively the verifiable indicators and means of verification.	GET	191,576.00	934,204.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing($)	Confirmed Co-Financing($)
				Sub Total ($)	**639,489.00**	**5,454,545.00**

Project Management Cost (PMC)

GET	63,936.00	545,455.00
Sub Total($)	**63,936.00**	**545,455.00**
Total Project Cost($)	**703,425.00**	**6,000,000.00**

Please provide justification

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($)
Recipient Country Government	Ministry of Agriculture and Forestry	In-kind	Recurrent expenditures	1,500,000.00
Recipient Country Government	Ministry of Agriculture and Forestry	Public Investment	Investment mobilized	4,000,000.00
GEF Agency	FAO	In-kind	Recurrent expenditures	500,000.00
			Total Co-Financing($)	**6,000,000.00**

Describe how any "Investment Mobilized" was identified

Mobilized Investment from the Ministry of Agriculture and Forestry corresponds to the ongoing public investment related to the implementation of T?kiye?s National Agricultural Program in charge of the General Directorate of Agrarian Reform.

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($)
FAO	GET	T?rkiye	Land Degradation	LD STAR Allocation	703,425	66,825	770,250.00
				Total Grant Resources($)	**703,425.00**	**66,825.00**	**770,250.00**

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 **true**

PPG Amount ($)

50,000

PPG Agency Fee ($)

4,750

Agency	Trust Fund	Country	Focal Area	Programming of Funds	Amount($)	Fee($)	Total($)
FAO	GET	T?rkiye	Land Degradation	LD STAR Allocation	50,000	4,750	**54,750.00**
				Total Project Costs($)	**50,000.00**	**4,750.00**	**54,750.00**

Core Indicators

Indicator 3 Area of land and ecosystems under restoration

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
50.00	66.00	0.00	0.00

Indicator 3.1 Area of degraded agricultural lands under restoration

Disaggregation Type	Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
Cropland		16.00		

Indicator 3.2 Area of forest and forest land under restoration

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

Indicator 3.3 Area of natural grass and woodland under restoration

Disaggregation Type	Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
Natural grass	50.00	50.00		

Indicator 3.4 Area of wetlands (including estuaries, mangroves) under restoration

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)
5000.00	5000.00	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 under third-party certification incorporating biodiversity considerations

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)
5,000.00	5,000.00		

Indicator 4.4 Area of High Conservation Value or other forest loss avoided

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

Indicator 4.5 Terrestrial OECMs supported

Name of the OECMs	WDPA-ID	Total Ha (Expected at PIF)	Total Ha (Expected at CEO Endorsement)	Total Ha (Achieved at MTR)	Total 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)	333109	334637	0	0
Expected metric tons of CO?e (indirect)	399731	399731	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)	333,109	334,637		
Expected metric tons of CO?e (indirect)	399,731	399,731		
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 People benefiting from GEF-financed investments

	Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)
Female	175	175		
Male	190	190		
Total	365	365	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

1) Global environmental and/or adaptation problems, root causes and barriers that need to be addressed (systems description)

Country context

1. According to the report of The Intergovernmental Panel on Climate Change (IPCC) in 2013, the Mediterranean Region is one of the most vulnerable regions to the impacts of climate change. Therefore, we need to build resilience in the region to address it. In doing so, it is crucial to conserve and use natural resources sustainably and efficiently. Food production purely depends on natural resources, i.e., water, land, and many ecosystem services. However, particularly, increasing demand on food and yield losses due to the impact of climate change has resulted in expanding intensified productivity-oriented approaches in agriculture production systems requiring a high level of input usage. These practices have disturbed natural resources, and vital ecosystem functions, and negatively affected biodiversity. In addition, projected population growth ahead will generate unprecedented increase in food demand anywhere between 59% to 98% by 2050 that will bring about more stress factors in agro-ecosystems, along with knock-on effects on further environmental degradation overall and positive feedback to climate change. Recent IPCC special report on 1.5 ?C global warming clearly indicates that there would be prolonged droughts, more yield losses and more habitat losses occurring, and this impact would be even higher with the 2 ?C global warming scenario. In accordance with another study, by 2100, unless rapid measures taken against climate change, the expected temperature increase would be more than 3 ?C. As a result, from the best case to worst case scenarios, it is obvious that climate change will hamper food security and increase vulnerability in society and in the environment at an alarming rate. Thus, a significant transformation in agricultural policies and practices is urgent and necessary to move from productivity-oriented to ecosystem-oriented practices. This evidently requires a holistic approach to address challenges related to agro-ecosystem management for a sustainable agriculture.

2. T?rkiye has a total land area of 779,452 km2 and is surrounded by seas on three sides: the Black Sea, the Marmara, the Aegean, and the Mediterranean. It is one of the biodiversity-rich countries in the world providing vital resources for people?s food security. More than 130 fruit and vegetable species can be successfully grown in T?rkiye. Therefore, it is a challenge for T?rkiye to protect and use this important wealth rationally for the welfare of the future generations. Due to its three biogeographic regions and their transition zones, and because of its climatic and geographical features changing within short intervals of space due to its position as a bridge between two continents, T?rkiye has a character of a small continent from the point of biological diversity. T?rkiye has forest, mountain, steppe, wetland, coastal and marine ecosystems, and different forms and combinations of these. The ecosystem mosaic of several different ecological characteristics provides nesting and breeding areas for thousands of fauna and flora species and their populations. Another factor that increases this wealth is that two of the four migratory routes of the West Palearctic Region pass above T?rkiye. This

makes it an important place as a feeding and breeding area for birds. Moreover, migratory routes have provided T?rkiye with a huge diversity of plant species. Invertebrates constitute the largest number among the identified living species. The total number of invertebrate species in T?rkiye is estimated at 19,000, of which nearly 4,000 species/subspecies are endemic. The total number of vertebrate species identified to date is about 1,500,500[1][1].

3. T?rkiye is one of the world?s richest countries with regard to diversity of plant species, hosting 167 families, 1,320 genera and 9,996 species. The endemism rate of the Turkish flora is 31.8% and each year new such species are identified. The richest plant family for endemism in T?rkiye is *Asteraceae* having a total of 572 endemic taxa, followed by *Fabaceae* (385 taxa) and *Lamiaceae* (326 taxa). Also 14 genera are endemic. Other plant families, and some genera, with high endemism rates are given in Table 5. The rate of endemism is relatively high when compared with other European countries such as 18% in Spain, 15% in Greece, 3% in France, and only 0.1% in Poland. Due to exceptional amount of endemism that brings a huge responsibility to T?rkiye, it is to ensure that these species are adequately protected from threats or extinction, particularly for those which are related to the crops upon which much of the world depends[2][2].

4. Nationally and globally, there is a need for solutions that combine the increasing demand for food with sustainable management of nature, the climate and the environment. Agro-Environmental Management will acquire a holistic understanding of agro-ecosystem processes and the interaction between agricultural production, nature and environmental management. Agriculture in T?rkiye plays an important role in the degradation of individual components of the environment. Reduction of soil fertility, contamination of surface- and groundwater, reduction of biodiversity and damage caused by it are evident. The agrarian landscape does not provide the appropriate ecosystem functions. It is constrained to provide attractive conditions for livelihoods of the inhabitants of rural areas[3][3]. The farmers are offered applicable and functional techniques, technologies and support where possible. However, these are not used and exploited in an appropriate and sustainable manner. Based on the analysis of business environment, the main challenges include i) the absence of the macro environmental management systems and strategies, ii) the gaps and weaknesses related to regulatory and institutional frameworks, iii) Insufficient experience and capacities among key agriculture stakeholders in developing and implementing improved cropland management/climate smart agriculture practices on the ground.

5. According to the National LDN report[4][4], the main drivers of land degradation are as follows; (i) inappropriate ploughing, seeding and planting on high and steep slopes and marginal areas and (ii) insufficient investments in land rehabilitation. In this regard, T?rkiye has adopted the LDN targets: (i) promoting and supporting soil conservation farming through offering trainings to trainers and farmers on the subject; (ii) rehabilitating approximately 20,000 km2 of agricultural lands; (iii) supporting soil and fertilizer analysis and controlled applications. In this context, to achieve multiple national LDN targets, the agro-ecosystem approach can be a solution. For this purpose, a methodology needs to be developed and put into practice as a common tool for agro-environmental management. The methodology should develop, implement and test the most appropriate practices under farm conditions.

Project area

6. The Bolu Province in the Black Sea region of T?rkiye has been selected to test and demonstrate the agro-ecosystem approach to achieving LDN in two districts, namely Seben and Yeni?a?a (Figure 1). The main economic activities of Bolu are based on agriculture and animal husbandry, and most of the population living in the rural areas earn their living from agricultural activities. The fact that the agriculture sector has such an important role is that industry is not developed adequately, and the landforms, vegetation, and natural resources are very suitable for a wide range of agricultural production[5][5]. In Bolu, 15% of the total area is agricultural land. According to land capability classification, the absolute agricultural area is 88,867 hectares. This area reaches 118.130 hectares when moderate soils can be cultivated with suitable plowing for a few specific plant species. Irrigated farming is carried out on 34,336 ha and rainfed agriculture on 83,794 ha.

Figure 1. Location of Bolu province and Seben and Yeni?a?a districts.

7. Land fragmentation is a major problem in arable lands. Grains constitute a large part of the cultivated areas and wheat, barley, corn, oats, and paddy are the leading grains grown. Leguminous; beans, chickpeas and vetch, and sugar beet as industrial crops are also grown substantially. Potatoes, onions, garlic and animal beets are important crops, especially for smallholder farmers. Livestock sector has an important place in the provincial economy. Bolu meat products (white and pink meat) has a share of about 23% in T?rkiye with a total of 38,514,476 units/period with broiler 1,629,462 units/period. Although variable in certain periods, 119,221 ovine and 128,850 bovine animals are recorded in the recent agricultural inventory of the province. The number of hives with bees is 17,331,263 with annual honey production capacity of 102,260 tons. Apart from the intense agricultural activity in Bolu, the agricultural master plan (2011) and the latest report of Bolu province's environmental status (2017) state that soil erosion occurs in 80% of agricultural lands. According to the recent

studies on soil water erosion statistics in T?rkiye[6][6], in the evaluation made in terms of land use in Bolu province, it was determined that water erosion occurred in 20.90% of forest lands, 51.71% of agricultural lands and 24.78% of pasture lands.

8. In 2021, Bolu had a population of 234,554 in its towns and 85,460 in its villages with a total of 320,014 people. In Seben, it was 2,395, 2,372, and 4,767, respectively while it was 4,609, 2,813, and 6,792 in Yeni?a?a. The ratio of the rural population to the total population is 26.2%. The total area of Bolu amounts to 8,323.39 km2 with a population density of 38 in general, 687.19 km2 in Seben with a population density of 7, and 130.22 km2 in Yeni?a?a with a population density of 52. The female population was 2,504 (52.5%) in Seben and 3,408 (50.17%) in Yeni?a?a. In Seben, 63.57% of the population living in the village was between the ages of 55-89, this rate was 55.70% in Yeni?a?a .

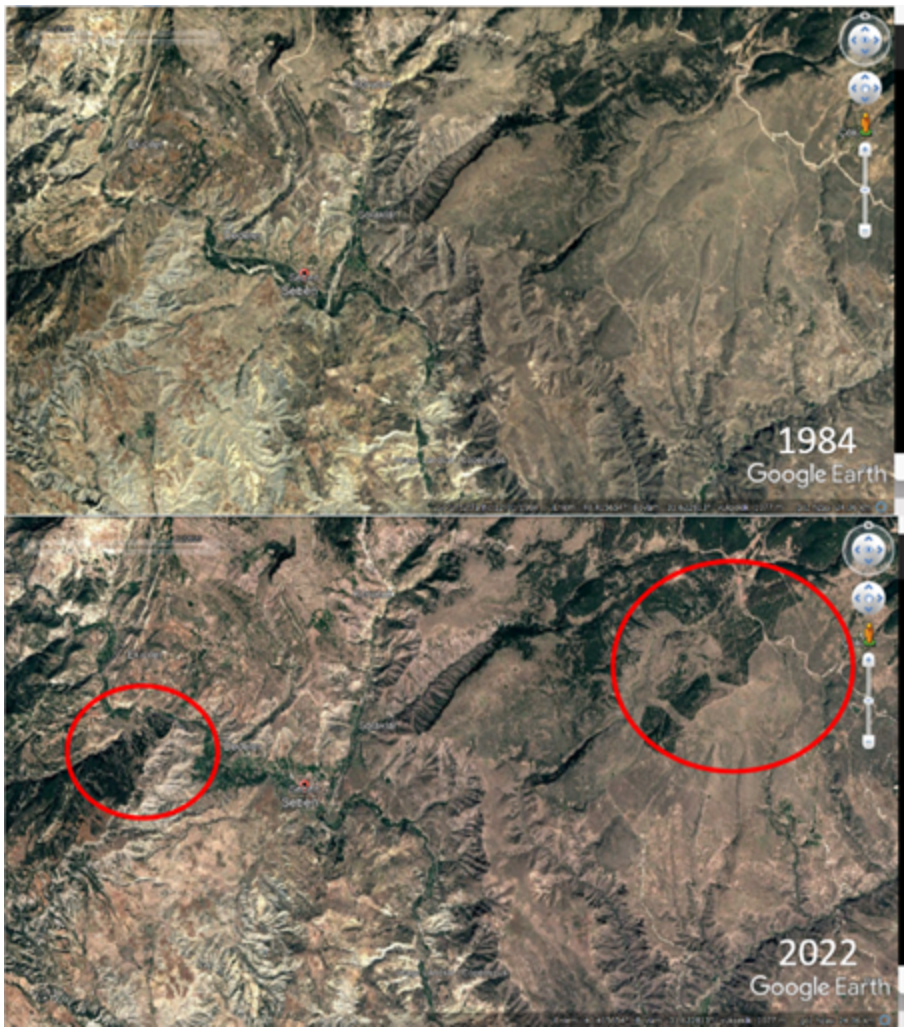
9. According to the desertification risk map of T?rkiye[7][7], specifically, the south of Bolu Province, which is a part of Sakarya River Basin, is under moderate and high risk of desertification. This degradation not only affects the agriculture sector but also accelerates the loss of biodiversity. Yenica?a district is dominated by soils rich in organic matter (histosols)[8][8] which have high content of organic matter ranging from 12.5 to 91.5% and have high potential for soil carbon sequestration, but unsustainable land management practices have been accelerating land degradation. Soil pollution is another main threat due to the Poultry Sector in Bolu Province. Indiscriminate dumping of solid waste (manure) consisting of chicken manure into fields for agricultural production pollutes groundwater and surface water resources as well as soil pollution[9][9],[10][10].

7. According to on-site surveys, farmer meetings, and agricultural data, land degradation is not at an advanced stage in Seben and Yeni?a?a. However, there is no efficient application that promotes or even maintains soil quality, notably carbon sequestration, throughout the project area. This illustrates that there is a slow but steady tendency turning negative. Slope is a natural source of land degradation in both places, and it is more threatening in Seben. Another natural circumstance is that the aggregate structure is fragile because of the loamy texture poor in organic matter of most of the region's soils, which puts them at risk of being easily eroded from the fields by water and wind, especially when there is little or no vegetation cover.

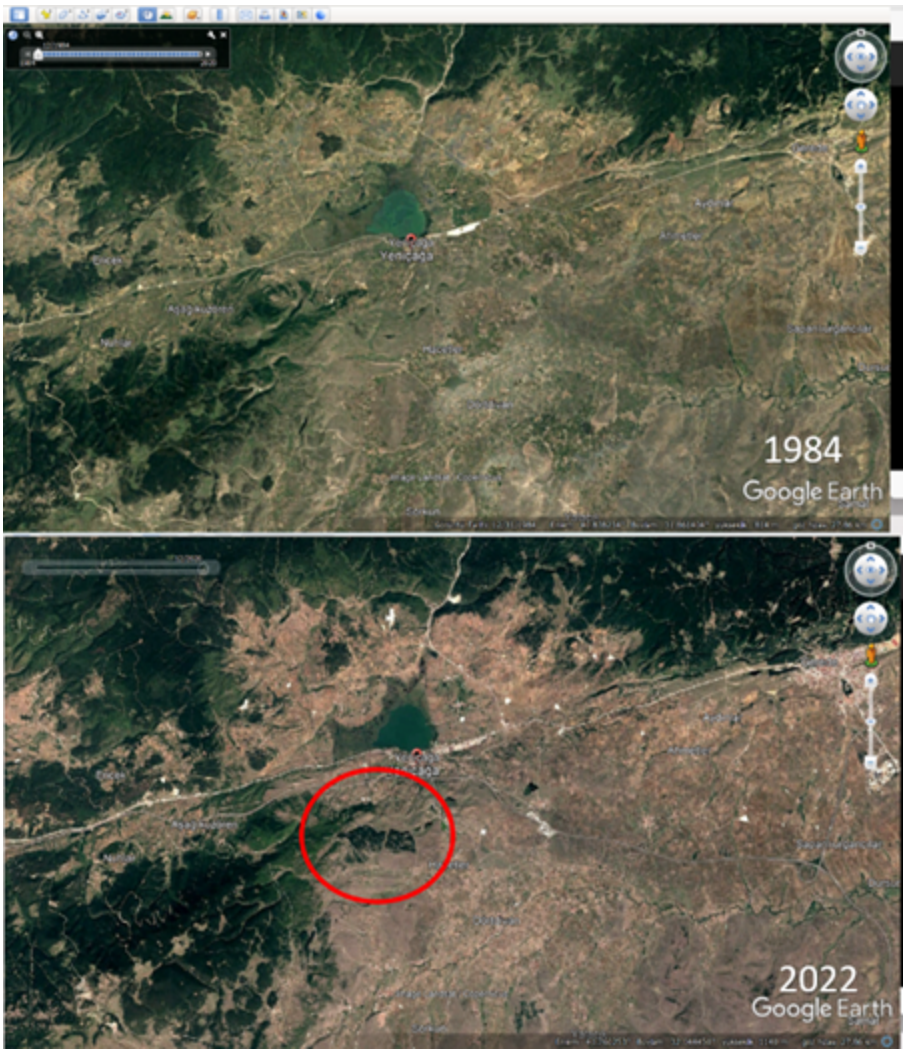
8. Apart from natural limitations, human effects on land degradation encompass mechanical land tillage, wheat-based monoculture, lack of crop rotation, fertilization without soil and plant data, pesticide and herbicide use without care for the environment, and pasture management without considering plant diversity and carrying capacity. As a result of the interviews with the producers, it has been understood that a limited number of producers have limited knowledge about agro-ecological practices. In general, open tillage technique is applied in fruit and vegetable orchards in Seben.

Similarly, fertigation and the drip irrigation method, which help to prevent soil degradation and water loss because of evapotranspiration, is applied at a very limited level. Especially in Seben district, some villages, such as Kozyaka and K?z?k , are located at altitudes above 1000 m. Most of the fruit orchards in these villages are established on sloping lands. In these lands, both flood irrigation and precipitation can lead to significant erosion. Covered tillage and drip irrigation techniques will help to solve degradation and erosion problems.

9. At both sites, satellite images showed almost no land cover change from 1984 to 2022, even slight increase in forest cover is observed (Fig. 2). This increase in tree cover is encouraging because it demonstrates that the region will respond positively to appropriate interventions for carbon sequestration, sustainable land management, and that the planned project has the potential to further contribute to this progress successfully. Land fragmentation, on the other hand, as determined by satellite data is spreading. Farmers and local technicians mentioned an urgent need for rangeland rehabilitation, particularly in Seben that hosts more than 30,000 small ruminants. Crop lands in both sites are stable according to the satellite image from 1984 to 2022, dominated by wheat followed by fruit orchards and vegetable gardens.



Seben



Yeni?a?a

Figure 2. The land cover trend from 1984 to 2022 in Yeni?a?a and Seben.

10. This information was gathered by consultations with the farmers and district technicians because there are no long-term monitoring data available on these issues. Farmers said that their yield increased in quantity, but only after applying fertilizers and pesticides/herbicides. In other words, the increase in productivity depends on the increase in external input. Although the region receives around 500 mm ? lower in Seben - of annual precipitation, the yearly average temperature of 9?C assures moderate evaporation and keeps the soil moist all year, unlike semi-arid locations. The decomposition of soil organic carbon is often retarded by this moisture level. However, inappropriate fertilizer uses and tillage in the region might have a negative impact on soil organic carbon level and cause it to deplete. The major reference indicator for sustainable land management recommendations will be determining the soil organic carbon level by collecting soil samples from various soil types and land uses. Also, there is a need for annual crop production statistics along with land use patterns for assessing soil productivity trends at least in the last 20 years. Petri et al. (2019)[11][11] documented the

necessity of baseline data for mapping land degradation. Thus, there is an urgent need for current soil organic carbon status and crop statistics for Seben and Yeni?a?a.

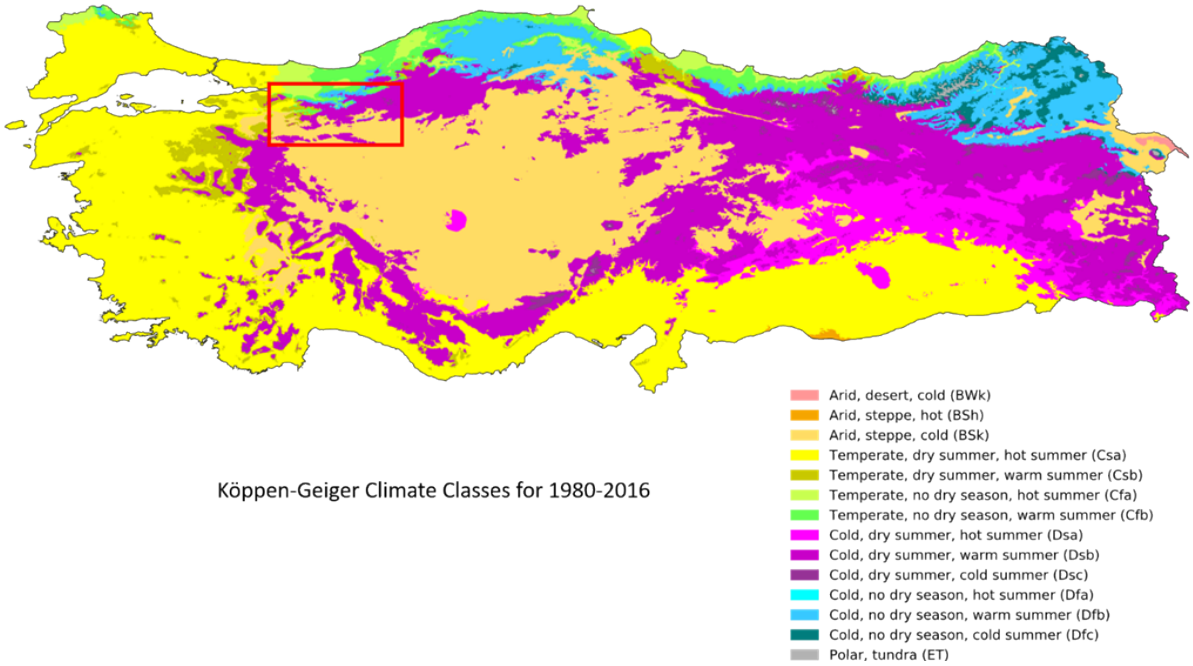
11. The impact values of foreseeable problems in the region are evaluated between 1 and 5 (1 low, 5 high) in the data displayed for all soil threats defined in FAO and The Intergovernmental Technical Panel on Soils (ITPS) (2015)[12][12] (Table 1). Soil salinity is not an issue due to sloping topography and medium soil texture that provides good drainage. In Seben, erosion may easily develop on sloping and rainfed agricultural fields, which can be seen in satellite images as bleached surfaces, i.e., exposed C-horizon in sloping fields most probably developed by perpendicular soil tillage. Along with erosion, pollution is a potential problem due to fertilizer and other agro-chemical uses. Soil compaction due to tillage undertaken when soils are moist is also an issue. Soil biodiversity is not very rich as wheat monoculture is dominating in Yeni?a?a and Seben.

Table 1. The severity/priority level of current soil threats in the project areas. Ranking: 1 (the lowest) to 5 (the highest).

Type of Soil Threat	Yeni?a?a	Seben	Remarks
Erosion	3	3	As sizes of the fields are small, farmers seem to protect their land. But in fallow and sloping lands, the utmost care should be given to erosion i.e., soils should not be left bare. In forest areas any deforestation will cause devastating erosion in both sites.
Soil organic matter	3	2	This needs soil analyses since the amount of data with coordinates are not representing all soil types and land uses of both areas.
Soil nutrient imbalance	3	3	Fertilizer use of farmers needs to be revisited because farmers are more likely to follow the practices of their neighbors rather than soil analysis.
Salinity-Alkalinity	2	1	Sloping land provides good drainage, but in Yeni?a?a plain drainage network needs to be controlled due to discharging to the Lake.
Pollution	4	3	The application amount and frequency of pesticides and herbicides are not well defined. Seben applies less chemicals and fertilizers.
Acidification	1	1	Parent materials of the soils are basic and there is no acidic rain or excess acidic fertilizer use that lead to acidification.

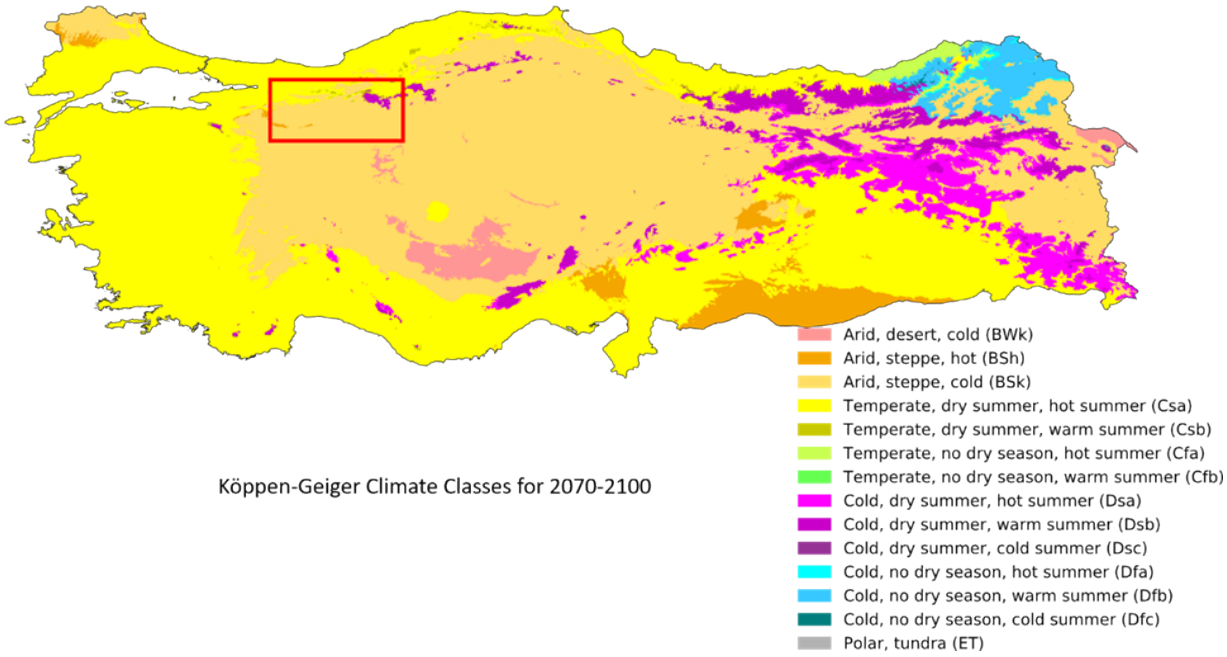
Compaction	5	4	Because farmers are mainly plowing their land when soils are wet.
Soil sealing	2	2	Municipality should be very strict for construction of new buildings in fertile soils because the highlands are under pressure of 2nd house constructions.
Water lodging	4	1	In the flat plains of Yeni?a?a water lodging may be a problem.
Soil biodiversity	3	2	This needs soil sampling. But due to monoculture in both sites particularly at wheat fields the soil biodiversity can be low.

12. According to projections, the project area will not be affected by climate change as much as the Mediterranean and Southeastern parts of the country. Climate change will put pressure on agricultural production as future predictions indicates that the Project site?s current climate of Dsb will shift to drier Bsk climate of K?ppen-Geiger classification[13][13] (Figure 3A, B). Seben is in the transitional part between the Central Anatolia Region and the Black Sea Region, with continental and Black Sea climate characteristics, and while Seben has a continental climate, Yeni?a?a has a milder climate due to the presence of the lake. Most of the fruit species grown in these districts are resistant to temperatures lower than -15?C during winter and the deep dormancy period.



Köppen-Geiger Climate Classes for 1980-2016

A



B

Figure 3. K?ppen-Geiger classification map of T?rkiye for 1980-2016 (A) and for 2070-2100 (B)

13. The most important problem for horticultural cultivation in the region is ?late spring frosts?, especially in April-May. Late springs cause significant damage to fruit trees and vegetable orchards established on flat areas in the inner parts of the valley. Orchards established in high villages and sloping areas are less damaged by late spring frosts. In the cultivation of summer vegetables such as tomatoes and peppers, the seedling planting time is done in the first two weeks of May. Late spring frosts, which pose a risk until the end of May, cause freezing in seedlings. Therefore, protected cultivation especially for vegetable growing can be a solution to cope with the late spring frosts. Moreover, in autumn, early frosts occurring at the beginning of September are mostly dangerous for summer vegetable species, i.e., tomatoes, eggplants etc. In recent years, an important issue in the project area is the sudden and heavy rainfall during the spring months and a dry period during July and August. These types of rainfalls caused by climate change are a threat that can cause soil erosion and land degradation.

14. In the Bolu province, 94,631 ha (83.1%) is covered by field crop cultivation, vegetable gardens cover 832.4 ha (0.7%), and land covered by fruit orchards is 2,498 ha (2.2%). In Bolu, wheat is planted in 50,423 ha with a production of 14,990 tons. Other field crops, respectively, barley is 15,922 ha and 3,941 tons; silage corn is 4,021 ha and 19, 568 tons; potatoes is 5,450 ha and 15,510 tons; alfalfa 6,823 ha, 11, 148 tons; vetch (pasture) is 2,650 ha and 2,525 tons; sunflower (oil type) is 1,300 ha and 0,331 tons. (Table 2) Moreover, the most

cultivated fruit species are apple, cherry, grape, walnut and peach, respectively. As vegetable species, tomatoes, pumpkin, artichokes, green beans, lettuce, cabbage and spinach are mostly produced. In the region, greenhouse cultivation in the form of high plastic tunnels (protected growing systems) is concentrated in the central district near to Seben, Yeni?a?a, and Gerede districts. This area constitutes 0.95% of the vegetable growing areas. There are organic farming certificates for 15 different herbal products in the province. In Seben, 0,45 tons grapes for fresh consumption (0,1 ha), 16 tons potato (0,5 ha), 0,6 tons beans (0,1 ha), 0,6 tons walnut (0,07 ha), 5.1 tons wheat (2.5 ha) was organically produced in 2021.

Table 2. Distribution of agricultural land in Bolu, and project sites in 2021

Agricultural Activity	BOLU		SEBEN		YEN??A?A	
	Area (hectare)	%	Area (hectare)	%	Area (hectare)	%
Fruit orchards	2,498.1	2.2	452.0	8.4	7.9	0.2
Vegetable gardens	832.4	0.7	28.8	0.5	21.7	0.5
Field crops	94,631.2	83.1	4,732.1	88.3	3,955.0	91.2
Fallow	15,953.3	14.0	145.0	2.7	350.0	8.1
Total	113,915.0	100.0	5,357.9	100.0	4,334.6	100.0

Land under permanent meadows and pastures are not included

15. Yeni?a?a and Seben districts, which have varied ecological and land use features as well as land degradation problems, are thus considered suitable for demonstrating the agro-ecosystem approach to achieving LDN, as they can generate lessons and experiences that could also be relevant to other similar agricultural areas in T?rkiye. The experiences and lessons from Bolu province will also inform the development of a national agro-ecological management strategy and help remove barriers to agro-ecological land management in T?rkiye.

Barriers:

16. The barriers to agro-ecological management in T?rkiye are related to insufficient legal, regulatory, and institutional framework, including absence of strategy for agro-ecosystem management, lack of integration of agro-ecological management into food security policies, inadequate integration of resilience into policy and decision making (lack of drought preparedness, lack of gender considerations, etc.), lack of sufficient funding to promote and incentivize agro-ecosystem and SLM upscaling, etc. The key barriers that will be addressed by the project include:

17. **Barrier 1: Insufficient legal and regulatory and institutional framework.** Current parameters in policy and practices regarding agro-ecosystem management do not build a

foundation for sustainable environmental management in the agricultural sector. With respect to sustainable agriculture management, current policy, rules, and procedures present some important barriers that prevent stakeholders from developing and adopting new, more sustainable land management practices. One barrier is the inflexible nature of the existing policy framework, which for example, places a higher value on ?permanent? cultivation versus ?rotational? cultivation. Current institutions and land registration mechanisms are bound by rigid definitions of agriculture land on the one hand, forest land on the other, and may only be applied on land classified, respectively. Consequently, existing policies do not recognize that farmers may be cultivating permanent crops in forestland or protecting forests on agricultural land, sometimes in parallel and sometimes in rotation.

18. Secondly, inadequate land-use plans and maps at the local level is an important barrier to improved land management. Soil conversion in part because of the lack of clarity on land-use planning and policy at the local level is an important challenge. Furthermore, the true value of a healthy ecosystem services is not quantified or not valued by local people. Ecosystem services of peatlands are not recognized or adequately valued as well. Inadequate linkages in land use policies and the absence of an overall policy for the sustainable use of land leads to conflicting land-use planning objectives. In T?rkiye, there is a need to adopt a transdisciplinary approach to multifunctional agriculture to integrate the agro-ecological paradigm in legal regulation. This does not require a super-law that hierarchically purports to incorporate and supplant the existing legal fields; rather, it needs the creation of policies that progressively facilitate coordination among different regulations and disciplines related to the agricultural sector. In order to overcome the insufficient regulatory framework, the project will strengthen policy and planning mechanisms to promote the Agro-Ecosystem approach (Outcome 1.1)

19. **Barrier 2: Lack of ecosystem management perspective in agriculture.** One of the significant barriers in ensuring a healthy ecosystem and SLM is the lack of adequate livelihood opportunities for local populations living in rural areas. Time and again, it has been demonstrated around the world that with adequate economic incentives local communities would be willing to participate and engage in sustainable management of natural resources. Though at present, in the project region, communities are engaged in activities that provide them with a certain level of income, this is neither sustainable nor adequate to prevent over- and unsustainable utilization of natural resources. There are no systematic efforts to develop the corresponding value chains for local benefits (as mentioned before, there are no management plans). This severely limits the economic benefits that can be derived by the local communities from the protected areas. The local existing business enterprises are small and weak, and do not have well-functioning local organization or connection to market entities. In this regard, the project will promote agro-ecological practices, applying integrated agroecosystem and SLM principles (Outcome 2.1). This would include development and implementation of community based natural resource management plans formulated with agro-ecosystem approaches in mind.

20. **Barrier 3: Minimal experience among key agriculture stakeholders in developing and implementing improved cropland management and climate smart agriculture practices on the ground.** In T?rkiye, with its large surface area and insufficient government resources and capacity, effective SLM strategies must be developed and implemented through partnerships among public institutions, local communities, private sector and civil society. These efforts must empower local stakeholders to take responsibility for results on the ground

for improved cropland management. The trend is pointing in the right direction; farmers have been increasing their efforts to collaborate with each other, but a successful transition to more farmer-driven land management will require strengthened institutional capacity to improve the dissemination of agro-ecosystem management practices over large areas. In this sense, there is a need for capacity and there is a great demand for ?proof of concept? in this regard. T?rkiye invests a considerable number of resources in research and development of agricultural technologies, but it could benefit from additional assistance in directing some of this targeted research to fill data and knowledge gaps with respect to climate smart practices. In particular, access to knowledge about Climate Smart Technologies[1] and LDN practices (such as soil conservation techniques) is limited. Improving this knowledge gap will help facilitate the needed transition to more agro-ecosystem based, resilient, sustainable and low-emission agriculture. The ability of farmers to achieve SDGs is hampered by very low levels of capacity to plan and implement improved land management, particularly with erosion control and carbon sequestration objectives. In addition, improving the productivity of smallholders while enabling smallholders to make the transition to ecosystem-oriented production will require the financing of new kinds of incentives that draw upon innovative solutions, such as diversified cropping, better cultivars and rotations, pasture rehabilitation, climate friendly practices, and payments for environmental services etc.

Although, Bolu has diverse agro production, the main challenges for the development of value chains result from insufficient organization and capacity. Hence, challenges include small size of farms, lack of joint actions by producers resulting from cultural attitudes, weak marketing capabilities and insufficient support. In this respect, functionality and problems of the existing cooperatives will be examined and their capacities will be strengthened. Furthermore, a focus will be given to strengthen access of the producers to local and national markets by engaging district and provincial municipalities in view of making use of their market place structures. Links will also be established between smallholder producers and more structured private sector initiatives with the view of creating synergies, scaling up production of local products and approaching larger markets.

21. The COVID-19 pandemic has affected a diversity of sectors, industries and territories in T?rkiye. At the national level, travel bans, and circulation restrictions have affected the tourism, transportation, construction, retail and manufacturing industries. More specifically, COVID-19 has had negative consequences on agricultural production even if the growers were out of pandemic restrictions. The main challenges faced in the agricultural sector relate to limited access to inputs and markets, difficulties in transportation of goods and agricultural inputs, harvested plant products and processed foods, difficulties accessing labor sources and limitations to extension services. These impacts have affected a variety of agri-food chains including crop production, livestock production, and fisheries and aquaculture. In the crop production industry, the most notable impact is the reduction in the demand for a variety of agricultural products, mainly fresh fruit and vegetables, due to the closure of restaurants and hotels. In the livestock production industry, and in particular for the poultry sector, the closure of mass consumption points affected the income of poultry producers. Along each value chain, these impacts affect small farmers who have limited capacity to cope with crises[2]. The Bolu province has experienced these and other similar challenges with the occurrence of the COVID-19 pandemic.

2) Baseline scenario and any associated baseline projects

22. Local institutions and district governors have very limited funding or technical staff to create a trademark, train individuals, support large-scale projects, and supervise them. As a result, they are unlikely to undertake any attempts other than small-scale meetings or applications covering only a few hectares. However, by playing a significant facilitating role in externally financed projects, these institutions boost the likelihood of project success. Private funding, on the other hand, is extremely difficult in this region because it is usually geared at promoting a company's commercial product and popularizing its use. They also choose to promote their commodities in areas with a higher population and income. Unfortunately, the number of farmers and economic structure of Seben and Yeni?a?a, or their low-income output in small areas, do not meet the requirements for private funding. No comprehensive information or reports on agro-ecological management exist in T?rkiye, although there are some related laws and policies, as given below, on agro-ecological management, land and natural resources management relevant to the project (Table 3).

Table 3. Relevant legislation and policies at national level.

NAME OF LEGISLATION/POLICY	RELEVANCE (Describe the relevance to agro-ecological management and the proposed Project)
LEGISLATION	
Soil Conservation and Land Use, Law 5403	It is to protect and develop the soil, to classify agricultural lands, to determine the minimum agricultural land and agricultural land sizes, with sufficient income, and to prevent their division because of heritage or selling, to determine the procedures and principles that will ensure the planned use of agricultural lands in accordance with the principle of environmental priority sustainable development. This Law fully in accordance with agroecological management as stated in the last sentence
Regulation on Protection, Use, and Planning of Agricultural Lands	The classification and development of agricultural lands, the determination and protection of soil and large plains with high agricultural production potential, the preparation and implementation of soil protection plans and projects, the identification of areas susceptible to erosion, and the principle of sustainable development with a focus on the environment are all covered by the Soil Conservation and Land Use Law to design the methods and principles that will ensure that the lands are used as intended in compliance with the plan.
Control of Soil Pollution and Point Source Contaminated Sites Regulation	It covers the technical and administrative procedures and concepts for preventing soil pollution, identifying and documenting polluted areas and sectors, and restoring and monitoring contaminated soils and regions.

NAME OF LEGISLATION/POLICY	RELEVANCE (Describe the relevance to agro-ecological management and the proposed Project)
Pasture Law 4342	It is to maintain and rehabilitate pastures, grazelands, winter pastures, and public pastures and meadows that have been allotted by various laws or have been used since ancient times, and to constantly monitor and safeguard their use.
POLICIES	
11th Development Plan for 2019 to 2023	The action no 103 of the development plans defines the policy as ?Efforts are increasing for the sustainable use of soil and water resources, which are becoming increasingly important, food security and keeping the agricultural population in place, increasing rural development support in our country, increasing the use of more technology and information in agriculture, activating the use of inputs, diversifying marketing channels, and directing production to meet demand". This governmental goal demonstrates that the country's policies are generally in line with SLM and agro-ecological agriculture.

23. Farmers are looking for new ideas and strategies to address high costs of inputs and low productivity of present agriculture activities. If agro-ecological agriculture and SLM treatments are adequately articulated through practices and training, this is a significant strength. However, because the state's agricultural subsidies do not provide special funding for these activities, it may be difficult to gain farmer support at first. This is also recognized as a weakness. Another major hurdle is farmers' lack of tools and equipment for SLM and agro-ecosystem applications. The device required for direct sowing, for example, is not available to the community. Farmers are relatively older in the study area, thus learning new techniques and tools/equipment may take some time (i.e., using solar-powered drip irrigation systems). The outcomes of SLM application, particularly the improvement of soil structure and the accumulation of organic matter, can be difficult to accomplish and take time in some instances. Therefore, the provincial directorate of agriculture can provide additional support to farmers who will implement this type of practice for a period of five years, either in kind or financially.

24. In this sense, the agro-ecology approach offers a desirable and affordable way to reduce soil erosion and pollution and restore agricultural lands that have been degraded by high-input agronomic practices. Sustainable intensification of production and conservation of natural resources in marginal areas can be possible only by scientific management of natural and local resources and knowledge in the most efficient manner[14][14]. In Bolu province, dissemination of agroecological farming practices will ensure optimization of combined and synergistic utilization of the different sources of organic matter (i.e., crop residue, cover crop, soil) for crop production. This is considered as an important element of the framework of

environmental sustainability, and C storage which is an essential component to build the resilience of the system[15][15].

Associated Baseline Projects

19. The programs implemented by the General Directorate of Agrarian Reform (GDAR) under the Ministry of Agriculture and Forestry (MoAF), would form the main baseline for this project. The regular program of GDAR focuses on planning and management of the agricultural lands in T?rkiye. Under the department of Agro-Environment, and Natural Resource Protection, the GDAR has been working for the agro-ecosystem management. In Bolu Province, MoAF also implements a project on meadows that will be part of the baseline as well as several research projects in Bolu on einkorn wheat. Other agro-ecosystem and natural resource protection related baseline activities include:

20. **Sustainable Land Management and Climate-Friendly Agriculture:** The project objective is to improve sustainability of agriculture and forest land use management through the diffusion and adoption of low-carbon technologies with win-win benefits in land degradation, climate change, and biodiversity conservation and increase farm profitability and forest productivity. The project will achieve this objective by addressing three barriers: Barrier #1: Minimal experience among key government and civil society stakeholders in developing and implementing sustainable land management and forest management practices; Barrier #2: Farmers under-exposed to innovative low carbon technologies for farming and farm waste management; Barrier #3: Inadequate enabling environment (legal, regulatory and institutional framework) and capacity for sustainable land management.

21. **Agricultural Implications for Ecosystem Based Adaptation (EBA) to Climate Change in Steppe Ecosystem:** The overall project GCP/TUR/063/EC aims to increase the resilience of societies and steppe ecosystems to the impacts of climate change. The first objective is to increase national capacity and awareness in preparation for the adoption of medium and long-term climate change ecosystem-based adaptation plans. The plans, focusing primarily on Anatolian steppe ecosystems will be gradually aligned with EU climate policy and legislation. The FAO Sub regional Office for Central Asia (SEC) has been implementing the project in close cooperation with the beneficiary institution, the Republic of T?rkiye?s Ministry Agriculture and Forestry (MoAF).

22. **Contributing to Land Degradation Neutrality (LDN) Target Setting by Demonstrating the LDN Approach in the Upper Sakarya Basin for Scaling up at National Level** was initiated by FAO in 2018 with funding from the GEF. The project?s objective is to develop a model for LDN target setting, planning, and decision-making at national level and to test and demonstrate the model in the Upper Sakarya basin. The project is strengthening the enabling environment for LDN and multi-sectoral land-use planning processes and is also developing a Decision Support System (DSS) for LDN that was first applied in the Upper Sakarya basin in north-western T?rkiye. The Bolu project will build on the approach to achieving LDN in T?rkiye already developed by this project.

23. **Support and Implementation of Agricultural Production Suitable for Bolu Center and 8 Districts** was initiated by MoAF, Bolu Provincial Directorate. In the project; a total of 15,000 kg of feed peas were distributed to 300 producers, with 50% special administration support and 50% farmer contribution in Gerede, D?rtdivan, Mengen, Mudurnu and Yeni?a?a districts. A total of 500 soil analyses are planned for 2022; 33 analyzes have been made so far. A total of 380 bags of silage corn seeds were distributed to Yeni?a?a, Seben, Mudurnu, K?br?sc?k and Merkez Districts; A total of 7,500 kg of chickpea seeds were distributed in Mengen, K?br?sc?k, Seben, Mudurnu, G?yn?k and Merkez District. In 2022, locked milking systems were distributed to 30 producers engaged in ovine breeding in Seben District Center and its villages. In 2022, it is planned to distribute disinfectants and brochures for milking machines and to carry out training for farmers who are engaged in agricultural irrigation.

24. **The National Action Plan for Sustainable Soil Management** was developed through a FAO Technical Cooperation Program project. The process included a wide range of national stakeholders involved in soil planning, management and monitoring to develop a strategy to guide the future sustainable management of soil in T?rkiye. Based on the assessment of current soil governance, planning, and implementation actions and monitoring, the goal for this action plan is to set priorities and actions to improve national coordination, implementation and monitoring of T?rkiye?s soil resources, supported by the T?rkiye Soil Information System and targeted soil research and development to ensure the sustainable management of soils.

3) Proposed alternative scenario with a brief description of expected outcomes and components of the project and the project?s Theory of Change

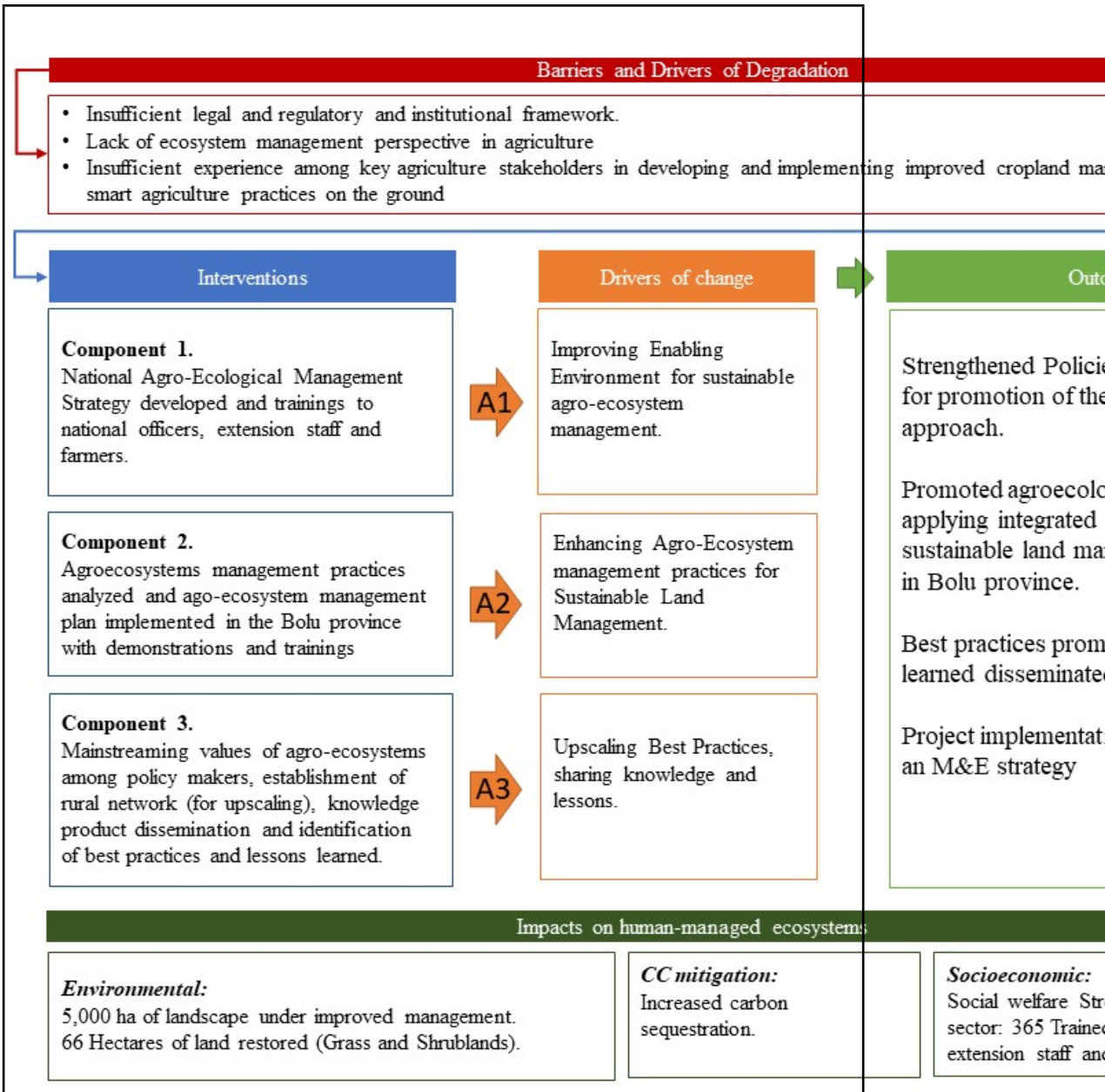
Proposed approach and theory of change

25. The proposed project focuses on agro-ecosystem management interventions to enhance water and land governance at policy and local levels in the agriculture sector, and to mainstream biodiversity conservation within the Bolu Province, T?rkiye. This will ultimately assist in improving socio-economic well-being of the local community and mitigating the impacts of climate change. To improve the ecosystem in the region, it is important to understand the linkages between land, freshwater and biodiversity.

26. Agro-ecology is based on applying ecological concepts and principles to optimize interactions between plants, animals, humans, and the environment while taking into consideration the social aspects that need to be addressed for a sustainable and fair food system. By building synergies, agroecology can support food production and food security and nutrition while restoring the ecosystem services and biodiversity that are essential for sustainable agriculture. Agro-ecology can play an important role in building resilience and adaptation to climate

change. SLM and other actions related to avoiding and reducing land degradation, as well as restoring degraded land, will be considered as integrated elements of agro-ecology and will be served by the project interventions.

27. Against this background, the **project objective** is to develop an integrated and comprehensive agroecological management strategy in Bolu, T?rkiye, that will be achieved through four outcomes related to (i) strengthening of policies and strategic plans for promotion of the agro-ecosystem management approach; (ii) promotion of agro-ecological practices, applying integrated agro-ecosystem and sustainable land management practices in Bolu province; (iii) best practices promoted and lessons learned disseminated; and (iv) project monitoring evaluation that supports learning and scaling up. The project Theory of Change (ToC) is summarized in Figure 4 together with the underlying assumptions of the project.



Assumptions:

A1: Different Stakeholders are accounted for in the design of the management strategy. Government stakeholders participate to ensure that the management strategy is feasible and in line with national regulations.

A2: Stakeholders, including smallholder farmers, are willing to participate actively in the trainings and demonstrations and the different stakeholders commit to the implementation of the management plans. Local communities apply lessons learned in their practices and land management.

A3: Rural network targets key stakeholders and delivers key messages across multiple sectors about best practices and lessons learned from the project. The messages are up scaled by stakeholders.

Figure 4. Project Theory of Change and underlying assumptions.

28. **Component 1. Improving Enabling Environment for sustainable agro-ecosystem and land management**

This component will create a conductive and enabling environment in T?rkiye for agro-ecological management. The project will be linked strongly to the national LDN approach and related projects to create synergies with past and current experiences and to deliver multiple environmental, economic and social benefits. Policy gaps will be addressed and collaboration and coordination among key sectors will be strengthened, through developing a national agroecological management strategy and its adoption to the conditions of Bolu province. This will be achieved with strong support from government under the co-financing arrangements, GEF resources playing a catalyzing role on the development on the below-mentioned activities. Study visits will be held to see the successful examples of agroecology practices in the international era. The capacity for agro-ecological management will be strengthened both at national level and in Bolu Province.

Outcome 1.1: Strengthened Policies and Strategic Plans for Promotion of the Agro-Ecosystem Approach within the national LDN Strategy. A national strategic program will be established to incorporate integrated agro-ecosystem approaches to plant crop and food production into the national agricultural and food security policies supported by a national agro-ecological management strategy and training of agricultural officers and farmers (10 ministerial staff, 10 provincial/extension level staff and 45 smallholders (15 females and 30 males). Two outputs will lead to this outcome:

Output 1.1.1: National Agro-Ecological Management Strategy Developed and Aligned with national LDN Strategy.

Activities:

? Policy reviews and mapping of entry points for agro-ecology in relevant sectors, including review and analysis of existing policies, institutions, regulations, and standards.

? Ensuring the AEMS will contribute to implement national strategy of LDN and Sustainable Soil Management.

? Analysis of policy gaps and constraints to implement agro-ecological principles, including identification of gender-responsive provisions.

? Development of draft strategy based on gender sensitive analysis and consultations with rural women and related stakeholders.

? Consultations with concerned government sectors led by the General Directorate of Agrarian Reform (GDAR).

? Revision and finalization of the National Agro-Ecological Management Strategy (AEMS) document, and submission to the Ministry of Agriculture and Forestry for subsequent implementation.

Output 1.1.2: Ministerial staff, extension officers and farmers are trained on land degradation and agro-ecological approaches in plant, crop and food production. In Bolu, the training will be hosted by local agricultural colleagues in Seben and Yeni?a?a districts. The training will build on available international as well as national training material and will include a dedicated gender section that integrates relevant gender dimensions

Activities:

? Modification of training curricula for agro-ecological management together with local agricultural training centres in Seben and Yeni?a?a districts to include relevant topics and gender dimensions.

? Development of training materials on agro-ecological management for the different target groups ? ministerial staff, extension officers and farmers (women as well as men) ? including training manuals, digital training platforms, audiovisual material, etc.

? In the field of agroecology, internationally successful examples will be examined, and capacity building program will be developed including training curricula.

? One national agro-ecological training course organized in Ankara and a provincial training course organized in Bolu.

29. **Component 2. Strengthening Agro-ecosystems and Sustainable Land Management (SLM)**

This component will focus on the Bolu Province, particularly the two districts of Seben and Yeni?a?a, to strengthen capacities and implement and demonstrate integrated agro-ecosystem and sustainable land management that will contribute to reaching T?rkiye?s LDN target. **Seben district**, compared to Yeni?a?a, has a wider range of agricultural crops. The production of ?Iza? wheat, which is a special 14 chromosome wheat landrace in the region is the most notable element of Seben for agro-ecological agriculture and SLM. ?Iza? wheat is said to have more zinc, iron, copper, and selenium than bread wheats, as well as being higher in protein than both bread and durum wheats. A rice landrace, known as ?Karak?l??k? in the region, is another specific product of Seben. ?Karak?l??k? rice's high-water demand in production necessitates cautious cultivation to qualify as agro-ecological agriculture. Although many fruit species are produced in Seben, fruit cultivation has shown a steady decline in the last 10 years. In 2021, 85.9% of the fruit production in this district was apple followed by grapes (5.6%), cherries (2.7%), pears (2.6%) and peaches (1.3%) (Annex, Table 1). The productivity or yield values for fruit trees are much lower than that average values in T?rkiye. In Seben, there is a local pear variety, named as ?K?z?k? pear (Figure 5), grown in high altitude villages, especially in K?z?k village. Vegetable production is an important horticultural activity in this district. In the last 10 years, total vegetable production has increased 8-fold. Mushroom (Agaricus bisporus) production started in 2021. Table tomatoes (35.9%), watermelons (18.8%), melons (9.3%), peppers (5.5%), cucumbers (5.4%) were the most produced vegetables. Moreover, mushrooms had a share of approximately 12% in the total vegetable production. Vegetable production area has also increased in the last 10 years, depending on the amount of production. As in fruit cultivation, when the production area and production values are compared, the yield levels for vegetables are below T?rkiye?s average values. Another important species in Seben is potatoes. Potato production, which was 3,248 tons in 2012, decreased approximately 5 times in 2021. Organic farming is limited with a couple of farm businesses. In recent years, organic farming of grapes, potatoes, beans, walnuts and wheat production have started.

Figure 5. View of fruit orchards established on sloping areas in high villages such as ?K?z?k?, and ?K?z?k? pear variety (photo credits N T G?ne?)

30. The horticultural plant production in **Yeni?a?a district** is much weaker than in Seben. In 2021, total fruit and vegetable production was 732 tons, which is 15 times lower than Seben?s production. In the last 10-year period, fruit production has increased by 6.1% from 261 tons to 277 tons. The most produced fruit species in Yeni?a?a was apple (28.9%), followed by pear (27.1%), plum (21.7%), sour cherry (9.4%), quince (4.7%), cherry (4.7%), mulberry (1.4%), walnut (1.8%) and peach (0.4%) (Annex-3). Fruit yield values per tree in Yeni?a?a are below the T?rkiye average, as in Seben. Vegetable production in Yeni?a?a has increased by 7.1% in the last 10 years and reached 455 tons in 2021 (Annex-3). Green beans (33.8%) and tomatoes for fresh consumption (44.2%) are intensively produced in other vegetables species such as cucumbers (8.6%), peppers (3.9%), lettuce (7.3%), spinach (1.5%). The cultivation area increased by 88.2% for tomatoes, and 21.7% for green beans. Although potato production is 1,030 tons in 2021, there is a decrease of 1.4% in the last 10 years. It seems that vegetable production is more important in Yeni?a?a than fruit production.

Outcome 2.1: Promoted agro-ecological practices, applying integrated agro-ecosystem and sustainable land management and LDN practices in Bolu province. Under Output 2.1.2, a provincial level integrated agro-ecosystem management plan will be developed and piloted for 5,000 ha of production landscapes employing sustainable land management principles. In addition, 66 ha of degraded land (50

ha rangelands and 16 agricultural lands) will be restored contributing to achieve T?rkiye?s national LDN target related to improved productivity in agricultural and pasture land[1]. This will directly benefit 365 farmers (175 female and 190 male) and indirectly 4500 females and 4500 males.

[1] https://knowledge.unccd.int/home/country-information/countries-having-set-voluntary-ldn-targets/T?rkiye

Output 2.1.1: Current status of agricultural production and agro-ecosystem management practices analyzed, and priorities defined for improvement in Bolu province

Activities:

? Identify innovative agro-ecological practices with potential for upscaling, such as horticulture, protected cultivation, integrated cropping systems, etc.

? Capacity Development for the value chain: added value and market access.

? Analyzing functionality of existing cooperatives and strengthening their capacity through farming field school.

? Identify SLM practices and prioritization of proposed SLM demonstrations together with local farmers

? Identify the advantages of environmentally friendly practices in agricultural systems for future awareness raising (Component 3)

Output 2.1.2: An agro-ecosystem management and LDN plan developed and piloted in Bolu province in line with national LDN Strategy.

Activities:

? Participatory and integrated land-use planning together with local farmers

? Identifying land degradation hotspots and agro-ecological practices that could reduce soil erosion, compaction, reduce soil pollution while enhancing soil organic matter and agro-biodiversity, along with improving soil health

? Selection of practices that does not harm local natural resources for implementation of agroecosystem management.

? Adoption and development of the integrated agroecosystem management plan for Bolu province based on the principles of sustainable land management which include soil fertility management, reduced tillage practices, integrated crop management, improved rotations, local and alternative crops and varieties, rangeland rehabilitation and management and value chain support. The plan will cover 5,000 hectares.

Output 2.1.3: Selected agro-ecological and LDN practices are demonstrated at district level at 7 sites in Seben and Yeni?a?a districts.

Activities include demonstrations on:

? Integrated soil fertility management and fertilizer application

? Demonstration of reduced and no-tillage practices

? Good / organic farming practices for i.e., ?za wheat

? Alternative crops and varieties with special focus on legumes to improve rotation systems and SLM

? Demonstration of cultivation and integrated crop and pest management practices based on SLM and LDN practices in horticultural species, i.e., open field vineyards and fruit orchards with new cultivars having higher market value,

? Demonstration of protected cultivation techniques based on LDN and SLM practices

? Demonstrations of rangeland rehabilitation

? Demonstration of drip and programmed irrigation techniques

Activities proposed for each site in Seben and Yeni?a?a districts are summarized in the table below, together with the selection criteria:

? Identify and support value chains that can improve livelihoods, particularly those of women centric in which women play key role, such as iza bulgur, fruits and grapes, to improve rural livelihoods, through assisting in small scale processing, packaging and marketing.

Activities proposed for each site in Seben and Yeni?a?a districts are summarized in the table 4, together with the rationale. Value chain support focus will be given to cooperatives, particularly those operated by women. This will be done in close consultation with the district directorates of the Ministry. These demonstration topics and activities have been identified in consultation with the local stakeholders engaging provincial and district directorates of the Ministry of Agriculture and Forestry, academia and producers. Furthermore, locations have been identified with the same approach to the village level. Specific fields and sights will be identified at inception engaging the district directorates and village heads (Mukhtars) based on the nature and requirement of the demonstrations (e.g. degradation hotspots for rangeland rehabilitation and soil fertility management and the appropriate fields for other management practices).. Furthermore, where possible demonstrations will include comparative plots and practices with which producers can compare the benefits of the recommended practices. Farmers will be directly involved in design and conduct of the demonstrations, utilizing the Farmer Field School (FFS) approach of FAO and demonstrations will also address value chain development challenges by improved capacities on market access and value adding This way, environmental and economic benefits will be clearly visible to the producers. These would help sustainable continuation of the practices. These benefits will help continuation of the practices

The project activities will be implemented in close collaboration with the provincial and district directorates and General Directorate of the Ministry (GD for Agricultural Reform). For monitoring of the improvements in degraded lands, the ``LDN Decision Support System of Turkiye`` will be utilized (https://projectgeffao.users.earthengine.app/view/ldn-turkey). This is a tool that has been developed by another GEF-FAO collaborative project and presents as a good synergy between the two projects.

Table 4. Summary of demonstration sites for restoration and SLM practices.

Demonstration site (name)	SLM practice to be implemented	Demonstration area (ha)	Size of community		Average annual income (per capita) (USD)	Expected improvement in income from SLM (%)	Rationale and environmental benefits and impacts
			Men	Women			
Seben: G?neyce Village	IZA -and A modern wheat varieties (such as Tosunbey) demonstration	2 ha	50	50	2000	20	?za wheat grows in rainfed conditions with minimum agro-chemical requirement at limited field conditions (slope, shallow soil depth) which makes it an environment friendly crop

Seben: G?neyce Village	IZA Bulgur and New IZA Products Production	1 ha	50	50	5000	25	Bulgur made from iza wheat is a well-known and popular product in T?rkiye, with a higher market price than bulgur made from conventional wheat. Iza bulgur is a sustainable approach because its cultivation is environmentally beneficial and generates more income. Processing iza for flour, bulgur, cookies, bread, and even noodles might result in a significant increase in revenues. Iza cultivation is environmentally sustainable because it is a rainfed crop with comparatively less agrochemical demand than conventional varieties.

Seben: Geren?z?	Grape - Integrated crop management	1 ha	100	100	5000	10%	Grape is an Anatolia originated species that can be grown in a variety of climates (drought) and terrains (shallow and low nutrient soils). Apart from fresh consumption, grape fruits can be converted into a variety of processed food products such as molasses, which will contribute to an increase in income. Thus, grape production will be environmentally and economically sound approach.	

Seben: Nimetli	Apple or pear Integrated crop management	1 ha	100	100	5000	10%	Although apple requires more irrigation and agrochemicals than grapes, it can also be converted into a range of processed foods, such as dried products and vinegar etc., providing growers with a higher income if the fruit can be stored. Thus, apple and pear production will be an environmentally and economically sustainable intervention if good agricultural practices such as organic fertilization and integrated pest management are used. Moreover, the ecological structure of the site	
Seben: Center and Villages	Integrated soil fertility management	1 ha	500	500	250 USD/ha	20	Farmers apply fertilizers without taking	

Yeni?a?a	(ISFM)	1 ha	500	500			care to soil analyses or expected yield. Fertilizer methods are centered on giving the same amount of fertilizer as the other farmer. A 20% decrease in fertilizer use is expected to reduce the pollution of the environment. For the effective management of animal manure and soil structure improvement activities, the supply of machinery and equipment will be provided.? Application will be made with two manure spreaders.	
Seben: Center and Villages	Reduced tillage/direct drilling	1 ha	500	500	7000	10	Because the region's soils are routinely ploughed when the water content is at field capacity, soil compaction is prevalent. Minimizing tilled agriculture is one way to avoid this. Water and air circulation in the soil will be restored, and soil biodiversity will benefit as a result.	
Yeni?a?a:		1 ha	500	500				
Center and villages								

Seben: Center and Villages	Rotational cropping systems	2 ha	500	500	7000	10	Crop rotation is highlighted in SLM and LDN guidelines for physical (aeration), chemical (nutrients), and biological (organic carbon) soil structure improvement. The first proposed SLM approach is legume intensive rotation, which is especially useful in monoculture areas like the project area.
Yeni?a?a: Center and Villages		2 ha	500	500			
Seben: Center and Village:	Rangeland rehabilitation	20 ha	500	500	5000	10	The Project area's rainfall and plant

Yeni?a?a: Center and Villages		30 ha	500	500	7500	10	diversity result in rich NPP of grasslands that are not under pressure. On the other hand, the lack of development work in nearly any pasture necessitates the purchase of feed from outside sources for the region's traditional sheep and goat production, resulting in a drop in livestock income. Reduced vegetation decreases the organic matter content of pasture soils, causing a deterioration of the soil's quality. As a result, rangeland improvement via fertilizer use, sowing and bush clearing will be smart SLM and LDN applications that enhance income and improve the environment.	
Seben: K?zk?y ?	Drip irrigation solar	0.5 ha	50	50	4000	%30	The idea of this technique is not to expand	

Yeni?a?a: Center and Villages	powered	0. 5 ha	50	50			irrigated production, but to protect production by the use of ecologically friendly energy against droughts that are becoming more common and lasting longer. The capacity to provide solar-powered drip irrigation with high irrigation efficiency will reduce the farmer's production vulnerability without putting undue strain on natural resources.	
Seben: Center and Villages	Protected cultivation demonstration	1 ha	50	50	6000	% 30	The limited vegetation period prevents	

Yeni?a?a: Center and Villages		1 ha	50	50	6000		the chance to cultivate second crops and sustainability in summer type vegetable growing due to the region's natural climatic characteristics, I.e., late spring frosts and early autumn frosts. Aside from that, worsening climatic extremes (drought, abrupt temperature extremes, sudden heavy rains fall and hills) are jeopardizing productivity. As a result, cultivated production methods, such as under polyethylene covering or greenhouse cultivation, agriculture are advised, as it produces more income per unit area while also reducing climate sensitivity. Because the inputs of fertilizers and pesticides that contaminate the environment are used more effectively in this style of agriculture, it is regarded as a more ecologically friendly output.

	TOTAL	66 ha	4500	4500				

Output 2.1.4: Training programs conducted on integrated agro-ecosystem approaches and LDN. Training will be conducted for at least 10 extension staff and 100 smallholders (40 women and 60 men). The training will be held at local agricultural training centers / schools in Seben and Yeni?a?a districts.

Activities:

? Training in how to achieve LDN through agro-ecosystem approaches of the extension services and local communities,

? Farmer-to-farmer training on land-use planning, participatory monitoring and identification of SLM and LDN options to balance gains and losses of productive land,

? Training on techniques to decrease food loss during cultivation based on SLM and LDN options and during postharvest period,

? Training on sustainable business models for fruit and vegetable cultivation that are environmentally friendly,

? Training to convert raw plant material to locally processed material

31. **Component 3. Scaling up best practices, monitoring and evaluation**

This component is supporting learning and scaling up of the project experiences and the agroecosystem approach in Bolu Province and ultimately at national level in T?rkiye through dissemination of lessons learned and knowledge produced to support replication of best practices and scaling up beyond the two pilot districts. This will be achieved through establishing a rural network and knowledge exchange exercises supported by the establishment of a robust project monitoring and evaluation system, and collection and analysis of lessons learned that will feed into the project learning cycle. This component will also contribute to the FAO and GEF portfolio monitoring and enable continuous learning from assessment of agroecosystem and SLM demonstration activities on the ground. This will inform adaptive management and improvement of monitoring tools and methodologies as well as GEF?s SLM portfolio monitoring.

Outcome 3.1: Best practices promoted and lessons learned disseminated. At least five knowledge exchange products and rural networks (with at least 300 members) will be used to inform policy makers about the value of agro-ecosystem management to promote scaling up of the experiences and lessons from Bolu Province reaching direct and indirect beneficiaries (1,000).

Output 3.1.1: Policymakers are informed on value of agro-ecosystem management and LDN

Activities:

? At least two meetings with policy makers organized under the auspices of the General Directorate of Agrarian Reform (GDAR) to reach out to relevant sectors at provincial and national level

? Sharing of project knowledge products and policy briefs with policy makers (see below)

Output 3.1.2: A rural network is established as an exchange platform for upscaling

Activities:

? Establishment of a rural network with at least 300 members from Bolu Province

? Establishment of an exchange platform for experiences and lessons learned on agro-ecosystem management and SLM for Bolu province

Output 3.1.3: Knowledge products are shared and disseminated widely

Activities:

? Project Website Design: knowledge and lessons generated/compiled during project implementation will be regularly posted and shared on this project website for outreach, learning and public awareness.

? Development and implementation of communication and dissemination strategy

? Development of an integrated agro-ecosystem management guideline and fact sheets on organic agriculture, horticulture and rangeland management

? Project to produce gender-focused products, such as:

o Two products targeting male and female farmers, using easily accessible formats and channels targeting women. Produced in time for Project outreach.

o ?Gender-responsive agro-ecosystem management approaches: options that work for women and men?, targeting policy makers/stakeholders and produced towards Project end so as to build in experiences. Project to contribute to relevant databases, i.e., WOCAT so as to inform future interventions in T?rkiye.

Output 3.1.4: An exit strategy developed defining options for further upscaling of best practices

Activities:

? Development of exit strategy with ensuring to contribute achieving national LDN targets

? Dissemination of project knowledge products in Bolu province and at national level

? Organization of public awareness raising campaign to reach all project direct and indirect beneficiaries (1,000)

Outcome 3.2 Project implementation is supported by an M&E strategy. A Project M&E system will be established to measure project progress and impacts in terms of global environmental benefits (GEBs), and social and economic benefits. Baseline and targets for project indicators will be refined and used for monitoring project progress and impacts and reporting through 3 annual project reports (PIRS) submitted to GEF Secretariat and 6 half-yearly project progress reports submitted by the PCU to the LTU and FAO/GEF unit.

Output 3.2.1: M&E strategy developed and implemented clearly defining the expected outcomes and implementation timeframe, and objectively the verifiable indicators and means of verification.

Activities:

? Establishment of monitoring system for GEBs, including area under agroecosystem management, SLM and carbon benefits, as well as for socio-economic benefits using gender disaggregated data

? Assessment of GEBs and co-benefits disaggregated by gender for annual reporting to GEF and FAO (PIRs, PPRs)

? Mid-term and final evaluations conducted

Opportunities for COVID-19 Green Recovery

32. This project will build on the efforts from the Turkish Government to build back better considering that the Agricultural Service is seen as one of the key contributors to post COVID-19 economic recovery. Implementation of the improved agro-ecosystem management and natural resource protection approaches and activities will be essential elements of these efforts. This project will take the lessons learned from the current experiences accumulated during Covid 19 pandemic and build on them to promote sustainable practices for the agriculture sectors. The project will partner with the private sector, local communities and stakeholders to implement and expand good practices in the province. These activities will be a part of a Bolu Agriculture Sector Master Plan that will contribute to the conservation of biodiversity and ecosystem services and achieve T?rkiye`s LDN targets through the restoration of at least 66 ha degraded land. SLM practices will be upscaled and promoted to prevent soil degradation, increase vegetation cover, improve the natural resource management and conservation efficiency, and reduce pollution caused by agriculture. These efforts will also contribute to minimization of soil erosion, restoring ecosystem services and biodiversity and in parallel, improving the livelihoods of small farmers who will directly benefit from these practices.

4) Alignment with GEF focal area and/or Impact Program strategies

33. The project is aligned with the following specific objectives from the Land Degradation Focal Area:

? LD 1-1 Maintain or improve flow of agro-ecosystem services to sustain food production and livelihoods through Sustainable Land Management (SLM): Component 2 of the project address this objective as it aims to promote SLM practices to strengthen agro-ecosystems and improving the flow of ecosystem services.

? LD 2-5 Create enabling environments to support scaling up and mainstreaming of SLM and LDN: Component 1 of the project considers outputs to strengthen the national capacities to improve the management of agro-ecosystems and Component 3 aims to scale up these practices and sharing the knowledge generated by the project.

5) Incremental/additional cost reasoning and expected contributions from the baseline, the GEFTF, LDCF, SCCF, and co-financing

34. The proposed project builds on and complements the baseline projects discussed in section 2 above. The GEF funded activities will address the proximate drivers and underlying causes of land degradation as well as capacity constraints and policy barriers to mainstreaming agro-ecosystem management and SLM for sustainable agriculture. The objective of the GEF funded alternative is to build the capacity of smallholders and stakeholders to improve land conditions by adopting agro-ecosystem management policies and practices.

35. While the Ministry of Agriculture and Forestry of T?rkiye is currently developing multiple activities that target restoration and SLM activities, an updated national action plan for agro-ecosystem management is currently lacking. In this sense, this project is of crucial importance to develop this strategy, pilot its implementation and develop the needed capacity to upscale agro-ecosystem management to transform the food system through dissemination and implementations of best practices of agro-ecosystem management.

36. In particular, the project will build on the baseline and address the above-mentioned barriers as follows: Outcome 1.1 will address the Insufficient legal and regulatory and institutional framework by strengthening policies and strategic plans for the promotion of the Agro-Ecosystem approach. The project will finance the development of a national agro-ecological strategy and training for capacity building on agro-ecosystem approaches.

37. The second barrier 2, about the Lack of ecosystem management perspective in agriculture will be addressed with the outcome 2.1 to promote agroecological practices, applying integrated agroecosystem and sustainable land management practices in the Bolu province. With this outcome, the project will finance the analysis of the current status of practices of agroecosystem management, develop agro-ecosystem plans, demonstrate selected practices in the field, and provide training programs on these approaches.

38. Finally, Outcome 3.1 will address the last described barrier: Minimal experience among key agriculture stakeholders in developing and implementing improved cropland management and climate smart agriculture practices on the ground. With this outcome, best practices will be promoted, and the project knowledge will be disseminated so that policymakers are informed on the value of agro-ecosystem management and agro ecological practices in food production.

6) Global environmental benefits (GEFTF) and/or adaptation benefits (LDCF/SCCF)

39. The project will seek to support the development of agro-ecosystem management that generates Global Environmental Benefits (GEBs) through building resilient landscapes that contribute to LDN targets in Bolu Province as well as national level. The proposed project is expected to contribute to GEF-7 core indicator 3 by restoring 66 ha of degraded agricultural land; core indicator 4 by bringing 5,000 ha under improved SLM practices in Seben and Yeni?a?a Districts in Bolu Province; and core indicator 6 by the direct sequestration of 334,637 tCO2-eq (and 399,731 indirect sequestration). The project will also generate socio-economic co-benefits for 365 (175 female 190 male) direct beneficiaries, thereby contributing to core indicator 11.

7) Innovativeness, sustainability, potential for scaling up and capacity development[17]

Innovation

40. The introduction of the agro-ecosystem management approach to balancing gains from SLM and losses from land degradation in landscapes is new to T?rkiye and very innovative also in a global and LDN context. It first requires the development of an agro-ecosystem management strategy at national level. Bolu Province has been selected to test innovative ways of introducing agro-ecosystem management on-the-ground to achieve LDN. With strong co-financing from the Government of T?rkiye and FAO, and integration of LDN and socio-economic goals at the landscape level, the GEF incremental financing unlocks implementation

of multiple goals of the LDN strategy. In addition, this project design has followed the checklist for LDN Transformative Projects and Programmes (TPP), assuring consistency and completeness in the implementation of LDN, and positive transformative change in support of LDN. An innovation in this respect is to establish a rural network as an exchange platform for upscaling of successful agro-ecosystem management practices.

Sustainability

41. The LDN approach will be integrated into T?rkiye?s new Agro-ecosystem Management Strategy that will be developed by the project and monitoring systems in the Ministry of Agriculture that will ensure its sustainability from an institutional perspective. Capacity development and training of decision-makers as well as technical staff will further support the sustainability of the approach of linking LDN with agro-ecosystem management in T?rkiye and be supported by strengthened capacities also at the sub-national level in Bolu Province of extension staff and local communities. In addition, the project will be anchored in innovative measures (such as community-based management, pasture management approaches and technologies, and the landscape approach) for sustainable management of agro-ecosystems in Seben and Yeni?a?a Districts that generate both socio-economic and environmental benefits. The project will support cooperation and collaboration among different sectors and existing stakeholders and will also increase the national capacity in addressing land degradation and planning for LDN through an agro-ecosystem approach. These two features will support the sustainability of the project promoting ownership of the results and benefits generated.

To incentivize the small farmers to continue the approaches introduced by the project and ensure the continuation of the value chain support, the project foresees close coordination with relevant stakeholders including the Ministries, academia and local producers. This will ensure that the proper incentives are in place for the implementation and continuation of the proposed agro-ecology approaches and demonstrations. Moreover, support will be given to local cooperatives so that the knowledge remains in the community and the FAO Farmer Field School (FFS) approach will be used to increase capacities on value added and market access. Finally, the demonstration will inform the National agro-Ecological strategy so that this approaches can be up-scaled, adopted and maintained at the national level.

42. The project will have a strong social dimension allowing the producers to have access to knowledge on advanced and applicable agroecological approaches to improve productivity and sustainability of agricultural production. Increased incomes will help the efforts to stop migration of rural populations to larger cities and engaging more youth and women in agricultural production.

Potential for Scaling Up and Capacity Development

43. Scaling up of agro-ecosystem management to achieve LDN will be supported by analysis of lessons learned from implementation of SLM and dissemination of knowledge products through a rural network and exchange platform for upscaling established under Component 3. Scaling up of SLM practices will also be supported by a new national strategy for agro-ecosystem management that will facilitate mainstreaming of LDN into the agricultural sector, which can also unlock more financing to LDN from the public as well as the private sector.

44. The activities in the context of agro-ecology and sustainable land management would be in synergy with other similar projects, which will enable scaling up of demonstration activities through these projects and partners. Also, at the national level, there is a clear articulation of the need to conduct valuation of ecosystem services in productive croplands (specifically biodiversity), and to develop integrated management systems (including improved food production and value-chain development for enhanced livelihoods). Activities tested under this project would provide a blueprint to scale up agro-ecosystem management in the country under regular programme efforts. Furthermore, it applies an integrated approach of biodiversity conservation, sustainable production systems and landscape restoration, supporting both environmental and food security goals, and introduces the concept of Land Degradation Neutrality in support of SDG 15.3 as well as national restoration targets.

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

45. There is no change in alignment between the project design and the PIF.

[1] https://www.eea.europa.eu/soer/2010/countries/tr/nature-protection-and-biodiversity-state

[2] https://www.fao.org/3/ca1517en/CA1517EN.pdf

[3] FAO. 2018. Biodiversity of T?rkiye. Contribution of Genetic Resources to Sustainable Agriculture and Food Systems. Ankara. 222 p. Licence: CC BY-NC-SA 3.0 IGO

[4] https://knowledge.unccd.int/sites/default/files/ldn_targets/T?rkiye-ldn-country-report.pdf

[5] https://www.kentselstrateji.com/wp-content/uploads/14_Bolu_vizyonplani_small.pdf

[6]https://www.tarimorman.gov.tr/CEM/Belgeler/yay%C4%B1nlar/yay%C4%B1nlar%202020/SU%20EROZYONU%20ISTATISTIKLERI%20KITAP%20YUKSEK_1.pdf.pdf

[7]https://www.tarimorman.gov.tr/CEM/Belgeler/yay%C4%B1nlar/yay%C4%B1nlar%202018/TEKNIK%20OZET%20TR.pdf

[8] https://link.springer.com/article/10.1007/s00254-008-1206-3

[9] https://webdosya.csb.gov.tr/db/bolu/icerikler/bolu-il--2017-yili-cevre-durum-raporu-20181009094740.pdf

[10] https://www.tarimorman.gov.tr/SGB/Belgeler/Master/bolu.pdf

[11] Petri, M.; Biancalani, R. and Lindeque, l. 2019. Guidelines for the national assessment and mapping of land degradation and conservation. Rome, FAO. 52 pp.

[12] AO and ITPS. 2015. Status of the World?s Soil Resources (SWSR) ? Main Report. Food and Agriculture Organization of the United Nations and Intergovernmental Technical Panel on Soils, Rome, Italy

[13] K?ppen W. 1936. Das geographisca System der Klimate. In: Koppen W, Geiger G (eds) Handbuch der Klimatologie. Gebruder Borntraeger, Stuttgart, pp 1?44

[14] https://www.frontiersin.org/articles/10.3389/fenvs.2014.00001/full

[15] Edmundo Barrios, Haekoo Kim, Teodardo Calles, 2021, Chapter 45- Agroecological farming, RECARBONIZING GLOBAL SOILS A technical manual of recommended management practices, page 572-585 http://www.fao.org/3/cb6595en/cb6595en.pdf

[16] https://knowledge.unccd.int/home/country-information/countries-having-set-voluntary-ldn-targets/T?rkiye

[17] System-wide capacity development (CD) is essential to achieve more sustainable, country-driven and transformational results at scale as deepening country ownership, commitment and mutually accountability. Incorporating system-wide CD means empowering people, strengthening organizations and institutions as well as enhancing the enabling policy environment interdependently and based on inclusive assessment of country needs and priorities.

? Country ownership, commitment and mutual accountability: Explain how the policy environment and the capacities of organizations, institutions and individuals involved will contribute to an enabling environment to achieve sustainable change

? Based on a participatory capacity assessment across people, organizations, institutions and the enabling policy environment, describe what system-wide capacities are likely to exist (within project, project partners and project context) to implement the project and contribute to effective management for results and mitigation of risks.

? Describe the project?s exit / sustainability strategy and related handover mechanism as appropriate.

1b. Project Map and Coordinates

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

46. The project field demonstration activities will be implemented in two districts of Bolu Province (NE T?rkiye), namely Seben and Yeni?a?a (Figure 6). Seben, the first site, is located at 40?24'46.16"N-31?28'44.89"E, 40?33'53.90"N-31?39'4.47"E, 40?19'18.84"N- 31?43'47.32"E, 40?21'54.65"N-31?25'43.09"E on varying elevations from 750 m to 1560 m above sea level. Yeni?a?a, the second site, is located at 40?45'43.54"N-32?4'59.79"E, 40?43'54.42"N-31?58'29.73"E, 40?48'41.15"N-31?57'5.28"E, 40?50'53.86"N- 32? 5'58.78"E with the lowest elevation of 1000 m at Yeni?a?a Lake and the highest above 1350 m. The plain agricultural land is quite limited in both areas, as the altitude changes dramatically over short distances. As a result, the landscape is sloping and undulating (Figure 6).

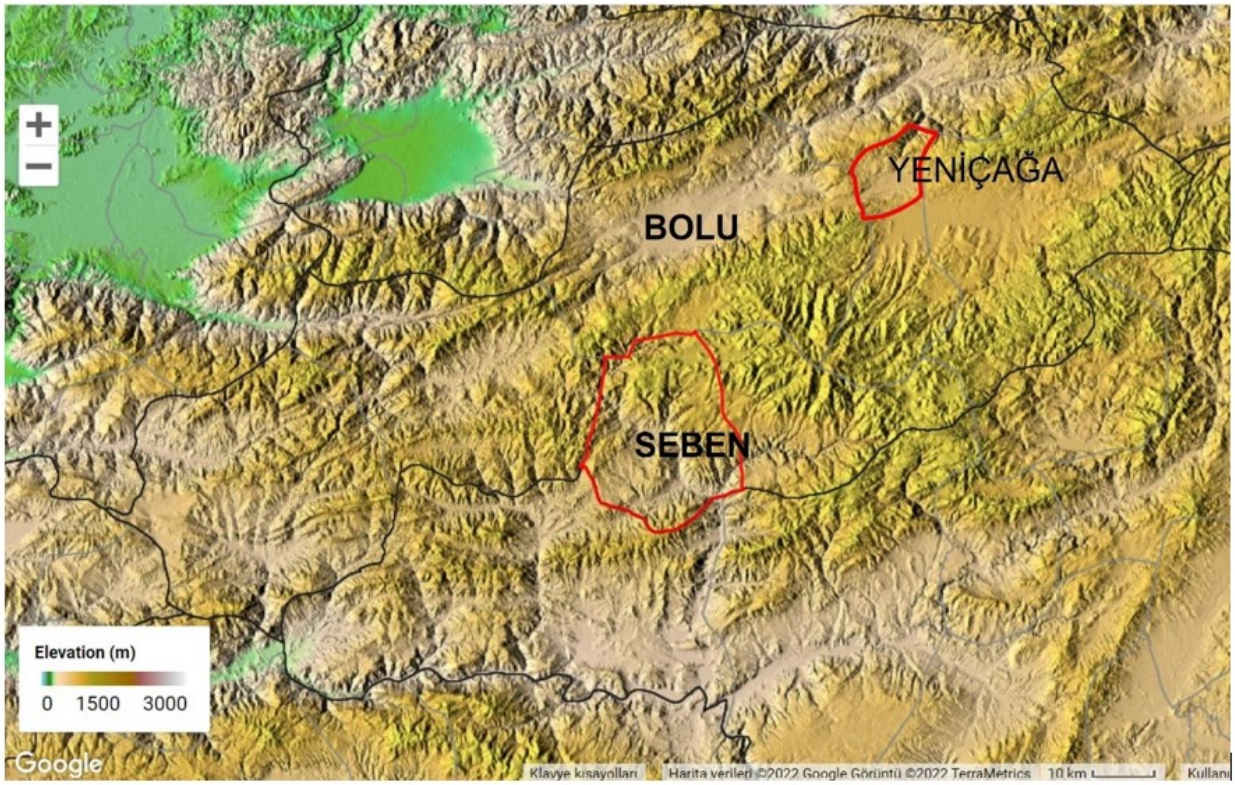


Figure 6. Locations and geography of Seben and Yeni?a?a

47. Seben district has a mild and temperate climate; the district's winter precipitation amount is higher than that of the summer months. The climate is classified as Csa by K?ppen-Geiger. Seben's annual average temperature is 10.8?C, and the annual average precipitation is 435 mm. The climate in Yeni?aa is warm and temperate. The district's general feature is that it can exceed precipitation throughout the year. According to the K?ppen-Geiger climate classification, it is classified as Cfb. The district's annual average temperature is 8.0?C, while the annual average precipitation is 876 mm. Thus, the climates of the two districts are considerably different, with Seben having a semi-arid climate and Yeni?aa a humid climate, necessitating a diversity of SLM interventions.

1c. Child Project?

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

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.

Stakeholder Name	Stakeholder Type	Stakeholder profile	Consultation Methodology	Consultation Findings	Date	Comments
	Direct beneficiary	*Non-Gonvernmental Organization*				
	Indirect Beneficiary	*National Government Institution body*				

Ministry of Agriculture and Forestry	*Direct beneficiary*	*National Government Institution body*	*Online and face to face meetings and meetings on project sites*	*Questions raised by stakeholders were answered by the FAO Team and the Experts, as much as possible. Otherwise, detailed questions and demands from the stakeholders were noted. Many stakeholders greatly contributed to the initial list, by sharing names and contact information of several local actors that should be included in the stakeholder engagement process, both within the PPG phase and during the implementation of the Project. Stakeholders had enough opportunity to raise their concerns about the Project area, human activities in the region, and the threats stemmed from them; stakeholders also provided the Project Team with valuable information on their priorities and solution proposals, that will contribute to the design of the ProDoc.*	*Between 17 and 18 February 2022; between 22 and 24 March 2022; between 7 and 8 June 2022; and various other dates during the project document preparation*	*All contacted stakeholders were informed about the Project (most of the time with a presentation and sometimes verbally) by the FAO Project Coordinator and other team members. Experts Team members carried out this task via prearranged meetings with the key stakeholders, and via ad-hoc meetings.*

Bolu General Directorate of Agriculture and Forestry	*Direct beneficiary*	*Regional Government Institution/body*	*Online and face to face meetings and meetings on project sites*	*Questions raised by stakeholders were answered by the FAO Team and the Experts, as much as possible. Otherwise, detailed questions and demands from the stakeholders were noted. Many stakeholders greatly contributed to the initial list, by sharing names and contact information of several local actors that should be included in the stakeholder engagement process, both within the PPG phase and during the implementation of the Project. Stakeholders had enough opportunity to raise their concerns about the Project area, human activities in the region, and the threats stemmed from them; stakeholders also provided the Project Team with valuable information on their priorities and solution proposals, that will contribute to the design of the ProDoc.*	*Between 17 and 18 February 2022; between 22 and 24 March 2022; between 7 and 8 June 2022; and various other dates during the project document preparation*	*All contacted stakeholders were informed about the Project (most of the time with a presentation and sometimes verbally) by the FAO Project Coordinator and other team members. Experts Team members carried out this task via prearranged meetings with the key stakeholders, and via ad-hoc meetings*

General Directorate of Agricultural Reform	*Direct beneficiary*	*Regional Government Institution/body*	*Online and face to face meetings and meetings on project sites*	*Questions raised by stakeholders were answered by the FAO Team and the Experts, as much as possible. Otherwise, detailed questions and demands from the stakeholders were noted. Many stakeholders greatly contributed to the initial list, by sharing names and contact information of several local actors that should be included in the stakeholder engagement process, both within the PPG phase and during the implementation of the Project. Stakeholders had enough opportunity to raise their concerns about the Project area, human activities in the region, and the threats stemmed from them; stakeholders also provided the Project Team with valuable information on their priorities and solution proposals, that will contribute to the design of the ProDoc.*	*Between 17 and 18 February 2022; between 22 and 24 March 2022; between 7 and 8 June 2022; and various other dates during the project document preparation*	*All contacted stakeholders were informed about the Project (most of the time with a presentation and sometimes verbally) by the FAO Project Coordinator and other team members. Experts Team members carried out this task via prearranged meetings with the key stakeholders, and via ad-hoc meetings*

General Directorate of Nature Conservation and National Parks	*Direct beneficiary*	*National Government Institution body*	*Online and face to face meetings and meetings on project sites*	*Questions raised by stakeholders were answered by the FAO Team and the Experts, as much as possible. Otherwise, detailed questions and demands from the stakeholders were noted. Many stakeholders greatly contributed to the initial list, by sharing names and contact information of several local actors that should be included in the stakeholder engagement process, both within the PPG phase and during the implementation of the Project. Stakeholders had enough opportunity to raise their concerns about the Project area, human activities in the region, and the threats stemmed from them; stakeholders also provided the Project Team with valuable information on their priorities and solution proposals, that will contribute to the design of the ProDoc.*	*Between 17 and 18 February 2022; between 22 and 24 March 2022; between 7 and 8 June 2022; and various other dates during the project document preparation*	*All contacted stakeholders were informed about the Project (most of the time with a presentation and sometimes verbally) by the FAO Project Coordinator and other team members. Experts Team members carried out this task via prearranged meetings with the key stakeholders, and via ad-hoc meetings*

General directorate of state water works	*Direct beneficiary*	*National Government Institution body*	*Online and face to face meetings and meetings on project sites*	*Questions raised by stakeholders were answered by the FAO Team and the Experts, as much as possible. Otherwise, detailed questions and demands from the stakeholders were noted. Many stakeholders greatly contributed to the initial list, by sharing names and contact information of several local actors that should be included in the stakeholder engagement process, both within the PPG phase and during the implementation of the Project. Stakeholders had enough opportunity to raise their concerns about the Project area, human activities in the region, and the threats stemmed from them; stakeholders also provided the Project Team with valuable information on their priorities and solution proposals, that will contribute to the design of the ProDoc.*	*Between 17 and 18 February 2022; between 22 and 24 March 2022; between 7 and 8 June 2022; and various other dates during the project document preparation*	*All contacted stakeholders were informed about the Project (most of the time with a presentation and sometimes verbally) by the FAO Project Coordinator and other team members. Experts Team members carried out this task via prearranged meetings with the key stakeholders, and via ad-hoc meetings*

Forest Regional Directorate	*Direct beneficiary*	*National Government Institution body*	*Online and face to face meetings and meetings on project sites*	*Questions raised by stakeholders were answered by the FAO Team and the Experts, as much as possible. Otherwise, detailed questions and demands from the stakeholders were noted. Many stakeholders greatly contributed to the initial list, by sharing names and contact information of several local actors that should be included in the stakeholder engagement process, both within the PPG phase and during the implementation of the Project. Stakeholders had enough opportunity to raise their concerns about the Project area, human activities in the region, and the threats stemmed from them; stakeholders also provided the Project Team with valuable information on their priorities and solution proposals, that will contribute to the design of the ProDoc.*	*Between 17 and 18 February 2022; between 22 and 24 March 2022; between 7 and 8 June 2022; and various other dates during the project document preparation*	*All contacted stakeholders were informed about the Project (most of the time with a presentation and sometimes verbally) by the FAO Project Coordinator and other team members. Experts Team members carried out this task via prearranged meetings with the key stakeholders, and via ad-hoc meetings*

Local community members around project sites in Seben Province	*Direct beneficiary*	*Local community*	*Face to face meetings on project sites and consultation over the phone by randomly selected households*	*Questions raised by stakeholders were answered by the FAO Team and the Experts, as much as possible. Otherwise, detailed questions and demands from the stakeholders were noted. Many stakeholders greatly contributed to the initial list, by sharing names and contact information of several local actors that should be included in the stakeholder engagement process, both within the PPG phase and during the implementation of the Project. Stakeholders had enough opportunity to raise their concerns about the Project area, human activities in the region, and the threats stemmed from them; stakeholders also provided the Project Team with valuable information on their priorities and solution proposals, that will contribute to the design of the ProDoc. Potential risks*	*Between 17 and 18 February 2022; between 22 and 24 March 2022; between 7 and 8 June 2022; and various other dates during the project document preparation*	*All contacted stakeholders were informed about the Project (most of the time with a presentation and sometimes verbally) by the FAO Project Coordinator and other team members. Experts Team members carried out this task via prearranged meetings with the key stakeholders, and via ad-hoc meetings*

Muhtars of the Settlements in Seben Province	*Direct beneficiary*	*Local community*	*Face to face meetings on project sites and consultation over the phone*	*Questions raised by stakeholders were answered by the FAO Team and the Experts, as much as possible. Otherwise, detailed questions and demands from the stakeholders were noted. Many stakeholders greatly contributed to the initial list, by sharing names and contact information of several local actors that should be included in the stakeholder engagement process, both within the PPG phase and during the implementation of the Project. Stakeholders had enough opportunity to raise their concerns about the Project area, human activities in the region, and the threats stemmed from them; stakeholders also provided the Project Team with valuable information on their priorities and solution proposals, that will contribute to the design of the ProDoc. Potential risks*	*Between 17 and 18 February 2022; between 22 and 24 March 2022; between 7 and 8 June 2022; and various other dates during the project document preparation*	*All contacted stakeholders were informed about the Project (most of the time with a presentation and sometimes verbally) by the FAO Project Coordinator and other team members. Experts Team members carried out this task via prearranged meetings with the key stakeholders, and via ad-hoc meetings*

Local community members in around project sites in Seben Province	*Direct beneficiary*	*Local community*	*Face to face meetings on project sites and consultation over the phone by randomly selected households*	*Questions raised by stakeholders were answered by the FAO Team and the Experts, as much as possible. Otherwise, detailed questions and demands from the stakeholders were noted. Many stakeholders greatly contributed to the initial list, by sharing names and contact information of several local actors that should be included in the stakeholder engagement process, both within the PPG phase and during the implementation of the Project. Stakeholders had enough opportunity to raise their concerns about the Project area, human activities in the region, and the threats stemmed from them; stakeholders also provided the Project Team with valuable information on their priorities and solution proposals, that will contribute to the design of the ProDoc. Potential risks*	*Between 17 and 18 February 2022; between 22 and 24 March 2022; between 7 and 8 June 2022; and various other dates during the project document preparation*	*All contacted stakeholders were informed about the Project (most of the time with a presentation and sometimes verbally) by the FAO Project Coordinator and other team members. Experts Team members carried out this task via prearranged meetings with the key stakeholders, and via ad-hoc meetings*

Muhtars of the Settlements in Yeni?a?a Province	*Direct beneficiary*	*Local community*	*Face to face meetings on project sites and consultation over the phone*	*Questions raised by stakeholders were answered by the FAO Team and the Experts, as much as possible. Otherwise, detailed questions and demands from the stakeholders were noted. Many stakeholders greatly contributed to the initial list, by sharing names and contact information of several local actors that should be included in the stakeholder engagement process, both within the PPG phase and during the implementation of the Project. Stakeholders had enough opportunity to raise their concerns about the Project area, human activities in the region, and the threats stemmed from them; stakeholders also provided the Project Team with valuable information on their priorities and solution proposals, that will contribute to the design of the ProDoc. Potential risks*	*Between 17 and 18 February 2022; between 22 and 24 March 2022; between 7 and 8 June 2022; and various other dates during the project document preparation*	*All contacted stakeholders were informed about the Project (most of the time with a presentation and sometimes verbally) by the FAO Project Coordinator and other team members. Experts Team members carried out this task via prearranged meetings with the key stakeholders, and via ad-hoc meetings*

Local community members in around project sites in Yeni?a?a Province	*Direct beneficiary*	*Local community*	*Face to face meetings on project sites and consultation over the phone by randomly selected households*	*Questions raised by stakeholders were answered by the FAO Team and the Experts, as much as possible. Otherwise, detailed questions and demands from the stakeholders were noted. Many stakeholders greatly contributed to the initial list, by sharing names and contact information of several local actors that should be included in the stakeholder engagement process, both within the PPG phase and during the implementation of the Project. Stakeholders had enough opportunity to raise their concerns about the Project area, human activities in the region, and the threats stemmed from them; stakeholders also provided the Project Team with valuable information on their priorities and solution proposals, that will contribute to the design of the ProDoc. Potential risks*	*Between 17 and 18 February 2022; between 22 and 24 March 2022; between 7 and 8 June 2022; and various other dates during the project document preparation*	*All contacted stakeholders were informed about the Project (most of the time with a presentation and sometimes verbally) by the FAO Project Coordinator and other team members. Experts Team members carried out this task via prearranged meetings with the key stakeholders, and via ad-hoc meetings*

Governor of Bolu	*Indirect Beneficiary*	*Local Government Institution/body*	Online and face to face meetings and meetings on project sites	Questions raised by stakeholders were answered by the FAO Team and the Experts.	Between 17 and 18 February 2022; between 22 and 24 March 2022; between 7 and 8 June 2022; and various other dates during the project document preparation	All contacted stakeholders were informed about the Project (most of the time with a presentation and sometimes verbally) by the FAO Project Coordinator and other team members. Experts Team members carried out this task via prearranged meetings with the key stakeholders, and via ad-hoc meetings.

Mayor of Bolu	*Indirect Beneficiary*	*Local Government Institution/body*	Online and face to face meetings and meetings on project sites	Questions raised by stakeholders were answered by the FAO Team and the Experts.	Between 17 and 18 February 2022; between 22 and 24 March 2022; between 7 and 8 June 2022; and various other dates during the project document preparation	All contacted stakeholders were informed about the Project (most of the time with a presentation and sometimes verbally) by the FAO Project Coordinator and other team members. Experts Team members carried out this task via prearranged meetings with the key stakeholders, and via ad-hoc meetings.

District Governors of Seben and Yeni?a?a	Indirect Beneficiary	Local Government Institution/body	Online and face to face meetings and meetings on project sites	Questions raised by stakeholders were answered by the FAO Team and the Experts.	Between 17 and 18 February 2022; between 22 and 24 March 2022; between 7 and 8 June 2022; and various other dates during the project document preparation	All contacted stakeholders were informed about the Project (most of the time with a presentation and sometimes verbally) by the FAO Project Coordinator and other team members. Experts Team members carried out this task via prearranged meetings with the key stakeholders, and via ad-hoc meetings.

District mayors of Seben and Yerni?a?a	Indirect Beneficiary	Local Government Institution/body	Online and face to face meetings and meetings on project sites	Questions raised by stakeholders were answered by the FAO Team and the Experts.	Between 17 and 18 February 2022; between 22 and 24 March 2022; between 7 and 8 June 2022; and various other dates during the project document preparation	All contacted stakeholders were informed about the Project (most of the time with a presentation and sometimes verbally) by the FAO Project Coordinator and other team members. Experts Team members carried out this task via prearranged meetings with the key stakeholders, and via ad-hoc meetings.

Bolu Chamber of Commerce and Industry	Indirect Beneficiary	Non-Gonvernmental Organization	Online and face to face meetings and meetings on project sites	Questions raised by stakeholders were answered by the FAO Team and the Experts.	Between 17 and 18 February 2022; between 22 and 24 March 2022; between 7 and 8 June 2022; and various other dates during the project document preparation	All contacted stakeholders were informed about the Project (most of the time with a presentation and sometimes verbally) by the FAO Project Coordinator and other team members. Experts Team members carried out this task via prearranged meetings with the key stakeholders, and via ad-hoc meetings.

Bolu Muhtars Association	Indirect Beneficiary	Local Government Institution/body	Online and face to face meetings and meetings on project sites	Questions raised by stakeholders were answered by the FAO Team and the Experts.	Between 17 and 18 February 2022; between 22 and 24 March 2022; between 7 and 8 June 2022; and various other dates during the project document preparation	All contacted stakeholders were informed about the Project (most of the time with a presentation and sometimes verbally) by the FAO Project Coordinator and other team members. Experts Team members carried out this task via prearranged meetings with the key stakeholders, and via ad-hoc meetings.

Bolu Producer Women?s Association	Indirect Beneficiary	NGO	Online and face to face meetings and meetings on project sites	Questions raised by stakeholders were answered by the FAO Team and the Experts.	Between 17 and 18 February 2022; between 22 and 24 March 2022; between 7 and 8 June 2022; and various other dates during the project document preparation	All contacted stakeholders were informed about the Project (most of the time with a presentation and sometimes verbally) by the FAO Project Coordinator and other team members. Experts Team members carried out this task via prearranged meetings with the key stakeholders, and via ad-hoc meetings.

Turkish Women?s Union Association Bolu Branch	Indirect Beneficiary	NGO	Online and face to face meetings and meetings on project sites	Questions raised by stakeholders were answered by the FAO Team and the Experts.	Between 17 and 18 February 2022; between 22 and 24 March 2022; between 7 and 8 June 2022; and various other dates during the project document preparation	All contacted stakeholders were informed about the Project (most of the time with a presentation and sometimes verbally) by the FAO Project Coordinator and other team members. Experts Team members carried out this task via prearranged meetings with the key stakeholders, and via ad-hoc meetings.

Director Ships of the Industrial Zones of Seben and Yeni?a?a	Indirect Beneficiary	Private Sector	Online and face to face meetings and meetings on project sites	Questions raised by stakeholders were answered by the FAO Team and the Experts.	Between 17 and 18 February 2022; between 22 and 24 March 2022; between 7 and 8 June 2022; and various other dates during the project document preparation	All contacted stakeholders were informed about the Project (most of the time with a presentation and sometimes verbally) by the FAO Project Coordinator and other team members. Experts Team members carried out this task via prearranged meetings with the key stakeholders, and via ad-hoc meetings.

Academic Institutions and Media	Other interested parties	Other	Online and face to face meetings and meetings on project sites	Questions raised by stakeholders were answered by the FAO Team and the Experts.	Between 17 and 18 February 2022; between 22 and 24 March 2022; between 7 and 8 June 2022; and various other dates during the project document preparation	All contacted stakeholders were informed about the Project (most of the time with a presentation and sometimes verbally) by the FAO Project Coordinator and other team members. Experts Team members carried out this task via prearranged meetings with the key stakeholders, and via ad-hoc meetings.

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

48. Consultations were held during the project preparation phase with stakeholders at the national and regional level, in particular with local communities and especially women, to refine the detailed project interventions. The main stakeholders and their role in project implementation are summarized below.

Table 5. Project stakeholders.

Stakeholder	**Type of engagement**	**Engagement during Project implementation**
Ministry of Agriculture and Forestry (MoAF)- General Directorate of Agrarian Reform (GDAR)	Lead Executing Agency	Lead Executing Agency

Other Directorates under MoAF and other relevant govt. Ministries and respective Directorates Central units of the Ministry of Agriculture and Forestry (MoAF) including General Directorate (GD) of Agricultural Reform, GD of plant Production, General Directorate of Nature Conservation and National Parks, General Directorate of Water Management, General Directorate of Combat Desertification, Ministry of Environment, Urbanisation and Climate Change	Direct beneficiaries	Executing Partners (Steering Committee members) linking closely with national and landscape-level stakeholders on project implementation, knowledge management, and upscaling and replication. UNCCD focal point.
Regional and sub-regional Directorates and Province Directorates of MoAF	Direct beneficiary	Local-level executing partners, and will play a key role in building on-the-ground project baseline information and designing the project components
Academic and research institutes, Municipalities	Provision of information and Technical Advisory	Will play a key role in capacity building and information management activities will provide inputs in developing the relevant project activities
CSOs and local cooperatives (e.g. Irrigation Unions, Farmer Unions)	Organizing consultations and providing inputs for project design.	Will play a vital role in organizing local level consultations and providing feedback and inputs into the project design
Private sector	Secondary-Beneficiary, also contributor, supplier of goods and services	Private sector parties relevant to the value chain improvement activities
Cooperatives	Direct beneficiary	Beneficiaries of project interventions and key organizations for the implementation of Outcome 2.3 on value chains and related capacity development.

Local communities (Women and men farmers, land users etc.)	Direct beneficiaries.	Will be involved in all relevant consultations, specifically in understanding their perspectives in the contexts of threats to the forests and involvement in the project implementation

Select what role civil society will play in the project:

Consulted only; Yes

Member of Advisory Body; Contractor;

Co-financier;

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

Executor or co-executor;

Other (Please explain)

3. Gender Equality and Women's Empowerment

Provide the gender analysis or equivalent socio-economic assesment.

49. The project will ensure that adequate representation of both genders is achieved in all project activities. At least 50% women community members will be actively involved in project activities. Gender-sensitive indicators such as the number of women beneficiaries, women?s training needs, type and efficiency of women?s agricultural and grazing production will be identified and incorporated into the project?s monitoring mechanism. Reporting on project activities, outputs and outcomes will be disaggregated by gender (where applicable).

50. Gender is central to the Food and Agriculture Organization of the United Nations? (FAO?s) mandate to achieve food security for all by raising levels of nutrition, improving agricultural productivity and natural resource management, and improving the lives of rural populations (FAO 2013, p.1). The goal of FAO?s Policy on Gender Equality is to achieve equality between women and men in sustainable agricultural production and rural development for the elimination of hunger and poverty. FAO is working with countries, other UN agencies, civil society organizations (CSOs) and bilateral and private sector partners to make progress toward achieving objectives by 2025.

51. The GEF recognizes that, for its project interventions to achieve their global environmental objectives, particular attention should be paid to enhancing both women?s and men?s contributions. The GEF was one of the few international financial facilities to develop an independent public participatory policy, including provisions on gender issues. In addition, the GEF Operational Strategy provides ten operational principles and overall direction to the GEF focal areas to maximize global environmental benefits. Principle 7 relates directly to public participation, including gender, and states

that ?GEF projects shall provide for full consultation with, and participation as appropriate of, the beneficiaries and affected groups of people? (GEF 2008, p.7,15,16).

52. Gender equality is protected by international and national legal regulations in T?rkiye. In 1985, T?rkiye signed and ratified the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW), and in 2000, the country signed the Additional Protocol to CEDAW. In addition, in 1995, the Turkish government signed the Beijing Declaration of the Fourth World Conference on Women, and committed itself to its Action Plan.

53. In T?rkiye, the Constitution is the fundamental document regulating and guiding all issues relating to gender equality. In addition to the Constitution, the main legal documents regulating gender policy are: the Turkish Civil Code, Labour Law and the Penal Code. Mainly the Ministry of Family, Labor and Social Policy and other governmental bodies are jointly working on women?s empowerment in their socio-economic lives. A Directorate for women?s rights and gender equality was established in 1990: the General Directorate of Women?s Status, (Kad?n?n Stat?s? Genel M?d?rl???, KSGM). Its main mission is to promote gender equality in T?rkiye by developing programs and policies to reduce all forms of gender-based discrimination. On 8 June 2011, the KSGM was restructured as one of the main units under the Ministry for Family and Social Policies. In addition to the KSGM and the Ministry for Family and Social Policies, there are a number of platforms composed of governmental units, civil society actors and stakeholders that are working in the field of gender equality policy.

54. According to a new measure, 2017 Gender Development Index (GDI), T?rkiye?s GDI value is 0.755 out of 164 countries. This rate places the country into Group 4, which covers medium-low equality in Human Development Index achievements between women and men. Another tool reflecting gender situations is Gender Inequality Index (GII). T?rkiye ranks 69th out of 189 countries in terms of gender-based inequalities in three dimensions ? reproductive health, empowerment and economic activity. The GII can be interpreted as the loss in human development due to inequality between female and male achievements in the aforementioned three dimensions (UNDP, 2018). According to UNDP data, female participation in the labor market is 32.4% compared to 71.9% for men. Additional GII data is structured as follows (Table 6):

Table 6. Gender Inequality Index (GII).

	GII value	GII rank	Maternal Mortality Ratio	Adolescent Birth Rate	Female seats in parliament %	Population with at least some secondary education %		Labour force participation rate %	
						Female	Male	Female	Male
T?rkiye	0.317	69	16	25.8	14.6	44.9	66.0	32.4	71.9
Europe and Central Asia	0.270	-	24	25.5	20.7	78.4	85.9	45.5	70.3
High HDI	0.289	-	38	26.6	22.3	69.5	75.7	55.0	75.5

55. The main income generating activities in Bolu are agriculture and livestock. According to the Agr?culture Sector Master Plan 2002, the rate of female employment in the agriculture sector is 84.7%

while this rate for the male is 37.4%. According to data from the General Directorate of Turkish Employment Agency (ISKUR), In 2015, the unemployment rate was 9%, of which 54.8% were women and 45.2% were men.

56. Women play an essential role in agricultural production, and make up a substantial part of the agricultural labor force. However, a large number of rural women typically work as unpaid family workers, performing tasks both within their households and household plots. According to ILO?s estimates cited by the World Bank, the rate of female family workers is 25.1% and this rate is 4.3% for males. Their contribution is invisible in official statistics and is often undervalued by women themselves as perceived as a continuation of their natural role.

57. Men who work in agriculture have better access than women to business support services, training and education, which contribute to better work opportunities and higher pay. Women in rural areas have less access than men to productive resources and opportunities and thus lesser income. The gender gap is found in the forms of assets, inputs and services ? land, livestock, labor, education, extension and financial services, and technology ? and it imposes costs on the agriculture sector, the broader economy and society as well as on women themselves.

58. With the aim of identifying women?s specific needs, problems and coping strategies in the context of project objectives a gender analysis will be conducted during the PPG process. Gender analysis will be a part of the socio-economic analysis in the project site and consists of different levels. The research process will be holistic. That means each level each other and all levels should be considered together during data collection, coding and data analysis.

59. District level local authorities and village heads (mukhtars) as community leaders will play a key role in reaching women farmers. Women household members of community leaders will gather a small group of women community members. Focus group discussions and in-depth interviews will be conducted with at least 50 women. The research will be conducted in women?s houses. One woman will be interviewed as a representative of a household. Men community members also will be interviewed. Village coffee houses will be the research place for men community members. On the other hand, local businesses such as restaurants, if any, will be other resources to reach community members. The public announcement can be used to reach more community members if needed or approved by local authorities.

60. Women?s participation in the decision-making process and their full engagement in project activities will be ensured through specific arrangements. The project will ensure that half of the beneficiaries are women (51%) and their conditions will be considered to organize activities such as specifically designed training in line with their needs, flexible training hours, appropriate timing (considering agricultural seasons) of project activities, their close interaction with women project staff and childcare services (if and when possible). In addition, at least 30% of beneficiary women participate in decision processes during the project.

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.

61. Representatives of the private sector, mainly land users and women and men farmers, including families managing pastures, will be the main partners of this project. They will be direct beneficiaries in the implementation of environmentally friendly agricultural activities, alternative income generation activities, Equal participation of women farmers will be ensured.

62. There are a remarkable number of individuals industries (agricultural and others), organized industry district ones and other small enterprises in several sectors as representatives of the private sector. It is inevitable to keep in touch with them or their representatives, especially for wastewater related issues. In addition, cooperation with agricultural producer unions, associations and cooperatives will be part of project implementation. These stakeholders are key to liaise with smallholder farmers, and ensure the sustainability of the project. Besides addressing knowledge gaps, these organizations can help farmers to access key markets for agroecological products, access to better inputs for sustainable production and connect with stakeholders willing to invest and finance small production businesses and projects.

63. In Bolu province, more than 370 450 registered private sector entities are reported to engage in agricultural production and processing. Main known private sector members can be grouped in several categories: i) Suppliers including seed production firms (over 15); fertilizer suppliers (over 30); pesticide sellers (over 25) and ii) Processed or semi-processed food producers (over 350) (Provincial Directorate of Agriculture and Forestry, 2021). Of the food producers, the majority are engaged in production, processing and marketing of cereal-based products. There are also international producers based in Bolu, such as Barilla ? Filiz operating in the food sector internationally. These will be among the main private sector members the project will target to engage, particularly with the purpose of supporting value chains for products of smallholder producers through linking them to the private sector. The project targets mainly the smallholders, but the project findings will be shared widely with the private sector as well. Particularly through the work on value chains private sector will be involved in provision of goods and services and potentially marketing of the products. There is good opportunity to develop linkages and collaborations between the smallholder producers and private sector for marketing of products specific to Bolu such as Iza wheat products and Seben apple. Currently, for the smallholder producers the main financing institutions are Agricultural Credit Cooperatives and the state owned Agricultural Bank but there are a number of private banks that can finance producers in agriculture, but with some significant cost. However, there is the prospect that as the value chains flourish and economic conditions improve producers can improve their economic conditions to benefit from these resources. Furthermore, there is also possibility that contracted farming can develop together with development of new products, such as that of Iza wheat.

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):

Table 7. Risks to the project.

Risk	*Probability of Occurrence*	*Impact*	*Mitigation Measure*	*Responsible party*
Decrease in project support from the government	N/A	Low	The government authorities have fully backed the development of this concept and all concerned government stakeholders will be fully involved in project preparation and implementation to ensure continued support. Moreover, the project fits into national development and environmental priorities.	FAO-T?rkiye, The General Directorate of Agrarian Reform of the Ministry (GDAR)
Low institutional capacity at national and local level hampering project progress	N/A	Medium	To mitigate this risk, the project design incorporates institutional capacity building measures taking into account specific needs of stakeholders. Moreover the Provincial Directorate of Agriculture already undertook two meetings at project site for introducing project goals and activities to local stakeholders	FAO ? T?rkiye, (GDAR)
Project activities are implemented in a compartmentalized fashion with little integration and coordination with all relevant government departments	N/A	Low to Medium	Under component 1, a multi-sectoral coordination and governance model will be established, within and beyond the project context, the model will ensure coordination between all relevant government actors. Consultations have been held with all relevant government departments along with local elected politicians (mayor, mukhtars) and this process will continue throughout the project preparation and subsequent implementation to ensure that the project progress and impacts generated do not happen in isolation.	FAO-T?rkiye, Project team, GDAR
Natural changes in ecosystems and associated agrobiodiversity due to gradual changes in climate and extreme weather events.	Low	Unknown	The monitoring system developed in the project will identify changes in ecosystems, specifically in relation to agricultural products, that are likely to be linked to climate change, so that remedial actions can be taken. Moreover, the suggested interventions for the project are resistant to climatic fluctuations alike c?ltivation of low water and nutrient demanding iza wheat, and grazeland rehabilitation	FAO-T?rkiye, Project team

Reluctance of local population to involve and participate effectively in the project activities	Low	Low to Medium	Local communities (through community and civil society representatives) will be involved during the project activities, especially the sustainable impacts generated, will ensure continued interest and participation of local communities. Furthermore, the project was requested by the people of the region, who stated in meetings held in Yeni?a?a and Seben that this project is the most effective way to improve their income and protect the environment.	FAO-T?rkiye, project team, Provincial and district Directorates

Impacts from Climate Change and other severe weather-related events.	Low		Climate Change may impact forest ecosystems and agricultural productivity in T?rkiye. First, increase in temperatures will significantly affect the species composition and the functions of forests and increase risk of fires and disease. In addition, climate change will have an impact on the length of plant growth season, which will be shortened due to increasing growth day rate from increasing temperatures. Risk of droughts should be considered too. To mitigate these impacts from Climate Change, the project will consider these risks and use climate data during the development of the Strategy for the Agro-Ecosystem Approach. In addition, the activities that promote agroecological practices, will take into account of shifts in climate related events and related risks. In this respect, it is possible that heavy snowfalls, rainfalls and floods may pose some risks in certain areas.	FAO-T?rkiye, project team
		Medium	Drought spells are considered as potential risks in the region. Although some previous climate projections show that the impact of climate change in the region will be minimal in the next ten years[1], more recent studies show that in the next fifty years the area prone to drought could increase from less than 1% to 18.17% and 30.41% Thus, project interventions addressing drought risks considered critical (Koc, I., 2021; Ref: https://dergipark.org.tr/en/download/article-file/1807110) To address such risks, the project will take multiple measures. In this respect, as a principle, the demonstration sites will be identified in close collaboration with the local extension agencies and producers and taking into account of such risks. The project will particularly promote climate resilient practices, such as use of crops and varieties and no tillage practice which helps prevention of soil moisture loss and soil disturbance. Furthermore, considerations will also be given to potential decrease in plant growth seasons due to late frosts in spring and early autumn especially in horticultural crops. In this respect, early maturing characteristics of crops and varieties will be an important attribute for use in demonstrations.	

Risk related to COVID-19 pandemic		Medium	As explained in the systems description above, the COVID-19 pandemic has affected agricultural production significantly. The main risks associated to the pandemic are: - Limited access to inputs and markets. - Difficulties in transportation of goods - Difficulties accessing labor sources - Limitations to extension services - Reduction in the demand for agricultural products to closures. To mitigate the above-mentioned risks, during project preparation, the evolution of the pandemic will be closely monitored to allow a project design resilient to the impacts of this and other similar events. The project will consider the evolution of the pandemic in the design of all its activities. And would consider risk mitigation measures to address mobility limitations, market restrictions and enhance demand for the agricultural production resulting from the project strategy. If new variants of COVID-19 prevail, there may be possibility that these risks persist, and that travels, and collective activities suffer from restrictions. In such cases, risks will be mitigated by avoiding as much as possible face-to-face meetings. When necessary, face-to-face meetings and consultations will be held considering of all biosecurity measures in line with national and FAOs standards and regulations. Furthermore, more effective use of digital tools will be explored in delivery of trainings and other services. However, in May 2022, the share of people with a complete initial protocol in T?rkiye is above 62%, along with a share of 5.6% partly vaccinated; the vaccinated population summed up to 68% of the nation in T?rkiye.	FAO-T?rkiye, The Ministry

[1] T?rke? M. 2017. T?rkiye's Drought Vulnerability and Risk Analysis in terms of Climatic Variability and Socio-Ecological Indicators. Ege Co?rafya Dergisi 26 (2), 2017, 47-70, ?zmir

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.

? 6.a Institutional arrangements for project implementation.

The General Directorate of Agrarian Reform (GDAR) under the Ministry of Agriculture and Forestry (MoAF) will be the main project partner. As the GEF Agency, FAO will be responsible for project oversight to ensure that GEF policies and criteria are adhered to, and that the project efficiently and effectively meets its objectives and achieves expected outcomes and outputs as established in the project document. FAO will report on project progress to the GEF Secretariat and financial reporting will be to the GEF Trustee.

64. The project organization structure is as follows (Figure 7):

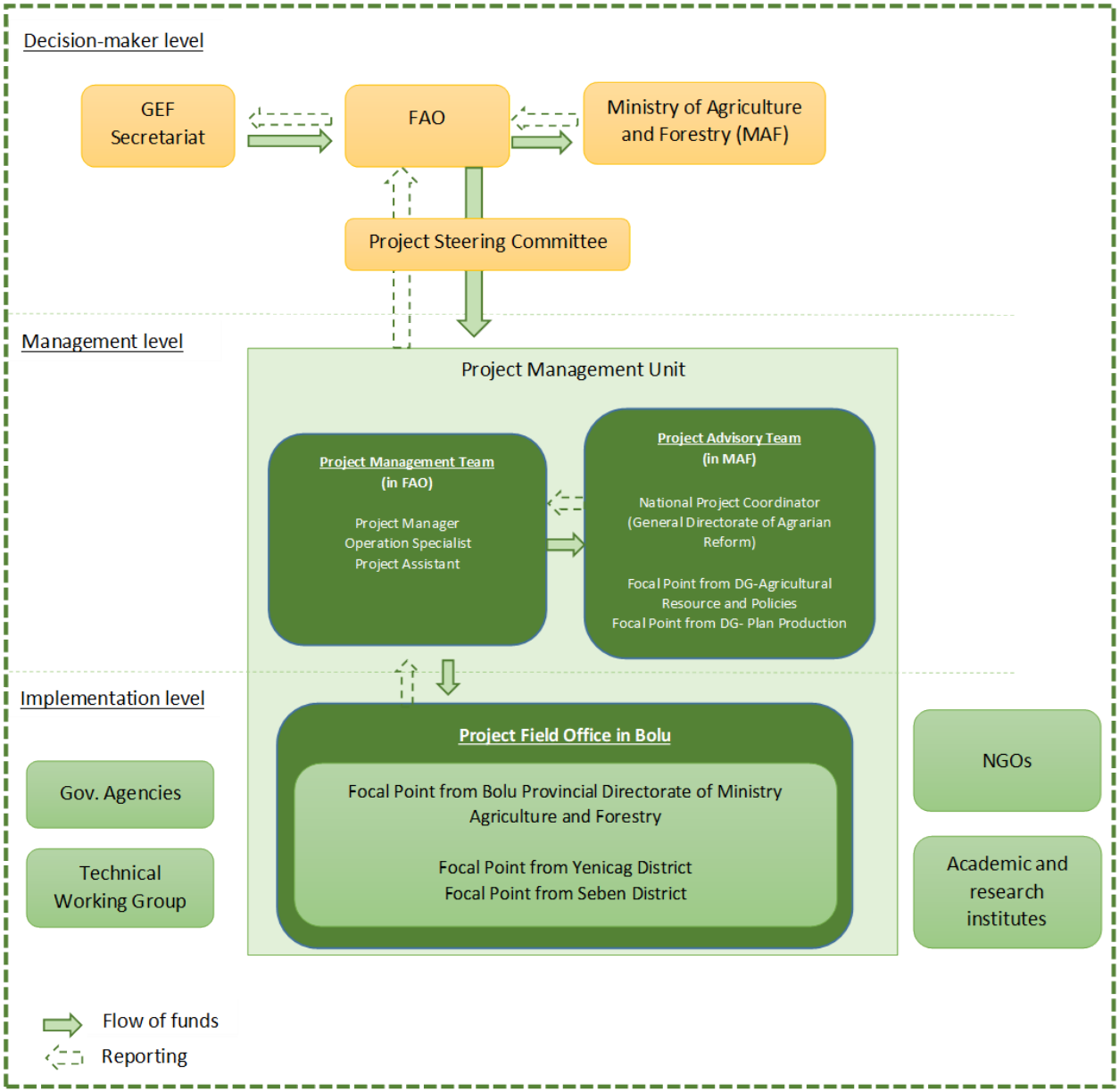


Figure 7. The project organization structure.

65. The government will designate a National Project Coordinator (NPC). Located in the Ministry of Agriculture and Forestry the NPC 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.

66. The NPC (or designated person from the lead national institution) will chair the Project Steering Committee (PSC) 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 Unit and to all executing partners.

67. The PSC will be composed of representatives from the General Directorate of Agricultural Reform of the Ministry of Agriculture and Forestry and FAO T?rkiye, and Focal Point for the project from 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.

68. The Project Manager (PM) (see below) will be the Secretary to the PSC and be responsible for coordination and implementation of all project activities. 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.

69. A Project Management Unit (PMU) will be co-funded by the GEF grant and established within the GDAR. 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 Project Manager (PM) who will work full-time for the project lifetime. In addition, the PMU will include a GEF Portfolio Coordinator (in-kind) or Assistant FAO rep (Programme), operations assistant and communication officer as well as a monitoring and evaluation officer.

70. The Project Manager will be in charge of the technical implementation, management, and oversight of the project, in close coordination with the General Directorate of Agrarian Reform and within the framework outlined in the Project Results Framework (Annex 1), and approved Project Budget (Annex 2). He/she will work under the technical supervision of the FAO Project Task Force, particularly the FAO Lead Technical Officer (LTO). The PM will be responsible, among others, for:

i. Lead the operational planning, coordinate and monitor the technical delivery of project outcomes, outputs and activities;

ii. Provide operational guidance to the executing partner(s) and experts to ensure that the activities are implemented using relevant approaches, tools and methodologies and best practices.

iii. Provide technical guidance, assess, review and approve the deliverables together with the GEF-financed national technical specialists (TS), and the technical outputs of the executing partner(s), short-time consultants, and other technical teams financed by projects funds, in close consultation with FAO and the Operational Partner.

iv. Ensure technical alignment of this GEF project?s objectives and the programs implemented by partner institutions and organizations at national and local levels.

v. Ensure a high level of collaboration between participating institutions and organizations at the national and local levels;

vi. Supervise the project?s M&E and communications plans.

71. During the implementation of the project a field office will be established by MAF, a focal point from Bolu Provincial directorate assigned and two focal point district directorates from Yenicag and Seben will assigned by MAF. The focal point will be responsible for landing project activities in Bolu and selected pilot areas.

72. The Food and Agriculture Organization (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 the 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.

73. During the first year of project implementation, the PSC will select National Technical Partners (e.g., Local Research institutes, local governments, NGOs) for the Execution of the following main project activities: Demonstrations and capacity building for good farming practices (wheat, Alternative crops and varieties, rangeland rehabilitation, drip and programmed irrigation techniques, crop management).

74. 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.

75. The project will be closely aligned with the decision support system for LDN being developed under the **?Contributing to Land Degradation Neutrality (LDN) Target Setting by Demonstrating the LDN Approach in the Upper Sakarya Basin for Scaling up at National Level**? project (GEFID 9586). The project will take advantage of the methodologies and approaches to carry out a decision support system as well as with the monitoring systems being developed to report on LDN achievement.

76. The project will also take advantage of the improved integration and sustainable landscape-scale management of forest, agricultural and other productive systems to enhance ecosystem services and goods, while also contributing to the buffering of protected areas and maintaining their inter-connectivity, being developed under the ?**Strengthening the Conservation of Biodiversity and Sustainable Management of Forest Landscapes in T?rkiye?s Kazda?lari Region?** project (GEFID 10369).

77. Other projects that the project will be coordinated with include:

? The project funded by FAO-TCP (TCP/TUR/38) on the **Enhancement of soil and fertilizer management in T?rkiye** aims to promote sustainable management of soil resources for sustainable productivity and decrease of environmental pollution including GHG emissions. This project will contribute to integrated water management by enhancing fertilizer monitoring systems and related soil mapping that will help to improve the watershed management in Gediz River Basin. Moreover, the relevant capacity development program will support the increased awareness of the importance of sustainable soil amendment and its link with the management of water resources.

? The FAO- TCP project (TCP/TUR/3701) ?**Integrated Land Use Planning for Food Security with enhancing climate change resilience and ecosystem management**? funded under the FAO-Technical Cooperation Program aims to develop an integrated land-use planning approach and implement it in a pilot area. This project will contribute to raising awareness of relevant stakeholders about the role of land use and management in addressing the problems of land abandonment and efficient land use together with initial steps towards the development of rural community

? **FAO T?rkiye Partnership Programme (FTPP II)** on ??Leaving no one behind: empowerment of rural women??, GCP /SEC/018/TUR includes (1) the efforts to increase productivity and food security through the provision of effective rural advisory services allowing women farmers to have equal access to trainings and knowledge-sharing; and (2) an initiative assisting the Syrian refugees, in particular women, to integrate with the host communities by providing trainings to improve agricultural skills to engage in productive activities. This project will contribute to capacity building with a focus on women and youth, to ensure their participation in decision-making processes.

? **FAO T?rkiye Forestry Partnership Programme (FTFP)** Boosting Restoration, Income, Development, Generating Ecosystem Services (GCP /INT/340/TUR) aims to catalyze action, support sustainable management and restoration of dryland forests and agrosilvopastoral systems. This project will contribute to the compiling, managing, sharing knowledge and good practices, promoting communications

and visibility of project activities to the across Africa?s Great Green Wall and throughout the global drylands.

? **GEF funded project on `Sustainable Land Management and Climate friendly Agriculture in Konya Closed Basin** (GCP/TUR/055/GFF) targets promotion of sustainable land management approaches and climate friendly practices in Konya Closed Basin in the forestry, plant production and livestock sectors. Lessons learnt and certain approaches will be utilized in the implementation of this project.

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.

78. The proposed medium-size project is consistent with a range of national priority. The action plan, strategies and reports reflect country priorities in the field of climate change mitigation, combatting desertification and biodiversity. Besides, the priority capacity needs of the country under three Rio conventions are well reflected in National Capacity Self-assessment of T?rkiye. Since the proposed project covers CC mitigation, biodiversity and land degradation and chemicals, it will serve the fulfilment of T?rkiye?s national priorities reflected in these strategies and action plans and serve the fulfilment of T?rkiye?s international commitment as well:
- 11th Development Plan of T?RKIYE 2019-2021

- National Action Program (NAP) under UNCCD
- Ministry of Agriculture and Forestry Strategical Plan for 2020-2023

- National Biodiversity Strategies and Action Plan (NBSAP) under UNCBD

- National Communications (NC) under UNFCCC

- Ministry of Forestry and Water Affairs? Strategical Plan 2017-2021

The project is aligned with the following national priorities;

79. **11th Development Plan:** Relevant objectives of the Development Plan are ?Protection and development of the water and soil resources? amount and quality, development of a management system that provide sustainable use of the water and soil resources.? ``Integrated agro-ecological management strategies, plans and action plans will be realized in an integrated approach in the scope of the conservation, development and sustainable use of the agricultural resources of the Bolu Province.? ``Protection measures will be increased to reduce land-based pollution originated from agricultural activities``

80. **Ministry of Agriculture and Forestry Strategical Plan for 2020-2023**: The Main objectives of Strategical Plan are ?To ensure the conservation, improvement and sustainable management of natural resources?, ?To ensure effective conservation and sustainable management of biological diversity.? This

Strategic Plan shapes a common goal for 25 basins of T?rkiye and decreases the planning hierarchy from up to bottom. But, still, it is needed to downscale the practices especially with projects including demonstrative activities. As this Strategic Plan includes sub-objectives such as sustainable management of water and land resources preparation of sectoral water allocation plans, it is considered to constitute an effective protection-usage balance in Bolu and disseminate the result in T?rkiye

81. **National Water Strategy (2019-2023)** aims to; (i) updated and accurate water monitoring system in line with international and international standards (ii) sustainable water management by holistic approach with ensure the balance between the conservation and use of water resources considering quantity, quality and ecosystems management (iii) ensure Sustainable supply-demand balance of water resources considering water quantity, quality, climate change and ecosystem needs for 25 river basins. In this regard, this project will contribute to implement this strategy and ensure sustainable management of water resource considering ecosystem trough developing agro-ecosystem management strategy in the T?rkiye

82. **National Action Program (NAP) under UNCCD**: Primary reasons for land degradation in the region include inappropriate land use, urbanization, industrialization, tourism and particularly intensive agricultural activity. Erosion has been causing significant problems, particularly in agricultural lands in the region. The proposed project will support the implementation of the LDN strategies by working with local stakeholders to demonstrate SLM practices that can be upscaled by using co-financing to support the following targets:

83. **LDN Targets in agriculture (Pg 16 of LDN report):**

? promotion and supporting soil conservation farming (including building farmer capacity)

? enforcing all relevant articles of soil law no. 5403, which sets the rules and principles for determining land and soil resources and their classification, preparing land utilization plans, preventing non-purpose utilization, and defining the tasks and obligations to ensure land and soil preservation.

? support and upscale soil and fertilizer analysis, and ensure controlled applications

84. **The 5th National Communication to the UNFCCC:** The communication lists under Forestry measures ??Maximizing sink capacity in the forestry sector?? with objectives of a) increasing carbon sequestered in forested areas by 15% until 2020 b) decreasing deforestation and forest degradation by 20% by 2020. The project?s activities, specifically under Component 2, directly contribute to these objectives.

85. **The National Biodiversity Action Plan (NBSAP 2018-2028).** This updated document establishes 7 National objectives of which Objective 1is the most relevant for the proposed project: Pressures and threats on biodiversity and ecosystems will be determined, reduced to the possible lowest level or removed totally. This proposal aims at improving the management of natural resources preventing the pressures to a biological diversity that will be tackled through the implementation agro-ecological management plan, a strategy to implement a green belt approach, training of Government staff in best practices concerning landscape restoration and management.

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.

86. Through past initiatives, implemented by government entities, FAO and various other actors a wealth of knowledge and lessons have been generated. This will feed into the project implementation process. The project will strengthen existing institutional capacities within T?rkiye in agro-ecological management and SLM with a strong emphasis on sustainably managed agriculture. At the local level, the Project is designed to enhance the capacity of local authorities and communities to access new knowledge and implement best management practices and SLM to reduce the pressures on their key ecosystems. These capacities will be sustained through a strengthened national coordination platform and continued outreach and dissemination of good practices and management advice (Component 2 and 3). The experiences are expected to be upscaled to the national agricultural system. Opportunities for scaling up best practices will also be explored in the context of south-south cooperation, particularly on sharing of experiences with other countries. The outputs of this project can be disseminated through the FAO T?rkiye Partnership Program as well as through other established channels.

Based on the project baseline, the current behavior of the target audience will be identified. The barriers will allow the project preparation team to identify the incentives and knowledge required to change the current behavior to the desired behavior. The project will address these needs through project activities like developing knowledge products in national language (Component 3), working with the local government to provide better access to knowledge resources (Component 2 and 3) and developing products to support the capacity building plan, among others.

The project will learn from other ongoing projects and initiatives through the dissemination activities proposed under Output 3.1.3. In, particular, the project will look out for the above-mentioned projects (Coordination with other relevant GFE-financed project and other initiatives) to exchange lessons learned. FAO as implementing agency will monitor closely Mid-term reviews, Final evaluations, and Progress Reports to identify lessons learned that may inform the development of the current project. In particular, this project will feed from the LDN Decision Support System of T?rkiye (https://projectgeffao.users.earthengine.app/view/ldn-turkey) that has been developed by the country in close collaboration with FAO and financing from the GEF. This will be complemented by a project website that will compile knowledge and lessons generated during project implementation. Project knowledge will be regularly posted and shared on this project website for outreach, learning and public awareness.

Knowledge Management Plan

87. The project?s knowledge management activities are summarized in Table 9 below with an estimated budget of around USD100,000.

Table 9. Project knowledge management plan.

Deliverable	Timeline											
	Year 1				Year 2				Year 3			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Knowledge material on Agro-ecosystem Management and LDN												
Documentation of local communities? land management practices		x	x	x	x							
Development of materials to support farmers to improve land management practices						x	x	x				
Establishment of online database for agro-ecosystem management best practices (using WOCAT)				x	x	x						
Guidelines for agro-ecosystem management								x	x	x		
Capacity building												
Training programs on integrated Agro-ecosystem approaches and LDN		x	x	x								
Systematize and disseminate lessons learned, including gender-related experiences, from capacity-building program on Agro-Ecosystem Management and LDN through rural networks				x	x	x	x	x	x	x	x	x

Assessment of the knowledge and knowledge gaps, perceptions, and awareness levels of LDN by decision-makers				x	x	x	x	x				
Awareness raising												
Communications Strategy development		X										
Media campaigns (at a minimum 1 update on FAO website once every quarter)			X	X	X	X	X	X	X	X	X	X
Promotion of agro-ecosystem management and LDN										X	X	
Sharing of project results at events in T?rkiye and outside										X	X	X

Communication Approach

88. Under component 3, the project will develop and implement a communication and dissemination strategy, which will include development of an integrated agroecosystem management guideline and fact sheets on integrated crop and pest management, soil fertility management, horticulture and rangeland management. These products will be gender-responsive. Project knowledge products will be disseminated in Bolu province and at national level, and be combined with public awareness raising campaign to reach all project direct and indirect beneficiaries, as well as the general public. A rural network will be established to make these efforts more efficient and sustainable.

9. Monitoring and Evaluation

Describe the budgeted M and E plan

89. The project results, as outlined in the project results framework (Annex A1), will be monitored regularly, reported annually and assessed during project implementation to ensure the project effectively achieves these results.

90. Monitoring and evaluation activities will follow FAO?s and GEF?s policies and guidelines for monitoring and evaluation. The M&E system will also facilitate learning, replication of the project?s results and lessons which will feed the project?s knowledge management strategy.

Monitoring Arrangements

91. Project oversight and supervision will be carried out by the Budget Holder with the support of the PTF, LTO and FLO and relevant technical units in FAO headquarters. Oversight will ensure that: (i) project outputs are produced in accordance with the project results framework and leading to the achievement of project outcomes; (ii) project outcomes are leading to the achievement of the project objective; (iii) risks are continuously identified and monitored and appropriate mitigation strategies are applied; and (iv) agreed project global environmental benefits) are being delivered.

92. The FAO-GEF Coordination Unit and HQ Technical units will provide oversight of GEF financed activities, outputs and outcomes largely through the annual Project Implementation Reports (PIRs), periodic backstopping and supervision missions.

93. Day-to-day project monitoring will be carried out by the Project Management Unit. Project performance will be monitored using the project results matrix, including indicators (baseline and targets) and annual work plans and budgets. At inception phase, the results matrix will be reviewed to finalize the identification of i) outputs ii) indicators iii) targets and iv) any missing baseline information

94. A detailed M&E System, which builds on the results matrix and defines specific requirements for each indicator (data collection methods, frequency, responsibilities for data collection and analysis, etc) will also be developed during project inception by the PMU M&E Specialist.

Table 10. Project monitoring and evaluation plan.

M&E Activity	Responsible Parties	Timeframe	GEF Budget (USD)
Inception Workshop	Project Management Unit (PMU)	Within two months of project document signature	4,000
Project Inception Report	PMU	Within two weeks of inception workshop	No extra costs
Annual PSC meetings and bi-annual TF meetings	PMU	Annually	Covered by co-financing
Project Progress Reports (PPRs)	PMU	Annually	M&E Specialist
Project Implementation Review report (PIR)	PMU	Annually in July	Covered by above
Co-financing Reports	PMU	Annually	No extra costs
Mid-term Review (Decentralized evaluation under BH responsibility) Mid-Term Workshop	BH, External Consultant, in consultation with the PMU, including the GEF Coordination Unit and other stakeholders, and with possible support from FAO Independent Evaluation Unit OED	In the 3rd quarter of the 2nd year of the project	30,000 4,000
Final Evaluation Final Workshop	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.	To be launched 6 months prior to terminal review meeting	40,000 5,000
Final Report	FAO	At project closure	6,550

M&E Activity	Responsible Parties	Timeframe	GEF Budget (USD)
Total Budget			**USD 89,550**

Monitoring and Reporting

95. In compliance with FAO and GEF M&E policies and requirements, the PMU, in consultation with the PSC and PTF will prepare the following 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 Core Indicators will be used to monitor Global Environmental benefits / adaptation benefits (specify as appropriate) and updated regularly by the PMU.

96. Project Inception Report. A project inception workshop will be held within two months of project start date and signature of relevant agreements with partners. During this workshop the following will be reviewed and agreed:

- the proposed implementation arrangement, the roles and responsibilities of each stakeholder and project partners;

- an update of any changed external conditions that may affect project implementation;

- the results framework, the SMART indicators and targets, the means of verification, and monitoring plan;

- the responsibilities for monitoring the various project plans and strategies, including the risk matrix, the Environmental and Social Risk Management Plan, the gender strategy, the knowledge management strategy, and other relevant strategies;

- finalize the preparation of the first year AWP/B, the financial reporting and audit procedures;

- schedule the PSC meetings;

- prepare a detailed first year AWP/B,

97. The PMU will draft the inception report based on the agreement reached during the workshop and circulate among PSC members, BH, LTO and FLO for review within one month. The final report will be cleared by the FAO BH, LTO and the FAO GEF Coordination Unit and uploaded in FAO?s Field Program Management Information System (FPMIS) by the BH.

98. Results-based Annual Work Plan and Budget (AWP/B). The draft of the first AWP/B will be prepared by the PMU in consultation with the FAO Project Task Force and reviewed at the project Inception Workshop. The Inception Workshop inputs will be incorporated and subsequently, the PMU will submit a final draft AWP/B to the BH within two weeks after the workshop. For subsequent AWP/B, the PMU will

organize a project progress review and planning meeting for its progress review and adaptive management. Once PSC comments have been incorporated, the PMU will submit the AWP/B to the BH for non-objection, LTO and the FAO GEF Coordination Unit for comments and for clearance by BH and LTO prior to uploading in FPMIS by the BH. The AWP/B must be linked to the project?s Results Framework indicators to ensure that the project?s work and activities are contributing to the achievement of the indicators. The AWP/B should include detailed activities to be implemented to achieve the project outputs and output targets and divided into monthly timeframes and targets and milestone dates for output 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 AWP/B should be approved by the Project Steering Committee, LTO, BH and the FAO GEF Coordination Unit, and uploaded on the FPMIS by the BH.

99. Project Progress Reports (PPR): The PPRs are used to identify constraints, problems or bottlenecks that impede timely implementation and to take appropriate remedial action. PPRs will be prepared based on the systematic monitoring of output and outcome indicators identified in the Project Results Framework indicate annex number, AWP/B and M&E Plan. Each semester the indicate as appropriate Project Coordinator (PC) or Project Manager will prepare a draft PPR, will collect and consolidate any comments from the FAO PTF. The PC / PM will submit the final PPRs to the FAO Representation in indicate country every six months, prior to 31 July (covering the period between January and June) and before 31 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 PMU, 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.

99. Annual Project Implementation Report (PIR): The PIR is a key self-assessment tool used by GEF Agencies for reporting every year on project implementation status. It helps to assess progress toward achieving the project objective and implementation progress and challenges, risks and actions that need to be taken. Under the lead of the BH, the Project Coordinator / Project Manager will prepare a consolidated annual PIR report covering the period July (the previous year) through June (current year) for each year of implementation, in collaboration with national project partners (including the GEF OFP), the Lead Technical Officer, and the FLO. The PC/PM will ensure that the indicators included in the project results framework are monitored annually in advance of the PIR submission and report these results in the draft PIR.

101. BH will be responsible for consolidating and submitting the PIR report to the FAO-GEF Coordination Unit for review by the date specified each year after each co-implementing agency?s review for each respective output under their responsibilities (to be included for joint implementation only). FAO - GEF Funding Liaison Officer review PIRs and discuss the progress reported with BHs and LTOs as required. The BH 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 as part of the Annual Monitoring Review of the FAO-GEF portfolio

102. Technical Reports: Technical reports will be prepared as part of project outputs and to document and share project outcomes and lessons learned. The LTO will be responsible for ensuring appropriate

technical review and quality assurance of technical reports. Copies of the technical reports will be distributed to project partners and the Project Steering Committee as appropriate.

103. Co-financing Reports: The PMU will be responsible for tracking co-financing materialized against the confirmed amounts at project approval and reporting. The co-financing report, which covers the GEF fiscal year 1 July through 30 June, is to be submitted on or before 31 July and will be incorporated into the annual PIR. The co-financing report needs to include the activities that were financed by the contribution of the partners.

104. Tracking and reporting on results across the GEF 7 core indicators and sub-indicators: As of July 1, 2018, the GEF Secretariat requires FAO as a GEF Agency, in collaboration with recipient country governments, executing partners and other stakeholders to provide indicative, expected results across applicable core indicators and sub-indicators for all new GEF projects submitted for Approval. During the approval process of the (insert short project title) expected results against the relevant indicators and sub-indicators have been provided to the GEF Secretariat. Throughout the implementation period of the project, the PMU, is required to track the project?s progress in achieving these results across applicable core indicators and sub-indicators. At project mid-term and project completion stage, the project team in consultation with the PTF and the FAO-GEF CU are required to report achieved results against the core indicators and sub-indicators used at CEO Endorsement/ Approval. Methodologies, responsabilities and timelines for measuring core-indicators will be outlined in the M&E Plan prepared at inception.

105. Terminal Report: Within two months before the end date of the project, and one month before the Final Evaluation, the PMU will submit to FAO (to specify the unit in charge in HQ) a draft Terminal Report. The main purpose of the Terminal Report is to give guidance at 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. The Terminal Report is accordingly a concise account of the main products, results, conclusions and recommendations of the project. 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 insuring sustainability of project results.

MTR and Evaluation provisions

Mid-Term Review

106. As outlined in the GEF Evaluation Policy, Mid-Term Reviews (MTRs) or mid-term evaluations (MTEs) are mandatory for all GEF-financed full-sized projects (FSPs), including Enabling Activities processed as full-sized projects. It is also strongly encouraged for medium-sized projects (MSPs). The Mid-Term review will (i) assess the progress made towards achievement of planned results (ii) identify problems and make recommendations to redress the project (iii) highlight good practices, lessons learned and areas with the potential for upscaling.

107. The Budget Holder is responsible for the conduct of the Mid-Term Review (MTR) of the project in consultation with the FAO-GEF Coordination Unit halfway through implementation. He/she will contact

the FAO-GEF Coordination Unit about 3 months before the project half-point (within 3 years of project CEO Endorsement) to initiate the MTR exercise.

108. To support the planning and conduct of the MTR, the FAO GEF CU has developed a guidance document ?The Guide for planning and conducting Mid-Term Reviews of FAO-GEF projects and programmes?. The FAO-GEF CU will appoint a MTR focal point who will provide guidance on GEF specific requirements, quality assurance on the review process and overall backstopping support for the effective management of the exercise and for timely the submission of the MTR report to the GEF Secretariat.

109. After the completion of the Mid-Term Review, the BH will be responsible for the distribution of the MTR report at country level (including to the GEF OFP) and for the preparation of the Management Response within 4 weeks and share it with national partners, GEF OFP and the FAO-GEF CU. The BH will also send the updated core indicators used during the MTR to the FAO-GEF CU for their submission to the GEF Secretariat.

Terminal Evaluation

110. The GEF evaluation policy foresees that all Medium and Full sized projects require a separate terminal 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.

111. 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 terminal 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.

112. After the completion of the terminal evaluation, the BH will be responsible to prepare the management response to the evaluation within 4 weeks and share it with national partners, GEF OFP, OED and the FAO-GEF CU. The BH will also send the updated core indicators used during the TE to the FAO-GEF CU for their submission to the GEF Secretariat.

Disclosure

103. 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.

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)?

The project will generate socio-economic benefits for the participating farmers and the 365 (175 female and 190 male) direct beneficiaries of the project. It is expected that the introduction of improved agroecological management practices for crop and horticulture production as well as for pasture management will increase productivity by around 25% leading to increased incomes for farm households, while enhancing soil organic carbon levels and reducing soil erosion and other forms of land degradation on productive land. The project is following the ILO guidelines on full and productive employment and decent work in rural areas, and will especially target women with gender response knowledge products. The project will also ensure that the rural network for agroecology that it will be establish is inclusive and reaches all relevant stakeholders, men as well as women, and other disadvantaged groups in rural areas in Bolu province, so that it can support the scaling up of project experiences and agroecological management practices in an inclusive and equitable manner that generates socio-economic benefits.

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
Medium/Moderate	Medium/Moderate		

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.

Table 8. Risks from the project.

Risk identified	Risk Classification	Potential impact	Mitigation Action(s)	Responsible Party
2.5 - Would this project involve access to genetic resources for their utilization and/or access to traditional knowledge associated with genetic resources that is held by indigenous, local communities and/or farmers? Yes	Moderate	Both genetic resources and local knowledge will be considered as local natural resources for assessment and conservation. There might be the option for collection of limited genetic resources for conservation purposes in national seed banks.	In case rare species are encountered and decided to conserve, priority would be given to conserve them in their locations. In case of vegetatively propagated crops, these will not be removed from their original locations.	Project team, LTO, GDAR
5.2 - Would this project provide seeds or other materials treated with pesticides (in the field and/or in storage)? Yes	Moderate	In certain cases, improved varieties of certain crops (already grown in the province) may have to be demonstrated / introduced and their seeds may be already treated with pesticides.	Only the seeds treated with nationally registered pesticides would be allowed and non-registered ones would not be permitted.	LTO

5.3 - Would this project provide inputs to farmers directly or through voucher schemes? Yes	Moderate	Incentives would be provided to farmers to promote agroecological practices. These may include seeds, tools, equipment and knowledge materials.	Only the materials that are appropriate for the agroecological approaches and the local conditions and climate would be selected and the rest would be avoided. In case of incompatibility, resistance or negative impact for acceptance, these would be stopped immediately.	LTO

Supporting Documents

Upload available ESS supporting documents.

Title	Module	Submitted
ESS Screening Checklist Turkiye Bolu	**CEO Endorsement ESS**	
Risk Certification MSP Turkey Bolu	**Project PIF 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
Objective: to develop an integrated and comprehensive agroecological management strategy in Bolu, T?rkiye							
Component 1. Improving Enabling Environment for sustainable agroecosystem and land management							
Outcome 1.1: Strengthened policies and strategic plans for promotion of the Agroecosystem approach within the national LDN strategy	A national Agroecological Management Strategy Number of agricultural officers and farmers trained	T?rkiye does not have an agroecological management strategy and capacity in this area is weak	Draft strategy developed 10 ministerial staff , 10 provincial, extension level staff and 45 smallholders (15 females and 30 males) trained	Agroecological Management Strategy adopted and an enahnced enabling environment in place Enhanced capacity in agroecological management	Strategy document and minutes from GDAR coordination meetings Training reports and participants lists	Different Stakeholders are accounted for in the design of the management strategy. Government stakeholders participate to ensure that the management strategy is feasible and in line with national regulations	

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
Output 1.1.1: National Agro-Ecological Management Strategy Developed and aligned with national LDN Strategy	Policy review A national Agroecological Management Strategy	T?rkiye does not have an agroecological management strategy	Policy review Draft agroecological management strategy developed	Policy review Agroecological Management Strategy adopted	Report with policy review Strategy document and minutes from GDAR coordination meetings	Different Stakeholders are accounted for in the design of the management strategy. Government stakeholders participate to ensure that the management strategy is feasible and in line with national regulations	
Output 1.1.2: Ministerial staff, extension officers and farmers are trained on land degradation and agroecological approaches in food production	Agro-ecological training curricula Number of agricultural officers and farmers trained	Weak capacity in agroecological management at national and provincial level	Agro-ecological training curricula	10 ministerial staff , 10 provincial, extension level staff and 45 smallholders (15 females and 30 males) trained	Agro-ecological training curricula Training reports and participants lists	Different Stakeholders are accounted for in the design of the management strategy. Government stakeholders participate to ensure that the management strategy is feasible and in line with national regulations	
Component 2. Strengthening Agroecosystems and Sustainable Land Management (SLM)							

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
Outcome 2.1: Promoted agroecological practices, applying integrated agroecosystem and sustainable land management and LDN practices in Bolu province	An integrated agroecosystem management plan for Bolu Province Area of landscape under SLM (GEF core indicator 4) Area of land restored (GEF core indicator 3) Carbon sequestered by SLM (tCO2eq.) (GEF core indicator 6) Number of direct beneficiaries (GEF core indicator 11)	Bolu Province has many good examples of organic farming, but does not have an integrated agroecosystem management plan to support scaling up	An integrated agroecosystem management plan for Bolu Province	5,000 ha of planned landscape under SLM targeted by the agroecosystem management plan (core indicator 4) 66 ha of land restored (core indicator 3) 334,537 tCO2eq. (and 399,731 indirect) 365 farmers (175 female and 190 male) directly benefitting from project demonstrations	Remote sensing Field implementation reports PIRs, PPRs Field surveys	Stakeholders, including smallholder farmer, are willing to participate actively in the trainings and demonstrations and the different stakeholders commit to the implementation of the management plans	

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
Output 2.1.1: Current status of agricultural production and agroecosystem management practices analyzed, and priorities defined for improvement in Bolu province	Status ecosystem management practices identified Priorities for implementation defined	The status of agroecosystem management practices is not well documented or analysed	Status of ecosystem management practices identified	Priorities defined for implementation	Assessment report of agroecosystem management practices in Bolu province Report with practices selected for implementation	Local communities apply lessons learned in their practices and land management and are willing to share their knowledge	
Output 2.1.2: An agroecosystem management and LDN plan developed and piloted in Bolu province in line with national LDN Strategy	An agroecosystem management plan for Bolu Province that integrates LDN Area covered by the management plan	Bolu Province does not have an integrated agroecosystem management plan	A draft integrated agroecosystem management plan for Bolu Province	An integrated agroecosystem management plan for Bolu Province that covers 5,000 ha of land	A documented plan and minutes from provincial coordination meetings	Stakeholders, including smallholder farmer, are willing to participate actively the development and implementation of the management plan	

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
Output 2.1.3: Selected agroecological and LDN practices are demonstrated at district level at 7 sites in Seben and Yeni?a?a districts	Number of sites with demonstration activities Area covered with demonstration activities Number of direct beneficiaries	Bolu Province has many good examples of organic farming, but they are not well documented and promoted for wider uptake by farmers	7 sites with demonstration activities initiated	66 ha of land with demonstration activities on e.g. integrated soil fertility management, reduced tillage, organic farming, pasture rehabilitation and drip irrigation 365 farmers (175 female and 190 male) directly benefitting from project demonstrations	Remote sensing Field implementation reports PIRs, PPRs Field surveys	Stakeholders, including smallholder farmer, are willing to participate actively in demonstration activities	
Output 2.1.4: Training programs conducted on integrated agroecosystem approaches and LDN	Number of extension staff trained Number of smallholders (women and men) trained	There is no systematic training in place on agroecological management practices of neither the extension staff nor smallholders	10 extension staff trained on agroecological management	100 smallholders (40 women and 60 men) trained on agroecological management	Reports from trainings, participant lists	Stakeholders, including smallholder farmer, are willing to participate actively in the trainings	
Component 3. Scaling up best practices, monitoring and evaluation							

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
Outcome 3.1: Best practices promoted and lessons learned disseminated	Number of knowledge exchange products Number of rural network members Number of trained farmers (women and men)	Best practices in agroecological management are neither documented nor promoted in Bolu Province or in T?rkiye at large	2 knowledge exchange products 200 network members 100 trained famers (50 women and 50 men)	5 knowledge exchange products 300 network members 200 trained famers (100 women and 100 men)	Guideline, fact sheets, reports, social media pages Network platform: members and likes on social media e.g. facebook Training reports and participant lists	National and provincial lead agencies and other stakeholders support M&E processes Rural network targets key stakeholders and delivers key messages across multiple sectors about best practices and lessons learned from the project	
Output 3.1.1: Policymakers are informed on value of agroecosystem management and LDN	Number of meetings with policy makers	Policy makers at both national and provincial level have little or no knowledge about agroecosystem management	1 meetings with policy makers	2 meetings with policy makers	Meeting minutes and participant lists	Policy makers at national and provincial level are willing to participate in meetings and events about agroecology	

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
Output 3.1.2: A rural network is established as an exchange platform for upscaling	Rural network and number of members	No rural network for agroecology exist in T?rkiye or Bolu Province	Rural network established with 200 members	Rural network functioning with 300 members	Network platform: members and likes on social media e.g. facebook	Rural network targets key stakeholders and delivers key messages across multiple sectors about best practices and lessons learned from the project	
Output 3.1.3: Knowledge products are shared and disseminated widely	Number of gender responsive knowledge exchange products	Best practices in agroecological management are neither documented nor promoted	At least 2 gender responsive knowledge exchange products	At least 5 gender responsive knowledge exchange products	Agroecology Guideline, fact sheets, brochures, tutorials, publications Practices documented in WOCAT Number of likes on social media pages	Rural network targets key stakeholders and delivers key messages across multiple sectors about best practices and lessons learned from the project	

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
Output 3.1.4: An exit strategy developed defining options for further upscaling of best practices	Exit strategy Awareness raising campaign Number of people reached by awareness raising campaign	No exit strategy exists	Exit strategy 1 awareness raising campaign developed	1 awareness raising campaign with 10 informational events and media outreach activities	Articles in local media, apperance in TV, website and social media statistics 1,000 people reached by awareness raising campaign	Rural network targets key stakeholders and delivers key messages across multiple sectors about best practices and lessons learned from the project	
Outcome 3.2 Project implementation is supported by an M&E strategy	Project M&E system Mid-term and Final Evaluation	No M&E system in place	Functioning M&E system Mid-term evaluation	Final evaluation	Mid-term and Final Evaluation reports PIRs, PPRs	National and provincial lead agencies and other stakeholders support M&E processes	

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
Output 3.2.1: M&E strategy developed and implemented clearly defining the expected outcomes and implementation timeframe, and objectively the verifiable indicators and means of verification	M&E strategy with measurements of GEBs Mid-term and Final evaluation	No M&E strategy exists	Functioning M&E system Mid-term evaluation	Final evaluation	Mid-term and Final Evaluation reports PIRs, PPRs	National and provincial lead agencies and other stakeholders support M&E processes	

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).

Question	GEFSEC Comment (for PPG)	Agency Response
Are the identified core indicators in Table F calculated using the methodology included in the corresponding Guidelines?	At PPG please provide additional details and a clear explanation of the indirect GHG mitigation targets.	Ex-Act has been used to recalculate the GHG mitigation targets and an explanation is provided below the table on core indicators.

Has the project/program described the global environmental/adaptation problems, including the root causes and barriers that need to be addressed?	At PPG we expect further information on: -Levels/extent of degradation faced in T?rkiye and in the Bolu province including land degradation, forest loss, destruction of ecosystems that support the productive landscapes.	A detailed assessment of land degradation was conducted during the PPG phase, including use of remote sensing as well as a field assessment of project sites. The information is included in Part I.
Is there potential for innovation, sustainability and scaling up in this project?	At PPG please provide additional information within the project document that focuses on 'how' sustainability and scale up will be facilitated. Specifically: - Mechanisms (such as incentives, access to finance, knowledge sharing etc.) that will facilitate continued use of the agroecological approach by producers and scale to other areas within T?rkiye.	The sections on innovation, sustainability and scaling up have been expanded with references to innovative aspects of using the agroecological approach to achieving LDN; how knowledge sharing and establishment of a rural network will support scaling up as well as sustainability.
Is the articulation of gender context and indicative information on the importance and need to promote gender equality and the empowerment of women, adequate?	Yes. At PPG stage please include a gender action plan.	A gender action plan has been included.

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***
Salaries Professional	2,381	0	0

Consultants	28,000?????	11,582?????	16,271?????
Travel for preparation and validation workshops and Baseline collection	7,619	5,683	1,936
Training	12,000	10,451	1,549
Procurement	0	1,170	0
General Operating Expenses	0	1,358	0
Total	50,000	30,244	19,756

ANNEX D: Project Map(s) and Coordinates

Please attach the geographical location of the project area, if possible.

19. The project field demonstration activities will be implemented in two districts of Bolu Province (NE T?rkiye), namely Seben and Yeni?a?a (Figure 6). Seben, the first site, is located at 40?24'46.16"N-31?28'44.89"E, 40?33'53.90"N-31?39'4.47"E, 40?19'18.84"N-31?43'47.32"E, 40?21'54.65"N-31?25'43.09"E on varying elevations from 750 m to 1560 m above sea level. Yeni?a?a, the second site, is located at 40?45'43.54"N-32?4'59.79"E, 40?43'54.42"N-31?58'29.73"E, 40?48'41.15"N-31?57'5.28"E, 40?50'53.86"N- 32? 5'58.78"E with the lowest elevation of 1000 m at Yeni?a?a Lake and the highest above 1350 m. The plain agricultural land is quite limited in both areas, as the altitude changes dramatically over short distances. As a result, the landscape is sloping and undulating (Figure 6).

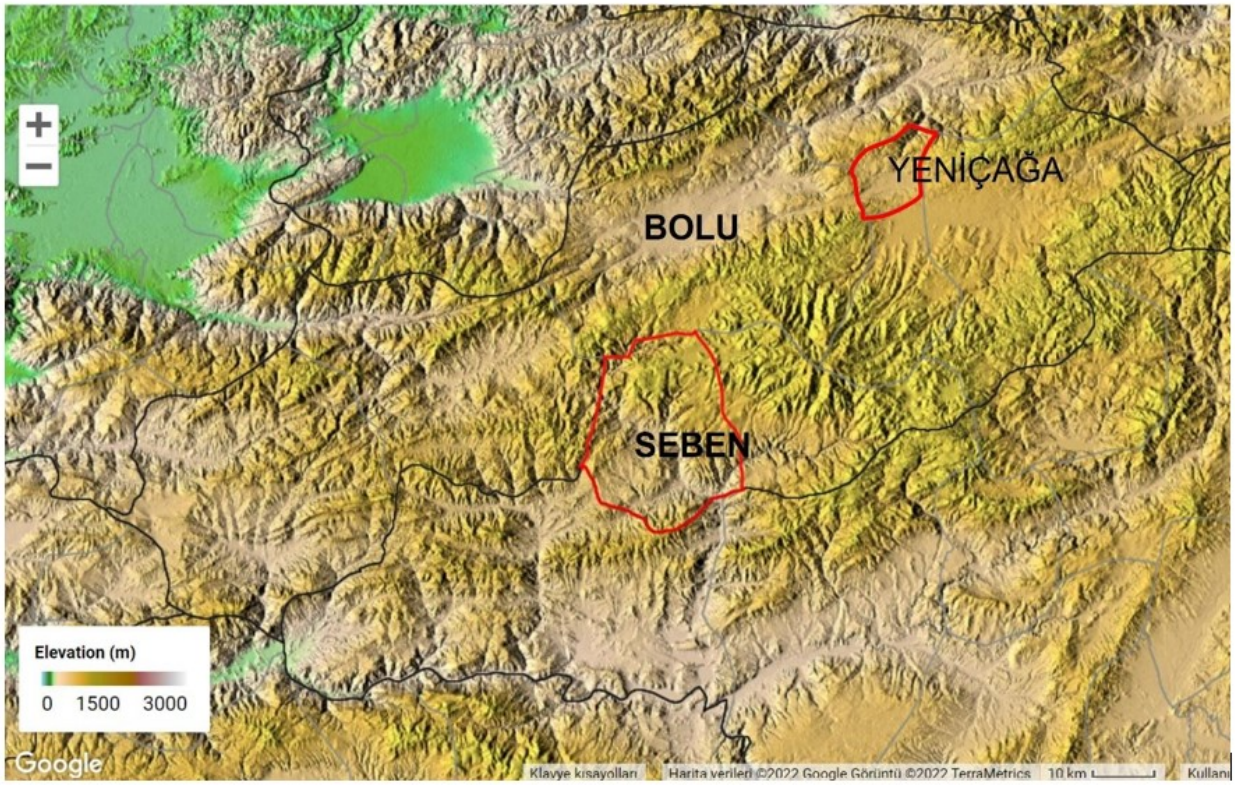


Figure 6. Locations and geography of Seben and Yeni?a?a

Seben district has a mild and temperate climate; the district's winter precipitation amount is higher than that of the summer months. The climate is classified as Csa by K?ppen-Geiger. Seben's annual average temperature is 10.8?C, and the annual average precipitation is 435 mm. The climate in Yeni?aa is warm and temperate. The district's general feature is that it can exceed precipitation throughout the year. According to the K?ppen-Geiger climate classification, it is classified as Cfb. The district's annual average temperature is 8.0?C, while the annual average precipitation is 876 mm. Thus, the climates of the two districts are considerably different, with Seben having a semi-arid climate and Yeni?aa a humid climate, necessitating a diversity of SLM interventions.

ANNEX E: Project Budget Table

Please attach a project budget table.

FAO Cost Categories	Unit	No. Units	Unit Cost	Total C1	Total C2	Total C3	M&E	Subtotal	PMC	Total	MoAF
5013 Consultants											
National consultants											
Project Manager	Months	36	1,176	0	0	0		0	42,336	42,336	42,336
Operations Specialist - Cost Shared	Months	36	600	0	0	0		0	21,600	21,600	21,600
M&E Specialist - Cost Shared	Months	36	900	0	0	32,400		32,400	0	32,400	32,400
Knowledge Management/Capacity Building Specialist - Cost	Months	12	900	1,964	3,927	4,909		10,800	0	10,800	10,800
Communication Specialist - Cost Shared	Months	12	900	1,964	3,927	4,909		10,800	0	10,800	10,800
Socioeconomic & gender specialist	Days	30	300	3,000	6,000	0		9,000	0	9,000	9,000
Policy Expert	Days	20	350	7,000	0	0		7,000	0	7,000	7,000
Agroecology Expert	Days	30	350	1,909	3,818	4,773		10,500	0	10,500	10,500
SLM Expert	Days	30	350	1,909	3,818	4,773		10,500	0	10,500	10,500
5013 Sub-total consultants				**17,745**	**21,491**	**51,764**	**0**	**91,000**	**63,936**	**154,936**	
5650 Contracts								0			
Mid-Term Review	Lumpsum	1	30,000	0	0	0	30,000	30,000	0	30,000	0
Terminal Evaluation	Lumpsum	1	40,000	0	0	0	40,000	40,000	0	40,000	0
Terminal Report	Lumpsum	1	6,550	0	0	0	6,550	6,550	0	6,550	0
Demonstrations and capacity building for good farming practices for i.e., wheat, Alternative crops and varieties, rangeland rehabilitation, drip and programmed irrigation techniques, crop management)	Lumpsum	1	198,264	50,000	148,264	0		198,264	0	198,264	0
5650 Sub-total Contracts				50,000	148,264	0	76,550	274,814	0	274,814	
5021 Travel								0			
Travel for Component 1 - PMU and Consultants	Travel	21	450	9,450	0	0		9,450	0	9,450	9,450
Travel for Component 2 - PMU and Consultants	Travel	54	450	0	24,300	0		24,300	0	24,300	24,300
Travel for Component 3 - PMU and Consultants	Travel	29	450	0	0	13,050		13,050	0	13,050	13,050
5021 Sub-total travel				9,450	24,300	13,050	0	46,800	0	46,800	
5023 Training								0			
Inception Workshop	Workshop	1	4,000	0	0	0	4,000	4,000	0	4,000	4,000
Mid Term Workshop	Workshop	1	4,000	0	0	0	4,000	4,000	0	4,000	4,000
Final Workshop	Workshop	1	5,000	0	0	0	5,000	5,000	0	5,000	5,000
Workshops for component 1	Workshop	7	1,500	10,500	0	0		10,500	0	10,500	10,500
Workshops for component 2	Workshop	25	1,500	0	37,500	0		37,500	0	37,500	37,500
Workshops for component 3	Workshop	9	1,500	0	0	13,500		13,500	0	13,500	13,500
5023 Sub-total training				10,500	37,500	13,500	13,000	74,500	0	74,500	
5024 Expendable procurement								0			
Materials for Component 1 (Capacity Building)	Lumpsum	1	15,000	15,000	0	0		15,000		15,000	15,000
Technical Inputs for Component 2 (Demonstrations and Capacity Building MAterials)	Lumpsum	1	25,000	0	25,000	0		25,000		25,000	25,000
Materials for Component 3 (Project Website, Knowledge., communication and Difussion material)	Lumpsum	1	20,000	0	0	20,000		20,000		20,000	20,000
5024 Sub-total expendable procurement				15,000	25,000	20,000	0	60,000	0	60,000	
6100 Non-expendable procurement								0			
Animal manure spreader	Lumpsum	1	10,000	0	10,000	0		10,000		10,000	10,000
No- till drill machines (small farm size)	Lumpsum	1	20,000	0	20,000	0		20,000		20,000	20,000
Greenhouses	Lumpsum	1	20,000	0	20,000	0		20,000		20,000	20,000
Irrigation system with solar panels	Lumpsum	1	30,000		30,000			30,000		30,000	30,000
								0			
6100 Sub-total non-expendable procurement				0	80,000	0	0	80,000	0	80,000	
5028 GOE budget								0			
GOE (Translation, Ptrinting, etc)	Lumpsum	1	12,375	3,713	4,950	3,713		12,375		12,375	12,375
				0	0	0		0		0	
				0	0	0		0		0	
				0	0	0		0		0	
6300 Sub-total GOE budget				3,713	4,950	3,713	0	12,375	0	12,375	
TOTAL				**106,408**	**341,505**	**102,026**	**89,550**	**639,489**	**63,936**	**703,425**	**428,611**

ANNEX F: (For NGI only) Termsheet

Instructions. 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.

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.

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).