



PROJECT IDENTIFICATION FORM (PIF)

PROJECT TYPE: Full-sized Project

TYPE OF TRUST FUND: GEF Trust Fund

PART I: PROJECT IDENTIFICATION

Project Title:	Sustainable Land Management and Climate-Friendly Agriculture		
Country:	Turkey	GEF Project ID:	4583
GEF Agency:	FAO	GEF Agency Project ID:	613134
Other Executing Partner(s):	Ministry of Forestry and Water Affairs (MFWA) and Ministry of Food, Agriculture and Livestock (MFAL)	Submission Date:	April 10, 2012
GEF Focal Area (s):	Multi Focal Area	Project Duration (months):	48
Name of parent program (if applicable): • For SFM <input type="checkbox"/>		Agency Fee:	575,000

A. FOCAL AREA STRATEGY FRAMEWORK:

Focal Area Objectives	Expected FA Outcomes	Expected FA Outputs	Indicative Financing from Relevant TF (GEF, LDCF, SCCF)	Indicative Co-Financing ^a
			(\$) ^a	(\$) ^b
LD-1	Outcome 1.1: An enhanced enabling environment within the agricultural sector	Output 1.1: National policies that guarantee smallholder and community tenure security Output 1.2: Types of Innovative SL/WM practices introduced at field level	1,083,000	3,460,000
	Outcome 1.2: Improved agricultural management	Output 1.3: Suitable SL/WM interventions to increase vegetative cover in agro-ecosystems Output 1.5: Information on SLM technologies and good practice guidelines disseminated	1,624,500	5,180,000
CCM-1	Outcome 1.1: Technologies successfully demonstrated, deployed, and transferred	Output 1.1: Innovative low-carbon technologies successfully demonstrated	969,432	4,370,000
CCM-5	Outcome 5.1: Good management practices in LULUCF adopted both within the forest land and in the wider landscape	Output 5.1: Carbon stock monitoring system established	484,716	2,120,000
	Outcome 5.2: Restoration and enhancement of carbon stocks in forests and non-forest lands	Output 5.2: Forests and non-forest lands under good management practices	484,716	2,120,000
BD-2	Outcome 2.1: Increase in sustainably managed landscapes that integrate biodiversity conservation	Output 2.2: National and sub-national land-use plans that incorporate biodiversity and ecosystem services valuation	816,136	3,340,000
Sub total			5,462,500	20,590,000
Project management cost			287,500	710,000
Total project costs			5,750,000	21,300,000

B. PROJECT FRAMEWORK

Project Objective: 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 increased farm profitability and forest productivity.

Project	Grant		Financing from	Indicative Co-
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Component	Type (TA/INV)	Expected Outcomes	Expected Outputs	Relevant TF	Financing
				(\$) a	(\$) b
1. Rehabilitation of degraded land	TA	<p>1. Good management practices to conserve, restore, enhance and manage the carbon stocks in forest and non-forest lands including biodiversity conservation practices resulting in:</p> <ul style="list-style-type: none"> • 20,000 hectares of degraded forest lands with a mitigation target of 50-70,000 tons of CO₂ eq sequestration • Increase in certified lands from 0 to 10,000 hectares recorded by the GEF tracking tool • Improved conservation of biodiversity at least 80,000 ha of production landscapes including 20,000 ha degraded forest land, 30,000 ha pasture and 30,000 ha arable land. 	<p>1.1. Degraded lands rehabilitated using the innovative technologies and practices successfully institutionalized:</p> <ul style="list-style-type: none"> • reforestation of degraded land • rotational grazing/resting • wind breaks/water harvesting • drought-resistant and salt-tolerant species and varieties • Conjunctive water use model. <p>1.2. Soil organic carbon maps produced for pilot sites</p> <p>1.3. Integrated SLM and biodiversity conservation land use plan prepared for the Mt. Karacadag pilot area.</p> <p>1.4. Forest and rangeland landscapes certified by internationally recognized environmental standards that incorporate biodiversity considerations</p> <p>1.5. Biodiversity monitoring system established</p> <p>1.6. Ecosystem services values quantified in pilot areas of KCB.</p>	<p>LD-1: 855,000</p> <p>CCM-1: 408,182</p> <p>CCM-5: 410,227</p> <p>BD-2: 515,455</p> <p>Total 2,188,864</p>	10,420,000
2. Climate friendly agriculture	TA	<p>2. Improved management of agricultural lands, rangelands and pastures through diffusion of innovative techniques/practices to reduce soil degradation resulting in:</p> <ul style="list-style-type: none"> • A total of 40-50,000 Ha of arable land using conservation agriculture practices with a mitigation target of 18-22,000 tCO₂eq • At least 50 methane capture diffusion sites with a mitigation target of 8-10,000 tCO₂eq • 30,000 hectares of degraded rangelands and pastures with a mitigation target of 78-105,000 tCO₂eq 	<p>2.1 Innovative agricultural land rehabilitation technologies/practices demonstrated</p> <ul style="list-style-type: none"> • improvement/rehabilitation of pasture and rangeland • wind breaks/water harvesting • introduction of drought-resistant and salt-tolerant species and plant varieties <p>2.2 Evidence-based demonstration of methane capture technologies using crop and animal waste.</p> <p>2.3 Emissions reduced through following innovative conservation agriculture technologies:</p> <ul style="list-style-type: none"> • Crop rotation • Reduced tillage • Crop residue management • Increase of vegetative cover • Mulching • Direct seeding 	<p>LD-1: 1,425,000</p> <p>CCM-1: 408,182</p> <p>CCM-5: 406,136</p> <p>BD-2: 171,818</p> <p>Total: 2,411,136</p>	8,468,000

3. Strengthening enabling environment for multiple benefits from sustainable land management	TA	<p>3. Enhanced enabling environment based on increased capacity, understanding and awareness among the decision makers and public about SLM and its integration into farming, rangelands, and forestry activities and role in GHG balance with an impact in:</p> <ul style="list-style-type: none"> Improved management of 2,229,000 ha agricultural lands; 733,760 ha forests; 1,877,410 ha pastures. Improved capacity of at least 500 staff and farmers from pilot area and central government in accordance with FAO Training Tools. 	<p>3.1 New SLM mechanism "SLM Board" Piloted.</p> <p>3.2 Institutional capacity building programme delivered to MFWA and MFAL decision-makers in central and local level.</p> <p>3.3 Training programme delivered to technical staff on SL/WM practices/ techniques</p> <p>3.4 Awareness raising programme delivered to local beneficiaries on SL/WM practices (e.g. workshops, articles, TV and publications)</p> <p>3.5 Practical guidelines for rotational grazing, range restoration, improved conjunctive water management; produced by MFAL / MFWA based on results of project demonstrations.</p> <p>3.6 Project monitoring system established</p> <p>3.7 Carbon monitoring system based on EX-ACT established.</p>	<p>LD-1: 427,500</p> <p>CCM-1: 153,068</p> <p>CCM-5: 153,068</p> <p>BD-2: 128,864</p> <p>Total: 862,500</p>	1,702,000
Sub total				5,462,500	20,590,000
Project management Cost				287,500	710,000
Total project costs*				5,750,000	21,300,000
* This amount does not include \$150,000 for project preparation and a total of \$575,000 agency fee					

C. INDICATIVE CO-FINANCING FOR THE PROJECT BY SOURCE AND BY NAME IF AVAILABLE, (\$)

Sources of Co-financing for baseline project	Name of Co-financier	Type of Co-financing	Amount (\$)
Turkish Government	MFWA	In-kind	1,000,000
Turkish Government	MFWA	Cash	9,500,000
Turkish Government	MFAL	In-kind	1,000,000
Turkish Government	MFAL	Cash	7,900,000
GEF IA	FAO	Cash	500,000
GEF IA	FAO	In-kind	200,000
Civil Society	Konya Agricultural Cooperative Union	In-kind	1,200,000
Total Co-financing			21,300,000

D. GEF RESOURCES REQUESTED BY AGENCY (IES), FOCAL AREA(S) AND COUNTRY(IES)

GEF Agency	Type of Trust Funds	Focal Area	Country Name/ Global	(in \$)		
				Project amount (a)	Agency Fee (b)	Total c=a+b
FAO	GEF	CC	Turkey	2,040,909	204,091	2,245,000
FAO	GEF	BD	Turkey	859,091	85,909	945,000
FAO	GEF	LD	Turkey	2,850,000	285,000	3,135,000
Total GEF Resources (excluding project preparation)				5,750,000	575,000	6,325,000

PART II: PROJECT JUSTIFICATION

A. DESCRIPTION OF THE CONSISTENCY OF THE PROJECT WITH:

A.1.1. THE GEF FOCAL AREA STRATEGIES:

The proposed project takes a cross-cutting approach, linking the GEF Land Degradation, Climate Change Mitigation and Biodiversity focal area strategies, focusing on measures that (i) reduce or reverse land degradation trends in production landscapes, (ii) improve agricultural management and increase the value of agricultural wastes (thus promoting climate-friendly agriculture) and (iii) strengthen the enabling environment for sustainable land management (building institutional and technical capacities).

As such, the proposed project is consistent with Land Degradation Objective 1 and will contribute to Outcome LD1.1 and Outcome LD1.2 through strengthening the enabling environment within the agriculture sector by means of technical guidelines on land rehabilitation and capacity building to support their implementation and improvement of agricultural management. The project is also consistent with Climate Change Objectives 1 and 5 and will contribute to the achievement of Outcome CCM1.1 through conservation agriculture and low carbon agricultural practices, and Outcome CCM5.1 and CCM5.2 through improving management systems in forests and wider landscapes and rehabilitation of degraded forest lands, pastures and agricultural lands using the necessary and appropriate techniques for each of the landscapes. Finally, the project is also consistent with the Biodiversity Objective 2 and will contribute to the achievement of Outcome BD2.1 through preparation of an area land-use plan incorporating biodiversity considerations into landscape management and through certification under international standards of lands under Good Agricultural Practices¹, including studies to monitor biodiversity and carbon.

A.2 NATIONAL STRATEGIES AND PLANS OR REPORTS AND ASSESSMENTS UNDER RELEVANT CONVENTIONS:

The proposed project is consistent with the various strategies, programs and action plans promulgated by the Government of Turkey (GoT) pursuant to its commitments under the relevant international environmental conventions, as well as with the relevant national development plans adopted by the GoT. With respect to the environmental conventions, i.e. the UN Convention to Combat Desertification (UNCCD), the UN Framework Convention on Climate Change (UNFCCC) and the Convention on Biological Diversity (CBD), the proposed project is fully consistent with and will contribute significantly to implementation of the following strategies, programs and action plans:

The National Action Program on Combating Desertification (2006) calls for identifying the causes of desertification and specifying appropriate responses for addressing the problems caused. The proposed project will contribute specific responses to address a number of the causes of desertification identified in the National Action Program, including (i) mismanagement of agricultural lands and inappropriate agricultural practices; (ii) unplanned, uncontrolled over-grazing of rangelands and pastures; (iii) the lack of due regard for botanical, cultural and physical soil conservation measures; and (iv) soil degradation from wind and water erosion.

Pursuant to the UNFCCC, the GoT formulated its National Climate Change Strategy (2010), which specifically addresses land use, agriculture and forestry strategies in its chapter on greenhouse gas (GHG) emission control. The proposed project will support many of the short, medium and long-term strategies identified for mitigating GHG emissions (e.g. improved agricultural techniques, adoption of proven technologies for carbon sequestration and/or absorption in soil (and monitoring) and methane gas capture, afforestation and rehabilitation of degraded lands with drought tolerant species and plant varieties). Furthermore, the project addresses priorities identified in the GoT's new Climate Change Action Plan 2011-2023 (2011), such as increasing the sink capacity of and decreasing GHG emissions from the agricultural sector, as well as increasing carbon sequestered in forests and reducing deforestation and forest damage. Determination of carbon capture potential is one of the major activities in the Action Plan and the project will support achievement of this priority.

Finally, pursuant to the CBD, the GoT developed its National Biodiversity Strategy and Action Plan (2001, 2007), which identifies as one of its strategic objectives "the identification and monitoring of the impacts of climate change on biological diversity and taking measures for protection of the most affected ecosystems and species from these impacts". The proposed project will directly facilitate implementation of this objective by preparing and implementing a land-use plan that incorporates biodiversity conservation considerations into a production landscape in a fragile steppe ecosystem, thus providing improvements to natural habitats for threatened or endangered species by effectively rehabilitating and sustainably managing degraded ecosystem lands. In addition, the project will promote the certification under international standards of forest and rangelands that incorporate biodiversity considerations. Furthermore, the project will directly address one of the cross-cutting issues requiring capacity development, namely sustainable land management, identified in Turkey's National Capacity Self Assessment under Rio Conventions (2011).

With respect to GoT national development plans, the project will directly contribute to the Ninth Development Plan of Turkey (2007-2013), which for the first time included 'Sustainable Management of Natural Resources' as a top priority for the country's overall economic development. The project's promotion of integrated management of the country's lands and other natural resources, including forests, rangelands and agricultural production landscapes, will significantly support this priority of the Development Plan. Moreover, the project will clearly support implementation of the GoT's National Rural Development Plan (2009-2013), which targets the conservation of agricultural areas, pastures and forests, including soil and water resources in areas that will be integrated into forest regimes. The Rural Development Plan underscores the relationship between rural poverty and natural resource degradation, recognizing a significant increase in recent years in erosion and degradation of land and water resources in the country, in many cases due to improper farming techniques and increasing climate variability (droughts, floods and landslides). To mitigate these processes, the Plan gives priority to strategies, measures and activities that address desertification and promote proper management of land and

¹ This will be finalized during project preparation and may include other Best Management Programs

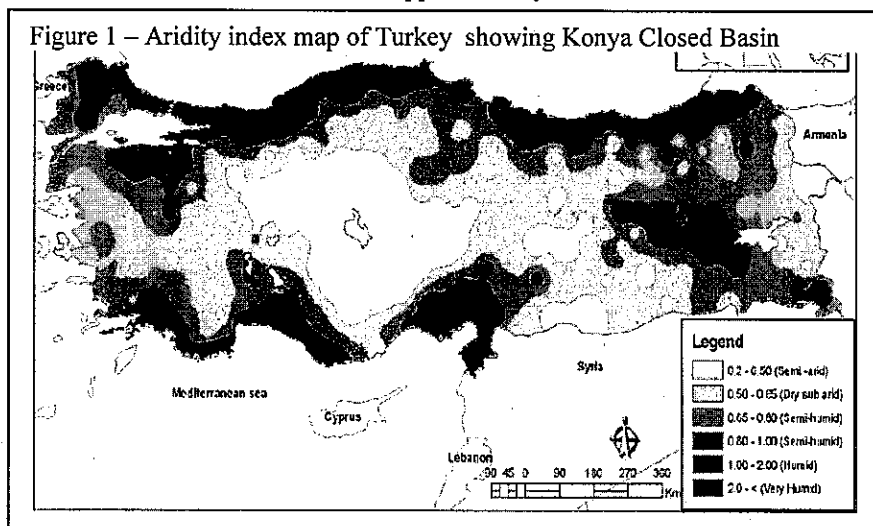
water land resources. The agricultural and natural resources management practices included in the proposed project will directly contribute to the objectives and implementation of this Rural Development Plan.

B. PROJECT OVERVIEW:

B.1. DESCRIBE THE BASELINE PROJECT AND THE PROBLEM THAT IT SEEKS TO ADDRESS:

Land degradation: Turkey's 78 million ha land area supports three economically and environmentally important land uses: arable land predominantly under rainfed agriculture (38%), pasture and meadows (30%), and forests (28%), spanning diverse agro-climatic zones, including the temperate climate of the Black Sea region, the continental climate of the interior and the Eastern Anatolia Highlands, and the Mediterranean climate of the Aegean and Coastal Mediterranean regions. The country is mountainous and hilly, with significant climatic variability and large semi-arid and sub-arid regions, particularly in the continental interior. As a result of its climatic and topographic conditions, and unsustainable natural resources management practices in production systems, soil erosion is a major problem in Turkey. Over 86% of the country is prone to land degradation; 50% is prone to severe to very severe erosion. Almost 75% of Turkey's arable land is at risk of erosion.

Central Anatolia. Land degradation processes are more prominent in the central part of Turkey where arid and semi arid climatic conditions prevail. Project activities will be piloted in the Konya Closed Basin (KCB) located in the middle of the Central Anatolian Plateau, is comprised mostly of plains between 900 to 1050 m in altitude. The Basin encompasses a wide range degraded forest lands, pastures/rangelands, agriculture lands, rocky lands, sand dunes and lakes. The surface area of the Basin is 5,307,942.75 ha with a distribution of: 41% agricultural lands, 34% pastures/rangelands, 13% forest lands, 4% rock and sand dunes, and approximately 8% wetlands and water bodies (CORINE land cover maps).



The Basin's climate is typical arid to semi-arid, with average yearly precipitation of 378 mm, ranging from 250-800 mm. The Basin's low aridity index value is the ratio between precipitation and evapotranspiration, or between water availability and need. Thus, actual precipitation levels in the semi-arid Konya plain (white area in center of Figure 1) are 50% or less than need. (Camci Çetin et al., 2007. Environ. Monit. Assess., 128:489-493).

Agricultural activity (both dryland and irrigated) is dominant in the Basin, resulting in high human pressure on the limited surface water

and groundwater resources. On the other hand, the Basin also harbors important natural sites with high ecological value, both in the upstream and downstream areas of the Basin.

Land (agricultural, pasture, and forest) degradation has accelerated in the KCB, which is evident from increased soil erosion, more frequent floods and landslides, significantly declining groundwater tables and the drying out of wetlands. This process poses high risks for agricultural production in the KCB by reducing the productivity of arable lands and pastures. In addition, reduced vegetative cover has led to marked reductions in soil moisture content, subjecting agricultural lands to significantly higher vulnerability to drought as evidenced by the decreased underground water table, increased salinisation in arable lands, and more frequent sinkholes. In recent years, the number and magnitude of wind erosion and dust storms in the Basin have increased considerably due to degradation of pastures, inappropriate agricultural practices in arid conditions and the increasingly exposed dried beds of lakes and wetlands. Land degradation is also reducing biodiversity and degrading habitats critical for rare and endangered species.

Forest lands. In Turkey, nearly all forests belong to the State. The Ministry of Forestry and Water Affairs (MFWA) is responsible for the management of 21.4 million ha of "forest land" or about 27% of Turkey's land area. Besides these areas, sizeable areas such as rangelands in or around forests, shrub lands and open alpine lands are considered as part of the forest resources because they are categorized as forestland. Currently, total forest land area in the KCB is 733,760 ha including 98,608 ha productive forest with a canopy cover of greater than 40% (high forests 85% and productive coppice 15%) and remaining 675,152 ha degraded forest and forest lands (including 72% degraded coniferous forest and 28% degraded coppice). Approximately 20% of degraded forests are considered to be "fragmented" forest with 10% - 40% canopy cover, >50 years and a height of more than 5 meters. The remaining 80% are considered to be "degraded and open forest lands" with less than 10% canopy cover, a height of less than 5 meters, including shrubs and maquis flora. Main tree species are black pine (31%), oak (24%), juniper (20%), fir (9%), red pine (8%), cedar (3%) and other species (5%). These figures demonstrate the significant potential to increase the C stocks and to enhance Turkey's global role as a

Carbon sink. Through rehabilitation of 15,000 – 20,000 ha degraded forestland, carbon sequestration is estimated to be 50,000 – 65,000 tonnes C/year.

The KCB encompasses a wide range degraded forestlands as result of deforestation/forest degradation process originating from illegal cutting, overuse and over-grazing. Deforestation (unplanned and illegal cutting of forests to provide building materials and fuel wood) and over grazing have degraded lands in the Basin and are two of the major driving forces behind land degradation. Land degradation accelerated in recent decades, causing the loss of traditionally and regularly used lands, the modification of local climates, and ultimately increased flood and landslide frequency with human casualties.

Arable lands. KCB is a prominent agricultural area where irrigation is mainly dependent on ground water. Total arable land in the Basin is approximately 2,229,000 ha, including at least 427,000 ha irrigated area (with illegal water use, actual figure is much higher) and 1,802,000 ha rain-fed agriculture (fallow) area. At least 40% of the arable lands is subject to water and wind erosion (water erosion is in hilly areas, wind erosion is mainly in plain areas). Wind erosion and dust storms became one of the main daily environmental problems

of the people living in the Basin. The main crops are cereal, sugar beet, animal fodders, fruit, vegetables and legumes. This agricultural production capacity together with government subsidies is also supporting intensified livestock development in the Basin, which causes agricultural waste management problems but also creates opportunities for energy production through methane capture that will partly meet the energy needs of the sector in the Basin. Due to irrigation and land cultivation practices under arid and semi arid weather and soil conditions, the sector is highly energy dependent and causes green house gas emissions.

It is estimated that only 10% of the agricultural land is fully productive without any environmental problems. The remaining 90% of the arable lands in the Basin are being degraded due to; (i) intensified agriculture and inappropriate cultivation and irrigation practices, (ii) inappropriate crop patterns and rotations, (iii) excessive use of surface and ground water resources, which causes exploitation of underground water (3 m of annual drop in the ground water table), loss of biodiversity especially in wetlands, and salinization which prevents plants to abstract water from soil due to physiological drought and eventually decreases in vegetative cover, (iv) stubble burning which leads to the loss of the biological quality of the topsoil, also preventing the preservation of soil moisture ultimately accelerating erosion (v) over use of fertilizers and pesticides, which result in degradation in soil structure, lose of biodiversity and changes in PH value of soil, (vi) negative effects of degradation of natural resources in the upper catchment areas of the Basin, (vii) inappropriate agricultural policies and subsidies (i.e. sugar beet subsidies), and (viii) lack training and awareness among farmers, inefficient extension services, and lack of specific guidelines for conservation agriculture.

These facts show that there is an urgent need and potential for conservation agriculture practices and methane capture in the Basin which will help to avoid green house emissions and prevent land degradation. Through conservation agricultural practices in 40,000 – 50,000 ha arable land, the project will contribute to avoid the 18,000 – 22,000 tonnes C/year. The project will also support 50 sites of methane capture in both private and public farms or plants which will capture 8,000 - 10,000 tonnes C/year.

Table 1. Land Types in Konya Closed Basin.

Land type in KCB	Total area	Degraded Area
All land	5,307,942.75	4,402,369
Forest	733,760	675,152
Arable	2,229,000	2,000,000
Pasture	1,877,410	1,727,217

Table 2: Number of animals in KCB.

Provinces in KCB	Cattle	Sheep and goats	Sheep	Goat
Konya	460,814	1,363,956	1,349,248	14,708
Karaman	34,400	340,298	302,866	37,432
Aksaray	133,298	400,000	370,000	30,000
Total	628,512	2,104,254	2,022,114	82,140
Total grazed in open range			2,229,956	
Total kept in large farms/feed lots ²			502,809	

¹20% of cattle are household level grazed on pastures together with all sheep and goats.

²80% of cattle are kept in feed lots, requiring fodder to be grown; also this is the population of cattle from which manure can be used to contribute to biogas generation.

Pastures: Total pastureland area in the Konya Closed Basin (KCB) is 1,877,410 ha, including grasslands on mountainous and hilly areas and extensive areas of remaining salt steppe (the largest and most pristine in Turkey) on plain lands. Pastures in KCB are: 3% productive, 5% slightly degraded and 92% severely degraded. The rangelands are owned by the state and grazed communally together with some weak user rights. Conversion of rangelands to temporary dry arable land is a common practice in the Basin, but as yield potential is

low this contributes little to food production. Rangelands in the Basin are very vulnerable to erosion, loss of vegetation cover and eventually land degradation due to aridity. Long-lasting irregular grazing (heavy, early, uncontrolled etc), especially on the hillsides, and cultivation are the major reasons of degradation of the rangelands. Overgrazing causes destruction of the botanical composition of the natural vegetation and also decreases rangeland efficiency leading to erosion.

According to the recent research results, grazing pressure on range areas in the region is four time times more than their carrying capacities which result in loss of vegetative cover, productivity, and biodiversity, increased erosion, especially wind erosion during the dry periods, and degradation of resources as a whole. Reduced vegetative cover has led to marked reductions in soil moisture content thus subjecting range lands to significantly higher vulnerability to drought. In addition to irregular grazing, there are several other causes of range degradation including; (i) decrease in underground

water table, (ii) drought, which is extremely evident during the recent years; (iii) insufficient rehabilitation and maintenance activities; (iv) decrease in productivity due to lack of protection including fertilizing, weed control, and insemination; and (v) weak enforcement of legislation, lack of incentives and fines.

As it is evident from the above figures, the rangelands in Basin are very important in term of biodiversity conservation and climate change mitigation. The project will also range rehabilitation with innovative way in 20,000 – 30,000 ha area which will capture 80,000 - 110,000 tonnes C/year.

Agricultural practices. Existing agricultural practices result in excessive carbon emissions from poor management of animal waste, conventional farming methods that do not emphasize reduced tilling and improved residue management.

KCB harbors over 500,000 cows kept in feedlots and large farms for dairy and meat finishing. Waste from these animals is estimated to release between 80-110 kg/year of methane into the atmosphere, in addition to polluting the surface and ground water of the Basin. This represents a total potential emission level of 920 – 1,265 tonnes CO₂e/year. In addition, agricultural waste from the region's large sugar beet sector currently generates a significant amount of methane.

Table 3. Turkey - Mitigation potentials of the main project technologies

Technology	Project Targets	
	Area ('000 ha)	Annual Mitigation ('000t CO ₂ e)
Tillage/residue management, including fuel savings (Conservation Agriculture)	40-50	18-22
Methane from agricultural waste	Na	8-10
Conversion of degraded land to pasture or forest	15-20	50-65
Improving pasture management	20-30	80-110
Total	75-100	150-200

Biodiversity: Turkey's rich biodiversity is also under increasing pressure because of the unsustainable management of natural resources leading to the degradation of natural habitats and the loss of species associated with them. Steppe ecosystems in Turkey are particularly highly threatened with unsustainable human activities. The KCB of Central Anatolia has special importance in terms of arid and semi-arid steppe ecosystems. Karapinar Plain, located to the west of Mt. Karacadağ and the Ereğli marshes southeast of Mt. Karacadağ provides unique habitats for plant and animal species threatened with extinction at the global scale. Some examples of the globally threatened animal species found in the area are: white headed duck (*Oxyura leucocephala*, Endangered), Eurasian river otter (*Lutra lutra*). Several species of freshwater fish threatened with extinction exist within the area and one of these species occurs only at Ereğli marshes: *Barbatula eregliensis* (Critically Endangered). The steppe habitats present around Mt. Karacadağ host numerous threatened and restricted range plant species. Some examples are *Astragalus gigantostegius*, a narrow endemic known from one locality (Critically Endangered), *Astragalus cicerellus* (Critically Endangered), *Astragalus victorae* (Critically Endangered), *Campanula antalyensis* (Endangered), *Gladiolus humilis* (Endangered). An endemic butterfly species is recorded in Karacadağ: the Anatolian black-eyed blue (*Glaucopsyche Astraea*). Mt. Karacadağ also hosts patches of an endemic quercus (oak) species (*Quercus vulcanica*).

Baseline Projects/Programs: The baseline project draws from the established work programs of the two ministries that will implement the GEF project, the Ministry of Forestry and Water Affairs (MFWA) and the Ministry of Food, Agriculture and Livestock (MFAL). Beneficiaries of the pilot activities will also provide in-kind co-financing to the project. The following programs constitute the baseline program/project situation in Turkey in sustainable land management and forest rehabilitation:

National Programme "Afforestation and Erosion Control Mobilization Action Plan": This Plan foresees the rehabilitation of 2.3 million hectares, through afforestation, erosion control, pasture improvement (rehabilitation of pasture lands located in or around forest areas) and rehabilitation of degraded forests with the participation of all public institutions. Total cost of the plan is estimated to be US\$ 1.5 billion. Under the plan, it is planned to achieve 112,300 ha forest restoration works in Konya Closed Basin. The aim is to prevent erosion and land degradation, preserve soil and water resources, increase forested areas (thus decreasing greenhouse gases), enhance the mitigation methods for carbon emissions and mitigate the effects of climatic change. Despite these comprehensive objectives, implementation of the plan is mainly focused on quantitative achievements. Under the baseline plan, rehabilitation of degraded forest lands will continue to be quantity oriented and will lack meaningful incorporation of ecosystem-based qualitative practices and objectives such as biodiversity conservation and carbon sequestration into forest restoration works. Also lacking is a participatory approach and a simple and effective monitoring and assessment system. GEF resources will enable the MFWA to improve the ability of large scale land restoration works to generate global benefits while applying an integrated ecosystem-based approach for land management.

Environmentally Based Agricultural Land Protection Programme (ÇATAK): The objective of the Programme is to support agricultural practices and techniques that will contribute to the protection of soil and water quality, enhance the sustainability of renewable natural resources, combat erosion and reduce the negative effects of agriculture. The program is being implemented by means of financial tools which incentivize, subsidize and directly supporting environmentally friendly agricultural practices. The program is funded from the state budget (MFAL). The program proved to be inefficient in promoting and scaling up conservation agriculture activities in the country. In order to improve and diffuse conservation agriculture in Turkey, the Agricultural Mechanisation Board was recently established under the MFAL, which meets at least once a year with participation of representatives from government partners, universities, farmers and

farmer organisations, and agricultural industries. The Board has taken following decisions to promote and facilitate the of conservation agriculture technologies and practices, which will be followed and supported by the project; (i) results of applied researches and demonstrations should be disseminated and transferred to farmers, (ii) in addition to field crops, conservation agriculture should be extended and demonstrated to fruit and vegetable, (iii) there should be more favourable and long term incentives for conservation agriculture machinery including a specific subsidy allocation for these practices, (iv) a platform consisting of representatives of farmers, private sector and industry, and farmer unions should be established for increasing cooperation and flow of information, keeping those involved updated about latest developments, and eventually facilitating and speeding up the diffusion process, (v) an agricultural machinery workshop should be established to improve and adapt existing machineries and machine mounted equipment to the local soil conditions, and (vi) conservation agriculture should be integrated into agricultural extension and training programs. GEF resources will enable the MFAL to put into practice above mentioned measures while MFAL incentives program is providing the basis for scaling up conservation agriculture and achieving long term sustainability.

Range Reform Program: Taking into consideration degradation of rangelands and associated food security problem of increasing population, the government of Turkey has initiated a Range Reform Program in 1998 by passing the Range Law (No 4342) from the parliament in 1998 as a first step. The parliament has also approved Soil Conservation and Land Use Law (No. 2924) in 2005. The reform program covers several measures including comprehensive legal framework, demarcation of range areas and regulation of use rights, allocation and use rules, increasing productivity through rehabilitation and maintenance, continuous surveillance, and protection. Although the Law has been in force since 1998, enforcement of the law and reform program did not produced expected results due to lack strict provisions to prevent conversion of rangelands into other land uses, lack of competent, experienced, and multidisciplinary team to implement the provisions of the law, unclear and overlapping responsibilities of the ministries and local administrations, institutional conflicts over land uses, unclear and conflicting user rights and weak participatory planning process, limited cadastral works etc. Annual investment of the government into range rehabilitation program through central and local level organization is about USD \$10-15 million and approximately \$1 million in the Konya Basin.

Farmer Unions and Cooperatives: Several agricultural development cooperatives and unions are exist in Konya Closed Basin which include irrigation unions, agricultural production cooperatives, agricultural credit cooperatives and sugar beet cultivators unions. They are mainly serving for their members to boost agricultural production and providing a kind of extension service for farm development, taking into account parochially short-term benefits. However, there is increasing concern among farmers about possible negative effects of unsustainable agricultural production, which can attributed to decreases in productivity, water resources and increased pollution and more frequent dust storms in the Basin. As the beneficiaries of the GEF project, they agreed to provide in kind co-funding for conservation agriculture and relevant machineries and methane capture activities.

Baseline project Co-funders	Name of Co-financier	Brief Description of Co-funded Baseline Project Activities	Type of Co-financing	Amount (\$)
National Government	The Ministry of Forestry and water Affairs (MFWA)	- Rehabilitation of degraded forest lands (56 %), afforestation (28 %), erosion control in degraded forest areas (14 %) and range rehabilitation in the vicinity of forests (2 %)	Cash	9,500,000
National Government	MFWA	- MFWA staff, office, transport services and procurement of facilities	In-kind	1,000,000
National Government	The Ministry of Food, Agriculture and Livestock (MFAL)	- Incentives and direct payment for conservation agriculture practices - Subsidies for machineries - Rehabilitation of lands under Range Reform Program	Cash	7,900,000
National Government	MFAL	- MFAL staff, office, transport services and procurement of facilities	In-kind	1,000,000
Beneficiaries	Agricultural unions and cooperatives	- Cost sharing for conservation agriculture machineries and methane capture demonstrations.	In kind	1,200,000
Total				20,600,000

Threats: The main treats to sustainable land management, which threaten biodiversity, agricultural productivity, soil quality, and causing green house gas emissions are the following:

Climate change: Climate change is perhaps the predominant over-arching threat to ecosystem health in Turkey's Konya Basin both directly and indirectly by exacerbating the land degradation processes. Although Konya's steppes and forest ecosystems are adapted to extreme climate conditions, they are also highly sensitive to changes in the climate. Observed and projected changes in the climate, especially rising winter temperatures, early springs, and drying wetlands are some early signs in Konya of climate change which is expected to exacerbate other environmental challenges such as overstocking and overgrazing in forest/steppe habitats. These are already having dramatic effects on ecosystems and their species diversity (biodiversity). More frequent wildfires, insect pests, larger and more frequent dust storms and greater water stress are among the major factors of degradation that are predicted to accompany ongoing climate change.

Increasing temperatures raise evapotranspiration rates and reduce soil moisture. In conjunction with shifting rainfall patterns, this will affect vegetation patterns and the growing period for crops. Prolonged dry spells and erratic climatic conditions may lead to short-term coping strategies such as deforestation and overgrazing. Inappropriate agricultural practices and overgrazing reduce above-ground organic carbon, leading to a decline in soil carbon. This decline in organic matter leaves the land even more vulnerable to drying and to erosion caused by more intense rainfall that is becoming more and more common as the climate changes. It also affects adversely several physical, chemical, and biological soil properties that impact land productivity, biodiversity, and ecological function. Land cover changes can also lead to changes in local climatic conditions due to different surface reflectivity and water transpiration. Indeed, according to the climate change scenarios, Konya Closed Basin will be one of the most negatively affected regions in the country by climate change. These risks posed by CC in the KCB currently are not understood well and are not incorporated into afforestation and agricultural activities, and specific species action plans.

Habitat degradation. The primary factor threatening biodiversity in the KCB is habitat degradation. Steppe ecosystems and associated wetland areas are particularly threatened. The inappropriate conversion of pasturelands to forests through industrial afforestation measures degrades ecosystem health and fragments steppe habitats. Inappropriate agriculture practices, including overgrazing and excessive tilling can trigger erosion and a reduction in health of steppe plant community diversity, which reduces habitat complexity and thus species diversity. Pollution of surface and ground water from the inappropriate disposal of agricultural waste degrades aquatic and wetland habitats. Excessive use of water resources undermines the ecosystem health of wetland systems and contributes to a cycle of depleting water resources, increased salinization, dust storms and reduced land resilience.

Barriers: The baseline programs/projects fall short of achieving the long-term solution of sustainable land management in the Turkey in general and specifically in Konya Closed Basin and securing the flow of multiple ecosystem services, while ensuring ecosystem resilience to climate change, and integrating biodiversity conservation into production landscapes due to the following:

Barrier #1: Minimal experience among key government and civil society stakeholders in developing and implementing SL&FM practices on the ground. An important barrier to SLM in the KCB is the tendency for organizations to favor impractical and overly structural or intensive land rehabilitation investments versus process oriented, restoration measures driven by natural restoration carried out by local communities. These approaches tend to be top-down with minimal meaningful participation of local stakeholders. Participatory and integrated land use planning and implementation approaches have not been institutionalized in part because there are no practical guidelines for how to do so and no formalized mechanisms needed to enable local participatory management. This project will provide the basis for formalizing new participatory mechanisms for sustainable land management.

Improving management practices for pasture and natural forestlands in Turkey has been hampered by inadequate coordination at the local level among the MFWA and MFAL, Provincial authorities, municipalities, village councils and farmers' cooperatives. Although the MFWA is responsible for conservation and sustainable use of natural resources, it has no role in permitting/leasing grazing lands, which is the purview of MFAL and each Province. The adoption and implementation of SLM/SFM at the local level is hampered by the lack of experience among stakeholders in land and resource use planning for pasture and forestlands and the lack of a cross-sectoral, participatory land-use planning process at the local level. The real cost of land degradation is very high in the KCB but this cost has yet to be assessed by local authorities and ascribed to the value of healthy forests and pasturelands. This hampers the ability of stakeholders first to recognize and then to maximize synergies among various sectors, particularly the ecosystem service values provided by sustainable natural resources management including carbon sequestration, biodiversity conservation, water quality and quantity, reduced downstream negative effects. This ecosystem services "cost-benefit" calculation gap undermines the ability of local governments and communities to ensure that the natural resources upon which they depend are stewarded in a sustainable way.

Barrier #2: Farmers under-exposed to new innovative low carbon technologies for farming and farm waste management. In the KCB, unsustainable agricultural practices are resulting in land degradation and carbon emissions. Conservation agriculture techniques such as reduced tillage, direct seeding, crop rotation, permanent soil cover, crop residues management, mulching, etc, have been researched and tested in several parts of the country, mainly on government lands. These tests have been done mainly for field crops on both irrigated and rainfed lands, introducing new crop rotations. Another objective of these tests is to reduce or eliminate the following practices in rainfed arable lands. Compared to conventional agricultural practices, the results showed a 10-20% increase in agricultural productivity, saving time and energy use for soil cultivation, increasing in vegetative covers and carbon sequestration, reduction in surface soil erosion, improvement in soil compaction and reduction in water loss by non productive evapotranspiration. These results show multi-benefits, as do FAO's conservation agricultural practices, but these initiatives have not yet been demonstrated in-situ in the KCB by farmers, for farmers. This gap between applied research results and effective demonstration to the farmers, hampers the ability of farmers to uptake new and innovative low-carbon farming tools and techniques. It also results in a lack of awareness among farmers about the benefits. Inefficient extension services, technical difficulties regarding suitability of machineries and equipment to the local conditions, short term and non-discriminative incentives for these technologies and practices, lack of cooperation between farmers and relevant industry also hamper the adoption of such technologies. Developing model conservation agriculture demonstrations will open a new window for farmers. Water harvesting techniques will help to increase soil quality and improve biological

productivity. At the same time, the introduction of wind breaks will prevent soil movement and loss of soil fertility in degraded lands.

The actual total renewable energy capacity (solid waste, geothermal, biogas and industrial wastes) of Turkey is a mere 1% of the total potential capacity of over 15,000 MW according to December 2009 data. While some advanced digesters are being utilized by industrial wastewater treatment plants, very few of the other less expensive, less complicated, more reliable digesters for agricultural waste are in place in the agriculture sector. Some European suppliers have solicited livestock farms and agro-industrial food processors, but this process was mostly driven by the supplier interest in selling the equipment. These farms and processors would rather like to see operational evidence in-situ that demonstrates and highlights important barriers and key variables for success before installing a digester. Therefore, this lack of an experimental evidence based approach to demonstrating this anaerobic digestion systems technology has hampered its adoption by Turkey's agricultural sector. In the case of Turkey there is a need for systematic demonstration to enable the identification and removal of specific barriers for wider technology adoption through the market.

Barrier #3: Inadequate enabling environment (legal, regulatory and institutional framework) and capacity for sustainable land management. Institutional mechanisms that enable SLM are weak to non-existent in Turkey. This is in part because SLM has to date been approached as more of an intensive, top-down structural solution to a problem rather than a broad-based process oriented, ecosystem-based local stakeholder driven solution. In practical terms, there is little experience in Turkey with institutional mechanisms, for example, that would enable SLM: mechanisms such as a sub-Provincial SLM Board that could coordinate integrated, ecosystem based SLM in specific regions. These require proof of concept before this barrier will be overcome. In addition, the legal and institutional basis for such participatory management, is lacking.

The lack of technical, analytical and managerial capacity for SLM among decision-makers is one of the critical constraints to sustainable land management. The training of technical personnel is not enough; there is a need for analytical and planning capacity as well. Practical, experience-based training can provide stakeholders with the basic tools and approaches to begin applying SLM in their work; this kind of training is lacking among key stakeholder organizations currently, including the MFWA MFLA and the KCB Union of Agriculture Cooperatives. Technical guidelines based on demonstration practices can also help to increase capacity for SLM.

Existing laws such as Rangeland Law include general provisions for maintaining environmental health and call for pastures to be managed to produce multiple benefits. However, there are no specific by-laws to guide extension workers and farmers on how to achieve multiple benefits and establish sustainable conditions and how results can be monitored and enforced. Existing grazing management practices provide inadequate consideration of long-term implications for sustainability or the economic, social and environmental benefits of alternative pasture and forest land management practices. For example, in the past they had an informal pasture management system at the village level. Now, there is a special provincial administration in each Province that manages pasture lands by issuing grazing permits to private pastoralists for up to 25 years subject to approval every 5 years. This in effect means that the lessee has no security in property right, creating an atmosphere of short-term uncertainty, which in turn creates the perverse incentive to take as much from the pasture and forestlands as possible (in terms of forage) because the license may not be renewed next year. This highlights another important barrier: insufficient incentives to promote sustainable resource management. For example, grazing rights are leased or charged on a per hectare basis, which creates the perverse incentive for the farmer to lease as few hectares as possible while maximizing the number of animals. While on paper the number of grazing permits does not exceed the legal limit, in practice the number of animals grazing the land far exceeds the permitted number. The legislation regarding grazing, pasturelands, and forests does not make specific provision for the direct involvement of municipalities and local people in these sectors, making it difficult to develop effective decentralized capacities for planning and regulation. The ability to determine carrying capacity or the condition and health of a pasture are uncommon skills in Turkey. There is no systematic approach to capacity building for SFM/SLM. Essentially no local authorities have any training in how to monitor and enforce by-laws specifying pasture, or on the importance of healthy riparian zones to groundwater recharge, to erosion control, and flood mitigation. At the local level, producer and community-based organizations are poorly developed with limited opportunities for training in sustainable resource management. Livestock grazers receive no extension support or training in sustainable grazing practices.

B.2. INCREMENTAL REASONING: DESCRIBE THE INCREMENTAL ACTIVITIES REQUESTED FOR GEF FINANCING AND THE ASSOCIATED GLOBAL ENVIRONMENTAL BENEFITS TO BE DELIVERED BY THE PROJECT:

The proposed project builds upon and complements the baseline project. The GEF funded alternative will address the above capacity constraints and barriers to mainstreaming climate change mitigation and biodiversity conservation into production landscapes practices. The project will introduce an integrated approach to sustainable land management in the KCB where land rehabilitation, biodiversity and climate-friendly agriculture practices including methane capture will be implemented. This case study in KCB will help to develop mechanisms for collaboration between the forestry and agriculture sectors to promote sustainable natural resource management practices. An integrated land management approach will have strong climate change mitigation impact with the biogas production in the project area. GEF's incremental investment will further strengthen participatory and integrated management of land resources to secure global LD, CCM and BD benefits at national and pilot project area levels. GEF funding will support measures to mitigate CC through conservation agriculture, methane capture from agricultural wastes, restoration of degraded rangelands and forest by adoption new practical restoration practices, and improve management of pasture areas that in turn will avoid

emissions caused by degradation, increase sequestration through enhanced biomass and improved productivity of land resources.

The objective of the GEF funded alternative is to improve the sustainability of agriculture and forest land use management through the demonstration and adoption of low-carbon technologies with win-win benefits in LD, CC and BD conservation and increased farm profitability and forest productivity while enhancing ecosystem resilience to CC. The project will introduce a shift from the current unsustainable practices to SLM practice that will generate significant global benefits, as detailed in the table below:

Current Practices	Improved practices introduced by project	Selected Global Benefits
Degradation of forest lands through heavy grazing, agricultural intrusion, and soil erosion.	Improved management of degraded forest lands: -Reforestation of degraded forest lands, improvement/rehabilitation of rangeland in/around forests -Use of wind breaks, water harvesting techniques, drought-resistant and salt-tolerant local species -Limits on grazing in forest - ecosystem services valuation -Capacity building for improving integrated and participatory management	-Rehabilitation of 20,000 hectares of degraded forest lands with a mitigation target of 50-70,000 tons of CO ₂ eq/year sequestration, -Improved management of 733,760 ha forest lands -Less damages from floods and land slides -Decrease in soil erosion in degraded forest lands (baseline will be determined in preparation stage)
Degradation of agricultural land through inappropriate farming practices result in the loss of vegetative cover, soil and soil carbon. Inadequate management of agricultural waste results in significant GHG emissions, and an inadequate level of soil replenishment.	Improved agricultural land management: -Conservation agriculture (reduced tillage, crop residue management, vegetative cover, crop rotation, mulching, direct seeding, habitat enhancement) -Introduction of drought-resistant and salt-tolerant species and varieties -Rehabilitation of degraded arable lands -Integrated land rehabilitation to increase soil fertility, including agro forestry trails, wind breaks - Water harvesting and water-saving systems to reduce water logging and soil salinity - Improved conjunctive water management reduces pressure on natural habitats and biodiversity -Demonstration of methane capture practices from wastes of livestock and agro-processing -Capacity building for SLM and its integration into farming and rangelands activities and role in GHG balance and biodiversity conservation	-Improved management of 2,229,000 ha arable lands - Avoided emissions of: 18-22,000 tCO ₂ eq/year in 40-50,000 Ha of arable land using conservation agriculture practices -Decrease in soil erosion in arable lands (baseline to be determined in preparation stage) -Improvement of water harvesting and uses -Improvement in soil organic content, fertility and moisture and increase in vegetative cover - Contribution to mitigation in at least 50 methane capture diffusion sites with a mitigation target of 8-10,000 tCO ₂ eq/year
Degradation of Pasture lands through overgrazing on hilly and plain pastures resulting in degradation of vegetative cover, increased erosion, loss of soil carbon.	Improved pasture management: -Reduced and/or rotational grazing to reduce pressure on vegetative cover - Improved vegetative cover on rehabilitated pastures including agro-silvo-pastoral systems; soil conservation measures including erosion control, improvement of soil fertility, water accumulation/preservation, windbreaks, and buffer strips.	-Improved management of 1,877,410 ha rangelands and pastures. -Contribute to carbon storage in 30,000 hectares of degraded rangelands and pastures with a mitigation target of 78-105,000 tCO ₂ eq/year, -Decrease in soil erosion in rangelands and pastures (baseline will be determined in preparation stage)
Biodiversity Habitat degradation as a result of intensive agriculture, heavy grazing and land degradation, lack of monitoring and assessment	Improved mainstreaming biodiversity conservation into production landscapes: -Development of monitoring and assessment system for biodiversity conservation -Increasing soil fertility, water retention capacity and biological activity for the conservation and improvement of above and below-ground biodiversity -Introduction of certification for production landscapes	-Biodiversity conservation mainstreamed in least 80,000 ha of production landscapes (20,000 ha forest land; 30,000 ha pasture; 30,000 ha arable land) - Certification of at least 10,000 ha land that incorporates biodiversity conservation measures -Populations of endemic fish (<i>Barbatula eregliensis</i>) and oak tree (<i>Quercus vulcanica</i>) remain the same or increase -Restoration of natural habitats essential for threatened biodiversity

Incremental GEF resources will support the mainstreaming of SLM, climate change mitigation and biodiversity conservation objectives into production landscapes practices. The proposed project will provide an opportunity for a major scaling up and strengthening of participatory and integrated land management techniques to address capacity constraints within the main sectors in charge of land management. In doing so, the project will introduce participatory and integrated SLM, climate change mitigation and biodiversity conservation through three interlinked components: (i) rehabilitation of degraded lands (ii) climate friendly agriculture, and (iii) strengthening enabling environment for sustainable land management. These components are summarized in more detail below and will be elaborated fully under the PPG.

Component 1: Rehabilitation of degraded lands. Under Component 1, GEF's incremental investment will promote rehabilitation of degraded pastures and forests forest lands and therefore contributing to restoring natural habitat for threatened biodiversity in degraded production landscapes. Restored forest and rangeland landscapes will be certified by internationally recognized environmental standards that incorporate biodiversity considerations such as the Forest Stewardship Council. Studies will be conducted under the proposed project to assess and monitor biodiversity levels under the project. To that end, the GEF alternative would build on the baseline scenario by financing the incremental costs associated with: (i) increased attention to rehabilitation of degraded lands in production landscapes such as degraded forest lands and rangelands, (ii) production of soil organic carbon maps for pilot sites, (iii) preparation of integrated SLM and biodiversity conservation land use plan for the Mt. Karacadag pilot area, (iv) certification of forest and rangeland landscapes by internationally recognized environmental standards that incorporate biodiversity considerations, (v) establishment of biodiversity monitoring system, and (vi) quantification of ecosystem services values in pilot areas of KCB

Component 2: Climate friendly agriculture. Under Component 3, GEF's incremental investment will promote rehabilitation degraded agricultural lands, demonstration of conservation agriculture and methane capture from agricultural wastes. The project will seek to reduce GHG emissions using low or negative cost interventions, such as; low carbon technologies; conservation agriculture, (providing viable alternatives to the practice of burning crop residues, improving the efficiency of fertilizer use, reducing tillage operations), recuperation of degraded land, improved management of manure and adoption of agro-forestry practices.

The project will also support the establishment of 50 methane capture demonstration sites in the Basin on both private and public farms or plants. The results of the use of these practices will be extended to the other farm/plant owners through the above mentioned mechanisms. Other financial mechanisms such as smart subsidies will be considered to support the diffusion of these practices. In order to support wide-scale adoption of anaerobic digestion within the livestock and food processing sectors in Turkey, a nationally coordinated approach must be implemented. The general framework of the approach would be structured to educate the industry about the technology, demonstrate its effectiveness, and ensure supporting industries exist and are trained to be able to design, sell, and maintain these systems and their various components. Above-mentioned practices would allow livestock producers and agro-industrial processors to understand the technologies available, their operational characteristics, cost, and related benefits and impacts. This would increase their interest in installing digesters and create demand for service providers within the country. Additionally, the activities would enable the development of a qualified service industry to support the expanded industry.

Key activities would include the incremental costs associated with: (i) development of models for conservation agriculture demonstrations on private farms, (ii) information dissemination on TIGEM's experience in terms of conservation agriculture; (iii) pilot-scale investments in bio-digesters to recuperate methane from agricultural waste and produce electricity; (iv) for high potential opportunities, incentives for the investment in the development of the infrastructure to capture methane; (v) monitoring the adoption of climate-friendly agricultural technologies, including monitoring of GHG mitigation and biodiversity impacts; (viii) different management practices such as reduced tillage, mulching, organic and inorganic fertilizer and suitable irrigation increase soil carbon pool and storage in plant tissue and soil body.

Component 3: Strengthening enabling environment for sustainable land management. Under Component 3, GEF support will enable the mainstreaming of climate change mitigation, biodiversity and SLM into the agricultural and forest policy and regulatory framework to institutionalize sustainable participatory and integrated land management in agriculture and forestry sectors and to build the appropriate institutional capacity at national, local and community levels. GEF incremental resources will enable MFWA and MFAL to develop and adopt a package of modifications in the policy and regulatory framework to strengthen participatory and integrated land management as the primary mechanism to contribute to climate change mitigation and prevention of land degradation and to achieve biodiversity mainstreaming. The project will introduce a holistic approach to forests, rangelands/pastures and agricultural lands. With GEF support, an enabling environment for a basic management strategy will be developed for sustainably managed landscapes that consider to conserving biodiversity, mitigate climate change and reduce land degradation. Beside individual and institutional capacity building programmes among decision-makers, technical staff and local beneficiaries will increase their ability to move towards integrated approach.

This work will include; (i) the elaboration of legislative framework (laws, regulations and guidelines) towards SLM practices, (ii) delivery of training programmes to technical staff on SLM practices/techniques at national and pilot area levels, (iii) awareness raising programmes to local beneficiaries on SLM practices (eg. workshops and other dissemination events such as articles, TV and publications), (iv) development of guidelines for SLM, specifically for restoration of degraded lands to be applied by the MFWA, for conservation agriculture to be applied by farmers and cooperatives in cooperation with MFAL, and for range rehabilitation to be applied by MFAL, MFWA and local authorities, (v) carbon stock monitoring system for production landscapes and (vi) monitoring and evaluation system for the project. Strengthened enabling environment will contribute to the improved management of 2,229,000 ha agricultural lands, 733,760 ha forests and 1,877,410 ha rangelands and pastures.

B.3. DESCRIBE THE SOCIOECONOMIC BENEFITS TO BE DELIVERED BY THE PROJECT AT THE NATIONAL AND LOCAL LEVELS, INCLUDING CONSIDERATION OF GENDER DIMENSIONS, AND HOW THESE WILL SUPPORT THE ACHIEVEMENT OF

GLOBAL ENVIRONMENT BENEFITS(GEF TRUST FUND) OR ADAPTATION BENEFITS (LDCF/SCCF). AS A BACKGROUND INFORMATION, READ MAINSTREAMING GENDER AT THE GEF.:

Since Konya Closed Basin is one of the biggest agricultural production centers of the country, land degradation has important and long term implications for overall national development, food security, long term viability of land use in arid areas, and resilience to forecasted climate change. The Basin is an important producer of crops, pulses, and sugar beets and generates 9.2% of the total income Turkey derives from crops, 6.2% from pulses and 8.5% from sugar beet. At the same time 60% of the total salt production in Turkey comes from this region.

Land degradation has reduced the carrying capacity of rangelands and the fertility of agricultural land in the upper catchment areas and thus negatively affected farming households' ability to derive a livelihood in the upland regions, with resulting higher poverty rates in these areas. The impacts of LD in the Basin, including the increasing size and frequency of dust storms has profoundly affected the daily life of local people living in the Basin especially during the dry seasons, creating significant health problems and economical losses from the reduced availability of forest products, particularly fuel wood.

The activities of the proposed project, particularly conservation agriculture, should result in an increase in household incomes, both through cost reductions and productivity increases, and should increase employment opportunities in rural areas and contribute to reducing rural migration. The promotion of activities through group structures will enhance social development in the rural communities and the rehabilitation of the forest/pastures will increase earning potential from grazing and other livelihoods activities. The project will be gender sensitive and seek to raise awareness of gender issues in both ministries by including women in all activities following FAO gender guidelines, including demonstrations, trainings and other capacity building activities.

B.4 INDICATE RISKS, INCLUDING CLIMATE CHANGE RISKS THAT MIGHT PREVENT THE PROJECT OBJECTIVES FROM BEING ACHIEVED, AND IF POSSIBLE, PROPOSE MITIGATION MEASURES THAT WILL BE FURTHER DEVELOPED DURING THE PROJECT DESIGN:

Risk type	Probability	Mitigation
Poor coordination for SLM	High	Close and collaborative cooperation between the many institutional stakeholders (particularly the MFWA and the MFAL) will be essential for the project to achieve its stated goal and objectives. This is mitigated to some extent by the positive collaboration experience of the AWRP, and further through the structure of a PMU, project management and project steering committee for project management, in addition to the new SLM mechanism that will be piloted under Component 3. ¹¹
Weak capacity of local and national institutions	Medium	Capacity of staff at various levels, particularly limited understanding of new technologies, may impede adoption rates. This will be mitigated through the development of a capacity building program and training at central and local levels.
Natural calamities	Medium	Natural calamities, such as drought and floods, may impede the adoption of new technologies. The project is designed as a multi-year intervention, where demonstrations can be run over several seasons. The project will also be linked to the early warning services of the MFWA.
Climate change	Low	On the one hand, climatic changes will require evolving research on the best approach for the newly proposed technologies. The MFAL and the MFWA, with support of FAO technical expertise, are in a good position to adopt forthcoming research results. On the other hand, climatic changes can also increase political support for the project.
Low ownership and lack of sustainability of new technologies and techniques	Low	Lack of ownership and subsequent lack of sustainability of new technologies promoted under the project could cause difficulties in achieving desired adoption levels. This will be mitigated through the above mentioned capacity building program and through an awareness campaign targeted at project beneficiaries. This capacity building program will involve tools, such as economic models and plans, economic analysis that clearly show that there is an economic and social benefit to the adoption of these technologies (win-win). The GoT has already developed and put into place incentive programmes for CA and land rehabilitation that specifically include equipment and machine support up to 70% of the cost, as well as support for private afforestation and nursery development. The Project will contribute to linking existing incentive systems into integrated sustainable land management practices in order to develop a holistic approach.

B.5. Identify key stakeholders involved in the project including the private sector, NGOs, civil society organizations, and their respective roles, as applicable:

The MFWA and the MFAL are the two lead executing partners. Other stakeholders will include the Global Methane Initiative, who will provide guidance on methane capture and conversion. The project will be executed by the provincial directorates of the MFWA and the MFAL at the field level. The executing partners will work closely with a wide range of stakeholders, including farmer cooperatives, private farmers, the private sector, universities, research institutions, civil society organizations, local communities and residents.

¹¹ Exact structure will be defined during project preparation

At the national level, a project steering committee will be established for the coordination of project activities. It will include representatives of the MFWA, the MFAL, the Ministry of Development, universities and national NGOs and farmer organisations, etc. At the local level, a project implementation unit will be established, which will include the representatives of local staff of relevant GoT agencies, local farmer organisations and NGOs as mentioned above.

The project will also benefit from existing coordination mechanisms, such as the UNCCD National Coordination Body, the National Drought Management Unit, etc. and contribute to the effectiveness of these mechanisms towards sustainable land management in Turkey. Further analysis and detailed design of the coordination scheme will be done during project preparation to make sure that a strong interaction among key stakeholders is facilitated.

The project will be launched by a well-publicized multi-stakeholder inception workshop. This workshop will provide an opportunity to provide all stakeholders with updated information on the project, as well as a basis for further consultation during the project's implementation, and will refine and confirm the work plan. In addition, certain project activities will be specifically designed to directly involve stakeholders in project implementation.

Farmer cooperatives, private farmers and the private sector are key beneficiaries. The Konya Union of Agricultural Cooperatives and its member cooperatives will be key stakeholders under this project as indicated in the baseline project section.

TIGEM have considerable investments in CA and the project will assist them wherever possible to further develop CA for the local conditions while extending to other farmers. The General Directorate of Agricultural Productivity (TUGEM) and General Directorate of Agricultural Research (TAGEM) will assist with lessons learned from agricultural research and production initiatives. The Soil Society and the Soil Water and Fertilizer Institute will assist in monitoring information on soil, including organic carbon levels. Universities, civil societies and NGOs, such as the Cukurova University, Nature Conservation Centre (DKM), Chamber of Agricultural Engineers and TEMA will be included to assist with project preparation and oversight as needed.

B.6. OUTLINE THE COORDINATION WITH OTHER RELATED INITIATIVES:

The proposed project will also benefit from the Rehabilitation of the Degraded Agricultural Lands Project (RDAL-STATIP), includes re-identification of land use classification in 16 provinces. By the end of the year, land use classes will be updated to be serviced to Province Directorates all over the country. These practices will be regularly updated in order to determine land use changes. The experience with capacity development of the Coruh River Watershed Rehabilitation Project (2012-2018) will inform similar activities under the proposed project. This may include practices such as workshops, practical training courses in connection with sub-projects and implementation, and technical study tours or training visits for the project implementation staff abroad. These diversified activities cover both local communities and technical staff.

National Basin Management Strategy of Turkey (NBMS) will be one of major projects with which the present proposal will coordinate. The results and the recommendations of NBMS will lead the Project to identify the participatory measures that would maximize social economic benefits and build capacity among key stakeholders – including local governments, communities and private sector as part of the process of building resilience of the rural economy and ensuring the sustainability of the natural resource base.

The Project should benefit from the methods for integration of carbon emission avoidance/carbon sequestration measures into forest landscape management developed under the Integrated approach to management of forests in Turkey, with demonstration in high conservation value forests in the Mediterranean region project. This project promoted an integrated approach at the landscape level to the management of high conservation value forests in the Mediterranean to secure carbon pools and biodiversity. The GEF resources in this project supported the creation of a model for integration of carbon emission avoidance/carbon sequestration measures into forest landscape management. Certainly the carbon sequestration efforts in forests are directly related with the activities in the proposed project, including demonstration of innovative technologies, rehabilitation of degraded lands, etc. The practices related to forestry (LD-2 Focal Area objective) will be pursued by this project.

Finally, there are lessons to be taken from the Murat Watershed Rehabilitation Project increasing household income through preventing natural resource degradation. Linking natural resource rehabilitation and sustainable management with diversifying and improving natural resource-based household income generating activities are critical features. The proposed project will ultimately relate rehabilitation of natural resources with decreasing rural poverty. The value-added that will be contributed through sustainable land management and climate-friendly agriculture project is in the innovative synergies between climate change, biodiversity and land degradation and their long-term impacts on rural poverty. **C. DESCRIBE YOUR AGENCY'S COMPARATIVE ADVANTAGE TO IMPLEMENT THIS PROJECT:**

FAO has vast technical expertise and field experience in sustainable land management and conservation agriculture. FAO has worked for more than 20 years on reduced tillage techniques and was also involved at the very beginning in the 70s in the introduction of reduced tillage in Brazil. FAO also has important experience on land rehabilitation and climate change mitigation in the agricultural sector. Finally, FAO developed EX-ACT, a software tool used for assessing the carbon impact of projects of this type.

Regarding rehabilitation of degraded lands, sustainable land management and agriculture, FAO has gained a rich base of best practices and lessons learned from a diversity of ecosystems and contexts by implementing hundreds of projects and

programs. FAO supports member countries on a wide range of complementary SLM technologies and approaches (such as conservation agriculture, integrated land and water management and local land planning) through developing tools, methodologies and providing training, information and advisory services for institutional strengthening, policy reform and national programming. FAO is the leading agency in gathering and disseminating data and information related to land degradation and SLM, which are built upon scientific knowledge, local experience and farmer innovation, which are available through FAO's web sites and information systems such as FAOSTAT, TERRASTAT, LRIS, and GTOS. FAO is also a leading partner in several international initiatives, such as the Land Degradation Assessment in Drylands (LADA), the World Overview of Conservation Approaches and Technologies (WOCAT), the Asia-Pacific Agro-forestry Network (APAN), and the Participatory Watershed Management in Asia Network (WATMANET). Regarding climate change mitigation, FAO has also proven experience in climate change mitigation in agriculture and forestry through carbon sequestration, substitution and conservation, assessing carbon stocks and modelling win-win scenarios of carbon sequestration through land use change, and capacity development in developing countries.

C.1 INDICATE THE CO-FINANCING AMOUNT YOUR AGENCY IS BRINGING TO THE PROJECT:

FAO will provide the following in co-financing in cash: USD 500,000 plus USD 200,000 in kind.

C.2 HOW DOES THE PROJECT FIT INTO YOUR OWN AGENCY'S PROGRAM (REFLECTED IN DOCUMENTS SUCH AS UNDAF, CAS, ETC.) AND YOUR STAFF CAPACITY IN THE COUNTRY TO FOLLOW UP PROJECT IMPLEMENTATION:

The project is directly related to three of FAO's Strategic Objectives; A. Sustainable Crop Production Intensification (SCPI), E. Sustainable management of forests and trees, and F. Sustainable management of land, water and genetic resources and improved responses to global environmental challenges affecting food and agriculture.

FAO is a signatory to the United Nations Development Cooperation Strategy for Turkey prepared in accordance with Ninth Development Plan, which focuses on strengthening policy formulation and implementation capacity for the protection of the environment and cultural heritage in line with sustainable development principles - taking into consideration climate change and disaster management.

The FAO office in Ankara is well equipped with a multi-disciplinary team, including crop, land and water, livestock and forestry specialists, as well as project management and administration. The local office is also supported by technical back stopping and administrative support from the Regional Office, including specialists in environmental services, bio-energy, forestry, rangelands management, and crop production.


PART III: APPROVAL/ENDORSEMENT BY GEF OPERATIONAL FOCAL POINT AND GEF AGENCY

A. RECORD OF ENDORSEMENT OF GEF OPERATIONAL FOCAL POINT (S) ON BEHALF OF THE GOVERNMENT(S):

(Please attach the country endorsement letter(s) or regional endorsement letter(s) with this template).

NAME	POSITION	MINISTRY	DATE (Month, day, year)
Prof. Dr. Lütfi AKCA	Undersecretary, GEF Operational Focal Point	Ministry of Environment and Forests	March 10, 2011

B. GEF AGENCY(IES) CERTIFICATION

This request has been prepared in accordance with GEF/LDCF/SCCF policies and procedures and meets the GEF/LDCF/SCCF criteria for project identification and preparation.					
Agency Coordinator, Agency name	Signature	Date	Project Contact Person	Telephone	Email Address
Charles Riemenschneider Director, TCI/FAO Viale delle Terme di Caracalla 00153, Rome		April 10, 2012	Ekrem Yazici Senior Forestry Consultant FAO SEC Ankara, Turkey	+ 90 312 3079518	Ekrem.Yazici@fa o.org
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