# GEF-6 REQUEST FOR PROJECT ENDORSEMENT/APPROVAL

**PROJECT TYPE: Medium-sized Project**
**TYPE OF TRUST FUND: GEF Trust Fund**
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## PART I: PROJECT INFORMATION

| | | | |
|---|---|---|---|
| Project Title: Generating economic and environmental benefits from sustainable land management for vulnerable rural communities of Georgia | | | |
| Country (ies): | Georgia | GEF Project ID:[1] | 9730 |
| GEF Agency (ies): | UNEP | GEF Agency Project ID: | 01549 |
| Other Executing Partner(s): | The Regional Environment Centre for the Caucasus (REC Caucasus) | Submission Date: | January 24, 2018 |
| GEF Focal Area (s): | Land Degradation | Project Duration (Months) | 36 |
| Integrated Approach Pilot | IAP-Cities ☐ IAP-Commodities ☐ IAP-Food Security ☐ | Corporate Program: SGP ☐ | |
| Name of Parent Program | N/A | Agency Fee ($) | 138,032 |

## A. FOCAL AREA STRATEGY FRAMEWORK AND OTHER PROGRAM STRATEGIES[2]

| Objectives/Programs **(Focal Areas, Integrated Approach Pilot, Corporate Programs)** | **Trust Fund** | **(in $)** | |
|---|---|---|---|
| | | **GEF Project Financing** | **Co-financing** |
| LD-1 Program 1 | GEFTF | 657,295 | 2,153,333 |
| LD-2 Program 3 | GEFTF | 795,673 | 2,606,667 |
| **Total project costs** | | **1,452,968** | **4,760,000** |

## B. PROJECT DESCRIPTION SUMMARY

**Project Objective: To develop and strengthen sustainable land management (SLM) practices and build capacity at municipal scale for their application for the protection of natural capital in Georgia**

| **Project Components/ Programs** | **Financing Type[3]** | **Project Outcomes** | **Project Outputs** | **Trust Fund** | **(in $)** | |
|---|---|---|---|---|---|---|
| | | | | | **GEF Project Financing** | **Confirmed Co-financing** |
| 1. Creating an enabling environment at municipal scale for achieving Land Degradation Neutrality (LDN) Country Voluntary target | TA | 1.1 Municipalities are increasingly able to implement LDN country strategy at municipal scale in four target municipalities totaling 590,000 hectares *Indicator: LDN local target agreed at municipal level in 4 municipalities* | 1.1.1 LD trends and drivers mapped, LDN local baseline established including: (i) land cover and land cover change; (ii) land productivity (metric: net primary productivity); and (iii) carbon stocks above and below ground at municipal level (590,000 ha), including possible "hot spots"<br>1.1.2 Local multi-stakeholders groups established for pilot municipalities (Sagarejo, Kvareli, Gori, Kareli) | GEFTF | 434,789 | 2,071,429 |

[1] Project ID number remains the same as the assigned PIF number.
[2] When completing Table A, refer to the excerpts on GEF 6 Results Frameworks for GETF, LDCF and SCCF and CBIT programming directions.
[3] Financing type can be either investment or technical assistance.

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | 1.1.3 LDN local target setting programs developed and the voluntary targets defined and agreed at municipal level<br>1.1.4 LDN local transformative projects/programmes of actions, including resource mobilization plans developed for pilot municipalities<br>1.1.5 Integrated land-use plans[4] developed for pilot municipalities based on the evaluation of the potential impacts of different land-use options. | | | |
| 2. Pilot implementation of measures avoiding degradation, intensifying sustainable land management practices and land rehabilitation to improve ecosystem functions and services. | TA | 2.1 Reduced impact severity of erosion, salinization and fertility of soil, in 10,000 ha of affected ecosystems in Sagarejo, Kvareli, Gori, and Kareli through restoration<br><br>2.2 Farmers apply sustainable land management and climate smart agricultural practices in support of food security and resilience on 10,000 ha of pilot plots. | 2.1.1 Local measures to prevent changes in the characteristic of soil, wind erosion, salinization and loss of natural fertility of soil identified, developed and validated through participatory process in the municipalities of Sagarejo, Kvareli, Gori, Kareli;<br>2.1.2 35,761 t CO2-eq[5] sequestered through restoration of 10,000 ha of degraded land through application of windbreaks, soil quality, and natural vegetation rehabilitation<br>2.2.1 Improved capacity of communities and farmers on sustainable land management and sustainable intensified agriculture using native seed materials<br>2.2.2 Local farmers | GEFTF | 563,653 | 1,402,857 |

[4] LDN is an essential component of ILUP

[5] Using the FAO EX-ACT tool, the estimated CO2 emissions reductions to be realized through the Project will be 130,887 tons CO2e. The pilot project activities create a net sink of 16,361 tons of CO2 eq. per year. The key CO2 sequestration source is annual agricultural system management by 14,100 tons of CO2 eq. followed by improved management of perennial plantations capturing 1,481 tons of CO2 eq. The rehabilitation of windbreaks annually sequester 547 tons of CO2 eq. Lastly, the improved management of fertilizers and pesticides use imply GHG emissions reduction by 233 tons of CO2 eq. The results and an explanation of assumptions are in Annex O.

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | and farmer associations assess current agriculture practices and define required changes, and apply sustainable agriculture practices in the municipalities of Sagarejo, Kvareli, Gori, and Kareli.<br>2.2.3 Market access mechanisms and local brands promoted | | | |
| 3. Knowledge Management and Capacity Building | TA | 3.1 Improved municipal development strategies and easily accessible knowledge about SLM practices to inform policy making<br><br>3.2 Improved understanding of the economics of land degradation and land use planning in national and sub-national government institutions | 3.1.1 National best-practices for SLM captured and disseminated to the national, regional and international community<br>3.1.2 A web based national SLM knowledge management hub will be created<br>3.1.3 Awareness-raising campaigns conducted on SLM planning, implementation at community scale<br>3.2.1 Compelling cases for economic benefits derived from sustainable land management developed<br>3.2.2 Trainings provided to national and sub-national decision makers on economics of land degradation and ecosystem services<br>3.2.3 Vocational training program on integrated land management and sustainable intensified agriculture using native seed materials organized for farmers. | GEFTF | 342,047 | 1,068,571 |
| | | | Subtotal | | 1,340,489 | 4,542,857 |
| | | | Project Management Cost (PMC)[6] | GEFTF | 112,479 | 217,143 |
| | | | **Total project costs** | | 1,452,968 | 4,760,000 |

## C. CONFIRMED SOURCES OF CO-FINANCING FOR THE PROJECT BY NAME AND BY TYPE

Please include evidence for co-financing for the project with this form.

[6] For GEF Project Financing up to $2 million, PMC could be up to10% of the subtotal; above $2 million, PMC could be up to 5% of the subtotal. PMC should be charged proportionately to focal areas based on focal area project financing amount in Table D below.

| Sources of Co-financing | Name of Co-financier | Type of Co-financing | Amount ($) |
|---|---|---|---|
| Recipient Government | Ministry of Environment Protection and Agriculture of Georgia | In-kind | 250,000 |
| Recipient Government | Municipality of Sagarejo | In-kind | 340,000 |
| Recipient Government | Municipality of Kvareli | In-kind | 340,000 |
| Recipient Government | Municipality of Gori | In-kind | 340,000 |
| Recipient Government | Municipality of Kareli | In-kind | 340,000 |
| Recipient Government | Municipality of Sagarejo | Grants | 60,000 |
| Recipient Government | Municipality of Kvareli | Grants | 60,000 |
| Recipient Government | Municipality of Gori | Grants | 60,000 |
| Recipient Government | Municipality of Kareli | Grants | 60,000 |
| Academic Organization | University of Geneva | In kind | 250,000 |
| CSO | REC Caucasus | In-kind | 792,000 |
| CSO | REC Caucasus | Grants | 500,000 |
| Donor Agency | GIZ | In-kind | 530,000 |
| Donor Agency | WWF/KfW | In-kind | 588,000 |
| GEF Agency | UNEP | In-kind | 250,000 |
| **Total Co-financing** | | | 4,760,000 |

## D. TRUST FUND RESOURCES REQUESTED BY AGENCY(IES), COUNTRY(IES), FOCAL AREA AND THE PROGRAMMING OF FUNDS

| GEF Agency | Trust Fund | Country Name/Global | Focal Area | Programming of Funds | (in $) | | |
|---|---|---|---|---|---|---|---|
| | | | | | GEF Project Financing (a) | Agency Fee [a] (b)[2] | Total (c)=a+b |
| UNEP | GEFTF | Georgia | Land Degradation | | 1,452,968 | 138,032 | 1,591,000 |
| **Total Grant Resources** | | | | | 1,452,968 | 138,032 | 1,591,000 |

a) Refer to the Fee Policy for GEF Partner Agencies

## E. PROJECT'S TARGET CONTRIBUTIONS TO GLOBAL ENVIRONMENTAL BENEFITS[7]

Provide the expected project targets as appropriate.

| Corporate Results | Replenishment Targets | Project Targets |
|---|---|---|
| 1. Sustainable land management in production systems (agriculture, rangelands, and forest landscapes) | 120 million hectares under sustainable land management | 20,000 *hectares*[8] |

## F. DOES THE PROJECT INCLUDE A "NON-GRANT" INSTRUMENT? (Select)

(If non-grant instruments are used, provide an indicative calendar of expected reflows to your Agency and to the GEF/LDCF/SCCF/CBIT Trust Fund) in Annex D.

# PART II: PROJECT JUSTIFICATION

## A. DESCRIBE ANY CHANGES IN ALIGNMENT WITH THE PROJECT DESIGN WITH THE ORIGINAL PIF[9]

A.1. *Project Description*. Elaborate on: 1) the global environmental and/or adaptation problems, root causes and barriers that need to be addressed; 2) the baseline scenario or any associated baseline

[7] Update the applicable indicators provided at PIF stage. Progress in programming against these targets for the projects per the *Corporate Results Framework* in the *GEF-6 Programming Directions*, will be aggregated and reported during mid-term and at the conclusion of the replenishment period.

[8] Sum of the targets defined under Outcome 2.1 and Outcome 2.2

[9] For questions A.1 –A.7 in Part II, if there are no changes since PIF, no need to respond, please enter "NA" after the respective question.

projects, 3) the proposed alternative scenario, GEF focal area[10] strategies, with a brief description of expected outcomes and components of the project, 4) incremental/additional cost reasoning and expected contributions from the baseline, the GEFTF, LDCF, SCCF, CBIT and co-financing; 5) global environmental benefits (GEFTF) and/or adaptation benefits (LDCF/SCCF); and 6) innovativeness, sustainability and potential for scaling up.

| Topic | At PIF Stage | At CEO Endorsement Stage |
|---|---|---|
| Outputs:<br>Output 2.1.2 has been updated based on the carbon sequestration calculations. | 2.1.2 16,500 t CO2-eq sequestered through the restoration of 10,000 ha of degraded land through the application of windbreaks, soil quality, and natural vegetation rehabilitation. | 2.1.2 **35,761** t CO2-eq sequestered through restoration of 10,000 ha of degraded land through application of windbreaks, soil quality, and natural vegetation rehabilitation |
| The following two outputs were wrongly numbered. Output numberings corrected. | 1.1.5 LDN local transformative projects/programmes of actions, including resource mobilization plans developed for pilot municipalities<br>1.1.6 Integrated land-use plans developed for pilot municipalities based on the evaluation of the potential impacts of different land-use options. | **1.1.4** LDN local transformative projects/programmes of actions, including resource mobilization plans developed for pilot municipalities<br>**1.1.5** Integrated land-use plans developed for pilot municipalities based on the evaluation of the potential impacts of different land-use options. |

## A.1.1) Global environmental and/or adaptation problems, root causes and barriers that need to be addressed

### A.1.1.1 Global Environmental Problems

Georgia is located in the South Caucasus region. Georgia has a highly varied topography, with various ranges of the Caucasus Mountains crossing the country. Semi-humid, semi-arid and arid landscapes take up an area of 19.5 thousand $km^2$, or approximately 1/3 of the country's landscape, primarily in the eastern part of the country. During the winter, the aridity index of the country doubles on average. Georgia has a population of 3,720,400 and GDP per capita is approximately USD 3,500. Like most post-soviet countries, the formation of an independent, market-based economic system was a difficult ordeal for Georgia and led to years of civil unrest, armed conflicts, energy and transport blockades, the loss of traditional markets and suppliers along with the absence of new connections and suppliers, and high rates of workforce migration. Despite strong rates of economic growth demonstrated more recently, the rate of unemployment (12.72%) and poverty levels have remained high; according to 2016 data, around 1.27 million individuals (around 40% of the country's population) were registered in the Targeted Social Assistance (TSA) database.

Georgia's agricultural sector plays a key role in the country's economy, employing 53% of the country's workforce (National Statistics Office of Georgia), and the Government of Georgia identified agriculture as a key sector for rural development. Agricultural production is dominated by smallholder agriculture and small-scale livestock management that produces low-income levels, resulting in the rural population having the highest levels of poverty in the country.

There is a remarkable variety of landscapes, ranging from the subtropical Black Sea shores to the ice and snow of the crest line of the Caucasus. Such contrasts are made more noteworthy by the country's relatively small area. The Caucasian barrier protects Georgia from cold air intrusions from the north, while the country is open to the constant influence of warm, moist air from the Black Sea. Western Georgia has a humid subtropical, maritime climate, while eastern Georgia has a range of climate

[10] For biodiversity projects, in addition to explaining the project's consistency with the biodiversity focal area strategy, objectives and programs, please also describe which Aichi Target(s) the project will directly contribute to achieving.

varying from moderately humid to a dry subtropical type. There also are marked elevation zones. The Kolkhida Lowland, for example, has a subtropical character with moist, moderately warm climate, while in eastern Georgia, farther inland, temperatures are lower than in the western portions at the same altitude. Despite this, the area planted with crops has decreased throughout the country, and the share of agriculture in the gross domestic product of Georgia has decreased steadily; between 1990 and 2013, the share of agriculture in Georgia's GDP decreased from 31.6% to 9.3%[11]. Along with economic reasons, the decline in agricultural planting and production is a result of declining soil quality and productivity as well, which has caused significant areas of agricultural land to become unable to sustain economically viable production[12]. Poor soils are most prevalent in the eastern portions of the country where overgrazing and reduced precipitation have led to wind erosion. The eastern regions are subject to more strong and extreme erosion rather than western regions according to the country's land erosion index. In eastern Georgia, either land lacks the necessary irrigation to be productive, or they suffer from issues that stem from the irrigation such as waterlogging and salinization[13]. Salinization is especially problematic, affecting from 20 to 40% of all agricultural land in Georgia[14].

Agricultural land, including pastures, is spread over more than 3 million hectares in Georgia (43.4% of the territory)[15], while 56.6% of rest of the territory is covered by forests and other non-agricultural lands (*inland waters, settlement areas etc.*)[16].

According to 2012 data[17], about 767,300 ha of the total agricultural land was in private ownership, while 2,258,500 ha – mainly pastures - remained in state ownership (Table 1).

[11] Agriculture Development Strategy of Georgia 2015-2020 // Approved by the Government of Georgia - Ordinance #167 of February 11, 2015 / *see Share of Agriculture in GDP in Table 1: Sown Area, Livestock Numbers, and Share of Agriculture in GDP 1990-2013.*
http://www.moa.gov.ge/Ge/Public/Strategy/8

[12] Second National Action Program of Georgia to Combat Desertification 2014-2022 / Approved by the Government of Georgia - Decree #742 of December 29, 2014.
https://www.rec-caucasus.org/files/publications/pub_1481807666.pdf

[13] *Human activities can cause salinization through the use of salt-rich irrigation water, which can be exacerbated by overexploitation of ground water aquifers, or due to other inappropriate irrigation practices, and/or poor drainage conditions. The excessive use of water for irrigation in dry climates, with heavy soils, causes salt accumulation because they are not washed out by rainfall. The process occurs in cultivated areas where irrigation is associated with high evaporation rates and a clay texture of the soil* (Source: RECARE, 2017 - Preventing and Remediating Degradation of Soils in Europe through Land Care - http://www.recare-hub.eu/soil-threats/salinization#where)

[14] World Bank. 2007. Integrating Environment into Agriculture and Forestry, Progress and Prospects in Eastern Europe and Central Asia: Volume II, Georgia Country Review.

[15] Rural Development Strategy of Georgia 2017-2020 // Approved by the Decree #631 of December 30, 2016 of the Government of Georgia.
http://www.moa.gov.ge/Ge/Public/Strategy/9

[16] The land in Georgia is divided into two legal categories: land designated for agriculture (crops, meadows and pastures, including village settlements) and land designated for non-agricultural purposes (forests, water bodies and urbanized areas). The use of agricultural land for non-agricultural purposes is prohibited.

[17] Source: FAO. Assessment of the Agriculture and Rural Development Sectors in the Eastern Partnership Countries. 2012 // Environmental Performance Review : Georgia 2016 / Environmental Performance Reviews Series No. 43, Georgia - Third Review // The United Nations Economic Commission for Europe (ECE) Environmental Performance Review Programme / United Nations, New York and Geneva, 2016.
https://www.unece.org/fileadmin/DAM/env/epr/epr_studies/ECE_CEP_177.pdf

Table 1. Agricultural land use and tenure, 2012, thousand ha

| | Total | State owned | Privatized | % Privatized |
|---|---|---|---|---|
| Country | 6 970.0 | | | |
| Cropland | 801.8 | 363.3 | 438.5 | 54.7 |
| Perennial cultures | 263.8 | 180.5 | 83.3 | 31.6 |
| Meadows | 143.8 | 44.0 | 99.8 | 69.4 |
| Pastures | 1 796.6 | 1 712.1 | 99.8 | 5.6 |
| **Total** | **3 025.8** | **2 258.5** | **767.3** | **25.4** |
| **Total as % of country surface** | **43.4** | **32.4** | **11.0** | |

Of the total land area, 3,025,800 ha (43 percent) is used for agriculture. Because of the predominantly mountainous relief, much of the agricultural land is hayfields and pastures (around 1,800,000 ha, mostly state-owned). Arable land – which is very fertile – comprises approximately one-quarter of the total land stock. Since 2005, use of the country's arable land has been continuously decreasing and the area in use was as low as 259,700 ha (32 percent) in 2012: the owners in title of these lands have moved away, neither using the land nor arranging for its use by others, leaving it as uncontrolled pasture. In 2013, the area of used arable land rose again to 320,700 ha.

According to the Agricultural Census[18] results, as of October 1, 2014, there are 642.2 thousand holdings[19] in the country: of which 640.0 thousand households[20] and 2.2 thousand legal entities[21]. 30.9% of holders are women. Out of all holdings, 574.1 thousand holdings are operating agricultural land, while the rest 68.1 thousand holdings are not. There is 787.7 thousand ha of agricultural land operated by holdings, of which 86.5% (681.1 thousand ha) is operated by households and 13.5% (106.6 thousand ha) by legal entities.

As summarized in Figure 1 below, of 787.7 thousand ha agriculture land, 377.4 thousand ha is arable land; 109.6 thousand ha – land under permanent crops; 300.0 thousand ha – meadows and pastures; and, 0.7 thousand ha – greenhouses.

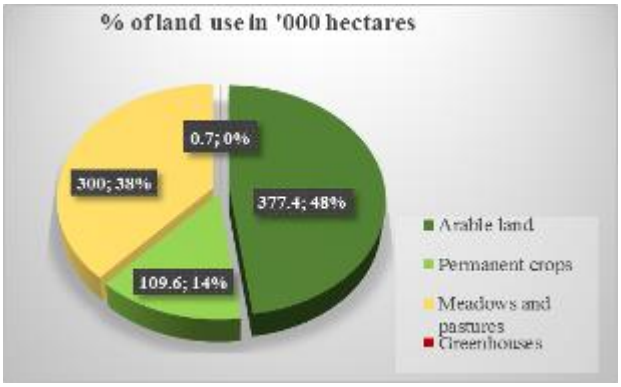
[18] Census of Agriculture 2014 / National Statistics Office of Georgia (GEOSTAT) / 28.04.2016. [*Note: Agricultural census covered all agricultural holdings in the country – all households and legal entities, who, as of October 1, 2014, were owning or temporarily operating agricultural land, livestock, poultry, beehive or permanent crop (agricultural), regardless the fact whether there was produced any kind of agricultural product or not during the reference year*]. http://census.ge/files/results/agriculture/AG%20Census%20Release_ENG.pdf

[19] During the Agricultural Census of 2014, Holding (Agricultural Holding) was defined as an economic unit engaged in agricultural production under single management without regard to its size and legal status. Economic unit, which operates agricultural land or permanent crop tree, but during the reference year has no agricultural production, is also considered as an agricultural holding. There are two types of agricultural holding: family holding and agricultural enterprise.

[20] During the Agricultural Census of 2014, Household was defined as a group of persons who observe the rules of common living and occupy a single dwelling and are connected by the shared budget (or a part thereof), and by relative or non-relative relationships (a household may consist of one person).

[21] Limited liability company, general partnership, limited partnership, joint stock company, cooperative, etc.

*Figure 1. Structure of agricultural lands operated by holdings*




Major portion of holdings operates in small-size land [22]. More than three-quarters of holdings (77.1%) manage agricultural land, which is less than 1 ha. Approximately half of the agricultural land possessed by households is arable land, 30% of which is uncultivated[23].

As of October 1, 2014, there is 377.4 thousand ha of arable land operated by holdings, of which 85.5% is operated by households and 14.5% by legal entities. The average area of arable land operated by holdings is 0.7 ha. 70.3% of the arable land area (265.4 thousand ha) is covered by temporary crops. 49.4 thousand holdings plant temporary crops in lands less than 1 ha. 3.5 thousand holdings operate lands in sizes of 5-10 ha, and 1.6 thousand holdings operate lands with an area of 10 ha and more. 44.6% of land under temporary crops is covered by maize, 18.6% - by wheat, 9.2% - by vegetables, and 9.2% - by barley.

The total area of land under permanent crops operated by holdings is 109.6 thousand ha. An average area of land under permanent crops is 0.4 ha. 93.5% of holdings operate lands under permanent crops with a size less than 1 ha. 17.6 thousand holdings operate land under permanent crops of size 1 ha, and 1.7 thousand holdings operate land with average size of 3 ha. 54.2%, 30.1%, 6.7% and 4.2% of land under permanent crops are orchards, vineyards, citrus plantations, and tea plantations respectively. Distribution of temporary and permanent crop types within total areas of temporary and permanent arable lands possessed by the holdings is summarised in Table 2 below.

*Table 2. Distribution of temporary and permanent crop types within total areas of temporary and permanent arable lands possessed by the holdings*

| Arable land type | Crop type | Area under cultivation (%) |
|---|---|---|
| Temporary croplands (100%) | Maize | 44.6 |
| | Wheat | 18.6 |
| | Vegetables | 9.2 |
| | Barley | 9.2 |

[22] Operated land consists of privately owned land and rented/leased land. Structure of the Land Operated by Holdings: as of October 1, 2014, there is 842.3 thousand ha of land operated by holdings, of which 87.2% (734.8 thousand ha) is privately owned land and 12.8% (107.5 thousand ha) is under temporary operation (e.g., lease).

[23] Rural Development Strategy of Georgia 2017-2020 // Approved by the Decree #631 of December 30, 2016 of the Government of Georgia.
http://www.moa.gov.ge/Ge/Public/Strategy/9

| | | |
|---|---|---|
| | Other | 18.4 |
| Permanent croplands (100%) | Orchards | 54.2 |
| | Vineyards | 30.1 |
| | Citrus plantations | 6.7 |
| | Tea plantations | 4.2 |
| | Other | 4.8 |

Land degradation is a significant problem for Georgia[24], which is an agrarian country. The forms of land degradation such as deforestation, wind and water erosion, landslides, overgrazing, soil exhaustion and soil contamination are spread throughout the country and are accompanied by socio-economic consequences. Desertification in eastern Georgia is accelerated by human activities, causing widespread severe erosion. Erosion and desertification have affected 300,000 ha of arable land and 700,000 ha of pasture land: the upland watershed ridges and most of the Kakheti ridge slope are overgrazed[25]. Due to the climate and the topography, natural soil erosion takes place also on quite a large scale in Georgia.

As per the latest estimate, about 35% of agricultural lands are degraded in Georgia[26]. Soil erosion, which has significantly increased in recent years, represents the most concerning form of land degradation in the country. More than 1 million hectares of land is affected by soil erosion. Of the total degraded land, 380 thousand hectares constitute arable land; pasture land and hayfields constitute 570 thousand hectares. In arid and semi-arid zones of Eastern Georgia, wind causes erosion on about 105 thousand hectares of arable lands in 18 administrative regions 59,220 hectares of soils have severe salinity or sodicity issues. [27]

Water erosion takes place mainly in the western part of the country and is accelerated by overgrazing and the ploughing of steep slopes. Wind erosion takes place in the eastern part and is due to the destruction of the wind shelter belts (out of a total of 2,000 km, 1,800 km were logged for firewood) and overgrazing by large sheep flocks[28].

Land degradation in Georgia is mainly occasioned by climatic conditions, topographical peculiarities of the country as well as anthropogenic factors. The geo-dynamic processes make the land more vulnerable to land degradation. Anthropogenic factors that cause land degradation in the country need urgent attention to limit the expansion of these factors and ensure cost-effectiveness of management

[24] National Environmental Action Programme of Georgia for 2012 – 2016 / Chapter 8 - Land Degradation // Ministry of Environment Protection and Natural Resources of Georgia // Approved by the Government of Georgia - Ordinance #127 of January 24, 2012.
https://www.preventionweb.net/files/28719_neap2.eng.pdf

[25] Environmental Performance Review : Georgia 2016 / Environmental Performance Reviews Series No. 43, Georgia - Third Review // The United Nations Economic Commission for Europe (ECE) Environmental Performance Review Programme / United Nations, New York and Geneva, 2016.
https://www.unece.org/fileadmin/DAM/env/epr/epr_studies/ECE_CEP_177.pdf

[26] Environmental Performance Review : Georgia 2016 / Environmental Performance Reviews Series No. 43, Georgia - Third Review // The United Nations Economic Commission for Europe (ECE) Environmental Performance Review Programme / United Nations, New York and Geneva, 2016.
https://www.unece.org/fileadmin/DAM/env/epr/epr_studies/ECE_CEP_177.pdf

[27] Third National Report of Georgia On the Implementation of the UN Convention to Combat Desertification (2006) / Ministry of Environment Protection and Natural Resources of Georgia, 2006.
http://archive.unccd.int/cop/reports/centraleu/national/2006/georgia-eng.pdf

[28] Environmental Performance Review : Georgia 2016 / Environmental Performance Reviews Series No. 43, Georgia - Third Review // The United Nations Economic Commission for Europe (ECE) Environmental Performance Review Programme / United Nations, New York and Geneva, 2016.
https://www.unece.org/fileadmin/DAM/env/epr/epr_studies/ECE_CEP_177.pdf

options. These anthropogenic factors include improper agricultural practices such as overstocking that leads to overgrazing, and absence of good soil fertility management practices; and lack of contour ploughing. Demographic dynamics are also a factor that cannot be ignored in the status of land degradation in the country. As population increases, pressure on the land and related resources will equally increase.

According to the recent data of the Ministry of Agriculture of Georgia, the low-yield agricultural lands occupy large areas:

- Saline and sodic soils – 205 thousand hectares (6.7% of the total area of arable lands);
- Acid soils - 300 thousand hectares (11% of the total area of arable lands)
- Marshy soils – 210 thousand hectares (7.3% of the total area of arable lands)
- Eroded soils - 1 million hectares (33% of the total area of arable lands).

The gravity of low national yields of agricultural land in the country is exacerbated by continued soil nutrient depletion. Soil nutrient depletion has led to nutrient imbalance, making agricultural land less productive per unit area. This further poses a great concern because there is insufficient application of good soil management practices in agricultural land. This, therefore, makes the soil less productive for the generation of global environmental benefits as well as the socio-economic well-being of communities that depend on it for their livelihood. This is an opportune time to invest in rehabilitating the degraded lands before productive capacity weakens even further. Timely interventions to rehabilitate the land will prove to be cheaper now than later.

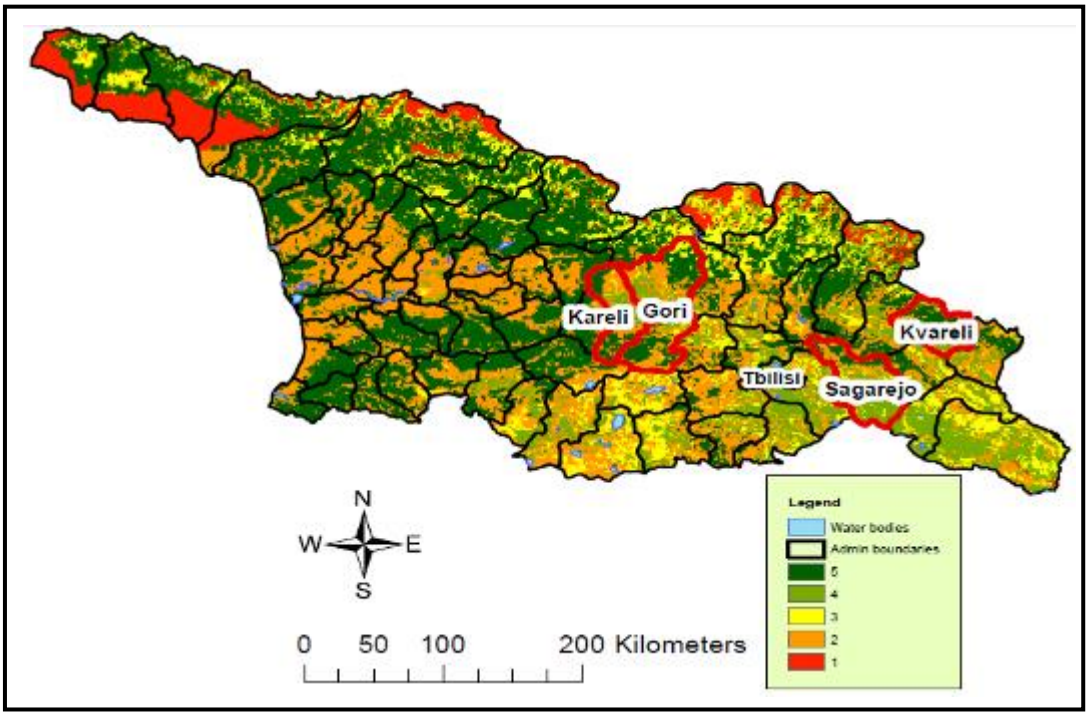
Land Use Patterns and Land Degradation in Kareli, Gori, Sagarejo, and Kvareli municipalities

Kareli, Gori, Sagarejo, and Kvareli have been identified as the pilot municipalities for this project (see map 1 below for the location of these municipalities). The numbers 5 to 1 indicate the relative 'greenness' of Georgia regarding the land cover. The Shida Kartli region (within which Kareli and Gori municipalities lie) and Kakheti region (within which Sagarejo and Kvareli municipalities lie) have been identified as "the most vulnerable areas prone to desertification"[29]. The four most vulnerable municipalities in these regions have been defined according to values and coefficients of vulnerability indicators for Georgia[30]. The communities of these four municipalities have a limited portfolio of assets, including technical know-how to enable them to address the challenges of land degradation. There is, therefore, a poverty-SLM nexus that needs urgent interventions to support the avoidance, arrest and reversing of land degradation in the municipalities. As has already been noted, land degradation is severely affecting the livelihoods of people. With limited levels of success, owing to lack of knowledge and skills, very few sustainable land management practices are currently implemented in the four municipalities.

[29] Second National Action Program of Georgia to Combat Desertification for 2014-2022 / Approved by the Government of Georgia - Decree #742 of December 29, 2014.
https://www.rec-caucasus.org/files/publications/pub_1481807666.pdf

[30] Assessment of Vulnerability Profile Indices for Georgia (2012) / by Dr Darko Znaor // Identification and Implementation of Adaption Response to Climate Change Impact for Conservation and Sustainable Use of Agro-biodiversity in Arid and Semi-arid Ecosystems of South Caucasus / Report was carried out with support from the REC Caucasus and was funded by European Commission under the "Environment and Sustainable Management of Natural Resources, Including Energy Programme", 2012.
https://www.rec-caucasus.org/files/publications/pub_1481807488.pdf

Map 1. Showing the relative land cover of Georgia and the target municipalities




Source: Map created based on data from http://www.diva-gis.org/gdata and http://www.gadm.org/country

**Gori Municipality:** Covering an area of 232,720 ha[31], the municipality consists of 1% urban, 56% cropland-grassland mosaic and 43% forest area. The agricultural land is 61,902 ha[32] 22,293 ha of arable lands, 11,000 ha of perennial plantations, 1,988 ha of hayfields, and pastures covering 27,621 ha). According to 2014 general census, the population of Gori municipality is 125,692 of which 60,744 are male, and 64,948 are female. 48,143 people live in the city and 77,549 in villages. The number of households in the municipality is 38,284, of which 15,021 are in the city and 23,263 in villages. The main income of the 75% of the population is from agriculture. Important crops include wheat, barley, corn, and Lucerne. The horticultural sector is well developed in this municipality, with farmers grow apple, pear, peach, grapes.

In Gori municipality, 81,912 people's major income source is agriculture[33]. Arable land (14,790 ha) is the dominant agricultural land category followed by land under permanent crops (33.4%) and natural meadows and pastures (14.5%). Cereal (6,217), and maize (3,208 ha) are the major annual crops in Gori. A considerable area of arable land is used for cultivating vegetables (2,538 ha). 29.5% of the total arable land is uncultivated. Orchards (9,062 ha), and vineyards (255 ha) are major permanent crops in Gori. One of the main parameter supporting high land productivity under agricultural production is the provision of irrigation water.

Animal husbandry is the second largest sub-sector of agriculture after plant production. Animal husbandry uses the considerable part of the agricultural land, especially pastures and haylands, but also

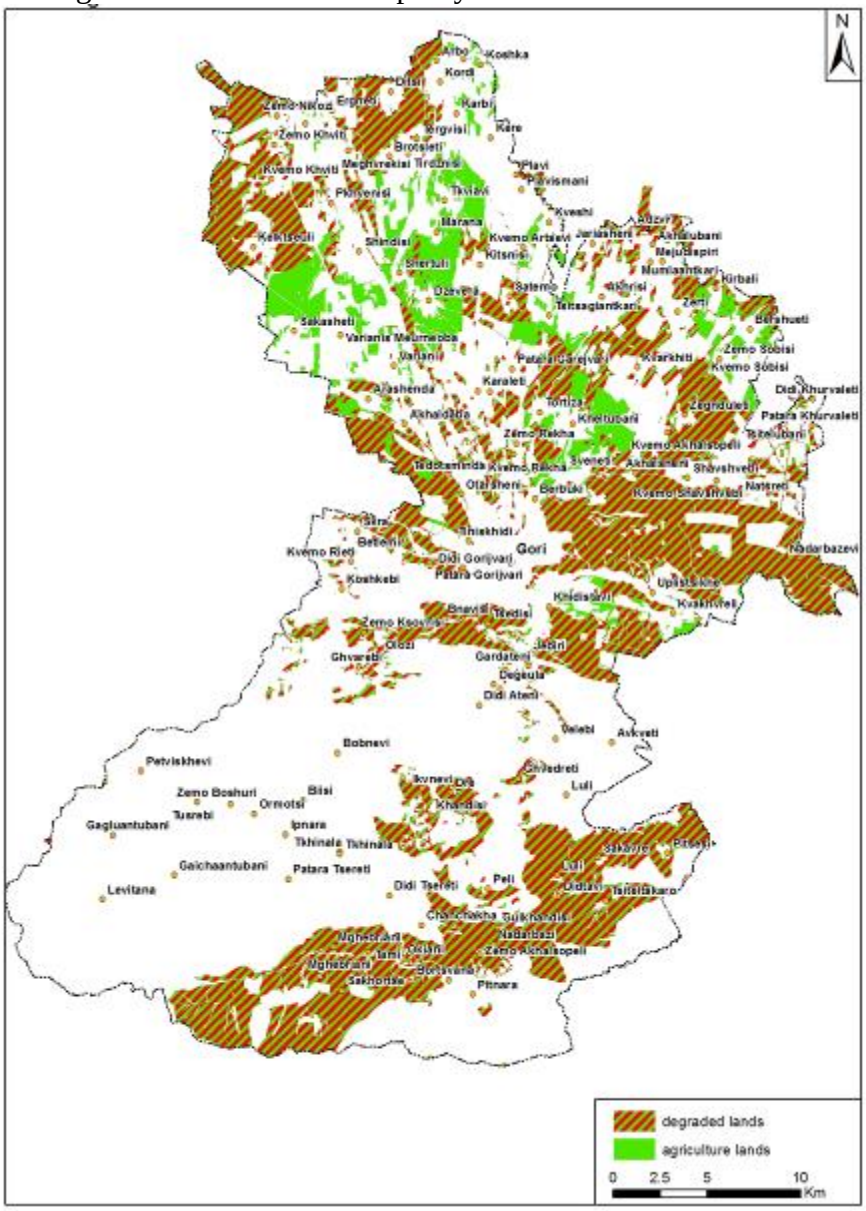
[31] Some northern territories of the Gori municipality are part of a self-proclaimed republic of South Ossetia (*currently under de-facto control of Russian Federation*) and have not been under control of the Georgian government since 2008.
[32] The agricultural land of *61,902* ha lays within an area of roughly 135,200 ha (*out of total232,720 ha*) of the Gori municipality that remains under direct control of the Georgian government.
[33] Census of Agriculture 2014 / National Statistics Office of Georgia (GEOSTAT) / 28.04.2016. http://census.ge/files/results/agriculture/AG%20Census%20Release_ENG.pdf

require a substantial area of arable land for fodder production. In Gori beekeeping is an important field of agriculture as well accounting 4,596 beehives.

In Gori Municipality, key indicators of land degradation are listed below, and map 2 depicts land degradation patterns:

- Land productivity is severely reduced on approximately 20,000 ha agricultural land due to improper irrigation practices;
- About 1,000 ha of agricultural land is degraded due to man-made waterlogging;
- About 14,157 ha of Agricultural land is degraded because of water and wind erosion;
- 233 ha of agriculture land suffer from salinization.
- 30 years ago, 1,499 ha of the territory was covered by windbreaks, however, 80% has been lost.

Map 2. Land Degradation in Gori Municipality



**Kareli Municipality:** The municipality is situated in the centre part of Shida Kartli and covers 111,000 ha[34]. Agricultural lands in Kareli Municipality cover 36,407 ha[35], including 18,302 ha of arable lands, 4,678 ha of perennial plantations, 1,764 ha of hayfields and 11,762 ha of pastures. Forest area covers 26,746 ha. The population of Kareli municipality is 51,600, and the main economic activity of the municipality is horticulture. Agriculture provides 70% of the population's livelihood. Kareli is suffering from severe land degradation due to water and wind erosion (8,677 ha), and salinization (450 ha)36. 80% of windbreaks have been destroyed. Key crops include wheat, corn and barley. Horticulture plays an important role in the agriculture sector. Farmers grow apple, pear, and peach.

42,187 live in agricultural households (Agricultural Census of Georgia. Geostat, 2014) in Kareli. These households are main force involved in agricultural production consisting of 12,516 household holdings, which make-up 99.7% of agricultural holdings (12,548). Arable land (12,386 ha) is the dominant land category operated by agricultural holdings (69.6%), followed by natural meadows and pastures (15.9%), land under permanent crops (14.5%) and greenhouses (0.006%). The total land operated by agricultural holdings under annual crops occupy 9,618 ha, from which grain cereals are sown on 4,979 ha dominated by barley. A considerable area of arable land is used for cultivation of vegetables (2,059 ha) and beans, peas, oats, etc. (1,678 ha). Uncultivated land equals to 22.3% of the total arable land. Currently, in Kareli municipality, 7.2% of agricultural land operated by agricultural holdings (1,297 ha) is in need of irrigation water, which severely impacts the production capacity of those lands.

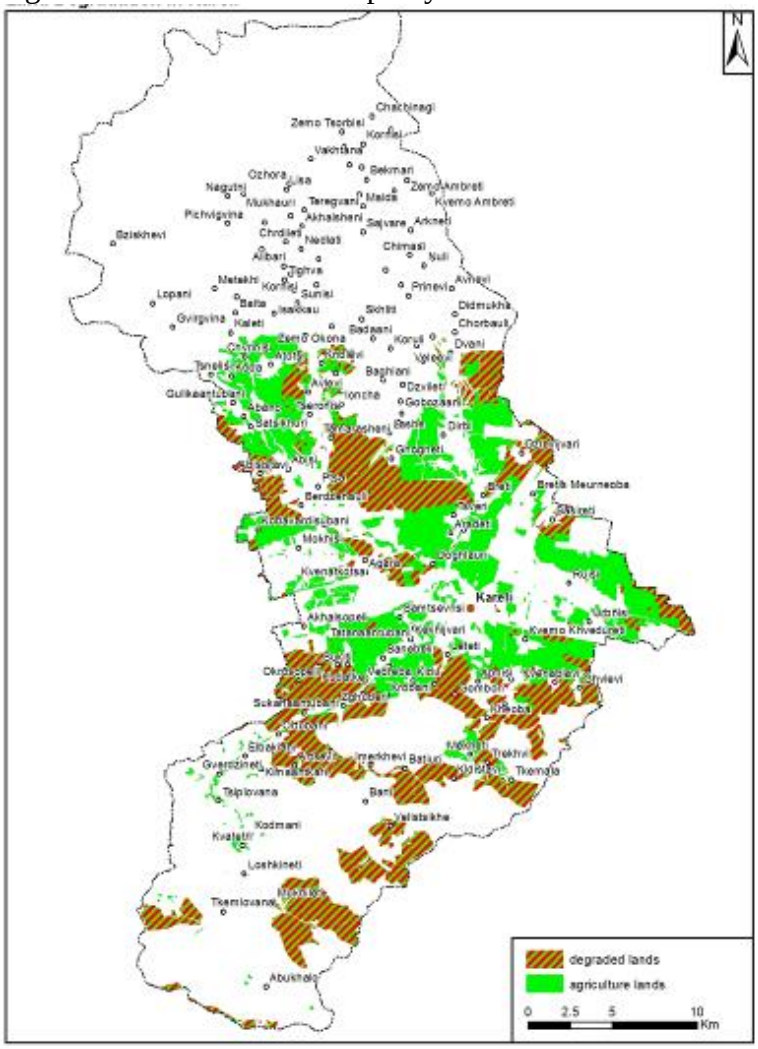
Animal husbandry is the second field of agriculture after plant production in Kareli, which uses the considerable part of the agricultural land, especially pastures and hay lands, but also require a substantial area of arable land for fodder production. In Kareli beekeeping is an important field of agriculture as well accounting 2,569 beehives.

In Kareli Municipality:

- Land productivity is severely reduced on approximately 8,000 ha of agricultural land due to unsustainable irrigation practices;
- About 150 ha agricultural land is degraded due to waterlogging;
- About 8,677 ha of land is suffering from severe land degradation due to water and wind erosion, and 450 ha of land is salinized;
- 30 years ago, 601 ha of the territory was covered by windbreaks, similar to Gori, 80% has been destroyed.

[34]Some northern territories of the Kareli municipality are part of a self-proclaimed republic of South Ossetia (*currently under de-facto control of Russian Federation*) and have not been under control of the Georgian government since 2008.
[35]The agricultural land of 36,407 ha lays within an area of roughly 66,800 ha (*out of total 111,000 ha*) of the Kareli municipality that remains under direct control of the Georgian government.
[36] Regional Development Strategy of Shida Kartli (*Khashuri, Kareli, Gori, Kaspi Municipalities*) Region for 2014-2021 // Approved by the Government of Georgia - Ordinance #1364 of September 17, 2013.
http://www.mrdi.gov.ge/sites/default/files/shida_qartli_regional_development_strategy_2014-2024_0.pdf

Map 3. Land degradation in Kareli Municipality




**Sagarejo Municipality:** Covering an area of 155,369 ha, the municipality is situated in the western part of the Kakheti region. The major land covers are cropland-grassland mosaic (71%) and forests (29%). The municipality has a population of 59,400, and the main economic income of the municipality is agriculture. Rangeland sums to 56,884 ha, of which 40% is degraded due to overgrazing, 400 ha of arable land is degraded because of water and wind erosion and salinization, about 70% of windbreaks have been destroyed. Wheat, seed corn and sunflower are mainly sown in Sagarejo. Internal irrigation networks have fully collapsed, which adversely affect productivity and agricultural production. 34% of agriculture lands are privately owned, 61% of lands are state-owned, and 5% is the municipality property. The comparative lack of perennial plants in Sagarejo district is also reflected in the structure of existing orchards. Apples, and hazelnuts, which have significant revenue and export potential, are not grown in the region anymore.

In Sagarejo Municipality 6,094 ha from total agricultural land is private, 38,288 ha belongs to the state (source: municipality of Sagarejo). Homestead areas in total covers 1,430 ha, of which 889 ha is arable, 447 ha under perennial crops, hayfields – 10 ha, pasture – 84 ha. 53,039 people live in agricultural households in Sagarejo (Agricultural Census of Georgia. GeoStat, 2014). These households are the main workforce of the agricultural production. There are 13,549 household holdings, which make-up 99.3% of the total number of agricultural holdings (13,639). Natural meadows and pastures (40,766 ha) is the dominant land category (64.2%), followed by arable land (19,450 ha). 16.6 % of arable land (3,229 ha) is under permanent crops and, 0.005% (1 ha) greenhouses. Total land operated by agricultural holdings under annual crops is around 11,711 ha.

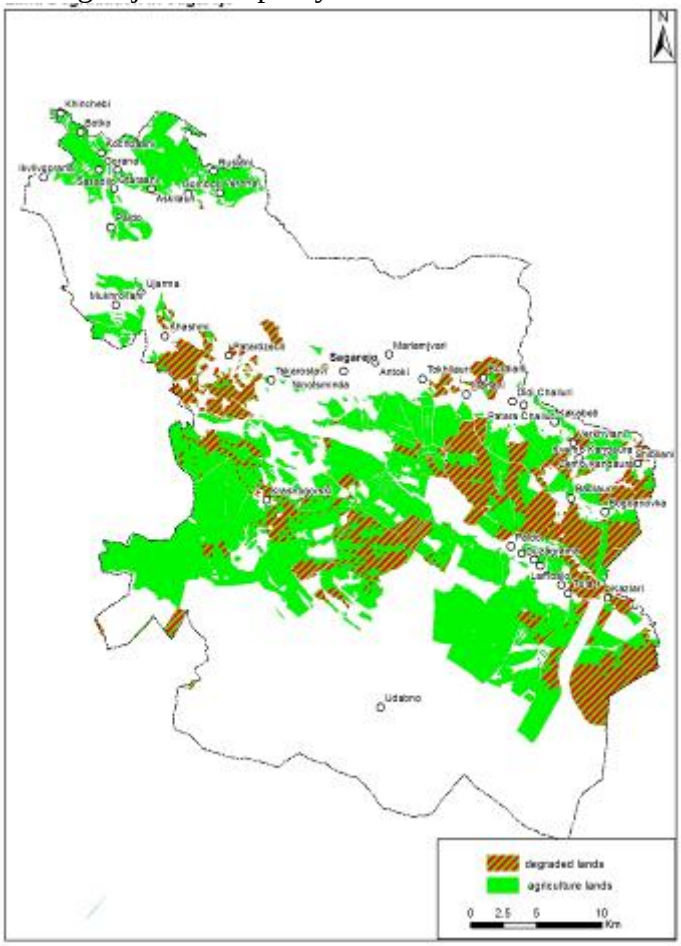
Cereals (9,428 ha) are the dominant crops in Sagarejo. Sunflower (788 ha), vegetables (442 ha) and fodder crops (366 ha) are the next major annual crops. Total agricultural land under permanent crops consists of vineyards (3,025 ha) followed by orchards (184 h). 58% of agricultural land operated by agricultural holdings (9,355 ha) is in need of irrigation water, which severely impacts production capacity of those lands.

Animal husbandry is another field of agriculture in Sagarejo, which uses the biggest part of the agricultural land, especially pastures and haylands. Animal husbandry also requires a considerable amount of the arable area for fodder production. Beekeeping and honey production is also important agricultural production in Sagarejo.

In Sagarejo Municipality:

- On approximately 60% of agricultural land productivity is declined due to unsustainable irrigation practices;
- Up to 47,000 ha of lands have high salinity and sodicity issues;
- About 300 ha agricultural land is degraded due to waterlogging;
- 40% of pasturelands is degraded due to overgrazing;
- 30 years ago, 300 ha of the territory was covered by windbreaks, 70% has been destroyed.

Map 4. Land degradation in Sagarejo Municipality




**Kvareli Municipality:** Situated on the eastern border of Georgia, covering 96,500 ha, with 35% grassland-cropland mosaic and 65% forest area. The municipality is sparsely populated with 37,658 people. The municipality's land is severely degraded because of water erosion. Land degradation is affecting the community of Kvareli because 80% of the population depends on agriculture in the

municipality. Agriculture is predominantly viticulture in Kvareli municipality. The old vineyards are very sparse, and their productivity is low (2-2.5 t/ha).

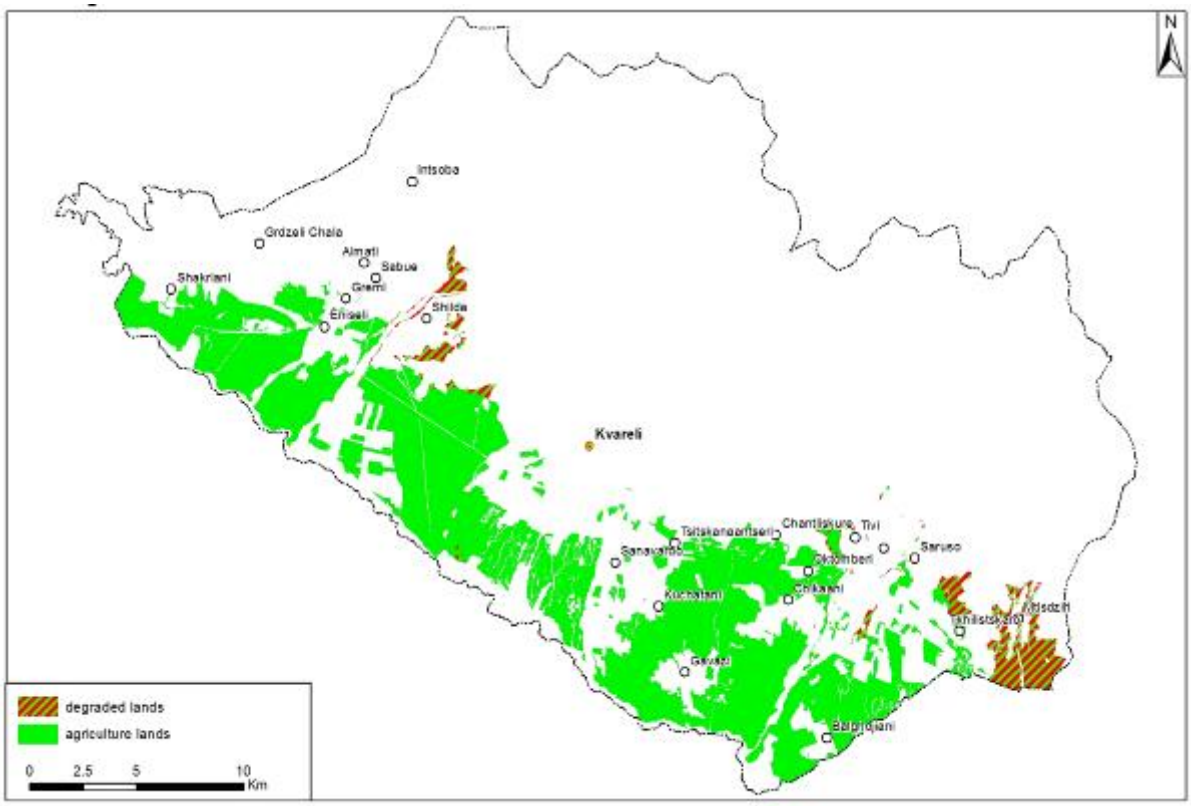
The number of population living in agricultural households is equal to 30,500 (Agricultural Census of Georgia. GeoStat, 2014) in Kvareli Municipality. These households are the main workforce of agricultural production. Total land operated by agricultural holdings under annual crops occupy 7,005 ha. Cereal production (5,420 ha) is the major annual crop. Total agricultural land under permanent crops consists of vineyards (4,502 ha), followed by orchards (1,635 ha) and berries (64 ha). Only 5 ha of land is occupied by nurseries of perennial crops. Currently, nearly half of the holdings (4,525 ha agricultural land) are in need of irrigation water.

Animal husbandry is the second major field of agriculture, which use considerable agricultural land, especially pastures and hay-lands, but also require arable land for fodder production. Kvareli municipality leads in beekeeping and honey production in Georgia with 11,078 beehives.

In Kvareli Municipality:

- Approximately 500 ha agricultural land is degraded due to waterlogging;
- Up to 10,000 ha of pastures and meadows are degraded due to overgrazing;
- About 1,000 ha of arable land is degraded due to impoverishment/depletion of soils.
- 60 ha of windbreaks has been left, whereas 300 ha of the territory was covered by windbreaks 30 years ago.

Map 5. Land degradation in Kvareli Municipality



### A.1.1.2 Institutional, policy and legal framework context

The Ministry of Environment Protection and Agriculture (MEPA) of Georgia is the main national policy-making institution in the field of land resources and soil protection. According to the national legislation, land degradation and soil protection related aspects are directly linked to the competences of the MEPA. The MEPA coordinates the planning and implementation of measures against land degradation and desertification. It also participates in the process of developing and implementing the overall government policy of sustainable management concerning soil protection.

The Ministry also has overall responsibilities for agricultural production, soil fertility, plant protection, livestock breeding and agricultural engineering and is responsible for carrying out state control over irrigation systems. Irrigation systems are state-owned, and state-managed through the Ministry's LTD "Georgian Amelioration". The laboratory for undertaking scientific research on soil degradation and soil monitoring is a part of the MEPA. It also performs the basic soil analysis for farming enterprises and supports the so-called "extension centres" established in the regions of Georgia.

The responsibility for soil quality monitoring falls under the National Environmental Agency under the MEPA. The state soil monitoring system was terminated in 1991, and it was re-established only in 2013 for large industrial cities of Georgia to measure contamination with heavy metals. Currently, samples are analyzed in about 30 settlements for the content of heavy metals. The intention is to extend the soil quality monitoring network and improve the monitoring capacity. As for the scientific institutions, the Institute of Soil Science, Agrochemistry and Melioration[37] is the only research organization operating in Georgia. However, its capacity is very limited and therefore, its contribution to evidence-based decisions regarding soil issues is limited.

The main legislation on soil protection in Georgia is the Law on Soil Protection (1994). The law aims to ensure the integrity of the soil surface, conservation and increased soil fertility. The Law prohibits the removal of topsoil from construction sites without preliminary sanction from the MEPA and requires the removed topsoil to be stored for reuse. In the case of temporary use of the land from where the soil is planned to be removed, such as cases of mining or a landfill, the area must be re-cultivated using the stored topsoil.

Other significant pieces of legislation in the field of soil protection are the bye-law on Conservation of Soils and Reclamation and Improvement of Soil Fertility (2003) and the law on Soil Conservation and Fertility Restoration and Improvement (2003). The following legal acts on the agricultural land use and food security also set criteria for the use of the soil and land:

- The law on Pesticides and Agrochemicals (1998)
- The law on Vinery and Wine (1999)
- The law on New Species of Plants and Animals (2010)
- The Code of Food and Animal Food Safety, Veterinary and Plant Protection (2012)

National legal and policy framework is significantly influenced by the international treaties and agreements. In this respect, The UN Convention to Combat Desertification (UNCCD) is the key

[37] Institute of Soil Science, Agro-chemistry and Melioration is part of the Agricultural University of Georgia. The Institute carries out research in soil cover and soil protection, mechanism of development and maintenance of its rational use. The following tasks reinforce this vision: Soil genesis (origin, development) issues, including the formation of conditions of stability, the study of evolution; Environmentally friendly methods of the rational use of soils; The development of effective methods of soil protection; Study of various soil covers through different mapping; Publicity of the information obtained in the field, preparation of hands-on advice; Practical approaches to soil protection and rational use and their introduction to rural population; Participation/organization in scientific conferences in the field of soil science; Research Grants; Training of young staff in the field of soil science.
Source: http://www.agruni.edu.ge/node/906

multilateral environmental agreement. As agreed and adopted by member states at the 2015 Ankara UNCCD Conference of Parties, Land Degradation Neutrality (LDN) has become the major initiative of the UNCCD to support members. This came as the UNCCD's commitment to the SDG Target 15.3 to combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land-degradation-neutral world. Proposed components and respective activities support national government efforts to contribute to the implementation of LDN activities geared to combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods. The major focus of LDN is Sustainable Land Management (SLM) practices that help to close yield gaps and enhance the resilience of land resources and communities that directly depend on them while avoiding further degradation.

At the regional level, there is no specific soil related directive in the EU-Georgia Association Agreement (AA). However, the approximation of national legislation on water, air, chemicals, waste with the EU directives, as required by the AA, will influence soil related legal framework (i.e. draft law on environmental liability) and this sector will benefit in terms of framing better legal and policy framework.

Georgia's Second National Action Program to Combat Desertification (NAP) for the years of 2014-2022 is the main national strategic document for combatting with desertification/ land degradation. The NAP defines national objectives and proposes the action plan that Georgia commits to implement by 2022. The aligned NAP addresses the international priorities identified and already established by the 10-year strategy of UNCCD.

Another national policy document is the Agricultural Development Strategy (2015-2020), which considers land degradation aspects as one of the most acute problems in agriculture management sector in Georgia. Improper management of pesticides and fertilizers, problems in drainage systems and uncontrolled management of waste as well as natural disasters intensified by climate change are defined as the major causes for decreasing the fertility of land resources. The document identifies the set of measures for the improvement of the situation. This includes proper management of fertilizers and pesticides, waste monitoring, improvement of melioration infrastructure and implementation of early warning systems for natural disaster management.

Environmental protection and sustainable management of natural resources is one of the priority axes of the Rural Development Strategy for 2017-2020. Although no specific objective or measure is defined for soil degradation, the actions like the improvement of the management of water, forest and other resources, as well as promotion of sustainable systems of waste management, etc. will bring indirect benefits for soil protection.

### A.1.1.3 Causes of land degradation and barriers to SLM

Land degradation has accelerated in Georgia in recent years due to the increasing and combined pressures of agricultural and livestock production, urbanization, deforestation, and extreme weather conditions such as droughts. These land degradation processes are resulting in the loss of soil fertility, loss of land cover, reduced productivity, encroachment on natural forest areas, reduced carbon sequestration capacity, and increased vulnerability to natural disasters and climate change impacts. The most important threats to the land degradation in Georgia are the following:

- **Unsustainable agricultural practices:** A significant contribution to the transformation of the natural environment in Georgia is related to the impacts of agricultural activities. Many farmlands have been impacted by soil salinization, waterlogging, declines in soil quality, and soil erosion. Soil erosion is caused by both natural factors and anthropogenic influences including unsustainable land management. The decrease in the fertility of land resources is

caused by improper management of pesticides and fertilizers, problems in drainage/irrigation[38] systems.

The lack of crop rotation and non-compliance with agro-technical norms has greatly decreased soil fertility, while excessive grazing has caused loss of grass cover and significant erosion. Agricultural expansion has also resulted in the drying out of wetland areas important for regulation of hydrological flows and as biodiversity habitat.

- **Wind erosion caused by the absence of windbreaks.** During the 90s almost 90% of the windbreaks have been destroyed because of cutting and de-pasturing in windbreaks territories, which significantly increased the wind erosion processes, especially in Gori. Lands previously occupied by windbreaks were seized by owners of adjacent plots and brought under cultivation. Local farmers have low awareness and knowledge of the importance of windbreaks for maintaining the fertility of the land. In recent years, no actions have been taken to restore windbreaks, neither by national and local authorities nor by local farmers. Currently, there is no legal basis for windbreaks protection and maintenance.
- **Loss of natural vegetation and soil quality caused by overgrazing, low awareness and lack of knowledge of local farmers and absence of regulations and management plans to ensure sustainable use of pasturelands.** Pasturelands are degraded due to the overgrazing (excessive or disorganized grazing). Overgrazing promotes the replacement of the original vegetation by unpalatable or grazing-resistant species ("weeds") and leads to lower species diversity. In the spring, the flock grazes intensely the new germinating annual forbs and neglects the less palatable grass and bushes. This affects the botanical composition and the productivity of the pastures. The processes of land degradation and erosion which began in the Soviet period have now reached critical levels in some areas; without urgent restoration activities, they may soon become irreversible[39]. While privatization of arable land in Georgia is at an advanced stage, most Georgian pastures are owned by the state and are in fact pastured under a regime of free access. Management measures and investments on pasture by pasture users or the state/the municipality as the pasture owners are largely absent. Cadaster of pasturelands is not conducted, so pasturelands are not registered, fenced/marked and delineated. Consequently, area and exact physical borders of pasturelands are uncertain in many areas. In many regions of Georgia, the status of livestock-based activities is low, secondary to fruit and crops. Moreover, in most regions of Georgia, pasture-based activities oriented toward self-sufficiency rather than at cash generation. Both factors limit the readiness of farmers to invest money or labor and venture in new sustainable practices[40]. Lack of know-how at different levels limits the productivity of pasture-based agricultural branches. A knowledge system that effectively can retain and convey knowledge is absent. Limited control from the state authorities, rural poverty, limited alternative livelihood opportunities, improper range management, and a lack of awareness in shepherds and livestock owners are considered to be main causes of overgrazing in the country.
- **Reduction of area and quality of forests due to illegal extraction and inappropriate forest**

[38] Poor irrigation practices and deteriorated collector drainage and irrigation networks contributed to water logging and secondary salinization. Waterlogging and salinization affect 20 per cent of all irrigated land: e.g., in the Alazani plain 8,000 ha of the 40,000 ha are salinized and the problem seems to have worsened in recent years. The inappropriate irrigation of soils containing gypsum and clay in mountainous areas induces the washing out of soil and the accumulation of these components in the plain. Inadequate irrigation causes processes of secondary salinization/waterlogging and accelerates by use of acidic nitrous fertilizers (urea). Urea is known for contributing to soil acidification and 11 per cent of the agricultural land is reported affected by acidity.

[39] National Biodiversity Strategy and Action Plan of Georgia 2014 – 2020 // Approved by the Government of Georgia - Decree #343 of May 8, 2014.
https://www.cbd.int/doc/world/ge/ge-nbsap-v2-en.pdf

[40] Pasture Management in Georgia : Current Situation, Frame Conditions, Potentials of Development (2015) / by Martin Raaflaub and Lukas Marek Dobry Tbilisi, August 2015 / Swiss Cooperation Office for the South Caucasus - SCO.
https://www.fdfa.admin.ch/dam/countries/countries-content/georgia/en/Pasture%20Management%20In%20Georgia%202015.pdf

**management:** Forests play an essential role in the protection of soils and water resources. Loss of forest often leads to erosion, increased risk of flooding and water shortage. Even though Georgia is rich in forest resources, most of its forests are degraded due to unsustainable forestry practices. Further degradation could cause a sharp decline in protection functions and self-restoration ability, which in the medium to long term could lead to irreversible degradation of forest ecosystems. Core drivers of forest degradation are unsustainable logging, unsustainable grazing and neglectful or environmentally harmful forest management practices[41]. Illegal and unsustainable levels of forest cutting for timber harvesting and fuelwood gathering are the major drivers of the deforestation in the selected Municipalities. The tree cover loss calculated for the forests with canopy density larger than 30% in the period of 2001-2014[42] for the municipalities of Gori, Kareli, Sagarejo and Kvareli are respectively 216 ha, 42 ha, 71 ha and 133 ha. Deforestation in these municipalities increases the intensity of wind and water erosion on agricultural lands. In combination with unsustainable logging, excessive grazing is causing severe damage to forest ecosystems. Overgrazing by livestock (cattle, sheep, goats and pigs) is a threat in certain locations near settlements, especially for winter pastures, where grazing is often shifted to nearby forests.

- **Climate change:** Georgia's Third National Communication to the UNFCCC, published at the end of 2015, revealed that during the last 50 years the average annual temperature in Georgia has demonstrated an increasing trend. During the last 25 years, the average annual temperature has increased by 0.4 - 0.5 $^0$C in East Georgia. According to forecasts, warming will continue, and an increase in the average annual temperature up to +3.2 $^0$C is anticipated in the Eastern part of Georgia by 2100. Analyses of climate change based on the two (A2, B2) world social-economic development scenarios, demonstrate that average annual temperature and the frequency and severity of droughts will increase in Gori, Sagarejo, Kareli and Kvareli. All these municipalities are vulnerable to climate change impacts in terms of both economic productivity and functioning of natural ecosystems.

There are sustainable land management (SLM) projects/programs aimed at addressing land degradation and erosion control in Georgia. These have been successfully piloted by cooperation partners, UN agencies, civil society organizations and the government. The best practices in these initiatives are ready for institutional/policy mainstreaming as well as for up-scaling and out-scaling at all levels. However, progress in mainstreaming of these best practices which will promote SLM practices faces several barriers, bottlenecks and gaps which must be addressed. These include the following:

Inadequate baseline information, policies, plans and finance at local scale to contribute to achieve the LDN target: Comprehensive land use plans at the national, regional and local levels, which ensure proper establishment of LDN targets, are lacking. At present many municipalities (including those targeted by this project) do not have any land use planning processes or capacities. Moreover, planning and effective decision-making process to achieve land degradation neutrality at municipal level is extremely difficult if not impossible due to limited baseline information. Relevant data (the minimum

[41] Forest Strategy for the Southern Caucasus : Armenia, Azerbaijan, Georgia and North Eastern Turkey (2005). Edited by : Frank Mörschel and Malkhaz Dzneladze / WWF, 2005.
http://assets.panda.org/downloads/wwf_forest_strategy_for_the_southern_caucasus.pdf

and

National Environmental Action Programme of Georgia for 2012 – 2016 / Chapter 7 - Forestry // Ministry of Environment Protection and Natural Resources of Georgia // Approved by the Government of Georgia - Ordinance #127 of January 24, 2012.
https://www.preventionweb.net/files/28719_neap2.eng.pdf

[42] Source: Global Forest Watch Database.
http://www.globalforestwatch.org/country/GEO

set of indicators for tracking LDN are: land cover; land productivity-net primary productivity; carbon stocks above and below ground - soil organic carbon) to serve as baseline and help track the progress towards achieving LDN is lacking.

The institutional and governance issues at municipal level are major barriers that hinder the adoption of sustainable land management practices. Municipalities' weak land and land-use policies do not effectively protect land resources. This is also weakened by the poor capacity of the municipalities and lack of technical and financial resources coupled with a deficiency of political will, lack of cross-sectoral dialogue at local level and the same time lack of dialogue between local and national stakeholder groups for enforcement of related land policies. The national commitment and response to the global LDN agenda hinge on the successful implementation of the agenda at the local scale. There is a need to raise the local priority on the effective implementation of Sustainable Land Management Policy. This will also depend very much on the improvement of planning and implementation capacities of local institutions in charge of agriculture, land and land-use policy implementation. The absence of integrated sustainable land use plans at the local level is a major barrier that harms establishment of the sustainable land management system and proper reflection of LDN targets in spatial and agriculture development planning of the municipalities.

The adoption of sustainable land management practices is also constrained by economic and financial factors, which largely affect the levels of investment in SLM related activities. Low public and private investment present a serious constraint for the adoption of SLM in Georgia. Lack of economic evaluation of agricultural systems, practices, products, or policy scenarios against a comprehensive range of impacts and dependencies across the value chain is a barrier to understand the benefits of SLM practices in the long run.

Limited experience and absence of identified best practices for sustainable land management interventions: Extension services to support crop and livestock production is limited. Furthermore, existing programs ('Strengthening Extension and Advisory Services in Georgia' funded by USAID) do not support sustainable land management or climate safe agriculture approaches, and as a result there is very little experience in Georgia in implementing practices such as the sustainable use of chemicals, modern irrigation and land cultivation technologies, and the use of agro-ecological techniques such as landscape planning, windbreaks, crop rotation, soil filtering, etc. There are clear indications of technology and knowledge gaps and barriers to adoption of smart agriculture and SLM related practices. One of the constraints is lack of expertise/low capacity of farmers and local communities to use land more sustainably, enhancing productivity without degrading land resources, which can be partly attributed to low investment in new technologies and capacity building support from governmental or external resources. Agricultural productivity of Georgia is low: between 2006 and 2012, the average wheat yield was 1.5 tons/ha and that of maize 2.2 tons/ha[43]. The reasons for this, *among other things*, are very small family farms, a low degree of entrepreneurship, the lack of cooperative development, limited educational opportunities and the low use of agricultural inputs. Unfavorable social and behavioural characteristics among various stakeholders particularly that of farmers are a major constraint in the efforts to promote SLM approaches. Declining soil fertility and productivity of land, vulnerability to climate variability especially persistent droughts and other natural calamities are quite often accelerated by the inadequate behavior of farmers to adopt good land management practices, some of which seem to take long before benefits can be realized.

[43] Environmental Performance Review : Georgia 2016 / Environmental Performance Reviews Series No. 43, Georgia - Third Review // The United Nations Economic Commission for Europe (ECE) Environmental Performance Review Programme / United Nations, New York and Geneva, 2016.
https://www.unece.org/fileadmin/DAM/env/epr/epr_studies/ECE_CEP_177.pdf

Insufficient knowledge and understanding of the importance of effective management of land and other resources and inadequate capacities to implement integrated and sustainable land and resource management: Lack of awareness and knowledge concerning the LDN issue is particularly poor among local authorities and local representatives of ministries. This relates both to the knowledge of the risks, how to manage these and particularly on knowing modern, sustainable land cultivation and irrigation technologies and sustainable application of agricultural chemicals. The lack of information and knowledge is noticeable in the pasturelands management and cattle breeding. Consequently, the key stakeholders do not have the understanding and preparedness to undertake and set-in-place cost-effective sustainable land management measures.

The problem is aggravated by low levels of awareness and understanding among land users about the socio-economic and environmental impacts of land degradation and its relationship to poverty and decline in household incomes. These issues need to be addressed in future SLM initiatives if long-term impacts and sustainable land management is to be realized. The inherent vulnerability of soils to degradation under various land-use options also limits the level of application and success of SLM practices.

Along with the threats/causes and barriers mentioned above, it's very important to take into consideration also the land degradation related main problems and priority areas for intervention (see in Table 3) identified by local stakeholders/farmers in four pilot municipalities during the project preparation phase.

Table 3. Summary of the main problems and priority areas for intervention identified by local stakeholders during the workshops with key local stakeholders to consider and refine information in draft project document held from May 15 to July 31, 2017 in four pilot municipalities

| Municipalities | Main problems | Priority areas for intervention stated by stakeholders |
|---|---|---|
| Gori | • Large areas of the cropland, grassland, woodland and forest are now seriously degraded;<br>• Half of the topsoil has been lost in the last 25 years due to the windbreaks destruction;<br>• Soil erosion due to the windbreaks destruction;<br>• Soil fertility has been reduced significantly;<br>• Absence of laboratories for soil analysis in the region;<br>• No access to new agricultural technology, such as fertilizers, high-yielding crop varieties, mechanization and drip irrigation;<br>• Poor maintenance and lack of secondary irrigation system;<br>• Low awareness of farmers on SLM. | - Restoration of windbreaks (inventory, survey to reveal most vulnerable places to wind erosion, establishment on nursery, awareness raising, establishment of control system);<br>- Improve management of pastures (weeds):<br>- Restoration of Nadarbazevi lake irrigation system and application of modern irrigation technologies in the fields.<br>-Introduction of zero or no tillage, crop rotations, retaining residues, green manure cropping, organic amendments, biochar<br>-Access to new agricultural technology, such as fertilizers, high-yielding crop varieties, mechanization and drip irrigation. |
| Kareli | • Water and wind erosion are the major problems but salinity and sodicity are also widespread;<br>• Soil fertility has been reduced significantly;<br>• Production of crops, such as wheat, barley and others, has now begun to decline.<br>• Absence of laboratories for soil analysis in the region;<br>• Destruction of irrigation and drainage systems;<br>• Destruction of roads to mountain pasturelands; Waterlogging of pasturelands;<br>• Low awareness and not enough knowledge of local farmers on modern technologies for land cultivation. . | - Restoration and establishment of new windbreaks;<br>- Restoration of road to mountain pastures.<br>- Implementation of targeted sustainable land management and smart agriculture practices, pasture phase, water conservation<br>-Access to new agricultural technology, such as fertilizers, high-yielding crop varieties, mechanization and drip irrigation. |
| Sagarejo | • Loss of soil structure, nutrient degradation, and | - Integrated restoration of windbreaks and |

| | | |
|---|---|---|
| | soil salinity;<br>• Absence of windbreaks system in all territory of the municipality;<br>• Expansion of cultivated fields and diminishing of natural vegetation cover;<br>• Insufficient amounts of organic material and nutrients ;<br>• Burning of organic material (harvest residue, brush fires);<br>• Low awareness of farmers and lack of information on modern technologies for irrigation and soil cultivation;<br>• Pasturelands degradation caused by inappropriate management and overgrazing. | irrigation system, installation of modern irrigation technologies;<br>-Access to new agricultural technology, such as fertilizers, high-yielding crop varieties, mechanization and drip irrigation. |
| Kvareli | • Soil erosion and the loss of fertile land due to the windbreaks destruction;<br>• River banks erosion and loss of agriculture lands due to the mudflows;<br>• Low awareness of farmers and lack of information on modern technologies for irrigation and soil cultivation;<br>• Pasturelands degradation caused by inappropriate management and overgrazing;<br>• Absence of veterinary services;<br>• Low capacity of agriculture extension service. | - Restoration of windbreaks;<br>- Prevention of further erosion of pasturelands, to determine the amount of livestock which is allowed for specific pastures, introduction of pasturelands rotation;<br>- Restoration of degraded pasturelands. |

## 2) Baseline scenario or any associated baseline projects

*National-level Initiatives*

BMZ-GIZ's Sectoral Soil and Land Management Mission (SV BoDeN) selected a consultant to support REC Caucasus within the project on "Land Degradation Neutrality in Georgia" as a complement to the project 'Applying Landscape and Sustainable Land Management (L-SLM) for mitigating land degradation and contributing to poverty reduction in rural areas' at municipal level to provide a pathway towards the implementation of LDN. The key objective for the selected consultant is the provision of technical guidance and support to the REC Caucasus (national partner) to provide a sound basis for implementation of LDN at municipal level (covering municipalities of Akhmeta, Gardabani and Dedoplistskaro). At the same time, the capacities of the local stakeholders for the operationalization of land degradation neutrality should be enhanced. Implementation period of the above support is 2017-2018 with total budget of 50,000 EUR.

Within the framework of the Caucasus Initiative of the German government, the Integrated Biodiversity Management, South Caucasus (IBiS) programme cooperates primarily with the environment ministries of the three countries of the South Caucasus. At the national level, the programme promotes the development or revision of biodiversity strategies and regulations, particularly in forest and pasture management, and in erosion control. In addition, the programme supports pilot measures at local level wherein relevant actors are provided with the skills needed to implement integrated approaches for sustainable management of biodiversity and ecosystem services. The objective of the programme is to promote better coordination of biodiversity and ecosystem services management across sectors based on solid data. Results of IBiS pilot activities on windbreak rehabilitation, degraded forest rehabilitation and pasture management will be used and considered for designing of the GEF project pilot activities. The project started in November 2015 and it will be completed by 2019. Approximately USD 2.5-3.0 million will be spent in Georgia between 2017 and 2019 by this project.

The European Neighbourhood Programme for Agriculture and Rural Development (ENPARD) was launched in Georgia in 2013 with the goal of reinvigorating the agricultural and rural sectors in the country by supporting the Government's agriculture development strategy, strengthening small farmers' organizations, and enabling sustainable rural development. ENPARD is composed of a variety of aid modalities, from direct budget support to the Government to technical assistance and small grants to NGOs. The total budget for ENPARD in Georgia for 2013-2019 is USD 97 million. REC Caucasus will facilitate coordination with other organizations involved in the implementation of ENPARD within the geographical scope of this project to collaborate on promoting climate smart agriculture approaches.

The Agriculture Modernization, Market Access and Resilience (AMMAR) project of the Government of Georgia, being funded by the International Fund for Agricultural Development (IFAD), aims to raise incomes of smallholder farmers and increase climate resilience through public and private investments in upgrading climate-proof productive infrastructure, enterprises and smallholder farmer production systems and technologies in support of inclusive growth of climate smart agricultural value chains. AMMAR is part of the Ministry of Environment Protection and Agriculture's on-going investments to modernize agriculture in Georgia and is fully aligned to the Strategy for Agriculture Development (2014-2020)[44]. This project supported development of the Climate Change National Adaptation Plan (NAP) for agriculture sector of Georgia[45] that addresses medium and long-term adaptation needs. The NAP includes a comprehensive approach for addressing adaptation of agriculture sector to climate change in the country, and provides guidance to all government entities and all partners interested in supporting of adaptation measures in Georgia. REC Caucasus was involved in some of the activities of this project in 2016-2017 and currently is planning to further collaborate with IFAD for coordinated interventions on the application of sustainable land management practices. Around USD 13.3 million IFAD loan with total project cost of 30.8 million USD (*including contributions from the Georgian Government and international donors*) has been allocated for the development of agriculture sector of Georgia for the period of 2014-2019 by this project.

National efforts on LDN target setting: Following 102 countries that are Parties to the United Nations Convention to Combat Desertification (UNCCD), Georgia joined the Land Degradation Neutrality Target Setting Program (LDN TSP), implemented with the support of the Global Mechanism of UNCCD. In August 2017 Georgia defined country voluntary targets towards Sustainable Development Goal (SDG) target 15.3, which includes a commitment to achieve land degradation neutrality (LDN) by 2030. Despite efforts of the government of Georgia to strengthen sustainable land management (SLM) and fulfil the committed LDN (as well as SDGs) targets by 2030, there is not much engagement at municipal level for providing technical guidance and supporting sustainable development agenda and LDN target setting process. Relevant LDN indicators oriented to causes and measures on the ground are not available at local scale. The ownership and commitment to achieve national LDN targets are missing at the local/municipal level. Local development and spatial planning systems do not consider the concepts of LDN and economic values of ecosystem services provided by the land. The process started in Georgia in 2016. Cross-sectoral meetings yielded in a set of national LDN targets, which were submitted to the UNCCD Secretary by the Ministry of Environment Protection and Agriculture of Georgia in September 2017 (see in Figure 2).

[44] Agriculture Development Strategy of Georgia for 2015-2020 // Approved by the Government of Georgia - Ordinance #167 of February 11, 2015.
http://www.moa.gov.ge/Ge/Public/Strategy/8

[45] Climate Change National Adaptation Plan for Georgia's Agriculture Sector (2017). Ministry of Environment and Natural Resources Protection and the Ministry of Agriculture of Georgia. Tbilisi, 2017.
http://eiec.gov.ge/Project/Ended-Projects/Nap-English.aspx

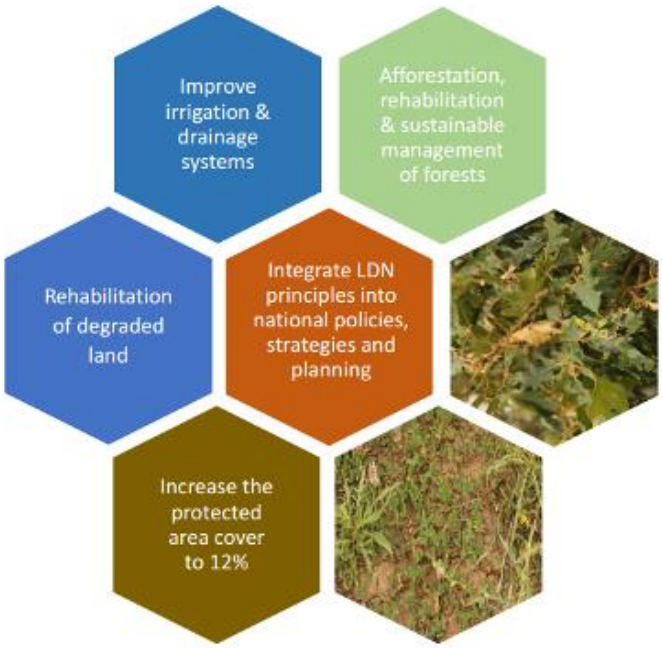



Figure 2. National LDN Target of Georgia

As part of the national target setting program (TSP), the national LDN baseline was defined using LDN indicators that are applied globally namely: i) land cover; ii) land productivity and iii) carbon stocks above and below ground. However, country specific measurable indicators were not applied in the assessment. Due to data limitations, it is extremely difficult to use the same indicators at the municipal level. Thus, there is an urgent need to define locally relevant set of indicators with the potential for scaling-up and to develop LDN monitoring system. Although a number of organizations and agencies collect and hold various data of certain statistical and spatial parameters, detailed data regarding degraded lands are not currently available at local level. To enable planning and effective decision-making process to achieve land degradation neutrality at municipal level is extremely difficult if not impossible, in the absence of data. Without data, maps and socio-economic information on trends and drivers of land degradation at local level it would not be possible to track progress towards LDN targets.

It has to be mentioned, that at the same time, currently, there is no local institutional framework to advise and technically guide LDN target setting process at municipal level. Farmers and other local stakeholders who have large land footprints, are not aware and do not participate in efforts to achieve Land Degradation Neutrality (LDN) targets. Public support and participation is critical for applying and implementing methods of prevention and rehabilitation control of degraded land. Lack of local institutional framework and public participation mechanism results in unclear and incommensurate responsibilities of the related local authorities and causing lack of SLM initiatives and harms implementation of LDN target. Measures to achieve LDN national targets by 2030 are not defined and prioritized at municipal level.

*Municipal-level Initiatives*

Current budget of **Kareli Municipality** for fiscal year of 2017 is USD 3.24 million. The budget mainly covers salaries for municipal administration, operating costs and small size investments for municipal waste management facilities, municipal infrastructure rehabilitation, municipal irrigation system construction and rehabilitation. Additionally, through goal-oriented direct transfers from the central budget between 2017 and 2019 Kareli municipality is planning to invest about USD 400 thousand in sustainable water supply and improvement of agricultural practices (local irrigation infrastructure). Similarly, the budget of **Sagarejo Municipality** is USD 3.45 million for 2017. The municipality will invest USD 400 thousand for sustainable water supply and local irrigation

infrastructure in 2017-2019 through direct transfers from the central budget,. Gori Municipality's budget in 2017 is around USD 5.6 million. Like other municipalities, the budget is for municipal administration staff cost, operation and maintenance costs. **Gori municipality** is also planning to invest USD 400 thousand for sustainable water supply and local irrigation infrastructure in 2017-2019. **Kvareli Municipality**'s 2017 budget is around USD 2.4 million and will be used for municipal administration staff salaries, street lighting, waste management and rehabilitation of irrigation systems and construction of new irrigation networks. Additional funding of USD 400 thousand is foreseen to be invested in sustainable water supply and local irrigation infrastructure in 2017-2019 for improving the livelihoods of rural population and agricultural practices.

**3) The proposed alternative scenario, GEF focal area strategies, with a brief description of expected outcomes and components of the project**

The barriers identified above could be addressed through the development of new sustainable land management systems at both the community and farmer plot level. These new systems would include interventions that integrate climate smart agricultural production, the importance of addressing challenges of food security and securing resilience of production systems that underpin people's livelihoods.
The introduced management systems will lead to increasing levels of production and productivity while also maintaining the ecological integrity of the land; cognisant of land and resource carrying capacities and also improve land and resource conditions; and be both integrated (encompassing agriculture, forestry, water and livestock management) and adaptive (structured to adapt to evolving challenges, including climate change). The above-mentioned factors underline the critical importance of promoting better coordination of sustainable land management across different sectors on the basis of solid data, of improving the country's existing policy and financing framework related to the management of land resources, and of strengthening the capacity and skills of national and local government institutions and other stakeholders to undertake SLM approaches. This approach frames a suite of interventions that will address and overcome existing barriers to mainstreaming Landscape and Sustainable Land Management (L-SLM) activities.

*Project Objective:* The project's objective is to develop and strengthen SLM practices and build capacity for their application for the protection of natural capital in Georgia.

***Component 1: Creating an enabling environment at municipal scale for achieving Land Degradation Neutrality (LDN) Country Voluntary target***

Consistent with the four building blocks of LDN target setting, this component is specifically related to creating an enabling environment that is a pre-requisite for achieving LDN. Through strategically and locally-responsive project activities, this component will integrate the LDN concept into municipal policies. Thus, this component will support the implementation of LDN country strategy at municipal scale through local LDN targets that are congruent with national level targets so that the municipal level achievements will contribute to the overall national LDN agenda program development. For this particular project, these local municipalities are Sagarejo, Kvareli, Gori and Kareli. Land use planning processes will be established in the four pilot municipalities and their staff will be trained to create an enabling policy and relevant institutional environment that will be geared towards avoiding, reducing and or reversing the levels of land degradation in the municipalities.

This component recognizes loss of soil fertility, loss of land cover, reduced productivity, encroachment on natural forest areas, reduced carbon sequestration capacity, and increased vulnerability to natural disasters and climate change impacts as trends in land degradation in the four municipalities. It also recognizes pressures of agricultural and livestock production, urbanization, deforestation, and extreme weather conditions as drivers of land degradation in the target municipalities. To rationalize and guide resource investment and prioritization of interventions in the target areas, trends and drivers in each pilot municipality will be mapped. Thus, a robust baseline in

these municipalities will be established for land cover, land cover change, land productivity, and carbon stocks.

The project will facilitate formation of a municipality-level platform for engaging multi-stakeholders' groups to participate in the dialogues and decision making for setting local LDN targets and identification of programs and actions to achieve these targets. These stakeholders' platforms will identify overlapping mandates among key actors and develop solutions for better coordination of SLM activities. The stakeholders will be involved in assessing financial resource needs to implement agreed upon LDN targets and in developing resource mobilization plans to secure the resources within the project timeframe. Through this multi-stakeholder process, integrated land-use plans (ILUP) will be also developed for pilot municipalities. Integrated land-use plans will be instrumental to balance the economic, social and cultural opportunities in these four municipalities. The project will bring all interested local parties together to make decisions about how the land and its resources should be used and managed, and to coordinate their activities in a sustainable fashion so as to be able to contribute to maintaining the integrity of the ecosystems. This stakeholder platform will serve to bring different interest groups to a common cause of contributing to national LDN targets at the municipality level. Additionally, it will help to get a buy-in from stakeholders thereby increasing ownership and sustainability of project outcomes.

***Outcome 1.1.***

*Municipalities are increasingly able to implement LDN country strategy at municipal scale in four target municipalities totaling* 590,000 hectares

The national commitment and response to the global LDN agenda hinges on the successful implementation of the agenda at micro levels. This is only possible if the micro-level structures are equipped with the right institutional and policy frameworks, supportive capacities including technical know-how and required resources. Important also is the relevant data to serve as baseline and help track the progress towards achieving LDN. When municipalities are able to implement the LDN country strategy, it will reflect not only the national ambition, but also its concrete measures to implement the LDN national ambition. This is consistent with the LDN technical guidelines that proposes 10 steps for the LDN target setting process that support country definition of LDN targets and concrete measures.

***Output 1.1.1.*** *LD trends and drivers mapped, LDN local baseline established including: (i) land cover and land cover change; (ii) land productivity (metric: net primary productivity); and (iii) carbon stocks above and below ground at municipal level (590,000 ha), including possible "hot spots"*

Scientific and technical assessment remains a challenge in many instances, and as a result, there is lack of baseline data. This is the specific case of, but not limited to, Georgia, where economic problems after gaining of independence in 1991 have continuously hampered systematic collection of relevant data to improve the management of natural resources. Consequently, there is chronic lack of baseline data over the past few decades. Thus, a consistent local-to-regional picture of ongoing and expected land-use changes and their relation with ongoing global change is still crucially missing. To overcome these shortcomings and the lack of reliable and updated baseline data, a suite of approaches is proposed based on (i) existing, remotely sensed approaches, and (ii) on field-based validation and verification techniques.

> In a first step, remote sensing (RS) products illustrating land use changes together with a re-analysis of climate data (RAC) will be used to characterize climatic and environmental changes over the entire study area. In particular, RS will be used to define LDN at different spatial and temporal scales. In particular, existing topographic maps, historical and contemporary aerial photography, and recent declassified satellite imagery are valuable information sources in this context. Specifically, MSI (Multispectral Imaging) satellite imagery from the Sentinel-2A and 2B satellites are available in detailed spatial and temporal resolution (10 meter, 3-5 days at the

latitude of the research region). Landsat satellite data will be used as well to complement the datasets and to extend the series back in time (30 meter, 10-16 days). Automated RS processing of Sentinel MSI and Landsat imagery will provide up-to-date vegetation cover, land productivity and land degradation process and their changes over time, as well as specific indications on the impacts of global climate change on the landscape.

In order to characterize the climate trends and extreme events in the region, existing climate measurements and open-access data of Regional Climate Models (RCM) covering the territory will be used. In particular COSMO-CLM[46] has proven skills in regions of complex orography. Analyses will be complemented with reanalysis datasets to investigate climate indicators. Depending on the temporal scale, different reanalysis data can be used. CRU[47] and ERA-20[48] datasets will be employed to determine trends in temperature and precipitation since beginning of 20th century at monthly-to-annual scale. High resolved, but limited in time, satellite-based precipitation products such as TRMM[49] or reanalysis such as ERA-interim[50], ERA-20C[51], CM[52] and CERA-20C[53] will be used to characterize climate variables at daily time steps for the last decades. As mentioned above, in ordert to fill the gaps in remotely sensed and reanalyzed data, field-based soil (erosion) measurements will be conducted to calibrate and validate the models against the RS data sets.

Therefore, it is proposed to gather further ground-truth baseline data to carry out the scientific assessment on LDN at the selected study sites. To this end, the creation of a robust and complete database of different climate and environmental indicators is required. All existing, remotely measured datasets will be integrated systematically, but will be complemented by field-based datasets and potentially existing local measurements (climate, hydrology, or other) as will be deemed necessary.

First, a review of the methodology applied globally and nationally will be done. This first step will be crucial to homogenize and compare the criteria for the definition of LDN indicators. Then, based on r*eview and comparative analyses*, development of data gathering working plan for 4 pilot municipalities (Gori, Kareli, Sagarejo and Kvareli) will be done. Data and methods from existing studies on LDN will be reviewed. As stipulated in the *Framework and Guiding Principles for a Land Degradation Indicator* from UNCCD, in the absence of local data, global to regional datasets will be used. Qualitative and quantitative data will be handled using a mix-methods approach. Data from multiple sources will thus be used, i.e. official statistics and earth observations, land use and management practices as well as existing surveys and citizen sourcing. For physical variables, existing recent topographic maps, historical and contemporary aerial photography, and recent satellite imagery will be used. Similarly, a set of reanalyzes climate data will be tested.

Besides, existing site-based data will be recollected to assess the accuracy of the different Earth Observation and geo-spatial information. Based on the data collection, sub-indicators reporting mechanisms related to Land Productivity, Carbon Stock and Land Cover Change will be defined at the study sites. Land Productivity will be estimated based on Earth observation data on Net Primary Productivity (NPP) using vegetation indices. Carbon Stocks (CS) provide information about the amount of carbon in living and decomposing biomass, reflecting land use and management practices. Ground-measurement will be performed in both vegetation and soils to upscale quantitative values at studied scale with Land Cover and Land Use (LCLU) map derived from remote sensing. Finally, Land

[46] Consortium for Small Scale Modelling - Climate Limited-Area Model.
[47] Climatic Research Unit.
[48] Global climate reanalysis from 1979 to date.
[49] Tropical Rainfall Measuring Mission.
[50] Dataset, showing the results of a global climate reanalysis from 1979 to date.
[51] Climate reanalysis dataset covering the period 1900 to 2010.
[52] Climate Monitoring.
[53] Coupled climate model based climate reanalysis dataset of the period 1901 to 2010.

cover changes will be investigated based on available historical and satellite imagery information. Tendency on climate-related extreme events i.e. droughts will be linked to assess changes in temporal Land degradation based on changes in NPP, CS and LCLU.

Assessment will be carried out on historic land degradation trends to understand the current situation. The assessment will help to identify degraded areas; identify significant trends in land degradation, i.e. when: a) negative land cover changes occur; and/or land productivity shows a significant decrease; and/or soil organic carbon (SOC) shows a significant decrease; and/or a negative change occurs in another nationally relevant indicator.

Finally, the trends will be interpreted at the municipal scale. Types of land degradation for specific land cover categories and direct and indirect causes of land degradation will be identified for pilot municipalities. The acquired database, together with socio-economic information will be the basis to investigate the potential role of the different drivers on LD. A causal model based on land cover impacts will be established. The role of each variable in LD will be assessed based on the gathered data. If the database provides enough quantitative data, a statistical approach based on Structural Equation Modelling will be performed. Alternatively, the qualitative statistical descriptive approach will be performed to discuss the role of each variable. Based on LDN assessment, and considering local knowledge and the impact of LD on livelihood throughout citizen sourcing, the identification of priority actions will be performed. To this end, first, a vulnerability assessment will be performed based on the LD state and socioeconomic data. An assessment of future condition will be performed based on climate linkages and expected socio-economic scenarios. At least eight priority hot-spots for four pilot municipalities will be identified. To increase transparency, a participatory multi-stakeholder process will be implemented. To evaluate changes in LDN and the expected impact of the specific action, a monitoring program will be set up. The monitoring program will be defined at two levels, one for the entire region and individuals for each pilot municipality. For transparency, the general framework developed by the European Commission[54] will be followed.

The consequential steps under Output 1.1.1 are shown below:

- Review and comparative analyses of globally and nationally available data sources on LDN; Development of the data gathering working plan.
- Data collection through the implementation of data gathering workplan.
- Presentation, and validation of data at multi-stakeholders' expert workshop.
- Calculation and development of local municipal baselines in 4 pilot municipalities using LDN indicators, including i) land cover; ii) land productivity; and iii) carbon stocks above and below ground (soil organic carbon (SOC) and supplement the above indicators, as appropriate, with (sub) national indicators.
- Development of gender equality profiles in SLM/LDN for four pilot municipalities (including desk and field research/survey).
- Assess land degradation trends: Carry out an assessment of historic land degradation trends to understand the current situation, reveal anomalies and identify degraded areas; identify significant trends in land degradation, i.e. when: a) negative land cover changes occur; and/or land productivity shows a significant decrease; and/or SOC shows a significant decrease; and/or a negative change occurs in another nationally relevant indicator; Interpret trends in the context of local conditions.

[54] EU Monitoring indicators: LIFE+ Regulation (2007) // Guidelines on monitoring indicators: Guideline on output initial indicators & Guideline on outcome final indicators / Tables on monitoring indicators: Initial output indicators tables & Final outcome indicators tables.
http://ec.europa.eu/environment/life/toolkit/pmtools/lifeplus/monitoring.htm

- Identifying drivers of land degradation: identify types of land degradation for specific land cover categories; identify direct and indirect causes of land degradation; analyze the legal and institutional framework related to LDN; identify strengths, weaknesses, opportunities and threats of the LDN legal and institutional framework, including National Action Programs of the UNCCD.
- Review and discussion on LDN baselines, LD trends, LD drivers and gender equality profiles at LDN municipal working group meetings.
- Development of LDD vulnerability assessments (vulnerability profiles) with the identification of at least eight priority hot-spots for four pilot municipalities - based on an assessment of LD trends, identification of LD drivers and gender equality profiles in SLM/LDN.
- Consideration of female-headed households and their precarious socioeconomic positioning .
- Review, discussion and validation of vulnerability assessments (vulnerability profiles) at LDN municipal working group meetings.
- Prepare assessment of legal and institutional frameworks related to LDN at local and national levels in order to create or enhance the local and national regulatory environment in view of achieving LDN – taking into account SLM considerations as well (*Identifying strengths, gaps, inconsistencies, weaknesses, threats and opportunities and work out relevant recommendations for gap filling and further improvements*).
- Arrange validation meetings with local and central authorities/stakeholders to discuss findings of legal and institutional frameworks assessment and recommendations for improvement of legal and institutional frameworks related to LDN/SLM.
- Prepare relevant legal recommendations and/or draft legal acts/regulations - based on the results of validation meetings with local and central authorities/ stakeholders.

***Output 1.1.2.*** *Local multi-stakeholders' groups established for pilot municipalities (Sagarejo, Kvareli, Gori, Kareli)*

Local multi-stakeholders' groups will be established to serve as an LDN working groups bringing local stakeholders together for information exchange among representatives of all interested parties directly connected to land degradation processes to endorse and actively support the LDN target setting process. The main objective of the group will be to identify and tap into specific opportunities at the local level for LDN leverage and to ensure full participation of key stakeholders throughout the LDN target setting process. The group will be meeting at a regular basis, at least once in every three months. The following tasks will be undertaken as part of this exercise:

- Preparation and signing of MoUs with municipal authorities on cooperation in LDN target setting and implementation process.
- Development of inclusive multi-stakeholders lists of potential members of LDN working groups for each pilot municipality. This will involve stakeholder mapping to correctly identify stakeholders, their relevant potential contribution and comparative advantage to the proposed LDN agenda at the sub-national level.
- Identification of final list of members of LDN working groups (*through invitation and confirmation process*) and preparation of LDN working groups terms of reference and working plans for each pilot municipality.
- Formal endorsements on the creation of LDN working groups in 4 pilot municipalities.
- Organizing of first working group meetings and approval of working plans by each municipal working group. This will inspire agenda setting for each working group

***Output 1.1.3.*** *LDN local target setting programs developed and the voluntary targets defined and agreed at municipal level*

Crucially, this output will guide setting the municipality level targets based on national LDN target of Georgia that focus on rehabilitation of degraded land; improve irrigation and drainage systems; afforestation, rehabilitation and sustainable management of forests; integrate LDN principles into national policies, strategies and planning. This output will be delivered through the following activities:

- Defining of LDN preliminary targets for each pilot municipality with time references, associated measures and priority areas to achieve LDN targets.
- Elaboration of leverage plan in each pilot municipality to identify specific entry points for the scaling up of LDN activities at technical and political levels.
- Validation of LDN preliminary targets by LDN working groups in each pilot municipality.
- Endorsement of LDN voluntary targets by 4 pilot municipalities.

***Output 1.1.4*** *LDN local transformative projects/programmes of actions, including resource mobilization plans developed for pilot municipalities*

Preparation of LDN local transformative projects/programmes will be initiated for each pilot municipality with the involvement of local stakeholders. Resource mobilization plans will be developed for each municipality (incl. draft investment financeable / bankable proposals for transformative LDN projects / programs through innovative financing mechanisms and identification of partnerships with global service/knowledge providers as well as financing partners for LDN; e.g. LDN Fund, GCF etc). LDN local transformative projects/programs and resource mobilization plans will be presented and discussed with the LDN municipal working groups.

To build a strong, local evidence base and pathways for increased investments for LDN measures, the monitoring program will be developed to track changes in the values of LDN indicators and to assess the achievement over the implementation of LDN targets.

'National Action Plan for Gender Equality Policy in Georgia' will be the major policy document for further integration of gender equality in SLM/LDN actions in each pilot municipality. Gender mainstreaming actions will elaborate activities such as support programs for women farmers, educational initiatives, and awareness raising activities. The strategy will be presented and discussed with the LDN municipal working groups.

***Output 1.1.5.*** *Integrated land-use plans developed for pilot municipalities based on the evaluation of the potential impacts of different land-use options*

Under this output project team will develop and apply in practice municipal integrated land-use plans for sustainable agriculture and rural development (with LDN as an essential component and potential impacts of different land-use options). ILUP will ensure the allocation of land to different land uses across a landscape in a way that balances economic, social and environmental values and ensure LDN. The plan will describe how land use planning activities are likely to improve nutrition and food security and enhance the livelihoods of the small and marginal farmers. This will entail:

- Drafting of the integrated land-use plan for sustainable agriculture and rural development for each pilot municipality – with the application of participatory planning approach.
- Review of integrated land-use plans for sustainable agriculture and rural development at LDN municipal working group meetings.
- Endorsement of integrated land-use plans for sustainable agriculture and rural development in the 4 municipalities.

***Component 2: Pilot implementation of measures for avoiding, reducing and reversing land degradation, intensifying sustainable land management practices and land rehabilitation to improve ecosystem functions and services***

While Component 1 forms the planning phase of the project, Component 2 will focus on practical implementation and therefore is a crucial phase of the Project. Development of 16 pilot projects, of which 8 on land restoration and 8 on SLM/CSA practices (in total 4 per municipality) under Component 2 will be preceded by four municipal integrated land-use plans for sustainable agriculture and rural development – ILUPs (*prepared in prior within the Component 1 - activities under output 1.1.5*) and four municipal plans for local urgent measures (*prepared in prior within the Component 2 - activities under output 2.1.1*). The pilot projects will be implemented in order to demonstrate the benefits and impacts of practical measures to prevent changes in the characteristic of soil, wind erosion, salinization and loss of natural fertility of soil.

8 pilot projects will focus on restoration measures and will demonstrate restoration applications such as windbreaks, improvement of soil quality by application of no tillage or low tillage farming etc. While the other 8 pilot projects will focus on SLM/CSA practices through crop rotation, modern irrigation technologies and other SLM/CSA related measures.

Farmers and communities will be trained on methods of sustainable land management, sustainable intensified agriculture and using native seed materials. These training sessions will be instrumental to persuade farmers to adopt and implement better sustainable land management practices. Use of best practices will be promoted by supporting establishment of local brands and better access to markets for the products produced under SLM practices. Pilot projects in municipalities will be implemented in close cooperation and engagement of smallholder farmers, at least 50% of whom will be women.

***Outcome 2.1.*** *Reduced impact severity of erosion, salinization and fertility of soil, in 10,000 ha of affected ecosystems in Sagarejo, Kvareli, Gori, and Kareli through restoration*

Under the second Component, the project will draw on land restoration to prevent changes in the fertility of soil, wind erosion and salinization, aiming to apply behavior change approaches in support of sustainable land management interventions in resource-poor settings. The Project will work with farmers to jointly build sustainable land management models and sustainable farm and crop management tools, such as rotations, integrated use of fertilizers, organic farming, climate smart agricultural practices. Initial rapid assessments of existing agricultural practices revealed that unsustainable agricultural practices present the greatest immediate threat to land degradation and agro-ecosystems in all project municipalities. Results of this component activities can help farmers to preserve and restore degraded land, improve soil health and quality and gain economic benefit from SLM.

***Output 2.1.1.*** *Local measures to prevent changes in the fertility of soil, wind erosion and salinization identified, developed and validated through participatory process in the municipalities of Sagarejo, Kvareli, Gori, Kareli*

The following activities will be undertaken:

- Preparation of plan of local urgent measures for each municipality comprising of a whole range of interventions to avoid, reduce or reverse land degradation - based on LDN municipal strategies and integrated land-use plans for sustainable agriculture and rural development.
- Development of gender mainstreaming activity plan in SLM/LDN for each pilot municipality.

- Review and discussion of gender mainstreaming activity plan in SLM/LDN at LDN municipal working group meetings.
- Review of plans for local urgent measures at LDN municipal working group meetings.

Plans of local urgent measures will be comprised of a whole range of interventions to avoid, reduce or reverse land degradation at municipality level, namely:

- Measures to protect soil from wind erosion and maintenance of its fertility through rehabilitation/restoration of degraded windbreaks and/or forests adjacent to degraded agricultural lands
- Measures to improve soil quality (e.g., reduction of soil salinization)
- Measures to rehabilitate natural vegetation (e.g., rehabilitating of natural vegetation cover on degraded pasture lands; improving degraded parts of sheep migration corridors)

Plans of local urgent measures will be based on LDN municipal strategies and integrated land-use plans for sustainable agriculture and rural development and further will be used to develop more detailed 16 pilot projects (four per municipality) on land restoration and SLM practices - under output 2.1.2. The plans will be discussed at LDN municipal working group meetings.

***Output 2.1.2.*** *35,761 t CO2-eq sequestered through restoration of 10,000 ha of degraded land through application of windbreaks, soil quality, and natural vegetation rehabilitation*

Selection of pilot areas and activities in four municipalities under this output will be based on the following criteria:

- Vulnerability: as part of the development of land degradation vulnerability profiles the team of Georgian and international experts will identify as a minimum eight hot spot areas in accordance with 3 LDN global indicators:
  - Land productivity
  - Land cover change
  - Carbon stock above and below ground
- Clear commitment of local counterparts/farmers to apply SLM;
- Potential to implement and replicate land restoration and SLM activities;

The following activities will be undertaken as part of this exercise:

- Development of 8 pilot projects (two per municipality) on land restoration – taking into account integrated land-use plans for sustainable agriculture and rural development and plans for local urgent measures.
- Review and validation of the 8 pilot projects on land restoration at LDN municipal working group meetings.
- Implementation of 8 pilot projects (two per municipality) on land restoration.

8 pilot projects will be based on plans of local urgent measures for land restoration comprising, but not limited to the following measures: rehabilitation/restoration of degraded windbreaks and/or forests adjacent to degraded agricultural lands; measures to reduce soil salinization and measures to rehabilitate natural vegetation cover on degraded pasture lands and to improve degraded parts of sheep migration corridors.

Pilot projects on land restoration may contribute also to implementation of Output 2.2.2 under Outcome 2.2 through integrating into these pilot project plans SLM related measures as well.

The following restoration activities will be implemented in all pilot municipalities in hot-spot areas which will be identified based on municipal LDN vulnerability profiles, municipal land degradation strategies, municipal integrated land-use plans for sustainable agriculture and rural development and municipal plans for local urgent measures:

| Restoration activities | Sagarejo Municipality (ha) | Kvareli Municipality (ha) | Gori Municipality (ha) | Kareli Municipality (ha) | Total (ha) |
|---|---|---|---|---|---|
| Rehabilitation/restoration of degraded windbreaks and/or forests adjacent to degraded agricultural lands | 30 | 5 | 20 | 15 | 70 |
| Restoration of soil through application of reduced tillage or no-tillage methods | 1,000 | 1,000 | 1,500 | 1,130 | 4,630 |
| Measures to reduce soil salinization | 300 | 100 | 200 | 200 | 800 |
| Measures to rehabilitate natural vegetation cover on degraded pasture lands and to improve degraded parts of sheep migration corridors | 2,000 | 500 | 1,000 | 1,000 | 4,500 |
| Total | 3,330 | 1,605 | 2,720 | 2,345 | **10,000** |

The above restoration activities will be supported jointly by direct GEF financing (through implementation of 8 pilot projects) and co-financing sources (through implementation of co-financing activities).

***Outcome 2.2*** *Farmers apply sustainable land management and climate smart agricultural practices in support of food security and resilience on 10,000 ha of pilot plots*

Sustainable land management can support food security and resilience and the same time achieve both economic and environmental benefits. Farmers who participate in project activities will be trained on sustainable land management. Application of sustainable land management practices will be demonstrated and tested with the trained farmers. Those who adopt these practices will be further supported to access domestic markets by promoting local brands. This outcome will be achieved through the following three outputs.

***Output 2.2.1.*** *Improved capacity of communities and farmers on sustainable land management and sustainable intensified agriculture using native seed materials*

Farmers from the pilot municipalities are exposed to unpredictable rainfall, droughts, and soil degradation. A lack of diversification of agricultural practices and lack of access to more resilient native seed materials has further increased food insecurity. The project will help small-holder farmers to build skills to apply sustainable land management and sustainable intensified agriculture using native seed materials. Only 30% of women are land holders, however majority of women are actively engaged in agricultural activities and are known for adopting more diverse land practices and producing higher profits. So that they will be in focus of the project's capacity development activities, aggregating information on SLM and sustainable intensified agriculture using native seed materials. The following capacity development activities will be implemented:

- Capacity needs assessment for communities and farmers – with emphases on traditional knowledge and potential for application of intensified agriculture and SLM methods using native seed materials.
- Capacity strengthening action plan to support application of traditional knowledge and native seed materials (incl. on-job trainings and training of trainers).
- Implementation of priority activities under capacity strengthening action plan.
- Developing farmer to farmer mechanisms for knowledge exchange in the 4 municipalities.

***Output 2.2.2.*** *Local farmers and farmer associations assess current agriculture practices and define required changes, and apply sustainable agriculture practices in the municipalities of Sagarejo, Kvareli, Gori, and Kareli*

Comprehensive assessment of the available sustainable agriculture and SLM technology / equipment and practices will be undertaken to determine list of required changes and needs to apply sustainable agriculture technologies. For the assessment of technology needs, the UNFCCC guideline on Technology Needs Assessment for climate change guideline will be adapted and used. The assessment will be implemented in close cooperation with the MEPA and respective extension centers, all the available information will be gathered and analyzed, the focus group meetings will be organized with the small and medium farmers and farmers' associations from respective municipalities and regions. The main objective of the assessment will be to prepare and disseminate user friendly technical guidelines on sustainable agricultural and SLM practices.
A technical guideline on sustainable agricultural and climate smart agricultural practices will be developed taking into account the results of the assessment. The technical guideline will provide structural, vegetative and agronomic conservation measures. Identified supportive activities will be implemented with farmers in the pilot municipalities. The following activities will be implemented:

- Survey on sustainable agriculture and SLM/CSA technology/equipment and practices to define required changes with view to *Plans of local urgent measures* and *LDN municipal strategies*.
- Preparation and dissemination of user friendly technical guideline on sustainable agricultural and SLM/CSA practices taking into account results of the survey sustainable agriculture and SLM technology/equipment and practices.
- Development and implementation of 8 pilot projects (two per municipality) on SLM practices to meet sustainable agriculture and SLM/CSA requirements for necessary changes (incl. supply with native seeds and related technology/ equipment).

8 pilot projects on SLM practices will be comprising of, but not limited to the following measures: supporting of sustainable grazing management practices (implementation of pasture rotation systems); adoption of sustainable cropping practices (crop rotation); application of organic farming practices; adoption of sustainable irrigation and water use practices (e.g., drip irrigation, application of water efficient irrigation systems); adoption of sustainable/smart agricultural practices (application of climate resilient native crop and plant species, agro-biodiversity and non-mono cultural methods, biological pest control methods; use of crop varieties needing less water, or shifting to rain-fed dry farming systems for cereal production).

The following SLM and CSA activities (priority supportive activities to meet sustainable agriculture and SLM/CSA requirements) will be implemented in all pilot municipalities in hot-spot areas which will be identified based on municipal LDN vulnerability profiles, municipal land degradation strategies, municipal integrated land-use plans for sustainable agriculture and rural development, municipal plans for local urgent measures and survey on sustainable agriculture and SLM/CSA technologies:

| | Sagarejo | Kvareli | Gori | Kareli | |
|---|---|---|---|---|---|

| SLM and CSA activities | Municipality (ha) | Municipality (ha) | Municipality (ha) | Municipality (ha) | Total (ha) |
|---|---|---|---|---|---|
| Supporting of sustainable grazing management practices (implementation of pasture rotation systems) | 600 | 800 | 1,000 | 800 | 3,200 |
| Adoption of sustainable cropping practices (crop rotation) | 400 | 200 | 300 | 500 | 1,400 |
| Application of organic farming | 40 | 20 | 20 | 20 | 100 |
| Adoption of sustainable water management practices (e.g., rain harvesting, water capture by mulching, sub-surface drainage on irrigated lands) | 450 | | 750 | 500 | 1,700 |
| Adoption of sustainable/smart agricultural practices (application of climate resilient native crop and plant species, agro-biodiversity and non-monocultural methods, biological pest control methods) | 800 | 1,000 | 800 | 1,000 | 3,600 |
| Total | 2,290 | 2,020 | 2,870 | 2,820 | 10,000 |

The above SLM related activities will be supported jointly by direct GEF financing (through the implementation of 8 pilot projects) and co-financing sources (through the implementation of co-financing activities).

***Output 2.2.3.*** *Market access mechanisms and local brands promoted*

At the national policy level, it is recognized that without market information, the value chain actors find themselves in an uncompetitive position and this largely concerns local farmers who do not have the information on prices of their produce, quality requirements, general trends in the market, and innovation technologies[55]. Therefore, assessment of market access mechanisms and local brands in pilot municipalities will be an important motivating and supporting step for the application of sustainable land management and climate smart agricultural practices. The activities that farmers have to carry out regarding access to markets and marketing will be assessed and analyzed in the following ways:

- Conducting research on market analysis and local branding opportunities for sustainable agricultural products in 4 pilot municipalities about pilot projects on integrated sustainable land management.

[55] See section on "*Measure 3.2.2- Supporting an efficient market information collection, processing and dissemination among the different stakeholders actively engaged in the agricultural sector*" in Agriculture Development Strategy of Georgia for 2015-2020 // Approved by the Government of Georgia - Ordinance #167 of February 11, 2015. http://www.moa.gov.ge/Ge/Public/Strategy/8

- Supply of environmentally friendly packaging materials and labelling for some farms (operating beyond and/or within an area of 8 pilot projects on SLM practices) for promoting sustainable agricultural practices and increasing awareness of consumers.
- Assembling one sustainable agricultural exhibition fair in Tbilisi – with the involvement of farmers from pilot municipalities.

***Component 3: Knowledge Management***

This project pioneers the implementation of activities that are based on Georgia's LDN targets. It will, therefore, be implemented at an opportune time for the country to respond to its national targets. Lessons from the project will be important in guiding national-wide investment of resources for the country to demonstrate its commitment to achieving its LDN target. Under this component, the project will develop targeted knowledge products on Sustainable Land Management practices as well as information consolidation and dissemination strategies to ensure the wider understanding of the global, national and sub-national principles of the LDN agenda. The knowledge products will also encourage adoption of SLM practices of the project. Additionally, uptake and sharing of the information will be conducted. The project will capture and share best practices on SLM generated under Components 1 and 2, in particular, local and specific best practices for land/resource users, to the national, regional and international community. The project also will undertake an awareness-raising campaign for the communities in the targeted municipalities of Sagarejo, Kvareli, Gori, and Kareli on SLM planning and implementation strategies at the community scale.

To generate increased understanding and support for SLM interventions, the project will seek to transform national understanding of the economic value (both market and non-market values) of sustainably managing productive land for multiple benefits by developing and disseminating cases from the project pilot sites that demonstrate the environmental, social and economic benefits of SLM practices. Finally, the project will enhance the capacity of national and sub-national government institutions and local stakeholders to carry out analyses on the economics of land degradation and ecosystem services or to be able to use economic analysis in land related decisions. Land's economic value is chronically undervalued and commonly determined by immediate agricultural or forestry market values. This focus on short-term gain motivates the highest extraction rates possible from land, leading to unsustainable land management and degradation. Analysis of economics of land degradation will provide total economic valuation methods that will aid decision-making in land investments and land use planning in these municipalities. This will ensure that decision-makers become familiar with practical value of economic analyses of land degradation and ecosystem services, relevant methodologies/techniques and with elementary basic skills to professionally direct and organize outsourcing efforts when they need them. Moreover, economic analysis will inform the private sector of the opportunities for investing in sustainable agricultural production.

***Outcome 3.1.*** *Improved municipal development strategies and easily accessible knowledge about SLM practices to inform policy making*

This outcome is concerned with creating enabling conditions for awareness raising and communication activities to inform and provide accessible knowledge for the policy makers and other groups (farmers, women, and youth) on SLM best practices. Different communication channels will be used for different stakeholder groups. The list of dissemination channels will be expanded, through which the project results will be made available to the target audience.

***Output 3.1.1.*** *National best-practices for SLM captured and disseminated to the national, regional and international community*

- Publication and dissemination of materials prepared under different components: *Gender equality municipal policies and strategies, LDN municipal strategies, Integrated land-use*

*plans, Plans of local urgent measures* and *Market analysis and local branding opportunities*.

- Preparation, design and publication of "Popular report" in two languages (Georgian and English) describing the activities and results of the project, and lessons learned – as an input to events/workshops with the policy makers groups and media representatives towards the end of the project and for dissemination to wider national, regional and international community.
- Seminar with farmers (*incl. female farmers*) from all four pilot municipalities on their role in decision-making on municipal development strategies in SLM/LDN in light of SDGs.
- One week study tour to Eastern Europe for at least 16 decision-makers and other local stakeholders on SLM/LDN from 4 pilot municipalities and central governmental agencies for strengthening and further disseminating of knowledge about SLM/LDN best practices and their implementation strategies.
- Conduct a national workshop at the closing stage with decision-makers from national and (sub) national agencies together with academic organizations, NGOs, CBOs, and local communities and municipal government staff.

***Output 3.1.2.*** *A web-based national SLM knowledge management hub will be created*

- Design of web-page layout and technical description of web-based national SLM knowledge management hub (technical description for research library database application: research library database design and research library rules).
- Creation and testing of web-page and web-based national SLM knowledge management hub.
- Publication of national SLM knowledge management hub (research library application) to web and start of research information gathering and deployment.

***Output 3.1.3.*** *Awareness-raising campaigns conducted on SLM planning, implementation at community scale*

- Conduct initial, mid-term and closing awareness-raising events on LDN/SLM for local decision makers in each municipality (*3 events per municipality - in total 12 events*).
- Conduct initial and closing awareness-raising events on LDN/SLM for local communities, farmers and NGOs, CBOs in each municipality (*4 events per municipality - in total 16 events*).
- Conduct media training on LDN/SLM for local and national media.
- Conduct initial, mid-term and closing media events jointly for all municipalities with field visits (*in total three events*).
- Present at least 15 newspaper articles in national and local media, 12 thematic reports on national and local radio/TV.
- Make a short movie on project implementation and results with English language sub-titles.
- Print and distribute 1,000 sets of communication products with t-shirts, cloth bags, cups, pencils, notebooks and other communication products among project event-participants.
- Prepare and install 16 project signs for 8 pilot project sites (*2 pilot project sites per municipality*) in 4 pilot municipalities.
- Preparation, publication and dissemination of the project communication materials – at least 3 fact sheets/infographics, 4 newsletters and 6 informational flyers.
- Raising awareness about gender related challenges of land use (women's growing time use, insecure tenure rights of women, and impact of these challenges on succeeding LDN)

***Outcome 3.2.***

*Improved understanding of the economics of land degradation and land use planning in national and sub-national government institutions*

This outcome will integrate UN Environment's 'TEEB for Agriculture & Food' (TEEB AgriFood) concept[56], which seeks to bring together scientists, economists, policymakers, business leaders, and farmers organizations in order to undertake a comprehensive economic evaluation of agricultural systems, practices, products, or policy scenarios against a comprehensive range of impacts and dependencies across the value chain. The project will seek collaboration options with the TEEB AgriFood initiative.

***Output 3.2.1.*** *Compelling cases for economic benefits derived from sustainable land management developed*

This output is predicated on the fact that the LDN agenda recognizes the role that different stakeholder can play to achieve the goals of the LDN agenda. Understanding the economic costs of land degradation has the potential to incentivize not only the adoption of SLM practices, but also attract financial investments in avoidance, reduction and reversal of land degradation in the pilot municipalities. In other words, understanding the economic value of land degradation in the four municipalities will be in line with LDN target setting program that will also provide an avenue for engaging with the private sector that are in land-based investments.

Application of the TEEB for Agriculture & Food approach in Georgia and related economic case(s) for implementing a shift towards sustainable land management requires assessing the marginal changes in costs and benefits under the 'sustainable land management' scenario versus an alternative 'business-as-usual' (BAU) counterfactual. Each scenario comprises (i) specified land management practices, (ii) the social, economic and ecological context for these management practices, and (iii) a temporal dimension, i.e. when the application of the management practices will be applied and when they will bring about changes in positive and negative impacts.

Once the competing scenarios have been defined as per (i) to (iii), the economic case for the shift from one scenario to the other rests on changes in the provisioning of *ecosystem services*, i.e. the benefits that humans derive from nature. Various typologies of ecosystem services exist. The typology developed by The Economics of Ecosystems and Biodiversity (TEEB) consists of four clusters of ecosystem services – provisioning services, regulating services, habitat or supporting services, and cultural services. Each scenario will provide each of these ecosystem services to differing extents and over varying time frames. Making the economic case for the sustainable land management requires for quantifying and then valuing (where feasible and appropriate in monetary terms) these shifts in ecosystem services. This economic case must be juxtaposed with an assessment distributional outcomes, i.e. the constituency of beneficiaries and also losers from the shift from one scenario to another.

The consequential steps under Output 3.2.1 are shown below:

- Determine through stakeholder consultation which SLM options are to be assessed using the TEEB for Agriculture & Food approach - with reference to 2.1.1 ('local measures'), and 3.1.1 ('best-practices').
- Preparation of studies on (a) Scenario characterization and biophysical & economic data and (b) Scenario analysis and valuation - within a scope of application of the TEEB for Agriculture & Food approach.

[56] TEEB (2015) TEEB for Agriculture & Food: Interim Report, United Nations Environment Programme, Geneva, Switzerland.
http://img.teebweb.org/wp-content/uploads/2015/12/TEEBAgFood_Interim_Report_2015_web.pdf

- Organizing of Stakeholder validation workshop on the application of the TEEB for Agriculture & Food approach and preparation of final version on scenario analysis and valuation.
- Publication (translation, design and printing) of Scenario analysis and valuation study on the application of the TEEB for Agriculture & Food approach in Georgia – *in 2 languages: Georgian and English.*
- Dissemination of Scenario analysis and valuation study on the application of the TEEB for Agriculture & Food approach in Georgia to wider spectrum of stakeholders.

***Output 3.2.2.*** *Trainings provided to national and sub-national decision makers on economics of land degradation and ecosystem services*

The application of the TEEB for Agriculture & Food approach requires that training is provided in a series of stages:

1. *Context: what is the economics of land degradation and what are ecosystem services*. Land degradation is a critical area of policy intervention globally and has been championed by various agencies. This preliminary element of the training will present and discuss the importance of land degradation in general and the hitherto 'invisible' losses in human wellbeing that arise from it. Ecosystem services will be defined and linked to local case studies.
2. *Scenario definition via stakeholder engagement:* The TEEB Approach is a consultative process wherein it is necessary to involve the various constituencies that might be affected by an assessment in a systematic way from project inception through the implementation. The TEEB approach has been applied in over 20 countries and examples of good practice and also lessons learned are to be presented and discussed.
3. *Defining data availability and filling data gaps:* Examples will be provided from TEEB country studies vis-à-vis where to search for data, assessing data integrity and also gap-filling.
4. *Carrying out scenario analysis.* Various tools are available including InVEST, Cropwat, SWAT, ARIES and others to carry out the bio-physical element of the scenario analysis. The training will include both an assessment of which tools are best suited to different scenario analyses, and also hands-on training in the application in one or more of the tools.
5. *Carrying out valuation.* Training will be provided on the full range of options for carrying out market valuation (stated preference methods, revealed preference methods, benefits transfer) with examples of best practice.
6. *Developing and implementing a communication plan*. Dissemination of findings and advocacy using various media platforms will be presented.

The consequential steps under Output 3.2.2 are shown below:

- Defining scope, content and outline for training manual (training module) on Application of the TEEB for Agriculture & Food approach.
- Preparation of training manual (training module) on Application of the TEEB for Agriculture & Food approach.
- Publication (translation, design and printing) of training manual (training module) on Application of the TEEB for Agriculture & Food approach – *in 2 languages: Georgian and English.*
- Conduct 1 training on Application of the TEEB for Agriculture & Food approach for national, sub-national and local decision makers.
- Dissemination of training materials to wider spectrum of stakeholders.

***Output 3.2.3.*** *Vocational training program on integrated land management and sustainable intensified agriculture using native seed materials organized for farmers.*

Vocational training program on integrated land management and sustainable intensified *agriculture* is essential component for the development of sustainable agricultural sector. The following steps will be undertaken for preparation of vocational training program curricula on integrated land management and sustainable intensified agriculture using native seed materials for agricultural professional college students and farmers:

- Preparation of vocational training program (training module) based on curricula for professional colleges.
- Conduct 2 vocational trainings in professional colleges for at least 150 students and farmers.
- Publication (design and printing) of vocational training program (training module) in Georgian language.
- Dissemination of vocational training materials to wider spectrum of agricultural professional colleges and farmers.
- Preparation of scenario for online lecture course (comprising of at least 3 educational lectures) - based on vocational training program on integrated land management and sustainable intensified agriculture.
- Preparation of online lecture course (comprising of at least 3 educational lectures) to be posted online - based on vocational training program.
- Publication to the project web-page of the online lecture course.

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

Georgia faces challenges in addressing the threats posed by land degradation, which specifically affect rural livelihoods. This project recognizes that comprehensive land use plans are required at the national, regional and local levels to ensure proper establishment of LDN targets. In the absence of appropriate and sound regulatory framework for management of pasturelands and windbreaks; and awareness and knowledge concerning the LDN issue and conflicting and overlapping institutional mandates, there is insufficient enabling environment to operationalize SLM to contribute to the Georgian government's commitment to LDN call to restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world. A deliberate identification of best practices and approaches with a vision of making the information available to communities, decision makers and wider society will enable to scale up these best practices and approaches beyond the target municipalities.

These are strategic areas that this project seeks to intervene. The baseline scenario does not sufficiently address these areas of concern of promoting SLM to contribute to the country's commitment to LDN. SLM for LDN responds to improving the productive capacity of land for socio-economic well-being of communities that depend on it, but also contributes to generating the global environmental benefits. The GEF investment will facilitate an enabling environment for SLM interventions at municipal scale, and reduction of pressures on land in pilot areas, by demonstrating effective SLM practices in the field, developing compelling economic cases in favor of SLM practices, and training national and sub-national government institutions and local stakeholders for SLM. By the end of the project, Georgia will have made tangible progress in achieving its Land Degradation Neutrality target in these municipalities; agricultural systems will be more productive, sustainable over the long term, and resilient to climate change; the economic value of land and ecosystem services will have been accurately assessed and used to guide land use policies and plans; the capacity of national and sub-national government institutions and local stakeholders for SLM will be enhanced; and project stakeholders will have increased access to knowledge, lessons learned and information and will be participating more widely in decision-making and implementation of SLM programs (with improved gender equality). In sum, these various outcomes will reduce land degradation and pressures on

ecosystem services, improve the integrated management of common resources, and improve the well-being of project stakeholders.

Soil erosion as well as soil compaction (reducing agricultural productivity and water infiltration) and the decline of organic matter in the soil are the main threats to soils in Georgia. All these threats may be exacerbated by climate change. Soil erosion and loss of fertility finally lead to the soil degradation and desertification, which on its turn significantly affect the food security and socio-economic state of the country. Also, soil quality is deteriorated through its pollution from the industrial sector. Therefore, the reduction of these pressures and restoration of the degraded soil is among the key priorities in Georgia.

Although soil pollution monitoring was resumed recently, further extension of the soil monitoring network and regular monitoring of soil quality is needed. Robust data and its availability is crucial for proper planning and implementing measures in an effective and efficient way.

Reduction of pressures over soil and prevention of its degradation, need adequate knowledge among stakeholders and capacity at national level. The impacts of human actions on soil fertility may not be seen for many years but steps should be taken today. Safeguarding soils for future generations means managing them better, reducing degradation and building resilience to increasing pressures in order to provide a sustainable food supply and cope with a changing climate.

Scenario without the GEF investment: The project is designed to support country to fulfil the commitment under the UNCCD to achieve Land Degradation Neutrality national target. The baseline situation consists primarily of efforts and actions implemented by government institutions in cooperation with UNCCD secretariat setting preliminary targets and prioritizing LDN actions at national level. Once the trends of land degradation are identified, for achieving LDN country target it is essential to have quantified and localized analysis of the drivers of degradation in the areas affected, directly linked to local land-use systems and LDN targets should also be set for defined ecozones ("Hot spots"). Without the GEF investment, the efforts made by government will be only be at the national level, national strategy regarding LDN will not be downscaled to municipalities, and the strategy will not be incorporated into local land use policies. Because of these shortfalls, soil quality will continue to degrade due to uncontrolled and inadequate local land use policies. Erosion due to wind and water, and soil fertility loss will continue to be the major problems in the selected municipalities. The productivity will be low, which will have social and economic consequences and adverse impacts on the livelihoods of the local people. Due to decrease in income, number of families under poverty line will increase and the social program providing social assistance to the families below poverty line needs to be expanded in the region. This will also affect the population dynamics. For additional sources of income, young people, especially men, embark on seasonal or permanent migration.

Scenario with the GEF investment: GEF funds will serve as catalyst to develop a coherent and coordinated approach to adopt better SLM approaches in agriculture. More specifically, the GEF investment will facilitate an enabling environment for SLM interventions at municipal scale, and the reduction of pressures on natural resources in pilot areas, by demonstrating effective SLM practices in the field, developing compelling economic cases in favor of SLM practices, and training national and sub-national government institutions and local stakeholders for SLM. By the end of the project, Georgia will have made tangible progress in achieving its Land Degradation Neutrality target in these municipalities; agricultural systems will be more productive, sustainable over the long term, and resilient to climate change; the economic value of land and ecosystem services will have been accurately assessed and used to guide land use policies and plans; the capacity of national and sub-national government institutions and local stakeholders for SLM will be enhanced; and project stakeholders will have increased access to knowledge, lessons learned and information and will be

participating more widely in decision-making and implementation of SLM programs (with improved gender equality). In sum, these various outcomes will reduce land degradation and pressures on ecosystem services, improve the integrated management of common resources, and improve the well-being of project stakeholders.

The Government of Georgia, as well as bi-lateral donors, UN Environment and NGOs will provide USD 4.76 million in grants and in-kind co-financing for the project. Funding from the GEFTF and co-financing partners will jointly support the objectives and the outcomes of the project and will lead to environmental and social benefits on national, regional and global levels.

**Component 1. Creating an enabling environment at municipal scale for achieving Land Degradation Neutrality (LDN) Country Voluntary target**

| Baseline / gaps identified | Alternative Scenario with GEF project | Incremental benefit |
|---|---|---|
| • In August 2017 Georgia defined country voluntary targets towards Sustainable Development Goal (SDG) target 15.3, which includes a commitment to achieve land degradation neutrality (LDN) by 2030.<br>• Despite efforts of the government of Georgia to strengthen sustainable land management (SLM) system and fulfil the committed LDN (as well as SDGs) targets by 2030. there is no debate at municipal level for providing technical guidance and supporting sustainable development agenda and LDN target setting process<br>• Local development and spatial planning system do not consider provisions of LDN. Measures to achieve LDN national targets by 2030 are not defined and prioritized at municipal level.<br>• Thus, there is an urgent need to define locally relevant set of indicators with the potential for scaling-up and to develop LDN monitoring system, as well as to establish LDN baseline. There is no coordination mechanism at municipal level to ensure involvement of all stakeholders in the decision-making processes at local level. | • The project intends to support the implementation of LDN country strategy at municipal scale through local LDN local targets setting programs development and implementation for the pilot municipalities of Sagarejo, Kvareli, Gori and Kareli.<br>• Without the GEF investment, the efforts made by government will be only be at the national level, national strategy regarding LDN will not be downscaled to municipalities, and the strategy will not be incorporated into local land use policies. | • LD trends and drivers mapped, LDN local baseline established including: (i) land cover and land cover change; (ii) land productivity (metric: net primary productivity); and (iii) carbon stocks above and below ground at municipal level (590,000 ha), including possible "hot spots"<br>• Local multi-stakeholders groups established for pilot municipalities (Sagarejo, Kvareli, Gori, Kareli)<br>• LDN local target setting programs developed and the voluntary targets defined and agreed at municipal level<br>• LDN local transformative projects/programs of actions, including resource mobilization plans developed for pilot municipalities<br>• Integrated land-use plans developed for pilot municipalities based on the evaluation of the potential impacts of different land-use options. |

**Component 2. Pilot implementation of measures avoiding degradation, intensifying sustainable land management practices and land rehabilitation to improve ecosystem functions and services.**

| Baseline / gaps identified | Alternative Scenario with GEF project | Incremental benefit |
|---|---|---|

| | | |
|---|---|---|
| • **Reduction in land productivity** due to improper agricultural practice is main obstacle for agricultural production in all pilot municipalities (Gori, Kareli, Sagarejo and Kvareli).<br><br>• Windbreaks are mainly destroyed because of cutting and uncontrolled grazing. There is no legal basis for windbreaks protection and maintenance. Moreover, local farmers have low awareness on windbreaks importance for soil protection.<br><br>• Local farmers have low awareness and not enough knowledge on modern technologies for land cultivation. There are no laboratories in the region for soil and pests analysis to ensure proper soil fertility and pests management, which causes excessive fertilization and use of pesticides and eventually contamination of soil and agricultural products. Another problem is bad maintenance of the irrigation system.<br><br>• **Pasturelands degradation** is caused because overgrazing and poor management practices. | • The project intends to support at least 16 pilot projects, of which 8 on land restoration and 8 on SLM/CSA practices (in total 4 per municipality). These pilot projects will be preceded by four municipal plans for local urgent measures. The pilot projects will be implemented to demonstrate the benefits and impacts of practical measures to prevent changes in the characteristic of soil, wind erosion, salinization and loss of natural fertility of soil.<br><br>• 8 pilot projects will be focused on restoration measures and will demonstrate restoration applications such as windbreaks, improvement of soil quality by application of no tillage or low tillage farming etc. While other 8 pilot projects will be focused on SLM/CSA practices through crop rotation, modern irrigation technologies other SLM/CSA related measures.<br><br>• Both, restoration and SLM related activities will be undertaken on at least 20,000 ha of agricultural lands in all 4 pilot municipalities. Of which:<br><br>• Restoration activities will cover on a whole at least 10,000 ha of degraded agricultural lands in 4 pilot municipalities and they will be supported jointly by direct GEF financing (through implementation of 8 pilot projects on restoration) and co-financing sources (through implementation of co-financing activities).<br><br>• SLM related activities will cover at least 10,000 ha of agricultural lands in 4 pilot municipalities and will be supported jointly by direct GEF financing (through implementation of 8 pilot projects on SLM practicies) and co-financing sources (through implementation of co-financing activities). | • Integrated approaches to achieve LDN targets are piloted in 4 municipalities that lead to SLM in the target areas.<br><br>• Local measures to prevent changes in the characteristic of soil, wind erosion, salinization and loss of natural fertility of soil identified, developed and validated through participatory process in the municipalities of Sagarejo, Kvareli, Gori, Kareli.<br><br>• **115,362** t CO2-eq sequestered through restoration and improved SLM practices on **20,000 ha** of agricultural land through application of windbreaks, soil quality, and natural vegetation rehabilitation<br><br>• Improved capacity of communities and farmers on sustainable land management and sustainable intensified agriculture using native seed materials.<br><br>• Local farmers and farmer associations assess current agriculture practices and define required changes, and apply sustainable agriculture practices in the municipalities of Sagarejo, Kvareli, Gori, and Kareli.<br><br>• 10,000 hectares (out of total 20,000 ha) of agricultural land under improved SLM practices contributing to country LDN targets.<br><br>• Market access mechanisms and local brands promoted |

## Component 3. Knowledge Management and Capacity Building

| Baseline / gaps identified | Alternative Scenario with GEF project | Incremental benefits |
|---|---|---|

| | | |
|---|---|---|
| • Low knowledge and awareness of farmers and local authorities, as well as low accessibility to relevant information have been identified as one of the major obstacle for application of SLM at local level during the workshops held on PPG stage in pilot municipalities.<br>• No existent database for specialists, decision makers and wider society to get access to the best practice and approaches of SLM, LDN and ELD.<br>• The SLM, LDN and ELD approaches are not sufficiently reflected in study programs of agricultural, environmental, natural resources and other related fields, especially in case of local colleges.<br>The interest of media regarding the field of sustainable land management still stays low. | • The project will develop targeted knowledge products on Sustainable Land Management practices as well as information consolidation and dissemination strategies to ensure the wide uptake and sharing of the information developed.<br>• The project also will undertake an awareness-raising campaign and training for the communities in the targeted municipalities of Sagarejo, Kvareli, Gori, and Kareli on SLM planning and implementation strategies at the community scale. | • Improved awareness of SLM of 150 farmers in 4 pilot municipalities<br>• Increased uptake of sound agricultural practices that reduce land degradation<br>• User-friendly web based national SLM knowledge management hub established<br>• Increased knowledge and qualification of agriculture specialists on SLM and LDN;<br>• Increased information dissemination on land degradation and SLM practices through media. |

*5) <u>Global environmental benefits</u> (GEFTF) and/or <u>adaptation benefits</u> (LDCF/SCCF)*

Both, restoration and SLM related activities will be undertaken on at least 20,000 ha of agricultural lands in all 4 pilot municipalities. Out of the above 20,000 ha, restoration activities will cover 10,000 ha of degraded agricultural lands, while SLM related activities will cover 10,000 ha of agricultural lands.

Implementation of restoration activities will contribute to the sequestration of about **35,761 t CO2**-eq through the restoration of **10,000 ha** of degraded land. The SLM activities will also contribute to the sequestration of about **75,649 t CO2**-eq through the implementation of SLM/CSA practices **on additional 10,000** ha of agricultural land. In addition, both activities will contribute to making the ecosystem services more resilient to the impacts of climate change. Among others, these activities include the application of restoration and sustainable land management techniques such as windbreaks rehabilitation, climate smart agricultural methods etc. The project will contribute to global environmental benefits primarily through reduced soil erosion, reduced risk of land degradation, and improved land and soil health. The project will significantly contribute to improved agricultural management, enhanced functionality of agro-ecosystems, and restoration.

Detailed quantified benefits are shown in Annex J – Global Environmental and Development Benefits.

The project will ensure the sustainability and replicability of global environmental benefits in several ways:

- Enhancing the capacity of the national and local authorities to enforce the implementation of mechanisms to combat land degradation to sustain LDN efforts;
- Demonstrating modern environmentally friendly technologies such as windbreaks for land cultivation and land restoration applications;
- Promoting adoption and ownership of locally responsive and tailored techniques among farmers and local authorities; equipping them with technical know-how in SLM related initiatives and practices. The adoption of technologies is grass-root level ensures ownership and sustainability of the project outcomes.

**6) Innovation, sustainability and potential for scaling up**

Innovativeness: The project will develop an innovative approach to achieve land degradation neutrality to halt the ongoing loss of healthy land through land degradation. Unlike past approaches, LDN creates a target for land degradation management, promoting a dual-pronged approach of measures to avoid or reduce degradation of land, combined with measures to reverse past degradation. The innovative objective of the project is that losses are balanced by gains, in order to achieve a position of no net loss of healthy and productive land. The project's innovation is also related to the fact that it aims at addressing one of the pressing issues in global conservation, SDG15.3, combatting desertification, restoring degraded land and soil, including land affected by desertification, drought and floods, and achieving a land degradation-neutral world. In addition, through project interventions, new data, knowledge products, research area and culture of cooperation will be developed. Innovative integrated land-use plans, which incorporates LDN as an essential component will allow conceptualization of land use planning for sustainable agriculture and rural development. Additional innovation related to the project has improved financing mechanisms for SLM. The project activities will provide local approach for analysis and application of the economics of land degradation, to make economics of land degradation an integral part of policy strategies and decision making by increasing the awareness of the costs and benefits of land and land-based ecosystems. As a pioneering project in the country to have a deliberate focus on LDN to seek to promote healthy and productive land resources necessary to support ecosystem services for local benefits as well as global environmental benefits, this project innovatively contributes to national LDN target setting, reinforces capacities for LDN while at the same time implementing SLM and land restoration interventions.

Sustainability: As has already been alluded to, promoting adoption and ownership of locally responsive and tailored techniques among farmers and local authorities, including institutional frameworks relevant at each administrative level, is key to getting stakeholder buy-in and sustainability of project outcomes. The project will empower local stakeholders to take more ownership/responsibility for the management of natural resources, for example through clarifying institutional responsibilities among key agencies. The preparation of participatory integrated land use planning and SLM demonstrations will empower communities and local stakeholders to take part in decision-making processes during and after the project. The capacities of key stakeholders, including the relevant authorities and land users, will be strengthened in order to be able to continue the identified best practices. Finally, the project will raise public awareness raising on land degradation issues and SLM approaches, which will additionally contribute to ensuring the continuation of the envisaged activities.

To ensure sustainability of project results all activities suggested will be checked against approved national country development strategies, policies and frameworks and in line with countries' economic, social and environmental development priorities: project will include other stakeholders into decision-making processes concerning the prioritization of actions. This will assure overall ownership of the project outcomes, will create solid basis for the continuity of the activities and will correspond to the needs on implementation.

Scaling Up: As an LDN focused project in the country, the project will generate lessons from its implementation that will be to be harnessed for scaling up. The project is being designed at an opportune time, and Georgia will benefit to be on a path to be an LDN responsive country. Therefore, the project will seek to harness best practices to inform future programming in other parts of the country to facilitate connecting LDN practices. Throughout the project, a collaboration scheme is envisioned between the experts engaged during project implementation, local government institutions and departments, the central government, NGOs, and direct beneficiaries, which will assist in mainstreaming approaches and capacities among diverse stakeholders. Scaling up will be ensured through developing the necessary innovative tools and practices for SLM that will be demonstrated at the targeted provinces and disseminated through knowledge products. Additionally, the project will

provide training for end-users such as farmers and land owners to be able to individually adopt SLM practices. Finally, the project will facilitate dissemination of best practices through the activities defined under component 3.

*A.2. Child Project?* If this is a child project under a program, describe how the components contribute to the overall program impact.
N/A
*A.3. Stakeholders*. Identify key stakeholders and elaborate on how the key stakeholders' engagement is incorporated in the preparation and implementation of the project. Do they include civil society organizations (yes ☒ /no☐)? and indigenous peoples (yes ☐ /no☒)? [57]

- No indigenous people will be involved in the project

| Key stakeholders | Function / role in the project |
|---|---|
| Ministry of Environment Protection and Agriculture (MEPA)<br><br>Land Resources Protection and Mineral Resources Service (LRPMRS) | MEPA is the UNCCD Focal Point and is responsible for rational use and protection of land, taking measures against soil erosion, implementation of measures for restoration and maintenance of soil fertility.<br>Within current structure of the MEPA's central office, the Land Resources Protection and Mineral Resources Service (LRPMRS) is responsible for the development and implementation of sustainable land management policy; for planning of measures to mitigate desertification and land degradation processes; and for development of programs for monitoring and research of soil fertility.<br>In addition, MEPA is responsible for coordination and monitoring of activities related to conservation and rehabilitation of soil productivity. Department of Melioration and Land Management is responsible for development of soil conservation and rehabilitation-improvement of soil fertility and coordination of implementation of relevant measures, as well as for development of programs against soil erosion and productivity restoration.<br>The core function of the MEPA in the field of agriculture is to develop and implement a unified government policy on the development of agricultural sector of Georgia. In this field the MEPA has the following objectives: carry out agrarian reforms considering international experience as well as historical and national traditions of the country; support the development of agricultural cooperation; promote processing of primary agricultural and food products; support the use of export potential and strengthen the positions on the international markets; collecting /analyzing information about conditions and tendencies of internal and external markets; promote and organize scientific-consulting services, capacity building and hands-on training courses of agricultural entrepreneurs; registration and organization of pesticides, agrochemicals; testing new animal and/or plant breeds; support the accessibility and renewal of agricultural equipment and technologies; forecasting the need of pesticides and agrochemicals and promote their application.<br>As of December 31, 2017 there are following agriculture related several autonomous state organizations functioning within the MEPA: National Food Agency; National Wine Agency; Laboratory the Ministry of Agriculture; Agency for Development of Agricultural Cooperatives; Agricultural Projects Management Agency; Rural and Agriculture Development Fund; Georgian United Company for Melioration/Irrigation Systems; Scientific-Research Center of Agriculture; Organization for Agricultural Mechanization Services.<br><br>**Role in the project**: MEPA will be the beneficiary of the project. It will also lead the project steering committee (PSC). |
| Ministry of Economy and Sustainable Development (MESD) | MESD, through its State Property Agency, is responsible for land title registration, privatization and lease/rent of state owned lands (including state owned pasturelands) to the third parties.<br>Through its Department of Sustainable Development, the MESD is responsible for preparation of sustainable development strategies and elaboration of state programs for its support; participation in activities for ensuring country's capacity against global challenges, consideration, processing and analysis of appropriate innovative projects for assisting sustainable development; assistance in revealing of country's investment potential and |

[57] *As per the GEF-6 Corporate Results Framework in the GEF Programming Directions and GEF-6 Gender Core Indicators in the Gender Equality Action Plan, provide information on these specific indicators on stakeholders (including civil society organization and indigenous peoples) and gender.*

| | |
|---|---|
| | resources in the field of sustainable development.<br>In addition, the MESD, through its Spatial Planning and Construction Policy Department is responsible for overall coordination of spatial-territorial planning process of all hierarchies (including municipal level spatial-territorial planning – e.g., municipal land use plans etc.).<br><br>**Role in the project**: Preparation of municipal integrated land use plans in 4 pilot municipalities will be coordinated with MESD.<br>Pilot projects implemented on the pasturelands owned by state will be agreed with the MESD. |
| Local municipalities (Kvareli, Sagarejo, Kareli and Gori ) including Farmers Extension Centers established in the municipalities | Municipalities have overall responsibilities for organizing the rational use of land and coordinating activities for soil protection (though they generally have very limited capacities and resources for fulfilment of these functions). Municipalities carry responsibilities for development of local land use plans. In addition, municipalities are entitled to handle on their own initiative on any issues that, according to the legislation of Georgia, does not fall within the scope of authority of another governmental body and is not prohibited by law. Environment protection is listed as one of such issues.<br><br>**Role in the project**: The municipal administrations selected by the project in the pilot municipalities will be key actors in the development of local land use plans based on vulnerability assessments. These municipalities will participate on the project steering committee and will be actively involved in development of pilot projects. The agricultural and environment related units within the municipal administrations will participate in the training organized by the project, and in development of knowledge products and public awareness materials that will target the needs of the local authorities to ensure further application of the SLM approaches in municipal development plans. |
| Local small farmers, cooperatives and farmers associations | Local small farmers, cooperatives and farmers associations will be part of the solutions proposed by project for transition towards SLM. The involvement of local farmers will be ensured trough local LDN groups represented by man and women farmers. Farmers associations in the region will be also requested to nominate the members(farmers) for the PSC. |
| Research organizations and academia, including the Agrarian University, the Institute of Geography, and others | Many of these institutions are the owners of important historical data on land degradation. These partners will help to identify land-related priorities and solutions, agronomic best practices and promising new business opportunities. Scientific consideration of land degradation is nascent in Georgia[58] and it should be supported.<br><br>**Role in the project**: Research organizations and academia will be essential for the development of maps for the web portal on Land Degradation, as part of SLM knowledge management hub. |
| Local NGOs and CSOs (e.g. Green Alternative) | Local NGOs and CSOs will help to identify gaps and challenges related to the application of SLM practices, and can help to identify the most efficient mechanisms related to public participation in SLM decision-making processes |

*A.4. Gender Equality and Women's Empowerment.* Elaborate on how gender equality and women's empowerment issues are mainstreamed into the project implementation and monitoring, taking into account the differences, needs, roles and priorities of women and men. In addition, 1) did the project conduct a gender analysis during project preparation (yes ☒ /no☐)?; 2) did the project incorporate a gender responsive project results framework, including sex-disaggregated indicators (yes ☒ /no☐)?; and 3) what is the share of women and men direct beneficiaries (women 50%, men 50%)? [59]

Georgia adopted Convention on the Elimination of all Forms of Discrimination against Women (CEDAW) in 1994 and with this step joined global community in order to eliminate stereotypes about functions of men and women and promote equal rights for both[60]. In March 2010, the Parliament of

[58] See e.g. Basialashvili et al 2015. Desertification Risk in Kakheti Region, East Georgia. *Journal of Environmental Biology*,. 2015 Jan;36 .Spec No:33-6.
https://www.ncbi.nlm.nih.gov/pubmed/26591879
[59] Same as footnote 8 above.
[60]Gender Equality Assessment Among Political Parties of Georgia, 2017.
http://nimd.ge/uploads/images/8455Gender_Ranking_online%20publication_2017.pdf

Georgia adopted the law about Gender Equality to create equal opportunities in political, economic and social life[61]. Taking into consideration positive changes in legislation it should be mentioned that in social, political and economic life still achieving gender equality is a problematic issue. Regarding women's role in society gender stereotypes and traditional views prevail in Georgia which makes gender mainstreaming process complicated. Woman's main role in society is perceived to be a mother and housekeeper. Also, woman's life is more under control than man's in Georgia[62]. Gender stereotypes prevail regarding women's participation in politics. According to the research conducted by the UNDP in 2013 Georgian society prefers men in politics than women. Women are perceived as week and because of it politics for women is not relevant[63]. According to the statistics in 2016 regarding victim and violator - 92% of violators are men and 87% of victims are women[64].

The number of the municipalities which implement the projects oriented to empower women is really increased[65] but mostly these projects imply only the foundation of "Women's Rooms" and offer them only reproductive health services. Still the participation of women in municipality meetings and events is low compared to men's activity.

The gender assessment revealed that both women and men are actively involved in farming, agricultural and cattle–breeding activities but their contribution is different. The female and male participants in all municipalities share the same opinion - there are certain tasks which are easier to accomplish for men e.g. technical issues which demand more physical strength such as: spraying vineyard, managing tractor, shepherding, hoeing, digging and etc. But activities such as kitchen gardening, cattle – farming, keeping of household, taking care of children are perceived as women's responsibilities in rural daily life. Women farmers say that actually because of financial problems many women are doing both above mentioned - "men's" and "women's" duties.

It is worth to underline that male and female participants think that women in agriculture and farming are effective as managers. Male respondents admit that they often ask women advice regarding some agricultural activities and their wives have good management skills.

According to the data of National Agency of Public Registry of Ministry of Justice in all four municipalities, there are more male owners of agricultural land than women. But the number of female owners is also considerable in frames of the project. Additionally, there are also more male farmers registered than female as detailed in the table below:

Table 4. Distribution of land ownership and farmer registration

| | | Number of agricultural land owners | | Number of registered farmers | |
|---|---|---|---|---|---|
| No. | Municipality | Women | Men | Women | Men |
| 1. | Sagarejo | 6,537 | 13,676 | 138 | 1,067 |
| 2. | Kvareli | 4,105 | 33,610 | 43 | 781 |
| 3. | Kareli | 4,458 | 6,319 | 17 | 431 |
| 4. | Gori | 24,459 | 33,610 | 106 | 865 |

[61] Georgia adopts the Law on Gender Equality, 2010.
http://www.ge.undp.org/content/georgia/en/home/ourwork/democraticgovernance/successstories/georgia-is-adopting-a-law-on-gender-equality.html
[62] Attitudes towards Gender Equality in Politics and Business in Georgian Society, 2013.
http://www.ge.undp.org/content/dam/georgia/docs/publications/GE_UNDP_Gender_Research_GEO.pdf
[63] Attitudes towards Gender Equality in Politics and Business in Georgian Society, 2013.
http://www.ge.undp.org/content/dam/georgia/docs/publications/GE_UNDP_Gender_Research_GEO.pdf
[64] Women's Legal State and Gender Equality in Georgia, 2016.
http://www.ombudsman.ge/uploads/other/4/4451.pdf
[65] Women's Legal State and Gender Equality in Georgia, 2016.
http://www.ombudsman.ge/uploads/other/4/4451.pdf

| | | | | |
|---|---|---|---|---|
| Total | 39,559 | 87,215 | 304 | 3,144 |

Both men and women emphasize the importance of sharing opinions and ideas regarding agricultural activities among each other. They think that rural family life should be based on mutual decisions made by men and women together for family welfare. Their family practices are also based on mutual decisions and sharing ideas with each other.

A gender analysis conducted during project preparation, generated the following findings:

- Regarding women's role in society gender stereotypes and traditional views prevail in Georgia which makes gender mainstreaming process complicated;
- Both women and men are actively involved in farming, agricultural and cattle-breeding activities, but their contribution is different; Women's primary role is family work and children's upbringing, while men are considered as main breadwinner in rural families.
- Women in agriculture and farming are considered as effective as managers, because they are more self-disciplined and organized than men. Women are more motivated to solve problems for rural community when men are not oriented to make changes;
- In all four pilot municipalities, there are more male owners of agricultural land than women, more male are registered as farmers, however, number of female owners of land is also considerable;
- Regardless of the traditional view of distribution of functions in the family, women are actively involved in the decision-making processes at the household level, but women have less access to political and top managerial positions. There are few women represented in board administration and local assembly;
- Both female and man farmers have limited access to the needed information and knowledge for effective management of agricultural lands and households.

These findings have been integrated in the project as follows:

- Based on the outcome of that analysis, the project framework integrated gender mainstreaming activities and specific gender mainstreaming indicators.
- In addition, the monitoring and evaluation component will specifically assess the impact on gender mainstreaming activities with reference to the gender-specific indicators.
- The project will contribute improving of the condition of women by enhancing their capacity to participate in decision-making processes.
- During the implementation of demonstration/pilot projects, the project will pay attention to equal involvement of women and man farmers;
- The project will make sure equal involvement of women and men in all consultations, capacity-building and outreach activities to be implemented;
- The project staff will endeavour to ensure that the new job posts made available under this project, or as an effect of the project implementation, are equally shared among female and male.
- In the course of the development of training and raising awareness modules, the project staff will endeavour to ensure that training is equally participated by male and female, and that it includes women-specific aspect related to the LDN.

***A.5 Risk.*** **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:**

| Risks | Risk Level | Measures |
|---|---|---|
| Land tenure issues undermine project interventions Because lack of land tenure will limit the farmers' interest in long-term solutions; therefore, some | M | In 2016, the parliament of Georgia has launched a new State Project on Land Registration, which facilitates and simplifies the registration of landownership. The project |

| | | |
|---|---|---|
| farmers are unwilling to adopt more sustainable practices. | | team will work with local farmers and support them with clear guidance in this process if necessary |
| Timing for enacting of regulations for windbreaks sustainable management too long for having regulation in place during project implementation | M | The project will ensure timely and constant close consultations with stakeholders involved to raise interest and commitment that would otherwise delay the enactment of regulations. |
| The lack of willingness of local municipalities for cooperation on SLM and lack of ownership of municipal LDN voluntary target setting process | L | The project will mitigate this risk through the promotion of multiple economic and environmental benefit municipalities and local communities can obtain from participation in LDN voluntary target |
| Climate proof agricultural techniques take several years to produce results, and local communities may not be willing to wait that long for positive results | L-M | Under Component 2, pilot project activities to improve agricultural techniques and thereby improve livelihoods opportunities will be designed to support local communities during the process of developing new climate proof agricultural processes |
| Lack of interest in proposed innovative techniques leading to dis-adoption | L | Communities will be consulted and sensitized to get their buy-in, but also make them part of implementation process. Techniques will be responsive to local needs. |
| Climate change impacts could negate project results, for example changes in weather patterns that may adversely affect crop production | M | Improving the cultivation methods and increasing mobility of crops and by providing refuge against temperature changes. The project pilot activities will result in more stable and resilient crop production |
| Lack of capacity of local communities and farmers, proposed SLM methods go beyond the applicability of traditional resource management practices. | L | The project will mitigate this risk through the utilization of tailor made capacity development measures |

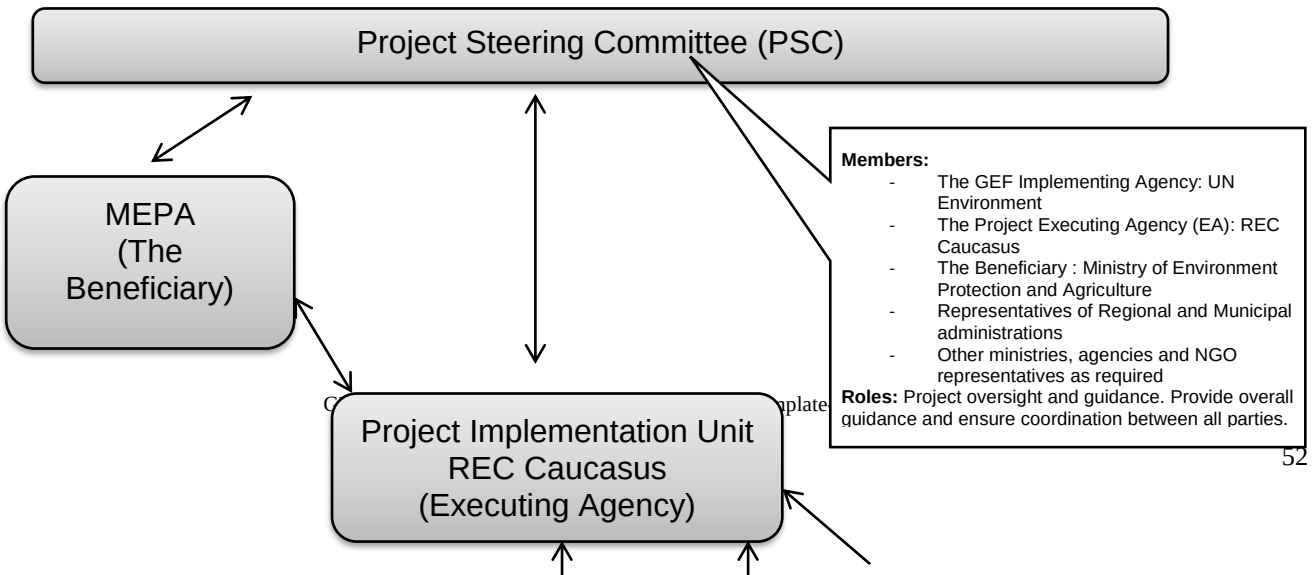
***A.6. Institutional Arrangement and Coordination.*** **Describe the institutional arrangement for project implementation. Elaborate on the planned coordination with other relevant GEF-financed projects and other initiatives.**

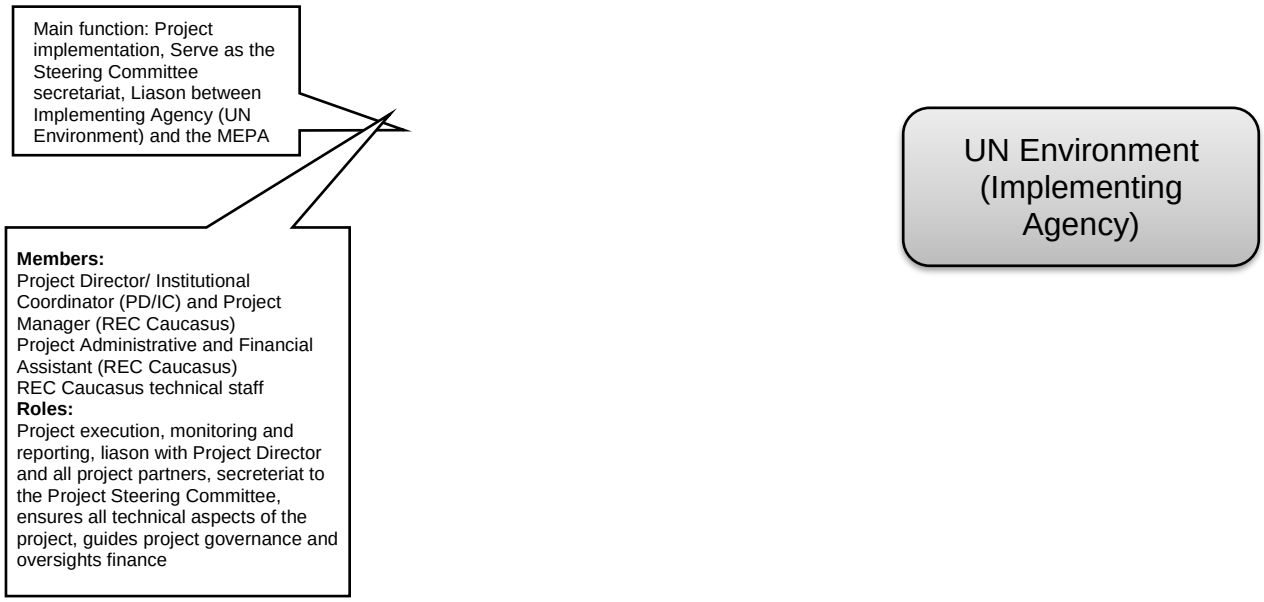
### A.6. 1. Institutional Arrangement

The institutional arrangement for project implementation is provided in Figure below. UN Environment is the GEF Implementing Agency (IA) for the project. A task manager will be appointed by UN Environment to oversee the implementation of the project, assisted by a support staff.

The Ministry of Environment Protection and Agriculture of Georgia (MEPA) will be the beneficiary of the project.

Figure 3. Project Execution






REC Caucasus, with technical competence and administrative preparedness for entering into delivery-based contracts, will serve as the Project Executing Agency (EA). The tasks covered by this contract will be related to project outcomes and outputs as well as overall project management activities.

As laid down in Annex F GEF Grant Budget, and agreed with the MEPA, REC Caucuses will provide technical and administrative execution support in the form of direct recruitment of consultants and procurement. If required and on the request of the government, additional execution support may be provided by UN Environment during the implementation period.

REC Caucasus will be responsible for drafting all project reporting including progress reports, annual work plans, GEF project implementation report (PIRs), reporting against project and program indicators and country reporting requirements based on the prescribed formats. The project targets and indicators will be reviewed annually as part of the internal evaluation and planning processes.

The EA is responsible for informing UN Environment of any delays or difficulties during the implementation so that appropriate support or corrective measures can be adopted in a timely and remedial fashion.

A Project Steering Committee (PSC) will be established by the Executing Agency (EA) and chaired by the Beneficiary (MEPA). The EA will perform tasks of secretariat for the PSC. Along with the representatives of the the EA, the PSC will be comprised of the representatives from relevant line ministries, including Ministry of Economy and Sustainable Development, representatives of the Parliamentary Committees on Agriculture and on Environmental Protection and Natural Resources and representatives from the 4 pilot municipality administrations, as well as representatives of the GIZ Program on “Integrated biodiversity management, South Caucasus” and other stakeholders. The PSC will hold meeting at least once a year throughout the project implementation, but additional meetings can be held if necessary. The TOR of PSC (Annex P) will be agreed during the project inception phase. The PSC should make necessary decisions/recommendations within the rules and regulations of UN Environment and the GEF.

As may be required on specific issues, an advisory (ad hoc) group can be formed to offer any other guidance or expertise as required by the specific agenda of the PSC.

Table 6 below summarizes the envisaged roles of institutions in the execution process of the project to ensure that the project is implemented in a coordinated fashion to achieve its objective to generate

economic and environmental benefits from sustainable land management for vulnerable rural communities of Georgia.

Table 5. Summary of institutional arrangement for project execution

| No | Level of project execution | Responsible | Roles |
|---|---|---|---|
| | | Project Steering Committee (chaired by the Ministry of Environment Protection and Agriculture) | Providing overall monitoring throughout the project implementation; Ensure coordination with other activities at national and local levels.<br>Main tasks:<br>• Provide overall guidance and ensure coordination between all parties;<br>• Provide monitoring for project implementation;<br>• Review and adopt the annual work plans prepared by the PEA, in conformity with the project objective and subject to the rules of GEF and UN Environment, and taking into account its comments on the annual work plansplan and the budget;;<br>• Review the six-monthly progress reports to be prepared by the PEA, and oversee the implementation of corrective actions, when necessary;<br>• Enhance synergy between the GEF project and other initiatives being implemented in the project area; and<br>• Provide advice on policy and strategic issues to be taken into account during project implementation. |
| 2. | Project Implementation | UN Environment (Implementing Agency) | Main tasks:<br>- Providing consistent and regular Project oversight to ensure that GEF policies and criteria are adhered to and that the project meets its objectives and achieves expected outcomes<br>- Regularly monitoring project progress and performance and rating progress towards meeting project objectives, project execution progress, quality of project monitoring and evaluation, and risk<br>- Ensuring that both GEF and UN Environment guidelines and standards are applied and met (technical, fiduciary, M&E)<br>- Ensuring technical quality of products, outputs and deliverables |

| | | | |
|---|---|---|---|
| | | | - Ensuring timely disbursement to executing agencies, based on agreed legal documents |
| 3. | Project execution and management | REC Caucasus (Executing Agency) | Ensure that the project is implemented in accordance with the agreed objectives, activities and budget and deliver the outputs and demonstrate its best efforts in achieving the project outcomes. It shall also coordinate activities with the Beneficiary – Minnistry of Environment Protection and Agriculture (MEPA)and the other key Government partners, including Ministry of Economy and Sustainable Development (MESD), National Agency of Public Registry (NARP), Administration of the Municipalities, international NGOs, and local NGOs, the Private Sector, and other relevant partners and address and rectify any issues raised by UN Environment with respect to project execution in a timely manner. |
| | | | |
| 4. | Execution | Project Financial Coordinator, REC Caucasus | Day-to-day project financial management and monitoring;<br>Preparation of financial reports. |
| | | Project Coordinator, REC Caucasus | Day-to-date project management, including planning, monitoring and reporting of project activities;<br>Reporting to the project donor;<br>Quality assurance and control of program deliverables;<br>Contribution to the substantive part of the program |
| | | National and International Experts | Conducting studies and preparation technical reports in accordance of the ToRs;<br>Participation in the workshops;<br>Presentation of the studies results;<br>Development of training modules and providing of trainings;<br>Planning of pilot projects and providing recommendations for proper implementation. |

## A.6. 2. Coordination

Currently, the REC Caucasus is executing the UNEP-GEF project "Applying Landscape and Sustainable Land Management (L-SLM) for mitigating land degradation and contributing to poverty reduction in rural areas" The objective of this project is to support the integration of good Landscape and Sustainable Land Management (L-SLM) principles and practices into national policies and institutional frameworks to ensure adoption of economically viable practices by rural communities. The project steering committee consisting of national stakeholders and donor organizations will support coordination and synergies between this project and other on-going projects. The new project was prepared based on experience, needs of the beneficiaries and feedback received from the

interested parties during the activities organized by this ongoing project. More specifically, the plan is to widen the implementation of SLM in new vulnerable locations. The new project is planned in four additional municipalities, and project attention will mainly be on the local level. Both projects, ongoing and this new proposed one will provide support for LDN.

The UNDP-GEF project "Harmonization of Information management for improved knowledge and monitoring of the Global environment in Georgia" implemented by the Environmental Education Centre, is intended to develop capacities in Georgia for an effective national environmental management framework that addresses different articles under the UNFCCC, UNCCD and UNCBD. The project objective is to develop individual and organizational capacities in the Ministry of Environment Protection and Agriculture of Georgia and the Environmental Education Centre for improved monitoring of environmental impacts and trends and for elaboration of collaborative environmental management. The project will provide valuable baseline information and jointly promote improved knowledge sharing and institutional capacities for information management.

Additional Information not well elaborated at PIF Stage:

A.7 *Benefits.* Describe the socioeconomic benefits to be delivered by the project at the national and local levels. How do these benefits translate in supporting the achievement of global environment benefits (GEF Trust Fund) or adaptation benefits (LDCF/SCCF)?

The livelihoods of people in the targeted municipalities for this project are tied to land and associated resources. They heavily depend on it as rangeland as well as for crop production. The continuous stock and flows of ecosystem services from land is therefore important for their socio-economic well-being. The design of this project in the context of advancing the national LDN agenda, takes cognisance of community expressed land degradation challenges. These include:

- Wind erosion caused by absence of windbreaks
- Soil erosion
- Degradation of pasturelands
- Low productivity of livestock farming
- Reduction in land productivity
- Pasturelands degradation

The components focusing on creating an enabling environment at municipal scale for achieving LDN Country Voluntary target; pilot implementation of measures avoiding degradation, intensifying sustainable land management practices and land rehabilitation to improve ecosystem functions and services; and knowledge management and capacity building, will contribute to redress the above challenges. These challenges are a threat to the socio-economic well-being of communities in targeted municipalities. Additionally, if these challenges are not addressed, it will tilt a human-environment interaction nexus that will worsen the environmental situation that compromises the integrity of land and related resources to provide for the needs of communities. In an integrated way, this project therefore, seeks to secure the environmental integrity to support the socio-economic needs of land dependent communities on the one hand, and on the other, addresses the socio-economic dynamics that would otherwise continue to negatively impact land and related resources.

With this approach, this project will therefore, support Georgia to:

- Support the establishment of LDN local target setting programs and the voluntary targets defined and agreed at municipal level;
- Support the development and integration of land-use plans for pilot municipalities based on the evaluation of the potential impacts of different land-use options;
- Support the development, validation and establishment of local measures to prevent changes in the characteristic of soil, wind erosion, salinization and loss of natural fertility of soil identified, developed and validated through participatory process in the municipalities of Sagarejo, Kvareli, Gori, Kareli;

- Restoration of 10,000 ha of degraded land through application of windbreaks, soil quality, and natural vegetation rehabilitation, and sequestration of **35,761 t CO2**-eq;
- Improved SLM practices on 10,000 ha of agricultural land through , and sequestration of **75,649 t CO2**-eq;
- Improvement of capacity of communities and farmers on sustainable land management and sustainable intensified agriculture using native seed materials;
- Supporting local farmers and farmer associations to assess current agriculture practices and define required changes, and apply sustainable agriculture practices in the municipalities of Sagarejo, Kvareli, Gori, and Kareli;
- Capacitating decision-makers, at the municipal/local level (Sagarejo, Kvareli, Gori, Kareli) to make informed decisions regarding integrating SLM, LDN and ELD approaches in decision-making;
- Support strengthened cross-collaboration and cooperation between decision makers at the national level and representatives of NGOs, scientific community regarding incorporating the SLM, LDN and ELD approaches in decision-making; and
- Support awareness-raising among local community members, students/future specialists of higher institutions, farmers, land owners as well as wider society on issues related to SLM, LDN and ELD approaches

A.8 *Knowledge Management.* Elaborate on the knowledge management approach for the project, including, if any, plans for the project to learn from other relevant projects and initiatives (e.g. participate in trainings, conferences, stakeholder exchanges, virtual networks, project twinning) and plans for the project to assess and document in a user-friendly form (e.g. lessons learned briefs, engaging websites, guidebooks based on experience) and share these experiences and expertise (e.g. participate in community of practices, organize seminars, trainings and conferences) with relevant stakeholders.

The proposed project will build upon and collaborate with the on-going projects and initiatives already mentioned above. Component 3 of the project involves a number of strategies and activities to support effective knowledge management related to sustainable land management practices and objectives. For example, lessons learned on best practices in sustainable land management stemming from this project's interventions will be collected and shared with relevant stakeholders during trainings and public awareness activities, and reports will be elaborated and sent out with the conclusions and suggestions to relevant government bodies. Awareness-raising campaigns will be conducted on SLM planning and implementation at the community scale, and compelling cases for economic benefits derived from sustainable land management will be developed and shared nationally. Web-based instruments will be developed to communicate and promote SLM practices.

Component 3 of the proposed project will be implemented in close cooperation with the UNDP-GEF project "Harmonization of Information management for improved knowledge and monitoring of the Global environment in Georgia" and will provide data and information collected within the project to Environmental Data and Knowledge Management System, to be established within the UNDP-GEF project. All project generated technical reports will be shared through Environmental Data and Knowledge Management System.

For the purpose to disseminate project results project website will be built. The website will be hosted under the website of the REC Caucasus and will be linked to the MEPA website to maximize the number of accesses. The website will be updated regularly by the PEE.

The KM platform will also be utilized to disposal LDN practice to the interested operators and project partners. Therefore, technical documents, case studies and guidelines generated through the

implementation of other LDN / SLM projects will be available for the project stakeholders by uploading these documents on the project website

The project will also endeavor to utilize available social media platforms like Facebook to further disseminate relevant information on the project activities.

**B. DESCRIPTION OF THE CONSISTENCY OF THE PROJECT WITH:**

B.1 *Consistency with National Priorities.* Describe the consistency of the project with national strategies and plans or reports and assessments under relevant conventions such as NAPAs, NAPs, ASGM NAPs, MIAs, NBSAPs, NCs, TNAs, NCSAs, NIPs, PRSPs, NPFE, BURs, INDCs, etc.:

The country's primary environmental policy framework is outlined in the Third National Environmental Action Plan (**NEAP 2017-2021**)[66]. According to the NEAP-3 a strong foundation should be created for ensuring a healthier environment and improved wellbeing of the population, creation of better conditions for economic growth and promotion of a participatory approach. NEAP is an official document representing Georgia's agenda for environmental actions for 2017-2021. The plan sets long-term goals and, therefore, serves as the foundation for long-term environmental planning. NEAP-3 strives to modify and strengthen the legal, administrative and institutional framework at all levels and therefore creates a good platform for the EU approximation process. Partnership and shared responsibility among all economic entities (public and private entrepreneurs, non-governmental organizations) will be promoted during the NEAP-3 implementation process.

Land degradation is identified as major inter-sectoral challenge by NEAP-3 that includes:

- Soil erosion and pollution;
- Not adequate national legislation to ensure SLM;
- Not adequate knowledge among stakeholders and capacity at national level.

Consequently, NEAP-3 establishes long-term goal for the protection and sustainable use of the land resources in the country. In the next five years the following targets should be reached:
- Target 1: Reduction of soil degradation/desertification and restoration of degraded lands;
- Target 2: Establishment of monitoring system of degraded/eroded and contaminated lands.

Achievement of this targets will be supported by the proposed project through establishments of LDN local targets in the most vulnerable municipalities, establishment land degradation monitoring system and demonstration SLM practices.

As it was mentioned above, in August 2017 Georgia defined country voluntary targets towards Sustainable Development Goal (SDG) target 15.3, which includes a commitment to achieve land degradation neutrality (LDN) by 2030.

After the adoption of the SDGs in 2015, Government of Georgia took an initiative to contribute to sustainable development through nationalization of the Goals and undertook active measures to adjust SDG agenda and its targets to the national circumstances and to advance their implementation.

The Ministry of Environment Protection and Agriculture of Georgia plays a leading role in achieving several targets under the SDGs 11, 12, 13, 14, 15 and cooperates closely with other relevant stakeholders in the process. Achieving Land Degradation Neutrality (LDN) by 2030 is one of such priorities for Georgia. Georgia has joined global programme to support National Voluntary Target Setting for LDN established by UNCCD. The National Working Group established within LDN Target Programme identifies the following national voluntary targets for 2030;

1. Integrate LDN principles into national policies, legislation, strategies and planning documents;

[66] During the project proposal preparation final draft of the draft Third NEAP has been disclosed for public by the MEPA

2. About 1500 ha of degraded forests will be afforested, about 7500 ha will be reforested and 60% of forests will be managed sustainably;
3. Protected areas coverage will be increase up to 12%;
4. Degraded land will be rehabilitated;
5. Irrigation and drainage system will be improved.

The proposed project will significantly contribute progress through the LDN national voluntary targets.

Georgia's **National Action Program to Combat Desertification (NAPCD)[67],** reflects government priorities to ensure food security and alleviate poverty by providing sustainable livelihood options and to increase innovative rural income generation through sustainable land management and climate smart agricultural development in rural communities of arid and semi-arid regions of Georgia. The NAPCD includes the following targets, which will be supported by the proposed project:

- By 2016, efforts to combat desertification/ land degradation will be recognized as one of the priorities in national development.
- By 2017, there will be developed either: a) a joint plan, or b) a functional mechanism for the purpose of ensuring conjunction of strategies and implementation of the UNCCD, UNCBD and UNFCCC.
- By 2018, a regional monitoring system will be formed
- By 2018, Georgia will have a renewed strategy for Capacity Building in the field of combating desertification
- By 2019, the aspects of the NAP to combat desertification will be integrated in sectoral and investment planning and policy documents.
- By 2020, at least 40% of decision makers and 30% of the population will be informed about the issues of desertification/ land degradation and drought and their relevance with biodiversity and climate change; and 50% of community based organizations and scientific institutions will be aware of the threats of desertification/land degradation/drought and carry out activities in the frames of their own initiatives.
- By 2020, evaluation will be carried out on interactions between biophysical, social and economic factors.
- By 2020-2022, the activities set out in the Capacity Building strategy will be realized.

The regions selected for pilot activities under this project were all identified as most vulnerable areas in the Georgia's **Third National Communications to the UNFCCC [68]**, and data gathered in preparation of the communication will be used in the implementation of this project. The proposed project will support implementation of Climate Change Adaptation Strategy of Georgia, in particular strategic directions on agriculture adaptation, which includes measures on windbreaks and irrigation system rehabilitation, as well as on rehabilitation on degraded lands, such as replacement of existing agricultural practices with modern, environmentally friendly practice. Climate Change Adaptation Strategy of Georgia also underlines necessity of increase role of local government in the processes related to land resources maintenance.

[67] Second National Action Program of Georgia to Combat Desertification 2014-2022 / Approved by the Government of Georgia - Decree #742 of December 29, 2014.
https://www.rec-caucasus.org/files/publications/pub_1481807666.pdf
[68] Third National Report of Georgia On the Implementation of the UN Convention to Combat Desertification (2006) / Ministry of Environment Protection and Natural Resources of Georgia, 2006.
http://archive.unccd.int/cop/reports/centraleu/national/2006/georgia-eng.pdf

**Georgia's Agricultural Development Strategy (2015-2020)[69]** identifies land degradation as one of the most important problems in the agriculture sector and identifies the need for the following measures to be carried out in order to improve the situation: proper management of fertilizers and pesticides, improvement of amelioration infrastructure, inventory of soils and elaboration of rehabilitation measures based on results of inventory for improvement of soil fertility. Special attention should be paid for research of salinization and erosion of soils, elaboration targeted rehabilitation measures and their implementation in close cooperation with local farmers. Necessity of windbreaks rehabilitation is underlined by the Agricultural Development Strategy.

The Government Program of 2015 for Strong, Democratic and United Georgia[70], states that "development of agriculture will be one of the main priorities for the government of Georgia, which will be guaranteed by clear rural and regional policy and an increase in financing of agriculture."

Georgia's **National Biodiversity Strategy and Action Plan (NBSAP-2) for 2014-2020[71]** recognizes soil degradation, erosion and overgrazing as factors that cause the degradation of agricultural ecosystems and natural grasslands, and as a result, improved management of agricultural ecosystems and ensuring sustainable management of 70% of grasslands by 2020 are national objectives set out in the NBSAP. The project will contribute achievement of NBSAP targets related to sustainable management of pasturelands and inclusion of sustainable management of agro ecosystems and pasturelands into the regional and local action plans.

The proposed project will contribute to implementation of *Shida Kartli*[72] and *Kakheti*[73] Regional Development Strategies (2014-2021). Both strategies underline decreasing of soil fertility due to the improper land management as acute problem for agriculture development and poverty reduction in rural communities. Consequently, mapping of land degradation and establishment of baseline, inclusion of land degradation related issues into the planning processes, implementation of measures against desertification, overgrazing, erosion, decreasing of soil fertility are included in the Regional Development Strategies.

The project will have a significant contribution to **United Nations Partnership for Sustainable Development (UNPSD Georgia 2016 – 2020)[74]** focus areas, outcomes and targets, in particular:

UNPSD Focus Area 1: Democratic Governance, Outcome 1: By 2020 expectations of citizens of Georgia7 for voice, rule of law, public sector reforms and accountability are met by stronger systems of democratic governance at all levels.

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[69] Agriculture Development Strategy of Georgia for 2015-2020 // Approved by the Government of Georgia - Ordinance #167 of February 11, 2015.
http://www.moa.gov.ge/Ge/Public/Strategy/8

[70] Government Programme For Strong, Democratic and Unified Georgia 2015. The Government of Georgia, May 2015, Tbilisi, Georgia.
http://gov.ge/files/41_50258_481988_Strong,Democratic,UnitedGeorgia1.pdf

[71] National Biodiversity Strategy and Action Plan of Georgia 2014 – 2020 // Approved by the Government of Georgia - Decree #343 of May 8, 2014.
https://www.cbd.int/doc/world/ge/ge-nbsap-v2-en.pdf

[72] Regional Development Strategy of Shida Kartli (*Khashuri, Kareli, Gori, Kaspi Municipalities*) Region 2014-2021 // Approved by the Government of Georgia - Ordinance #1364 of September 17, 2013.
http://www.mrdi.gov.ge/sites/default/files/shida_qartli_regional_development_strategy_2014-2024_0.pdf

[73] Regional Development Strategy of Kakheti (*Sagarejo, Kvareli, Gurjaani, Akhmeta, Lagodekhi, Telavi, Signagi Municipalities*) Region for 2014-2021 // Approved by the Government of Georgia - Ordinance #1366 of September 17, 2013.
http://www.mrdi.gov.ge/sites/default/files/kakheti_regional_development_strategy.pdf

[74] United Nations Partnership for Sustainable Development - Georgia 2016-2020 (Framework Document) / UN Country Team in Georgia / Tbilisi, Georgia, 2016.
http://ungeorgia.ge/uploads/UNGeorgia.pdf

UNPSD Focus Area 2: Jobs, Livelihood and Social Protection, Outcome 3: By 2020 poor and excluded population groups have better employment and livelihood opportunities as a result of inclusive and sustainable growth and development policies, Outcome 4: By 2020 vulnerable groups have access to proactive and inclusive gender and child sensitive social protection system that address major vulnerabilities

UNPSD Focus Area 5: Human Security and Community Resilience, Outcome 8: By 2020 communities enjoy greater resilience through enhanced institutional and legislative systems for environment protection, sustainable management of natural resources and disaster risk reduction

The project will also contribute to the following focus areas identified by the Government of Georgia and UN country team for the 2016-2020 partnership:

1. Democratic Governance:
   - By 2020 expectations of citizens of Georgia or voice, rule of law, public sector reforms and accountability are met by stronger systems of democratic governance at all levels:
   - By 2020 all people living in Georgia – including children, minority groups, people with disabilities (PwD), vulnerable women, migrants, internally displaced persons (IDPs) and persons in need of international protection have increased access to the justice service delivery in accordance with national strategies and UN Human Rights standards.

2. Jobs, Livelihood and Social Protection
   - By 2020 poor and excluded population groups have better employment and livelihood opportunities as a result of inclusive and sustainable growth and development policies
   - By 2020 vulnerable groups have access to proactive and inclusive gender and child sensitive social protection system that address major vulnerabilities.

3. Education
   - By 2020 state and non-state parties at central and municipal levels are providing inclusive and high-quality Preschool and General Education for children.

4. Human Security and Community Resilience
   - By 2020 conflict affected communities enjoy better security and stronger resilience to conflict-induced consequences
   - By 2020 communities enjoy greater resilience through enhanced institutional and legislative systems for environment protection, sustainable management of natural resources and disaster risk reduction

## C. DESCRIBE THE BUDGETED M &E PLAN:

The monitoring and evaluation process is expected to be a key part of the project, based on a three-year implementation plan. Monitoring and Evaluation (M&E) will be conducted utilizing the results-based management approach. The Results Framework provides performance and impact indicators for project implementation along with corresponding means of verification. The M&E plan includes project implementation reviews, quarterly and annual review reports, and mid-term and final evaluations. M&E will be an on-going process and is based on the following strategic directions.

The monitoring and evaluation process will be participatory, consultative and aimed at ensuring delivery of project outputs and achievement of associated defined targets. Evaluation will be based on the status of implementation, through identification of gaps, and the measurement of impacts and level of success in the application of best practices.

UN Environment will be responsible for managing the mid-term review/ evaluation and the terminal evaluation. The Project Management Unit and partners will participate actively in the process.

The project will be reviewed or evaluated at mid-term. The purpose of the Mid-Term Review (MTR) or Mid-Term Evaluation (MTE) is to provide an independent assessment of project performance at mid-term, to analyze whether the project is on track, what problems and challenges the project is encountering, and which corrective actions are required so that the project can achieve its intended outcomes by project completion in the most efficient and sustainable way. In addition, it will verify information gathered through the GEF tracking tools.

A management response to the evaluation recommendations will be developed, along with an implementation plan. It is the responsibility of the UN Environment Task Manager to monitor whether the agreed recommendations are being implemented. An MTR is managed by the UN Environment Task Manager. An MTE is managed by the Evaluation Office of UN Environment. The Evaluation Office of UN Environment will determine whether an MTE is required, or an MTR is sufficient.

In line with UN Environment Evaluation Policy and the GEF's Monitoring and Evaluation Policy, the project will be subject to a Terminal Evaluation (TE). The Evaluation Office will be responsible for the Terminal Evaluation and will liaise with the Task Manager and the Executing Agency throughout the process. The Terminal Evaluation will provide an independent assessment of project performance (in terms of relevance, effectiveness and efficiency), and determine the likelihood of impact and sustainability. It will have two primary purposes:

- to provide evidence of results to meet accountability requirements, and
- to promote learning, feedback, and knowledge sharing through results and lessons learned among UN Environment, the GEF, executing partners and other stakeholders.

The direct costs of the evaluations will be charged against the project evaluation budget. The Terminal Evaluation will be initiated no earlier than six months prior to the operational completion of project activities and, if a follow-on phase of the project is envisaged, should be completed prior to completion of the project and the submission of the follow-on proposal. Terminal Evaluation must be initiated no later than six months after operational completion.

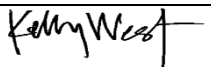
The draft Terminal Evaluation report will be sent by the Evaluation Office to project stakeholders for comments. Formal comments on the report will be shared by the Evaluation Office in an open and transparent manner. The project performance will be assessed against standard evaluation criteria using a six-point rating scheme. The final determination of project ratings will be made by the Evaluation Office when the report is finalized and further reviewed by the GEF Independent Evaluation Office upon submission. The evaluation report will be publicly disclosed and may be followed by a recommendation compliance process.

The GEF tracking tool LD-PMAT is attached as Annex N. The LD-PMAT will be updated at mid-term and at the end of the project and will be made available to the GEF Secretariat along with the project PIR report. As mentioned above, the MTR and TE will verify the information of the tracking tool. A detailed monitoring and evaluation plan has been provided in Annex J, including the indicative budget and time frame for its implementation.

## PART III: CERTIFICATION BY GEF PARTNER AGENCY(IES)

### A. GEF Agency(ies) certification

**This request has been prepared in accordance with GEF policies[75] and procedures and meets the GEF criteria for CEO endorsement under GEF-6.**

| Agency Coordinator, Agency Name | Signature | Date (mm/dd/yyyy) | Project Contact Person | Telephone | E-Mail Address |
|---|---|---|---|---|---|
| Kelly West, Senior Programme Manager & Global Environment Facility Coordinator Corporate Services Division UN Environment |  | January 24, 2018 | Ersin Esen Task Manager | +41 22 917 8196 | ersin.esen@unep.org |

**Annexes (included in this document)**

Annex A: Project Results Framework
Annex B: Responses to Project Reviews (N/A)
Annex C: Status of Implementation of Project Preparation Activities and the Use of Funds
Annex D: Calendar of Expected Reflows (N/A)

**Other Annexes (submitted along with this document but as separate MS Word/ PDF (Merged) and Excel files)**

Annex E: Work plan and timetable
Annex F1: Detailed GEF budget by UNEP budget lines
Annex F2: Co-financing by source and UNEP budget lines
Annex G: Costed M&E Plan
Annex H: Project Implementation Arrangements
Annex I: Key Deliverables and Benchmarks
Annex J: GEF-6 PMAT: LD Tracking Tool
Annex K: Endorsement Letter
Annex L: Co-financing Commitment Letters
Annex M: Environmental Social and Economic Review Note
Annex N: Summary of reporting requirements and responsibilities
Annex O: Emissions reductions calculations and assumptions
Annex P: TORs for PSC and Key Personnel
Annex Q Procurement Plan
Annex R: Acronyms and abbreviations

[75] GEF policies encompass all managed trust funds, namely: GEFTF, LDCF, SCCF and CBIT

**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).

| **Outcome Level Indicators** | **Baseline** | **Targets and Monitoring Milestones** | **Means of Verification** | **Assumptions & Risks** |
|---|---|---|---|---|
| **Project Objective:** To develop and strengthen sustainable land management (SLM) practices and build capacity at municipal scale for their application for the protection of natural capital in Georgia | | | | |
| **Outcome 1.1**: **Municipalities are increasingly able to implement LDN country strategy at municipal scale in four target municipalities totaling 590,000 hectares** | | | | |
| Number of municipalities with agreed LDN local targets<br><br>Number of municipal institutional arrangements in relation to the LDN target setting municipal programs<br><br>Number of municipal integrated land use plans for sustainable agriculture and rural development (ILUPs) | 0 Municipalities have local LDN targets<br><br>No municipal institutional arrangement available for LDN target setting.<br><br>No municipal integrated land use plans for sustainable agriculture and rural development (ILUPs) | 4 Municipalities (Sagarejo, Kvareli, Gori, Kareli) agreed on LDN local targets<br><br>At least 4 Multi-stakeholder LDN/SLM platforms (working groups) created in pilot municipalities with equal participation of female and male farmers and decision makers, providing basis to achieve LDN country targets at municipal level<br><br>4 Municipalities (Sagarejo, Kvareli, Gori, Kareli) agreed on municipal integrated land use plans for sustainable agriculture and rural development (ILUP) covering correspondingly 94,371 ha of agricultural and rural lands in Sagarejo, 33,775 ha in Kvareli, 61,902 ha in Gori and 36,407 ha in Kareli municipalities. | Project Progress Reports, Project Maps and Tracking Tools<br>Validation by the Mid-term Review and Final Evaluation<br>Documented municipal decisions, minutes of the meetings and technical reports | *Assumptions*: Local authorities are open to support policy changes in favor of LDN/SLM<br><br>*Risks:* Municipal decisions on adoption of local LDN targets are delayed due to lack of political will or objections from local stakeholders |
| *Outputs*<br>Output 1.1.1. Local multi-stakeholders groups established for pilot municipalities (Sagarejo, Kvareli, Gori, Kareli)<br>Output 1.1.2. LD trends and drivers mapped, LDN local baseline established including: (i) land cover and land cover change (ii) land productivity (metric: net primary productivity) and (iii) carbon stocks above and below ground at municipal level (590,000 ha), including possible "hot spots"<br>Output 1.1.3. LDN local target setting programs developed and the voluntary targets defined and agreed at municipal level | | | | |

| Outcome Level Indicators | Baseline | Targets and Monitoring Milestones | Means of Verification | Assumptions & Risks |
|---|---|---|---|---|
| Output 1.1.4. LDN local transformative projects/programs of actions, including resource mobilization plans developed for pilot municipalities<br>Output 1.1.5. Integrated land-use plans[76] developed for pilot municipalities based on the evaluation of the potential impacts of different land-use options | | | | |
| **Outcome 2.1: Reduced impact severity of erosion, salinization and fertility of soil, in 10,000 ha of affected ecosystems in Sagarejo, Kvareli, Gori, and Kareli through restoration** | | | | |
| Hectares of land restored<br><br>Tons of CO2 sequestered | About 60,000 ha of agriculture lands in 4 target municipalities are degraded due to water and wind erosion and improper agricultural practices<br><br>Reduced CO2 sequestration of degraded land. | 10,000 ha of land restored<br><br>Restoration of 10,000 ha of affected agricultural ecosystems and landscapes contributes to sequestration of 35,761 ton CO2eq | Project Progress Reports, Project Maps and Tracking Tools<br>Validation by the Mid-term Review and Final Evaluation<br>Documented plans of LDN/SLM implementation urgent measures and pilot projects<br><br>Technical reports on implementation of pilot projects | *Assumptions*: LDN/SLM can deliver results only after few years – resulting in improvements in land productivity and in increased income thereof<br><br>*Risks:* Readiness of local farmers, local and regional authorities to participate in the elaboration and implementation of LDN/SLM implementation measures and pilot projects Readiness of |

[76] LDN is an essential component of ILUP.

| Outcome Level Indicators | Baseline | Targets and Monitoring Milestones | Means of Verification | Assumptions & Risks |
|---|---|---|---|---|
| | | | | local farmers to be included in gender mainstreaming activities in LDN/SLM<br>Favorable weather/ climate conditions |
| *Outputs*<br>Output 2.1.1. Local measures to prevent changes in the fertility of soil, wind erosion and salinization identified, developed and validated through participatory process in the municipalities of Sagarejo, Kvareli, Gori, Kareli<br>Output 2.1.2. 35,761 t CO2-eq sequestered through restoration of 10,000 ha of degraded land through application of windbreaks, soil quality, and natural vegetation rehabilitation | | | | |
| **Outcome 2.2: Farmers apply sustainable land management and climate smart agricultural practices in support of food security and resilience on 10,000 ha of pilot plots** | | | | |
| Area of arable land under sustainable land management and climate smart agricultural (SLM/CSA) practices in 4 municipalities | 0 ha - Farmers do not apply sustainable land management and climate smart agricultural practices in pilot municipalities | 10,000 ha of agricultural**arable** land under sustainable land management and climate smart agricultural practices contributes to sequestration of 182,916 ton CO2eq | Project Progress Reports, Project Maps and Tracking Tools<br>Validation by the Mid-term Review and Final Evaluation | *Assumptions*: Local farmers support sustainable agriculture and SLM/CSA processes, and are committed to continuous learning and implementation |
| Number of farmers who have received capacity development on SLM/CSA technologies express that they increased knowledge on sustainable land management practices | 0 Farmers - Farmers have limited knowledge and technical skills related to SLM/CSA technologies | 200 farmers (at least 100 farmers are women) | Technical reports on implementation of capacity strengthening measures, branding and marketing promotion measures and implementation of priority supportive activities to meet sustainable agriculture and SLM/CSA | *Risks:* Application of SLM/CSA based traditional systems is not sufficiently |

| Outcome Level Indicators | Baseline | Targets and Monitoring Milestones | Means of Verification | Assumptions & Risks |
|---|---|---|---|---|
| | | | requirements | strong to ensure to support food security and resilience. |
| *Outputs*<br>Output 2.2.1. Improved capacity of communities and farmers on sustainable land management and sustainable intensified agriculture using native seed materials<br>Output 2.2.2. Local farmers and farmer associations assess current agriculture practices and define required changes, and apply sustainable agriculture practices in the municipalities of Sagarejo, Kvareli, Gori, and Kareli<br>Output 2.1.3. Market access mechanisms and local brands promoted | | | | |
| **Outcome 3.1: Improved municipal development strategies and easily accessible knowledge about SLM practices to inform policy making** | | | | |
| Number of municipal strategies revised that include SLM knowledge and practices | 0 strategies | 4 municipal strategies | Project Progress Reports, Project Maps and Tracking Tools Validation by the Mid-term Review and Final Evaluation Published texts of guidelines, popular brochure and other knowledge products Documented communication and knowledge hub materials Reports of awareness raising events and trainings | *Assumptions*: *Local communities with support of agriculture extension services have the interest to apply accessible knowledge about SLM*<br><br>*Risks:* *Readiness and interest of stakeholders to be involved in the project activities* |
| Number of LDN/SLM planning materials at municipal scale (*LDN municipal strategies, Integrated land-use plans, plans of local urgent measures, Market analysis etc*) easily accessible by stakeholders | 0 LDN/SLM planning materials at municipal scale | At least 8 LDN/SLM planning documents (2 for each pilot municipality) accessible on the Project website | | |
| Number of media events (radio, TV and Pres) that make the case for SLM Practices | No media events that make the case for SLM practices in four target municipalities | Project visibility materials published and disseminated, at least 3 fact sheets/infographics,<br>12 awareness raising events are organized for decision makers (3 events per municipality)<br>16 events for local communities, farmers and NGOs, CBOs in each municipality (4 events per municipality)<br>4 newsletters are published, 6 informational flyers, 15 newspaper articles in national and local media, 12 thematic reports on national and local radio/TV, short movie on project implementation and results with English language | | |

| Outcome Level Indicators | Baseline | Targets and Monitoring Milestones | Means of Verification | Assumptions & Risks |
|---|---|---|---|---|
| | | sub-titles | | |
| *Outputs*<br>Output 3.1.1. National best-practices for SLM captured and disseminated to the national, regional and international community<br>Output 3.1.2. A web based national SLM knowledge management hub will be created<br>Output 3.1.3. Awareness-raising campaigns conducted on SLM planning, implementation at community scale | | | | |
| **Outcome 3.2: Improved understanding of the economics of land degradation and land use planning in national and sub-national government institutions** | | | | |
| Number of good practices/cases and training materials that explicitly describe the economic benefits and TEEB for Agriculture & Food derived from sustainable land management | No cases from Georgia or training materials on integrated land management and economic benefits and TEEB for Agriculture & Food derived from sustainable land management available in Georgian language | A Report using the TEEB for Agriculture & Food approach - through stakeholder consultation is available in 2 languages: Georgian and English<br><br>Training manual (training module) on economics of land degradation and ecosystem services (on Application of the TEEB for Agriculture & Food approach) is published,<br>At least 1 training event is organized.<br>At least 50 government employees, land care agencies, NGOs, policy makers, are trained | Project Progress Reports,<br>Final Evaluation<br>Documented training modules and other training materials<br>Published texts of Scenario analysis and valuation study on the application of the TEEB for Agriculture & Food approach in Georgia<br>Reports of trainings | *Assumptions*:<br>Studies on the application of the TEEB for Agriculture & Food approach are agreed by stakeholders<br>Persons to be trained are selected properly<br>Training materilas are elaborated taking into account basic nowledge of stakeholders<br><br>*Risks:*<br>*Readiness and interest of stakeholders to be involved in the preparation of studies and training activities* |
| Training curricula on integrated land management targeting Vocational schools | No curricula targeting vocational schools is available | Training curricula (training module) established for Kachreti Vocational school on integrated land management and sustainable intensified agriculture available<br>At least 100 students are trained during the project cycle | | |

| Outcome Level Indicators | Baseline | Targets and Monitoring Milestones | Means of Verification | Assumptions & Risks |
|---|---|---|---|---|
| *Outputs*<br>Output 3.2.1. Compelling cases for economic benefits derived from sustainable land management developed<br>Output 3.2.2. Trainings provided to national and sub-national decision makers on economics of land degradation and ecosystem services<br>Output 3.2.3. Vocational training program on integrated land management and sustainable intensified agriculture using native seed materials organized for farmers | | | | |

**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).

## ANNEX C: STATUS OF IMPLEMENTATION OF PROJECT PREPARATION ACTIVITIES AND THE USE OF FUNDS[77]

A. Provide detailed funding amount of the PPG activities financing status in the table below:

| PPG Grant Approved at PIF: **45,662** | | | |
|---|---|---|---|
| ***Project Preparation Activities Implemented*** | ***GETF/LDCF/SCCF/CBIT Amount ($)*** | | |
| | ***Budgeted Amount*** | ***Amount Spent To date*** | ***Amount Committed*** |
| Staff and other personnel | 25,000 | 25,001 | |
| Travel on official business | 3,050 | 3,002 | |
| Per diem and accommodation | 2,500 | 2,509 | |
| Contractual services, meetings, workshops | 11,462 | 11,492 | |
| Supplies | 3,650 | 3,658 | |
| **Total** | 45,662 | 45,662 | |

[77] If at CEO Endorsement, the PPG activities have not been completed and there is a balance of unspent fund, Agencies can continue to undertake the activities up to one year of project start. No later than one year from start of project implementation, Agencies should report this table to the GEF Secretariat on the completion of PPG activities and the amount spent for the activities. Agencies should also report closing of PPG to Trustee in its Quarterly Report.

**ANNEX D: CALENDAR OF EXPECTED REFLOWS (**if non-grant instrument is used**)**

Provide a calendar of expected reflows to the GEF/LDCF/SCCF/CBIT Trust Funds or to your Agency (and/or revolving fund that will be set up)