PROJECT CONCEPT TO THE ADAPTATION FUND

PART I: PROJECT/PROGRAMME INFORMATION

Project Category:	Regular
Country:	Georgia
Proposed Title of Project:	Dairy Modernization and Market Access: Adaptive and climate-resilient pasture management (DiMMAdapt+)
Type of Implementing Entity:	Multilateral Implementing Entity
Implementing Entity:	International Fund for Agricultural Development
Executing Entity:	Ministry of Environmental Protection and Agriculture (MEPA)
Amount of Financing Requested:	USD 9,810,796

A. Project Background and Context

1. Geography and Climate

1. The Republic of Georgia is part of the South Caucasus region and covers an area of 69,700 square kilometres. It borders Russia to the North, Azerbaijan to the East, Armenia and Turkey to the South, and the Black Sea to the West. In 2022, the country had a population of approximately 3.68 million people and has experienced negative population growth primarily due to high levels of outward migration.

2. The agricultural sector accounts for 7.0% of the GDP and 19% of the workforce is employed in this sector in 2021 (GeoStat). Agriculture plays an important role for securing livelihoods and as basis for food security of the country.

3. Its complex geology and climate determine the variety of Georgia's landscapes: humid subtropical coastline, lowlands and wetlands, plains, semi-deserts, highlands, and mountains covered by forests and glaciers. Much of the landscape is mountainous, with 54 percent of land at an altitude over 1,000 m above sea level. Over 40 % of land is covered by forests, mainly located in mountainous areas.

4. Georgia has a diverse climate, with two distinct climatic zones separating the East and West. On the West coast, along the Black Sea, the climate is humid and subtropical, with average annual temperatures of 14°C to 15° C and extremes from -15°C to 45°C. The East is more varied, with a dry subtropical climate in the plains and an alpine climate in the mountain regions. The Greater Caucasus Mountain Range plays an important role in Georgia's climate and protects the nation from the penetration of colder air masses from the north. The Lesser Caucasus Mountains partially protect the region from the influence of dry and hot air masses from the south. The average annual temperature is 11ºC to 13°C in the plains, and 2ºC to 7°C in the mountains, with a minimum of -25°C and -36°C, respectively. Annual precipitation in Georgia is 400 to 600 mm in the plains, and 800 to 1,200 mm in the mountains. Precipitation in Western Georgia tends to be consistent throughout the year, although it can be particularly heavy during the autumn months. The foothills and mountainous areas experience cool, wet summers and snowy winters, with snow cover often exceeding 2 meters in many regions. Annual precipitation in Eastern Georgia ranges from 400–1,600 mm, and is considerably less than in Western Georgia.

5. Georgia is a country rich in biodiversity, most of which can be found in the forests, freshwater habitats, marine and coastal ecosystems and high altitude habitats. The Caucasus is one of the most biologically rich areas on earth. The mountain ranges with the predominant grasslands are very rich in species with many endemic to the region.

2. Overview of livestock and pasturelands in Georgia

6. Pastures in Georgia cover around 1.9 million ha, which present 25% of the country's area. They account for 64% of agricultural areas. Around 70% of the country's grasslands are located in its eastern part (mainly in Kakheti and Javakheti). Many are natural pastures that have been grazed by livestock for centuries. Around 46% of households own livestock. The majority of these are smallholders. Of the roughly 270,000 households holding cattle, 80% hold less than five head and only 5% hold ten or more.

Of sheep owners, only 5% have more than 50 head. Many rely on pastures as a cheap fodder source to feed their animals.

7. Pastures are an integral part of the region's economy and provide food and income for many rural households. There are different types of livestock producers. They keep livestock for subsistence and savings, to diversify their income or are medium and large commercial and specialist operations. For rural communities, livestock keeping is of high economic importance for both subsistence agriculture and as a source of income playing a significant role in poverty reduction.

8. Pastures offer a wide range of cheaply available forage which can be exploited at different times of the year by moving animals to locations with optimal ecological conditions in a given season. Their use greatly reduces the need for fodder purchase.

9. According to the agricultural survey of GeoStat from 2014, there are 574,077 agricultural holdings with agricultural land registered in Georgia, out of which 78,299 holdings use natural meadows and pastures.

10. Pastures are divided into winter and summer pastures. Winter pastures are present in the Kolkheti lowlands and the Iori plateau, while summer pastures are present in the high mountains, in particular in the subalpine and alpine zones. Figure 1 shows the main locations of pastures in the country. Figure 2 shows the main locations of winter and summer pastures. Summer pastures cover around 1.3 million hectares and the rest are winter pastures.

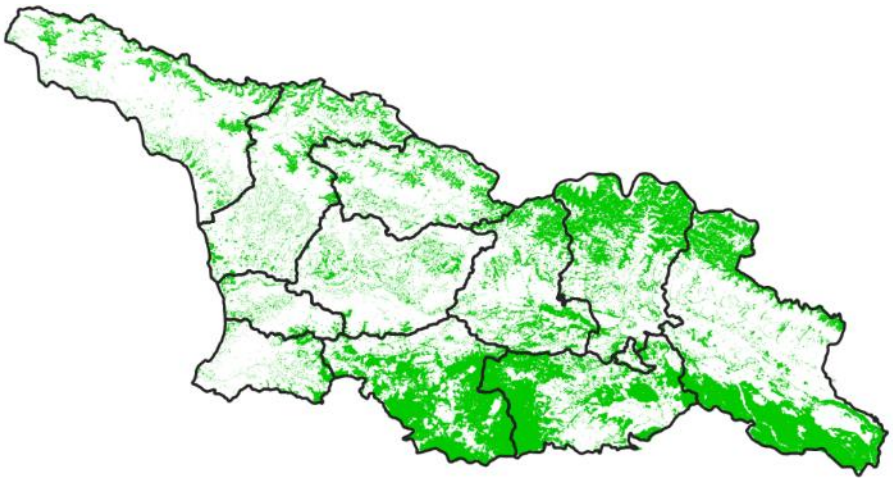


***Figure 1**. Pasturelands in Georgia (Source: Derived from a global map of land use/land cover produced by Impact Observatory, Microsoft, and Esri using ESA Sentinel-2 imagery at 10m resolution)*

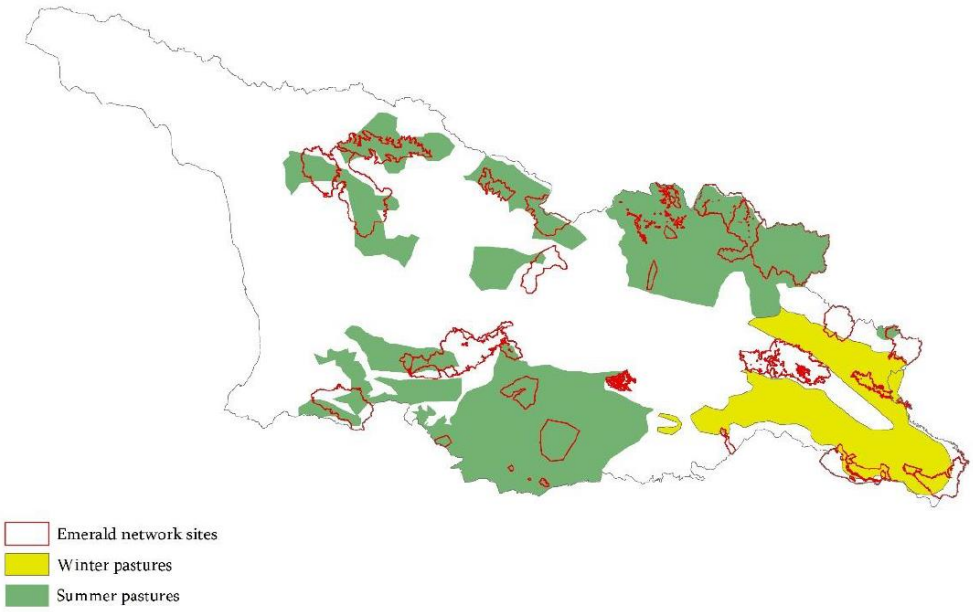


***Figure 2**. Overview map showing the distribution of summer and winter pastures in Georgia (Source: RECC 2019)*

11. Pastures in Georgia's mountainous landscape can be classified in different ways. The Fourth National Communication to the UNFCCC divides pastures into four basic types:

    - **High mountain meadows** around found above 1600 meters altitude. They are divided into typical high mountain meadows, subalpine meadows and alpine meadows.
    - **Low mountain and valley meadows** are found in west and east Georgia's foothills and valleys;
    - **Steppes** are found in east Georgia in the driest areas of Kakheti and Shida Kartli; and
    - **Semi-deserts** are found in the Eldari plain and valleys of Kvemo Kartli, as well as, on the plains of Shiraki and Alazani at between 200-800 meters above sea level.

12. A significant part of winter pastures in Georgia are classified as steppe and semi-desert.

13. There are four types of **grazing systems** in Georgia:

    - **Sedentary grazing on village pastures**. Many small livestock owners graze their animals around their villages. These animals come back to their owner's house each evening.
    - **Seasonal transhumant systems to high altitude nearby pastures**. In many parts of the country, animals are moved up to high altitude nearby pastures in the summer months. Nearby highland summer pastures are used from May through September.
    - **Long distance transhumant systems using remote summer and winter pastures**. This system is found mostly on natural pastures eastern and southern Georgia. Sheep (as well as small numbers of cattle) are grazed from May on alpine pastures, and spend the winter (from October) on steppe-like pastures in the lowlands.
    - **Mixed and large intensive users**. This system concerns medium and large livestock producers who use privately owned pastures, and produce quality feed on arable land.

14. **Reliable statistics on pastureland registration and ownership are lacking**. The current ownership of pastures is estimated as follows:

    - The National Agency for State Property (NASP) under the Ministry of Economy is responsible for 70-80% of pastures;
    - Private owners hold between 20 and 25% of pastures;
    - Municipalities own 6.9% pastures; and
    - The Agency for Protected Areas holds 2% and the Forest Fund 1.6%.

15. **Large areas of state-owned pasturelands are used informally.** Despite having no legal status, many rural pasturelands are de facto commonly managed. Multiple owners herd their animals together and manage grazing as a group.

16. Formally, these pasturelands should be accessed through **leasehold contracts**, but only a small percentage is leased. The leasing process is held through an electronic auction at national level awarding the highest bidder pastureland. This pasture allocation system that is currently being refined has its flaws. Previously, it did not take into account the place of residence of bidders and current pasture users. In some cases, leaseholders did not possess livestock at all and sub-leased to others for short periods. This goes against principles of good management

17. **Livestock numbers**. Geostat reports 928,600 cattle and 956,800 sheep and goats in 2021. The number of cattle is lower compared to the first decade of this century. The number of sheep and goats has increased (see figure 2).

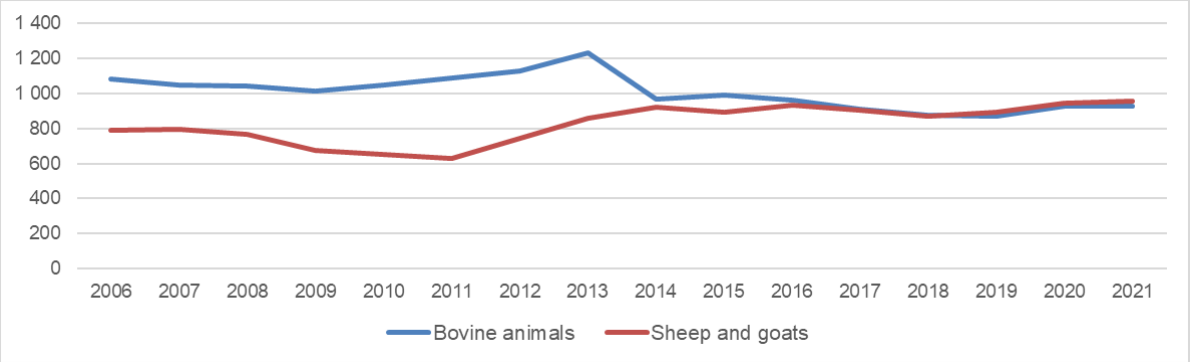


***Figure 3**. Number of bovine and small ruminants (thousand heads) in Georgia from 2006 to 2021 (Source: Geostat)*

18. **Sheep migration along stock routes**. Transhumance is a common practice in Georgia and presents a flexible and climatically adopted utilization of natural grasslands. Herders guide their animals, mostly sheep, to the high mountainous pastures in summer, and keep them in lower altitudes, in valleys and lowlands, in winter. According to the National Food Agency, the vast majority of sheep, over 900,000 animals, are kept this way. Figure 2 lays out long-distance stock routes in Georgia.

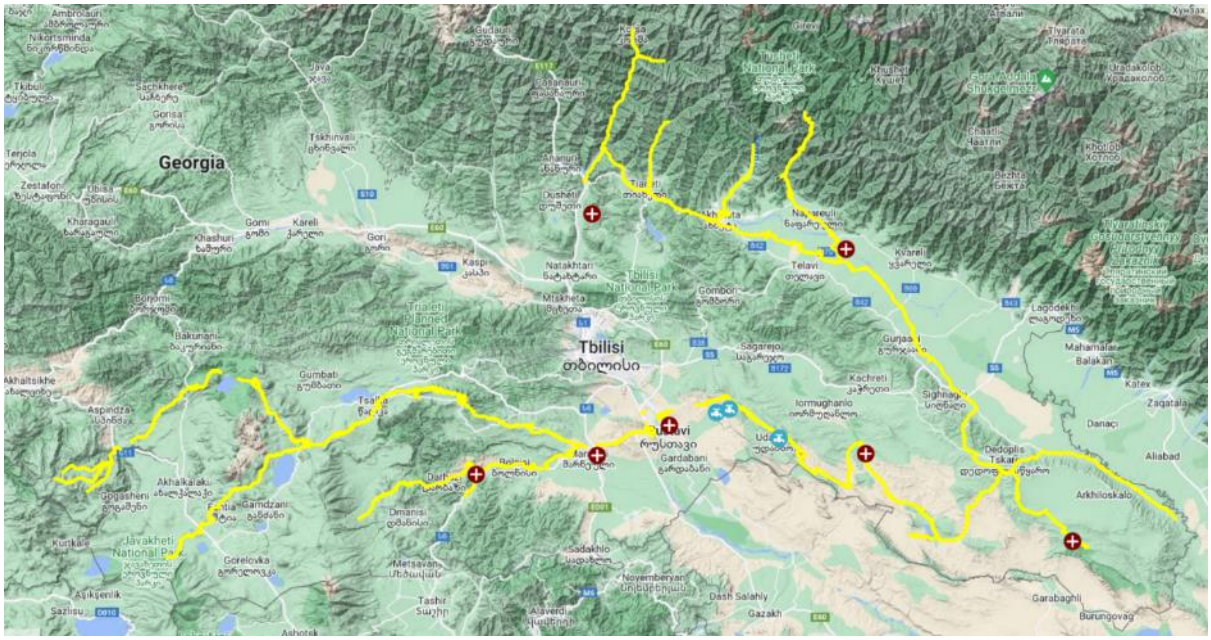


***Figure 4**. Main transhumance livestock routes in Georgia leading from winter pastures in the East to summer pastures in the north and west (Source: National Food Agency)*

19. **Pasture policy formulation**. Georgia is in the process of formulating a law on pastures with the aim of introducing a sustainable pasture governance system in 2024. Efforts are led by a project of the Food and Agriculture Organization of the United Nations (FAO) with the title "Achieving Land Degradation Neutrality (LDN) Targets of Georgia through Restoration and Sustainable Management of Degraded Pasturelands". The policy formulation involves series workshop involving all relevant stakeholders, including the Project Management Unit (PMU) of IFAD who is facilitating an exchange with pasture experts in Kyrgyzstan. The project is initiated by the Ministry Environmental Protection and Agriculture of Georgia (MEPA) and funded by the Global Environment Facility (GEF). It is executed by the Regional Environmental Center for the Caucasus (RECC).

3. Important institutions for pastures

20. The **Ministry of Environmental Protection and Agriculture (MEPA)** is the leading government body of environmental protection, agriculture and rural development. It hosts departments that are relevant to the pasture sector such as on land use, climate change mitigation and adaptation, and land

degradation. The Ministry facilitates the implementation of pasture projects and directs the formulation of the law on pastures.

21. The **National Agency for State Property (NASP)** under the Ministry of Economy and Sustainable Development (MoESD) is currently responsible for the disposal of state-owned lands – which include 70-80% of pastures. Currently pastures are leased out by the NASP for a maximum of 49 years through an electronic auction in which the bid starts with a set annual floor price per hectare. There was an oral moratorium on pasture leasing since 2015 but in 2021 the State Program for Access to State-Owned Pastures re-opened the possibility of leasing state pastures, this time for three years. Under this program, the **National Agency for Sustainable Land Management and Land Use Monitoring** (NASLM) has been delegated responsibility for pasture disposal by the NASP.

22. **Municipalities** provide extension services to pasture users. They hold around 6.9% of pastures in their own right and can allocate them to users by auction and by direct disbursement. Many municipality staff are livestock keepers themselves.

23. The **National Agency of Public Registry (NAPR)** holds cadastral information on pastures.

24. The **National Food Agency** is the main agency responsible for stock tracks. They determine the timing of movements to seasonal pastures. The agency is also responsible for veterinary control points on herding routes, governed by veterinary rules.

25. The **Agency for Protected Areas** is responsible for pastures in national parks. A small percentage of pastures are under responsibility of the **Forest Fund**. The proposed project will not target these pastures, because the management approaches, land use objectives and legal situation is different.

26. **Committee on Agrarian Affairs of the Parliament of Georgia** has an important function on pasture legislation and is involved in the forumulation of the new law on pastures.

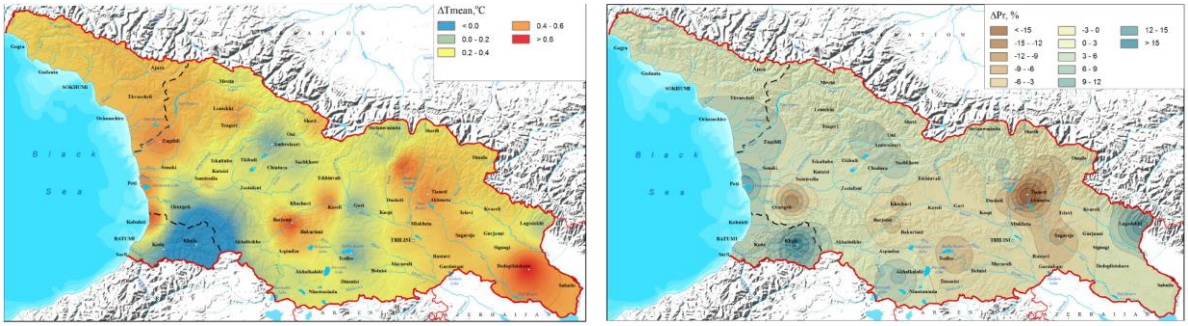
27. FAO, IFAD and United Nations Environmental Programme (UNEP) are currently the main **United Nation agencies** with projects specifically dedicated to pasturelands.

28. The several **civil society organizations** in Georgia active in the pasture section. The Regional Environmental Centre for the Caucasus (RECC) is a main implementer of pasture related projects. The Centre for Biodiversity Research & Conservation (NACRES) has extensive experience with pastures in national parks. Georgian Farmers Association (GFA) and Georgia's Shepherds Association represents the interests of livestock owners.

29. The Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) has piloted a number of pasture-related activities, including assessment methodologies, a pasture ticket system and pasture management plans for national parks.

4. Historic and projected climate change

30. **Historic trends**: According to the Fourth National Communication to UNFCCC of Georgia, the average mean temperature in Georgia has increased by 0.47 C between 1956-1985 and 1986-2015. In the Dedoplistskaro Municipality in Kakheti where many pastures are located, the average air temperature increased by 0.9 C. The main increase was observed during the summer periods. Analysis of annual precipitation data shows that precipitation has increased in the western part of the country and decreased in the eastern regions but with no clear trends. Monthly rainfall maximums have shifted from the summer to the spring in eastern Georgia. Across much of the country, the decrease in precipitation is observed in August. Farmers reported that seasons are fluctuating (e.g., in some years spring and autumn are getting shorter).



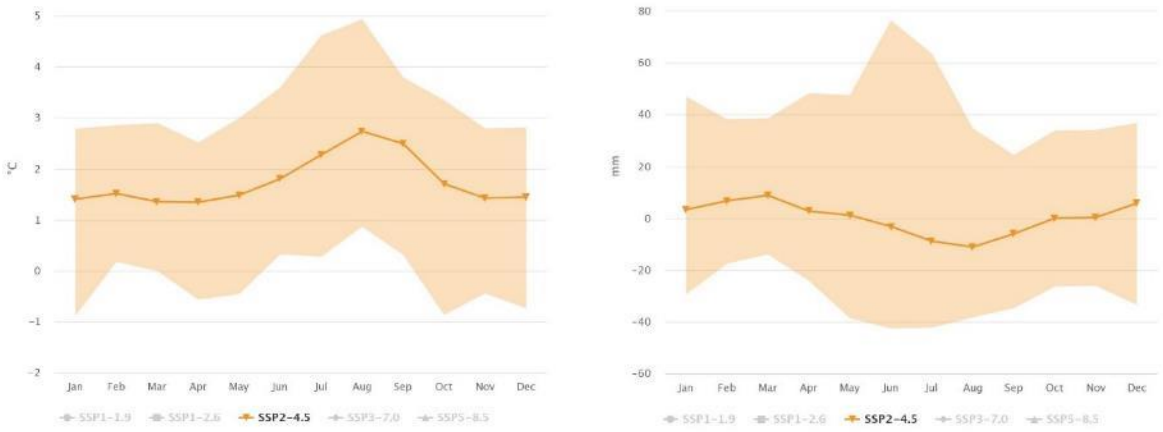
Figures 5 & 6. *Change in mean annual air temperature (left) and change in annual precipitation (right) between two 30-year periods (1956–1985 and 1986–2015) (Source: Fourth National Communication)*

31. The Fourth National Communication summarizes the trends for each season as the following:

    - **Winters** have become more humid and less severe, with more frequent heavy precipitation days in the western regions and longer dry periods in the east.
    - **Spring** has become more humid and warm with more frequent heavy precipitation and humid days in May.
    - **Summers** have become significantly hot and relatively dry.
    - **Autumn** has become more humid, rainy and noticeably warmer with longer dry periods and more frequent warm days and nights in early autumn and more frequent heavy rainy and humid days in late autumn.

32. **Future climate**. Climate projections of the Fourth National Communication to UNFCCC use the RCP 4.5 scenario. The climate is expected to become hotter and dryer in Georgia.

    - **Temperature**: In 2041-2070, an increase in the average annual temperature is likely to range between 1.6 C and 3.0 C as compared to 1971-2000.
    - **Precipitation**: In 2041-2070, the annual precipitation will decrease in all parts of Georgia. The annual precipitation decrease will be most prominent in Imereti, reaching its maximum in Sachkhere (17.9%). In Eastern Georgia it will decrease by 9% on average.



Figures 7 & 8. *Projected mean-temperature anomaly (left) and precipitation anomaly (right) for 2040-2059 (Reference period: 1995-2014) SSP2-4.5, Multi-Model Ensemble projecting summers to become hotter and dryer (Source: World Bank Climate Change Knowledge Portal)*

5. Climate vulnerabilities

33. There are a number of factors making the pasture sector vulnerable to the effects of climate change. These are explained in the following paragraphs.

34. **Higher risk of soil loss through heavy rainfall events**. Georgia's National Adaptation Plan from 2017 reports that increased rainfall in certain regions of Georgia takes place as heavy downpours. This affects pastures in mountainous landscapes negatively. There is not enough time for the large amounts of water to infiltrate into soils. This causes runoff down slopes at great speed causing soil erosion.

35. **Lower water availability in summer affects pasture productivity**. The shift from precipitation from summer to spring affects water availability in summer. Higher temperatures and lower precipitation in summer results in a lower availability of water and increased evaporation. This increases the risk of longer drought events in future.

36. **Many pastures are degraded**. Pasture conditions in Georgia vary. Summer pastures are often underused or unevenly grazed; winter pastures are grazed intensively. According to the Fourth National Communication of Georgia, around 700,000 ha of pastures are subject to degradation in the eastern part of the country. This is evident in figure 9. Village pastures, areas around camps, stock tracks and

arid regions are particularly vulnerable to damage. Degradation of vegetation on natural pastures is significantly higher than the recovery rates. This reduces the ability of natural self-regeneration of vegetation cover.

37. Georgia's semi-arid ecosystems face the greatest risk. They are used as winter pastures and are under threat due to excessive and disorganized grazing. The processes of land degradation and erosion which began in the Soviet period have now reached critical levels in some areas. Without restoration, the damage may soon become irreversible.

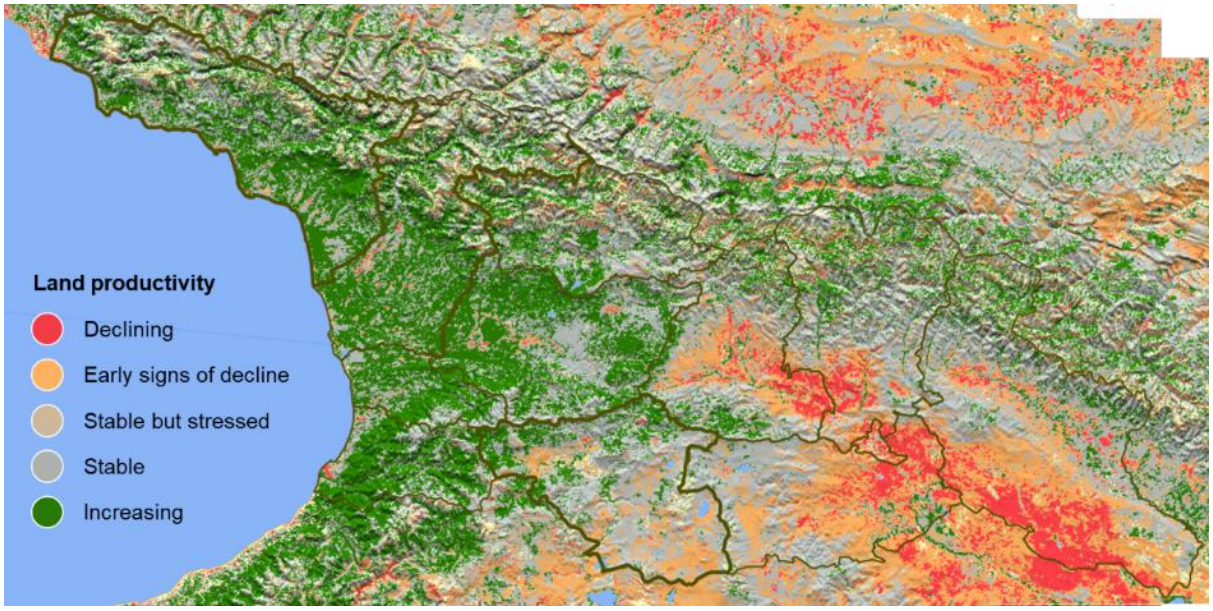


***Figure 9**. Land productivity dynamics comparing 2021 with the period 2001-2016: Eastern regions where most pastures are located are facing declining productivity (Source: Retrieved from FAO EarthMap)*

38. **Insufficient access to summer pastures**. Seasonal migration allows for the optimal use of pasture resources at different times of the year. This practice also alleviates pressures on grazing resources. Livestock mobility helps pasture users to respond to climate extremes such as drought or seasonal variability as they can adapt timing of their migration or move to areas with better conditions. The study of RECC (2019) lays out a number of challenges that impede seasonal migration. There are not enough places for animals to rest, eat and drink along stock routes. Access routes to summer pastures from the Soviet area are in a bad condition. Route segments are blocked by private land hindering migration and causing conflict between herders and landowners. Regulation is lacking to protect and maintain stock routes. Veterinary services along the route could be strengthened to avoid the spread of animal diseases throughout region. Poorly equipped migratory routes reduces the system's adaptive capacity.

39. **Insecure tenure rights over pasture**. A pasture expert interviewed during the project appraisal described current pasture usage as "unregulated, uncoordinated and informal". Currently, the majority of pasture users do not hold any formal tenure rights over pasture. The arrangements for pasture access do not reflect the traditional use rights and claims over pasture by resident users or long-term mobile users. This provides little incentive for pastures users to manage pastures well or to adapt to climate change. There is little incentive to invest time and money to maintain and improve pasture infrastructure. Holistic and coordinated grazing management is currently challenging. Tenure insecurity is also responsible for conflict between migrant herders and landowners along stock routes.

40. Another factor cited in literature is the lack of wind-protection structures. Eastern Georgia faces strong winds that affect crop and pasture yields negatively. Over 90% of trees forming windbreaks planted during the Soviet area have been cut down and have not been re-established causing wind erosion. Strong winds combined with a trend towards a hotter climate are likely to dry out soils more quickly reducing the amount of water available for plant growth.

6. Climate change impacts

41. Warmer and dryer summers, drought and weather variability add pressures on pastures. The most serious negative impacts are expected for alpine, arid and semi-arid ecosystems where most of Georgia's natural grassland are found.

42. **Impacts on pasture ecosystems**. Semi-arid regions in Eastern Georgia are threatened by desertification because of reduced rainfall and increased evaporation. Climate change is already causing a shift in vegetation zones and a migration of pasture plant communities to higher elevations. It is changing the composition of pasture vegetation communities. A shift towards thermophile (warm-loving) species is reported in the Fourth National Communication. Climate change may result in a replacement of plants of high nutritional value by inedible plants. Native grasses may be out-competed by invasive species that can thrive in drier conditions. Some areas are already experiencing a premature blossoming of grass plants and withering.

43. **Impacts on pasture productivity**. IFAD's Climate Adaptation in Rural Development Assessment Tool (CARD) projects yields of managed grass to decrease by 4% by 2030 and by 7% by 2050 (2022 as reference year) due to the effects of climate change.

44. **Impacts on society and economy**. Unproductive pastures produce less fodder for livestock. This reflects on animal productivity and farmer's income. Livestock feeding on pastures are an important source of meat and milk. Many households sell cheese. Longer heat waves, stronger winds and increasing demand for pasturelands, are adversely affecting winter pastures, in particular in the region of Kakheti. The resulting reduction in the biological productivity compromises food and water security and the livelihoods of livestock keepers who depend on healthy land.

7. Adaptation needs

45. Current pasture management systems are not fit to withstand current and future climatic change. If no action is taken, the additional pressures of climate change on pastures will jeopardize the production system which many rural households and businesses depend on. Better governance and management is needed to ensure that pasture ecosystems are in a healthy state to adapt to a hotter and drier climate and respond to climate-related shocks.

46. Table 1 lists adaptation options for grazing and livestock management, pasture restoration and water management in the Georgian context.

47. Tenure insecurity over pastures is one of the biggest barriers to climate change adaptation. Pasture users who are willing to invest time and resources in adapting their practices to a changing climate need confidence that they will still be able to use their land and reap its benefits in future. The Government's transition towards a new law on pastures will set the scene for adaptation measures to become more effective by increasing tenure security as an enabler for users to fully benefit from pastures but also holding them accountable for sustainably managing them in the content of climate change.

48. The Voluntary Guidelines on the Responsible Governance of Tenure lay out measures that should guide actions. These include for example ensuring the participation of vulnerable pasture users (such as small-scale farmers, women and youth) in pasture-planning procedures, the documentation of current users of these pastures to inform the pasture allocation procedure, and seeking pathways to give secure usage rights to groups of users.

49. Pastures are complex, interconnected, and dynamic socio-ecological systems. Supporting the health and conservation of pastures can improve water quality, as well as enhance plant communities, biodiversity, and soil health. Livestock have the ability to function as ecosystem engineers. Herders can use an array of tools in order to reduce ecosystem degradation due to grazing as well as improve vegetation heterogeneity.

***Table 1**. Action areas for pasture users to adapt pasture operations to changing climate conditions (adapted from Petersen et al. 2019)*

Strategy	Adaptation	Description
Grazing and livestock mobility	Long distance and altitudinal migration	Seasonal migration allows for the optimal use of pasture resources at different times of the year. Mobility helps herders respond to extreme climate events. Supporting this practice also alleviates pressure on grazing resources.

	Matching migration with greening	Altering the timing and distribution of cattle on pastures to account for shifts in seasonality due to climate change.
	Annual rotations and rotational grazing	Controlling pasture recovery periods through annual rotations or a multi-paddock system.
	Water points and salt licks	Using watering points and salt licks to control livestock distribution across the landscape.
Livestock husbandry	Type of stock	Diversifying the variety, age, species, genetic source, and breed of livestock so that they have an increased tolerance to drought, heat, and parasites improves the resilience of a pasture system.
	Stocking rates	Adaptive stocking rate strategies (flexible, seasonal, etc.) and determining stocking density based on rangeland quality.
	Livestock protection	Daytime shelters and shading (e.g. planning of trees), especially on village pastures in low-lying areas.
Pasture restoration	Support and improve native grasses	Seed banks of degraded soils are depleted. Native grass species that are adapted to local conditions are spread on degraded sites to help regeneration.
	Exclosures	Creating exclosures to protect sensitive habitats, areas too steep for grazing, and to manage stock distributions.
	Soil works	Mechanical interventions (e.g. gully rehabilitation, stonewalls, gabion baskets, etc.) to stop erosion processes exacerbated by heavy rainfall events.
	Control of invasive species	Mechanical removal of invasive species, and using specific livestock at specific times to target invasive species.
	Planting of trees	Tree planning for windbreaks, shade, stabilization of soil and possibly fodder sources.
Water management	Water harvesting and storage	Improving water storage and distribution capabilities to improve water capture, retention and distribution through the grazing space mitigates the effects of hotter and drier summers.
	Protection of springs and riverine vegetation	Reducing grazing, or utilizing exclosures in riparian areas and springs prevents animal trampling and erosion, and improves water quality.
Feed	Fodder production	Greater feed availability reduces grazing pressures in winter and in times of drought while increasing productivity.

B. Project Objectives

50. **Goal**: The overall goal of the project is to improve the governance and management of pastures to make it fit to withstand current and future climatic change. The project aims to contribute towards the formulation and implementation the new law on pastures.

51. **Objective**: The project objective is to enhance the resilience to climate change of pasture users.

52. **Target group:** The project targets all pasture users with focus on small livestock-keeping households, shepherds and transhumant farmers that use pastures under state ownership.

53. **Outcomes**: The project will achieve the stated goal and objective through the following outcomes:

- Outcome 1.1: Improved landscape and pasture management
- Outcome 2.1: Improved coordination and governance
- Outcome 2.2: Improved grazing management and rehabilitated pastures
- Outcome 3.1: Strengthend enabling environment for sustainable and climate-resilient pasture management

C. Project Components

54. The project is structured around three components:

- C1. Pasture inventory and monitoring
- C2. Pasture management planning and rehabilitation
- C3. Strengthening governance and knowledge on pastures

D. Project Components and Financing

Project components	Expected outcomes	Expected outputs	Output indicator	Amount (USD)
C1. Pasture inventory and monitoring	1.1: Improved landscape and pasture management	1.1.1: Pasture identification, classification and tenure	Map on pastures, stock routes and ownership	2,500,000
		1.1.2: Pasture condition assessment	Maps on pasture conditions	
		1.1.3: Pasture monitoring system	Web-platform developed	
C2. Pasture management planning and rehabilitation	2.1: Improved coordination and governance	2.1.1: Municipality-wide pasture use planning	Pasture zoning maps	1,000,000
		2.1.2: Pasture management and rehabilitation plans	# of pasture management plans developed	
		2.1.3: Stock route development plans	# of stock route plans developed	
	2.2: Improved grazing management and rehabilitated pastures	2.2.1: Capacity building on adaptive grazing management and pasture rehabilitation	# of livestock users trained # of demo sites	4,468,000
		2.2.2: Pasture infrastructure and rehabilitation measures	km of roads # of hectars rehabilitated	
C3. Strengthening governance and knowledge on pastures	3.1: Strengthend enabling environment for sustainable and climate-resilient pasture management	3.1.1: Policy implementation support	# of stakeholder meetings organized	320,000
		3.1.2: Study on pastures and climate change	One study published	
		3.1.3: Handbook on good management practices in the context of climate change	Handbook published	
Total				8,288,000
Project Execution Cost (9.5%)				787,360
Total Project Cost				9,075,360
Project Cycle Management Fee Charged by the Implementing Entity (8.5%)				771,406
Amount of Financing Requested				9846766

E. Projected Calendar

The following table indicates the dates of the following milestones for the proposed project.

Milestone	Expected data
Start of Project/Programme Implementation	2023
Mid-term Review (if planned)	2025
Project/Programme Closing	2027
Terminal Evaluation	2027

PART II: PROJECT / PROGRAMME JUSTIFICATION

A. Project components

C1. Pasture inventory and monitoring system

Outcome 1.1: Improved landscape and pasture management

Output 1.1.1: Pasture identification, classification and tenure

59. Currently, the Georgian government is lacking the data to effectively govern pasturelands. The inventory aims to create a data foundation for all pasture stakeholders for evidenced-based decision-making that will shape the pasture sector. The data will be used for a wide range of purposes including defining pasture/grazing units, ensuring the allocation of pastures to users occurs in a fair and transparent manner and developing adaptive grazing strategies.

60. The project will support MEPA in updating and verifying the spatial extent of pastures, their correct classification as pastureland or hayfields, as well as their tenure. This activity will be at national level. Current land use maps showing pastures originate from Soviet times and are outdated. The land use may have changed or parcels are currently not correctly classified (e.g. it may be classified as agricultural land, but not as a pasture in its subcategory). The project will update maps of stock routes of transhumance migratory herders. The project will also map the current users of pastures to understand on which pastures each community/group graze their animals.

61. The inventory will capture:

- **Land use** including the current and past usage of pastures and their extent;
- **Cadastrial classification** as pastureland or hayfields and update of cadastrial parcels;
- **Pasture charactistics** such as seasonality (winter, summer or year-round), type of pasture, average grazing duration and times, estimates on the number of users and number and type of livestock;
- **Key pasture infrastructure** such as watering points, herd selters, roads and paths;
- **Owernship and current users** including the demarcation of state-owned land and mapping of current users to understand where each community/group graze their animals;
- **Climate hazards** such as drought risk, heat stress, climate variability (of rainfall, temperature and seasons) evapotranspiration, etc. to inform adaptive grazing strategies and prioritize pasture infrastructure e.g. to improve water availability; and
- **Migratory routes** including updating the maps on stock routes, disputed areas along the tracks, water and resting points.

62. The inventory will build on methodolodies piloted by DiMMAdapt and the GEF-funded FAO project. Data from the pilot projects will be incorporated in the new project's inventory.

63. The involvement of rural communities, municipalities and other stakeholders is critical in this exercise. The project will ensure their participation to provide information about pasture characteristics and usage. Demarcation of state-owned pastures and documentation of current users are essential to inform the pasture allocation procedure.

64. The project will support the MEPA to provide municipalities and pasture users with cartographic material in form of digital and hardcopy maps on pastures to aid with setting up pasture management plans.

Output 1.1.2: Pasture condition assessment

65. The project will assess the quality of pastures at national level and estimate their productivity and capacities/stocking rates (the number of animals it can nourish at a point of time). Detailed vegetation health maps are a useful tool to plan grazing. They can help determine degradation hotspots and define rehabilitation needs. Ranges for stocking rates should take into account seasonal variability, as they can vary.

66. Various pasture assessment methodologies exist in and outside of Georgia, such as the participatory rangeland and grassland assessment methodology (PRAGA) from FAO. The project will review and adapt the most suitable and cost-effective methodologies. The assessment process includes establishing a network of validation points to collect field data from all pasture ecosystems in Georgia. It will take historic trends into account and use freely available remote sensing data. Assessments will be carried out together with pasture users, pasture experts, municipalities and other stakeholders. The project will explore the options, requirements and costs for an annual or bi-annual pasture condition assessment.

Output 1.1.3: Pasture monitoring system

67. The project will build a web-platform to store, visualize and disseminate pasture-relevant information to pasture users, municipalities and other stakeholders. It will hold the results of the pastures inventory. The project will determine whether to build a new platform or extend the existing geoportal of MEPA. Featured layers should include pasture areas, their zoning, stock routes, the location of state, municipal and private pastures, and allocation of state-owned pastures to users. The system will also feature pasture conditions and recommended stocking rates (taking into account climatic variability), as well as the areas of high ecological value (e.g. wetlands) and its protection status (e.g. Emerald Network).

C2. Pasture management planning and rehabilitation

Outcome 2.1: Improved coordination and governance

Output 2.1.1: Municipality-wide pasture use planning

68. Based on the pasture inventory, the project will support defining the boundaries of pasture zones/units that splits pastures into management units by season of use, altitude, distance from settlements, natural barriers, and user group. Defining boundaries is important for the allocation of pastures to user groups and are needed to determine areas subject to management plans.

69. While the pasture inventory of component 1 covers the entire country, this component will take place at municipal level. The project will work closely together with municipalities and the National Agency for Sustainable Land Management and Land Use Monitoring (NASLM) to set broad rules and conditions for pasture use and actual disposal to users.

70. Current regulation leases pastures through an auction system. The new law on pastures might refine the mechanism how pastures will be allocated. Pasture allocation to users is the primary factor in pasture management. This step determines how grazing occurs on the landscape and ecosystem scale. This is particularly important in the context of mobile systems, in which users require access to multiple pastures in different areas, and in the context of fluctuating user populations and climate change, where flexibility will be required. Allocating pastures to pasture users gives them secure access to pastures. It also makes it possible to hold users accountable for sustainably managing pastures. Ideally, pasture allocation to user groups should be based on traditional and current usage.

71. The project will support the pasture allocation mechanism by hiring experts to support the zoning of pastures into units according to geographical and social criteria, and by ensuring the active participation of pasture users and municipalities in the pasture allocation process. Community mobilization will target in particular vulnerable households who depend on pastures to feed their animals. This is vital in order to reduce the risk of excluding users, to resolve potential conflicts early on and to ensure the process to be fair and transparent.

Output 2.1.2: Pasture management and rehabilitation plans

72. The project aims to establish pasture management and rehabilitation plans to improve the management of pastures covering between 5,000 and 8,000 hectares. Criteria to select these areas include:

- Pastures are of significant importance for livestock keepers;
- Pasturelands are subject to degradation and are vulnerable to climate change impacts;

- There is an existing group of pasture users willing to work with the project;
- There is willingness of the municipality and pasture users to co-invest into pasture infrastructure and rehabilitation measures; and
- There are no major pasture tenure issues that could hinder pasture users to access and manage pastures.

73. The project will work together with groups of pasture users and municipality staff to facilitate the development of management plans for pastures. The plans have the following objectives:

    i) Define pasture zones and units as well as their pasture users;

    ii) Set basic rules and terms for pasture use;

    iii) Organize grazing activities and pasture recovery periods;

    iv) Lay out rehabilitation measures; and

    v) Identify and prioritize investments into pastures that eligible for funding by the project.

74. The geographic area of a pasture management plan should be based on existing user groups and the areas they graze their animals on. The project will explore options (legal and non-legal) to increase the tenure security of user groups implementing the plan.

75. **Participatory grazing planning**. Good grazing management is the most effective measure to increase pasture productivity and its resilience to climate shocks. Digital and physical maps from the pasture inventory can support the planning process. Pasture users as well as municipality staff will be fully engaged in developing the plans and prioritizing what measures are needed the most. The project will facilitate the process to help pasture users to plan the timing and distribution of livestock and monitor grazing activities throughout the year. This includes determining:

    - Seasonal migration between summer and winter pastures to ensure optimal use of pasture resources in the course of the year.
    - Annual rotations and exclosures of pastures to ensure natural regeneration of pastures.

76. Pasture users might also opt for alternative grazing methods such as **multi paddock grazing** (or rotational grazing), an approach from by the Savory Institute promoting intensive livestock grazing with large numbers of stock concentrated in a particular area.

77. Effective recovery periods can increase grass yields by 15-25%, and nutritional value of feed 10-15% according to the feasibility study of RECC in 2022.

78. Adaptive grazing strategies should take into account the shift of timing and length of a grazing regime due to climatic factors (e.g. an earlier start of the season or drought; rainfall fluctuations). The plans should lay out possible actions what users can do in such situations.

79. **Pasture rehabilitation**. The plans will lay out measures to restore degraded pastures. Measures can include grazing restrictions (e.g. on riverine vegetation or steep degraded slops), soil conservation works, the removal of invasive species, or the projection of springs and riverine vegetation.

80. **Investment needs**. The plans will specify investments needed to implement grazing strategies and rehabilitation measures. Pasture users and municipalities agree one the most important measures through a participatory process that allows vulnerability users to prioritize their investment preferences. Measures eligible for project funding include:

    - **Rehabilitation of stock routes** to improve access to summer pastures;
    - **Fencing** to aid with grazing management and protect sensitive areas such as riverine vegetation;
    - **Water infrastructure** (e.g. troughs, pipes or mini dams, cisterns) to improve water capture, retention and distribution throughout the grazing space;
    - **Planting of trees** for windbreaks, shade, stabilization of soil, and fodder;
    - **Control of weeds and shrubs** (via targeted grazing and mechanical removal);
    - **Soil conservation measures** (e.g. gully rehabilitation, stonewalls, gabion baskets, etc.);
    - **Reseeding of native grass species** to aid natural regeneration and replenish seed banks in the soil; and

- **Protection of springs and riverine vegetation** (e.g. via fencing) to improve water availability and quality.

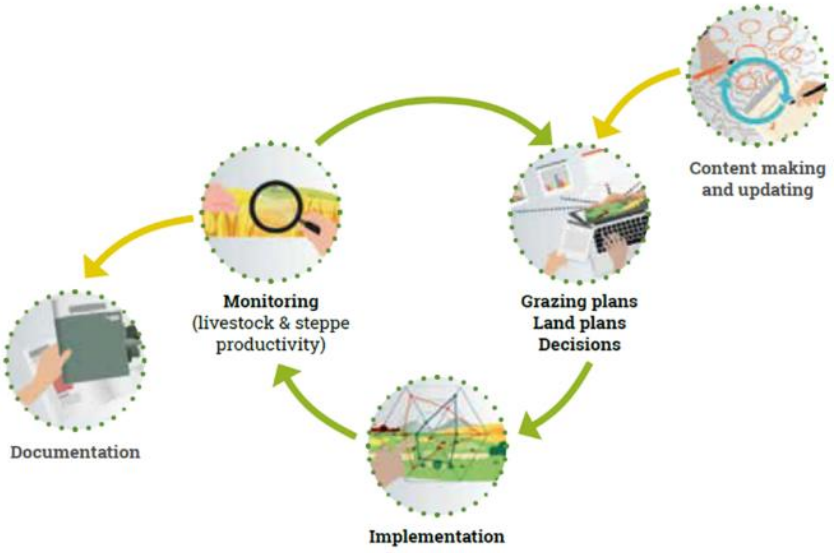


***Figure 10**. Grazing management cycle and monitoring (Source: Sharpe, N. Mwangi, P. Isakov, A. and Onyango, V. 2021. Participatory Rangelands and Grasslands Assessment in Kyrgyzstan, Rome – to be published)*

Output 2.1.3: Stock route development plans

81. The project will engage with livestock owners, pasture owners, residing communities and other stakeholders to develop stock route plans to facilitate an efficient migration, prevent the loss of livestock, and reduce the degradation along stock routes. Activities include:

    - **Establishing a conflict resolving mechanism** for livestock owners, pasture owners and residing communities to engage and come up with solutions to mitigate conflict.
    - **Rehabilitating sheep tracks and small bridges** to aid with an efficient migration.
    - **Improving and developing resting places and water points** for animals to rest, drink and feed during the migratory period.

Outcome 2.2: Improved grazing management and rehabilitated pastures

Output 2.2.1: Capacity building on adaptive grazing management and pasture rehabilitation

82. The project will establish demonstration plots to display good grazing strategies and successful pasture rehabilitation measures. Pasture users and groups with whom a pasture management plan was developed will be the main target audience. Demonstration plots will act as training locations for pasture users to discuss adaptive grazing management and the most effective measures to use rangelands.

83. The set up of demonstration sites, mobilization of trainees, and training modalities will follow approaches and implementation modalities of DiMMA. Demonstration sites can be selected among the DiMMAdapt project or from the GEF-financed project from FAO. The project will also provide extension materials on good practices for pastures management and the effect of climate change.

84. Training sessions will highlight the advantage of organizing grazing activities in groups, as it makes it easier for a single pasture user to access pastures and benefit from investments in pastures that the project can offer. Individuals will be encouraged to join or form a group. The project will strengthen existing groups and provide advisory services on how to be better organized.

Output 2.2.2: Pasture infrastructure and rehabilitation measures

85. The project will support the implementation of measures to enable good grazing and pasture rehabilitation. Measures eligible for funding are listed in output 2.1.2 (rehabilitation of stock routes, fencing, water infrastructure, tree planting, control of weeds/invasive species, soil works to prevent erosion, reseeding, etc.). A committee consisting of different representatives will select the measures.

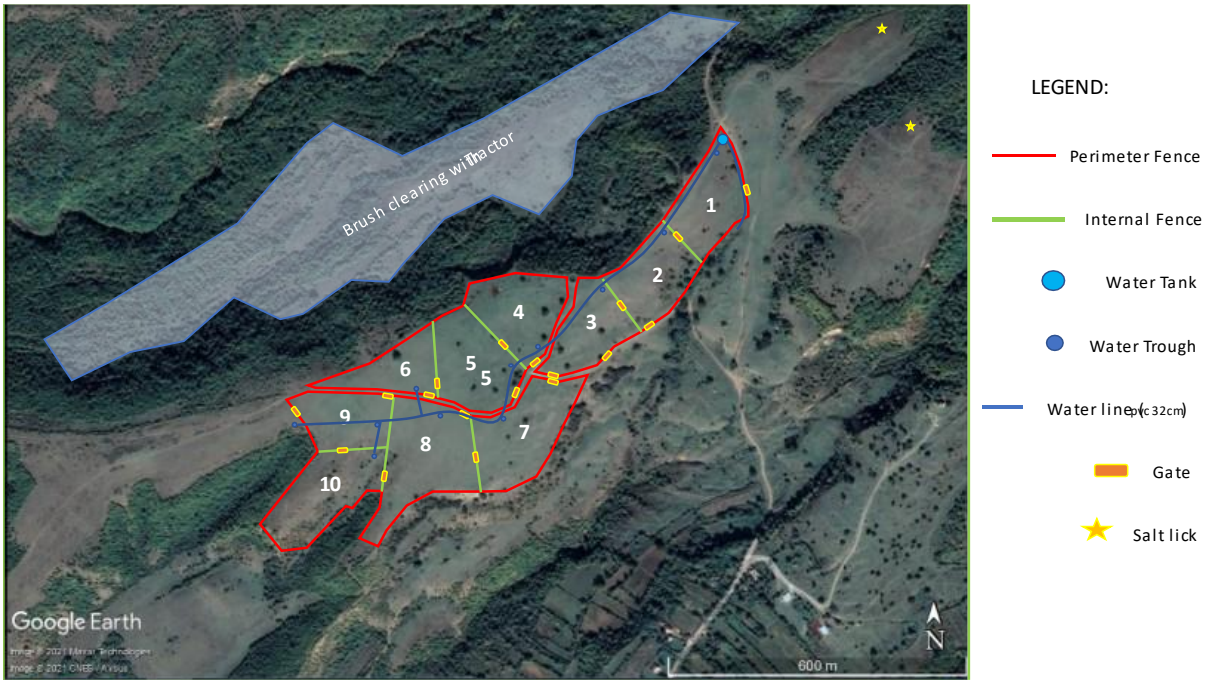


Figure 11. *Extract of the pasture and ecosystem restoration plan for the Melaani Pilot site of the GEF funded Project Achieving Land Degradation Neutrality Targets of Georgia through Restoration and Sustainable Management of Degraded Pasturelands (Source: RECC)*

C3. Strengthening governance and knowledge of pastures

Outcome 3.1: Strengthened enabling environment for sustainable and climate-resilient pasture management

Output 3.1.1: Policy implementation support

86. This project aims to support the formulation and implementation of the new law on pastures. The project will provide policy and legal advice to the MEPA for the further advancement of the pasture reform. Possible support includes hiring experts to refine/adapt legalization or supporting the setup of a pasture management council bringing together national and municipal decision-makers for a participatory policy reform process.

Output 3.1.2: Study on pastures and climate change

87. The Fourth National Communication highlights the lack of research on the impacts of climate change on pastures, especially in semi-arid areas. The project will commission a study to gain further insights on this topic to guide current and future investments in the climate-resilience of pastures.

Output 3.1.3: Handbook on good management practices in the context of climate change

88. The project will commission the development of a practical guide for municipalities and pasture users laying out strategies for grazing, rangeland conservation and rehabilitation, as well as water management in the context of climate change. The guides objective is to help pasture users determine appropriate timing and distribution for livestock on their pasture using current long-term and seasonal climate projections.

B. Project Benefits

89. Pastures are sensitive to climate change because they underlie a poor governance and management system. The project aims to promote a holistic and climatic-resilient management system that is currently been piloted by the DiMMAdapt project and the GEF-financed FAO project. The project aims to make the sector fit to withstand current and future climatic change. Healthy and productive pastures are the basis for a large part of the livestock sector and of vital importance for employment, food production and rural economy.

90. The **overall benefits** of the project include:

- **Strengthened pasture governance**. The land tenure system is the primary factor in pasture management. The project will contribute to the formulation and implementation of the new law on pastures that aims to introduce a sustainable governance system for pastures and improve the tenure security for livestock keepers. The project will support Georgia in this system-shaping intervention that will support sustainable action on the ground allowing the country to reduce the pasture sector's sensitivity to climate change. The project will also help MEPA and municipalities and pasture users to have the means to effectively plan grazing and vegetation recovery periods in an adaptive manner, monitor pastures conditions, identify areas where support is needed, and intervene when grazing norms are violated.

- **Greater adaptive capacity**. Rural communities will have a greater resilience toward climate change. Adaptive grazing strategies and improved pasture infrastructure allows pasture users to respond to a warmer, hotter and more variable climate. Pasture ecosystems are in a healthier state and have greater capacity to respond to climatic shocks such as longer drought periods in summer or heavy rainfall events in spring. It also allows them to adapt to warmer climate (e.g. shift towards higher elevations). This has multiple benefits for society, economy and the environment, as described in the following paragraphs.

91. **Social benefits**. The project will like to have a number of social benefits, including the following:

- **Increased access to natural resources**. Through increased tenure security and the rehabilitation of stock routes, pasture users and their communities will have better access to pastures and water sources. Secure access to pastures is of great importance for vulnerable households and individuals such as women and youth, because many do not own land and rely on the commons to feed their animals. The demarcation of state-owned pastures and documentation of current users of these pastures will inform the pasture allocation procedure. Greater tenure security is achieved through the participation of vulnerable users in the pasture-

use planning procedure and assigning usage rights to groups of users with whom the project will develop management plans.

- **Strengthened social cohesion**. Because of the project, pasture users will be better coordinated and in a better position to sustainably manage pastures, as well as respond to climate extremes. Group cohesion will be strengthened through the participatory establishment of management plans and agreeing on broad rules and conditions for pasture use. Youth and women will be fully engaged in the process. The better pasture users are organized, the less likely a “tragedy of commons” scenario will occur where individual users act independently according to their own self-interest causing the degradation of pasture resources.
- **Increased awareness and knowledge**. Training and demonstration sites will increase pasture users knowledge on pasture management in the context of climate change. Users will be more aware of the impacts of grazing activities on pastures and be in a better position to respond to climate change.

92. **Economic benefits** will mostly be generated by making the livelihoods of local communities more resilient to climate change, by improving the productivity and climate resilience of the pastures.

- **Healthier and more productive animals**. Greater pasture and feed availability, more effective livestock mobility, and improved water access across the grazing landscape should result in higher gains in weight and an increase in milk production to the benefit of household incomes.
- **Reduced cost of feed**. Improved access to pastures and greater feed availability should reduce the need for livestock keepers to buy feed – even in times of drought. Reduced costs of buying feed increases the profit margin that benefits livestock-keeping households and businesses.
- **Improved pasture infrastructure**. Pasture users benefit from greater availability of physical assets such as water points, sheep routes, and fencing. This makes pasture operations more effective and flexible allowing pasture users to respond to changing conditions. Improved livestock mobility as well as improved water availability and accessibility are key for adaptation. Improved water availability will help to respond to hotter and drier summers.

93. **Environmental benefits**. Healthy pastures ecosystems have a greater capacity to adapt to a drier, hotter and more variable climate. The project is likely to have a number of environmental benefits, including the following:

- **Improved pasture health**. Better grazing management, effective pasture recovery periods, reseeding, control of invasive species and other pasture improvement measures will lead to pastures that are more productive and in a better condition.
- **Reduced soil erosion**. In addition to improved grazing management, soil conservation measures such as gully rehabilitation, as well as planting of trees will reduce soil loss on sites that are prone to soil erosion.
- **Improved ecosystem services**. Overstocking or mismanagement can easily tip the balance from habitat services to disservices. A successful project will improve ecosystem services associated with grazing. Roaming livestock distribute nutrients contained in dung and urine across landscapes. By carrying seeds in their guts and coats, livestock distribute seeds and support habitat connectivity.
- **Protection of riverine vegetation and other sensitive habitats**. Management plans will lay out areas with measures (e.g. grazing restrictions or fencing) to protect for habitats of high ecological value such as wetlands and riverine vegetation. There areas are important as emergency feed reserves, water quality, and biodiversity as habitats for plants and animals.

C. Cost Effectiveness

94. All proposed actions aim to improve the governance and management of pastures in the context of climate change. The project will build on a cost-effective approach to implement sustainable low-cost no-regret measures to manage the natural resources.

95. Detailed costs per action and project activity will be provided in the full proposal.

96. The main argument for cost-effectiveness is the gain in fodder through improved grazing strategies. The feasibility study of RECC in 2022 estimates an increase of grass yields by 15-25%, and the nutritional value of feed by 10-15% through better grazing management. The GIZ initiative „The

Economics of Land Degradation“ analysed the value addition of different sustainable land management practices for the Kakheti region (Westerberg et al. 2021). Positive gains in forage productivity were modelled for all good pasture management practices compared to current practices (see table 2). The study also notes that improvements can fluctuate, as semi-arid rangeland environments are highly variable, so pasture health may change annually, seasonally and from location to location.

***Table 2**. Summary of land productivity from sustainable land management scenarios (Source: Westerberg et al. 2021).*

Intervention	Change in forage productivity	Time-frame	Source	Net present value /ha from practice adoption
Multi-paddock adaptive grazing / migrator	9%	Within 1 year	Westerberg et al.	89 GEL/ha
Multi-paddock adaptive grazing / resident	16%	Within 1 year	Westerberg et al.	165 GEL/ha
Annual rotational grazing	13%-51%	Within 1 year	NACRES + Westerberg et al.	from - 59 GEL/ha to +26 GEL/ha

97. In addition the proposed project will be a blended project, fully integrated into the IFAD supported “Dairy Modernisation and Market Access Programme (DiMMA)” for the first two years of its operation. It will benefit from sharing resources and structures. This partnership will boost the cost-effectiveness of both interventions, particularly as there will be a common management structure and a linked M&E framework. Other benefits expected are improved coordination and communication, the application of common procurement and supervision procedures (reducing costs). Cost savings will be calculated for the full proposal.

D. Strategic Alignment

98. The proposed project is aligned with and contributes towards international environmental conventions to which Georgia is signatory and the country’s national strategies.

99. **Georgia's Nationally Determined Contribution (NDC)** updated in 2021 has a short list of objectives for the adaptation of the agricultural sector and highlights the need for further assessment of the impacts of climate change on mountain ecosystems and ecosystem services. **Georgia’s 2030 Climate Change Strategy and Action Plan (on mitigation)**, released in 2021, makes specific reference to pastures and has formulated two objectives that touch upon pastures:

- Objective 5.1 “Implement sustainable management of soil and pastures and support the introduction of sustainable domestic animal feeding practices” entails the activity (5.1.2) to develop legislation and prepare a project proposal with the aim of increasing the quality of livestock nutrition and conservation of pasture biodiversity.
- Objective 5.2 “Build capacities of generating scientific evidence for development of climate-smart approaches in the agriculture sector” aims at supporting cooperatives to implement sustainable practices in pasture and hay-land management in activity 5.2.3.

100. In addition, the new climate change strategy lists “Regulating the overgrazing and the unsustainable use of soils” as a priority direction and aims to tackle overgrazing that negatively affects plants, soil and biodiversity, especially on winter pastures in particular. The proposed project contributes towards achieving these objectives.

101. The **Fourth National Communication of Georgia to the UNFCCC**, published in 2021, has a dedicated chapter on pastures and climate change. It advocates for the preservation of natural resources and biodiversity through ecological management and traditional grazing practices. The proposed project incorporates a number adaptation measures recommended by the communication. This includes the improvement of the institutional and legal environment for grazing management and the use of grazing land. The communication recommends developing pasture management plans at municipal level that incorporate climate change issues. Such plans should aim to:

- **Improve grazing management** by determining stock rates and grazing duration to achieve an ecological healthy state of pastures.
- **Plan grazing activities** according to vegetation growth and recovery periods, taking into account current and future rainfall trends.
- **Improve pasture conditions** through measures that are practical, user-supported, financially viable and impactful. Measures include sowing, mowing, fertilizing, weeding and irrigation.
- **Help government agencies monitor pastures** to ensure continuous, adequate and sustainable use of pastures.
- **Manage pastures in a participatory manner** and ensure intensive consultations with key stakeholders.

102. The **Climate Change National Adaptation Plan for Georgia's Agriculture Sector** from 2017 assesses the impacts of current and future climate change on grasslands. The plan includes a cost-benefit analysis of adaptation measures in pasture management. It recommends adaptation measures in pasture management for a number of areas in Georgia; many of which are reflected in the proposed project.

103. The **National Biodiversity Strategy and Action Plan of Georgia 2014-2020** recognizes the lack of institutional and legal framework for the sustainable use of common pastures and lists this as the main reason for unsystematic and unorganized grazing on pasturelands. It also highlights the lack of detailed information on the number and extent of pasture plots (summer and winter) under state ownership, as well as their status, including levels of use, pressures, vegetation cover and productivity. The inventory of pastures under the proposed project will address this issue. The project also aims to continue efforts of assisting the Government in establishing a new law on pastures.

104. The **Agriculture and Rural Development Strategy of Georgia 2021-2027**, released by MEPA in 2019, lays out three main goals - the second aiming to promote the sustainable usage of natural resources – including pastures – through climate-smart and environmentally adapted agricultural practices.

E. Standards

105. Georgian experts and stakeholders as well as IFAD technical staff reviewed the concept note to ensure it has a clear focus on agreed results. All IFAD supported projects undergo a formal quality assessment undertaken by a Quality Evaluation Committee established by IFAD. The committee members are independent and have not participated in the formulation of the project. Appraisal is based on a detailed quality programming checklist which ensures, amongst other issues, that necessary safeguards have been addressed and incorporated into the project design.

106. The project adheres to the Social and Environmental Policy of the Adaptation Fund.

107. The project will respect and adhere to the national laws and codes of the Government. The SECAP review note lists the most relevant overarching laws to which the project will comply. A review of the main **legal instruments for pasture management in Georgia** was carried out by RECC as part of the "Feasibility Study of Integrated Pastureland and Livestock Development in Georgia" from 2021. The study lists the following regulations to which the proposed project will adhere to:

- **Law of Georgia on Soil Protection**, 2002. The law defines soil protection measures and means, including cultural and technical measures to protect the soil of pasturelands and hayfields to increase their fertility and improve vegetation (view).
- **Law on Soil Conservation and Restoration-Improvement**, 2003. The law states that excess grazing that causes erosion on mountainous pasturelands is prohibited. However, the law is vague and does not specify winter pasturelands, nor does it prescribe official norms for livestock stocking rates (view).
- **Law on State Property**, 2010. State-owned pastureland cannot be privatized or registered in municipalities. The main form of access is a lease issued to an individual or legal entity by auction (view).
- Resolution 242 of the Government of Georgia of August 20, 2010 "**On Approval of the Forest Use Rule**" allows the use of the forest fund for agricultural purposes using methods that do not harm tree seedlings, do not cause damage to woody plants and do not cause erosive events. Forest use for agricultural purposes is allowed only in compliance with the requirements of the

Food / Animal Feed Safety, Veterinary and Plant Protection Code and the Resolution of the Government of Georgia #198 of July 30, 2013. According to the Resolution, organic farming should include soil fertility and conservation measures, maximize the integrity of biodiversity and ecosystems, as well as take into account local and regional ecological characteristics. Article 7 of the Resolution determines the maximum number of livestock per hectare to minimize the risk of overgrazing, soil erosion and contamination by too much manure. It should be noted that the permissible quantity per hectare is defined only for organic production and other cases are not regulated by the law (view).

- Resolution Number 415 of the Government of Georgia of 2013 on the approval of the Regulation on "**Determination of Soil Fertility Level**" and "**Soil Conservation and Fertility Monitoring**". The Resolution does not specify the specific agency that should carry out the fertility assessment. It generally instructs those who have the authority to inspect the soil of agricultural lands to carry out monitoring, determine their fertility level and develop recommendations (view).
- Government Resolution 265 of 2017 on the **Rational Use of Pastures and Mowing Lands in Mountainous Regions**. The Resolution defines the conditions for leasing pastureland to cooperatives in mountainous areas (view).
- Legislative amendment of 2019. After which the Law on "Agricultural Land Ownership" expired and the Law on "**Defining the Target Land and Sustainable Management of Agricultural Land**" came into force (view text1 and text2).
- **Law on Spatial Planning**, 2020. The Law defines framework conditions for zoning and land management at the municipal level. But at this level the government has negligible regulatory power over pasturelands, most of which are privately or state-owned (view).

F. Duplication

108. There is no duplication of the project with other funding sources. On the contrary, this project is needed to upscale the efforts piloted by DiMMAdapt and other related donor-funded projects described in the table below.

Project name	Summary and geographic area	Complimentary potential
IFAD-funded project: Dairy Modernization and Market Access Project (DiMMA) (2018 – 2025) Total cost: USD 53.4 M (link) Including: USD 18.2 M from IFAD and USD 4.2 M from the Adaptation Fund under the adaptation component	The project equips smallholder producers with the know-how and technologies to upgrade their milk production systems, adopt food safety standards and comply with food hygiene regulations. The project operates in six regions of the country: Samegrelo-Zomo Savaneti, Imeriti, Samtskhe-Javaheti, Kakheti, Racha-Lechkumi, Qvemo Svaneti and Kvemo Kartli.	**Synergies**: Strong synergies are given as DiMMA covers value chain development, an area the proposed project is not investing in. Synergies include targeting, mobilization of users, and capacity building activities. Project management costs (such as procurement and M&E) can be carried by DiMMA in the first years of the new project.
Adaptation Fund-financed IFAD project: Dairy Modernization and Market Access: Adaptation Component (DiMMAdapt) (2021-2015) USD 4.6 M (link)	As an integrated component of DiMMA, DiMMAadptis piloting approaches to climate-proof pastoral ecosystem services (water management, pasture regeneration, and disaster risk reduction) and support alternative livelihood measures. DiMMAdapt operates in Samegrelo and Zomo Savaneti, Imeriti and Samtskhe-Javaheti.	**Synergies**: • Methodologies and pasture inventory pilots in municipalities of Samtskhe-Javaheti to be upscaled by the new project to other regions of the country. • Pasture management planning, demonstration and user organization to be upscaled by the new project at national level. • Inventoried data will be shared/handed over to the proposed project.

		Avoiding duplication of efforts: Communities and areas for which investment plans have been developed will be excluded under the proposed project.
FAO with GEF funding: Achieving Land Degradation Neutrality Targets of Georgia through Restoration and Sustainable Management of Degraded Pasturelands (2020-2022) USD 14 M (link)	The project helps the country implement land degradation neutrality targets through piloting the restoration and sustainable management of the degraded pasturelands in three municipalities. The project operates in the Eastern part of Georgia (Kazbegi, Gurjaani, and Dmanisi municipalities).	**Synergies:** • Existing technical collaboration: Project staff have shared draft situational analysis, pasture management plans and pasture inventory methodologies with IFAD. • DiMMA project management uni and IFAD involved in the pasture reform facilitated by this project. **Avoiding duplication of efforts:** • Communities and areas for which investment plans have been developed will be excluded under the proposed project. • All inventory data will be integrated in the proposed projects.
UNEP with GEF funding: Generating Economic and Environmental Benefits from Sustainable Land Management for Vulnerable Rural Communities of Georgia (2018-2023) USD 6.2 M (link)	The project aims to develop and promote sustainable land management practices to protect natural capital (including pastures) in Georgia. Pilot municipalities include Sagarejo, Kvareli, Gori, Kareli.	**Synergies:** • Existing technical collaboration (e.g. project staff have shared pasture management plans with IFAD). **Avoiding duplication of efforts:** • Communities and areas for which investment plans have been developed will be excluded under the proposed project.

G. Learning and Knowledge Management

109. The proposed project places a strong emphasis on learning and knowledge management as a key approach to achieve behavioral change of pasture users. The proposed project aims to improve data availability on pastures, generate new knowledge on the relationship between pastures and climate change and details mechanisms to disseminate data and knowledge. A number of project outputs contribute towards this:

110. **Data to support evidence-based decision-making**. Data is key for management. The pasture inventory on the full extent, ownership, usage and conditions of pastures will provide the necessary data to help local government staff and pasture users understand where vulnerable pastures are and identify appropriate management and restoration measures.

111. **Participatory pasture planning**. The process of establishing pasture management plans is also a learning process for pasture users and municipality staff. They assess where vulnerable pastures are, understand what adaptive approaches towards climate change are possible, and decide on what measures are the most appropriate to improve pasture conditions.

112. **Study on pastures and climate change.** Georgia's NDC and its latest Communication to the UNFCCC highlight the lack of research on the impacts of climate change on pastures. The project will commission a study to gain further insights on this topic to guide current and future investments on climate-resilience interventions for pastures.

113. **Handbook on good management practices in the context of climate change**. The project intends to commission the development of a practical guide for municipalities and pasture users laying out strategies for grazing, rangeland conservation and rehabilitation, as well as water management in the context of climate change. The guide's objective is to help pasture users determine appropriate timing

and distribution of livestock on their pasture taking into account current long-term and seasonal climate projections.

114. **Training and demonstration sites**. The project will establish demonstration plots to display good grazing management and successful pasture rehabilitation measures. The sites will act as training locations for pasture users to discuss adaptive grazing management and the most effective measures to manage rangelands sustainably.

H. Consultative Process

115. The design of the project concept note happened in conjunction with an implementation support mission of DiMMA and DiMMAdapt in March 2022. The design team met beneficiaries in the field and consulted national and international agencies. While in the field, the team visited and met with livestock keepers, shepherds, dairy processors and service providers (see figure 12 below for the locations visited).

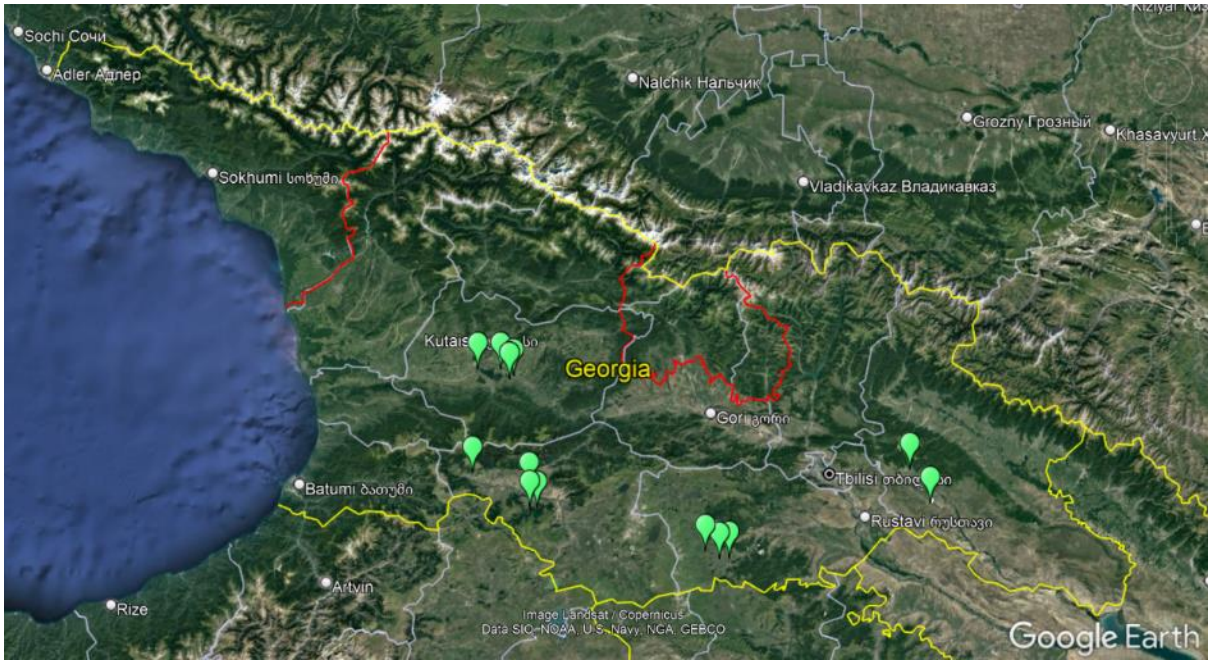


***Figure 12**. Locations visited by the IFAD design team in March 2022*

116. In-person and virtual meetings were held in March with different departments with the Ministry of Environmental Protection and Agriculture (MEPA), the Agency of Rural Development and Agriculture of MEPA, the National Agency for Sustainable Land Management and Land Use Monitoring, the United Nations Development Programme (UNDP), the Food and Agriculture Organization of the United Nations (FAO), the Regional Environmental Centre for the Caucasus (RECC), Centre for Biodiversity Research & Conservation (NACRES), the Shepherd's Association of Georgia, and the Biological Farming Association Elkana and the Greens movement of Georgia. Table 3 lists all people met during concept note formulation.

117. The design of this project immensely benefited from the collaboration with experts from FAO and RECC working on the GEF-funded project “Achieving Land Degradation Neutrality Targets of Georgia through Restoration and Sustainable Management of Degraded Pasturelands”. They shared draft versions of the “National Pastureland Management Policy Document”, pasture management plans, and draft inventory methods with the design team.

118. The formulation of the concept note also builds on recent reports on pasturelands in Georgia including:

- Fourth National Communication of Georgia under the UNFCCC from 2021.
- RECC (2022): National Pastureland Management Policy Document (draft version).
- RECC (2019). Pastures Management in Georgia: Situation Analysis and Main Challenges, Recommendations for Development of Pastures Sustainable Management Program.

- Westerberg, V., Robinson, S., Stebbings, E., Costa, L., Visetti, P., (2021). Economics of Land Degradation Initiative: The economics of pasture management in Georgia. GIZ: Bonn, Germany.
- RECC (2022). Feasibility Study of Integrated Pastureland and Livestock Development in Georgia (draft version).
- SABUKO (2020). Overview of the sheep sector in Georgia.

***Table 3**. Dates and contacts of people met*

Name and gender		Position and agency	Email	Meeting date	Format
Nino Chikovani	F	Head of Land Resources Protection Division, Ministry of Environmental Protection and Agriculture (MEPA)	Nino.Chikovani@mepa.gov.ge	14/03/2022	In-person
Gizo Chelidze	M	Head of Hydroamelioration and Land Resource Management Department , Ministry of Environmental Protection and Agriculture (MEPA)	gizo.chelidze@mepa.gov.ge	14/03/2022	In-person
Tamaz Dundua	M	Program Manager, Biological Farming Association Elkana (ELKANA)	manager@elkana.org.ge	15/03/2022	In-person
Sophiko Akhobadze	F	Director, Regional Environmental Centre for the Caucasus (RECC)	sophiko.akhobadze@rec-caucasus.org	15/03/2022	In-person
Nicholas Sharp	M	International consultant for pastureland restoration and monitoring methodologies	nick@agrolynx.org	16/03/2022	Virtual
Nino Chkhobadze	F	Director, Greens movement of Georgia	nino.chkhobadze@gmail.com	16/03/2022	In-person
Tamar Khmaladze	M	LEPL The National Agency for Sustainable Land Management and Land Use Monitoring (Land agency)	Tamar.khmaladze@mepa.gov.ge	16/03/2022	In-person
Maya Tskhvadaze	F	Head of Climate Change Division, Ministry of Environmental Protection and Agriculture (MEPA)	Maya.Tskhvaradze@mepa.gov.ge	16/03/2022	In-person
Temur Paichadze	M	Deputy head of the hydroamelioration and land resource management department, Ministry of Environmental Protection and Agriculture (MEPA)	Temur.Paichadze@gmail.com	16/03/2022	In-person
Nino Kizikurashvili	F	DiMMAdapt Project Coordinator, Project management unit of IFAD (PMU)	Nino.Kizikurashvili@mepa.gov.ge	Multiple meetings	In-person
Tamar Tsintsadze	F	KM Officer, Project management unit of IFAD (PMU)	Tamar.Tsintsadze@mepa.gov.ge	16/03/2022	In-person
Beka Gonashvili	M	Chairperson, Shepherd's Association of Georgia	beka@me.com	16/03/2022	In-person

Giorgi Tsikhelashvili	M	Member of Dmanisi City Council, Dmanisi municipality		17/03/2022	Field visit
Temuri Dautashvili	M	Leading Specialist of Dmanisi Consulting Service, Dmanisi municipality		17/03/2022	Field visit
Giorgi Mentesashvili	M	Leading Specialist of Dmanisi Consulting Service, Dmanisi municipality	Giorgi.Mentesashvili@mepa.gov.ge	17/03/2022	Field visit
Nodar Tsikhelashvili	M	Chief Specialist of Dmanisi Consulting Service, Dmanisi municipality	Nodar.Tsikhelashvili@mepa.gov.ge	17/03/2022	Field visit
Marina Shvangiradze	F	Former coordinator for Communications to the UNFCCC	mshvangiradze@hotmail.com	18/03/2022	In-person
Besik Macharashvili	M	Agency of Rural Development and Agriculture of MEPA (ARDA)	Besik.Macharashvili@rda.gov.ge	18/03/2022	Virtual
Tornike Kapanadze	M	Agency of Rural Development and Agriculture of MEPA (ARDA)	Tornike.Kapanadze@rda.gov.ge	18/03/2022	Virtual
Giorgi Misheladze	M	Head of land resource management and land use monitoring agency, LEPL The National Agency for Sustainable Land Management and Land Use Monitoring	giorgi.misheladze@land.gov.ge	18/3/2022, 14/3/2022	In-person
Giorgi Zakaidze	M	Head of Strategic Development Department, LEPL The National Agency for Sustainable Land Management and Land Use Monitoring	Giorgi.Zakaidze@land.gov.ge	18/3/2022, 16/3/2022	In-person
Mindia Jokhadze	M	Deputy chairman, LEPL The National Agency for Sustainable Land Management and Land Use Monitoring	Mindia.Jokhadze@land.gov.ge	18/03/2022	In-person
Ketevan Skhireli	F	GCF-funded Project Manager, United Nations Development Programme (UNDP)	ketevan.skhireli@undp.org	18/03/2022	Virtual
Edvard Shermandini	M	Agricultural Expert, United Nations Development Programme (UNDP)	edvard.shermadini@gmail.com	18/03/2022	Virtual
Malkhaz Dzneladze	M	Head of Development and Programme Management, Regional Environmental Centre for the Caucasus (RECC)	malkhaz.dzneladze@rec-caucasus.org	21/03/2022	Virtual
Sarah Robinson	F	International expert on pastoralist governance systems	sarah.robinson09@gmail.com	22/03/2022	Virtual
Dragan Angelovski	M	Chief Technical Advisor, Food and Agriculture Organization of the United Nations (FAO)	Dragan.Angelovski@fao.org	22/03/2022	Virtual
Kakha Artsivadze	M	Environment Specialist, Centre for Biodiversity Research & Conservation (NACRES)	kakha.artsivadze@nacres.org	22/03/2022	Virtual

Maia Zumbulidze	F	GIS specialist, Regional Environmental Centre for the Caucasus (RECC)	mzumbulidze@yahoo.com	29/03/2022	Virtual

I. Justification

119. The proposed project responds to a request of the government. Annex X presents the official letter from the Deputy Minister of MEPA to IFAD requesting further financial resources to support sustainable pasture management in Georgia. In March, MEPA's management gave IFAD the instructions to develop a project with the objectives of i) conducting a full inventory of pastures in the country, ii) developing pasture management plans with measures to improve pasture quality; and iii) implementing measures of the pasture management plans.

120. MEPA sees the necessity of mobilizing further resources for sustainable pasture management, because this sector has been neglected in the past two decades exposing its vulnerability to a changing climate. MEPA aims to use this project to further support its reform around pasture legislation and to upscale promising approaches that are currently being piloted in DiMMAdapt and other donor funded projects.

121. One of the project's strengths is that it is complementary to DiMMA. While the new project will continue and upscale DIMMAdapt's efforts on improving pasture management, DiMMA covers value chain development aspects of the dairy sector, such as veterinary services, improved breeds and training livestock keepers on good practices in livestock husbandry and feeding.

122. The table below outlines the baseline and the alternative adaptation scenarios that the Adaptation Fund will help materialize.

Baseline scenario	**Alternative Adaptation Benefits of Adaptation Fund Project**
Increased periods of drought. Decreases of annual rainfall, in particular during summer months, have already been observed. Since 1981 there has also been a marked decrease in snow cover during winter snowy months. Climate models predict higher temperatures in the whole country and less rainfall especially during summer months, with higher probability of drought in those areas with higher maximum number of consecutive dry days. Observations on cattle watering in hot summer days found that with temperature increases (30–38C), animal water supply in June-September decreased. Rainwater ponds (which are often the only source of watering) are gradually decreasing or are generally drying out. The remaining ponds are also often polluted. In conditions of water scarcity, milking productivity decreases by 22.5 percent. Under normal conditions milking produces 3.2 litre per day, while in periods of reduced water this is reduced to 2.5 litre/day. A general decrease in rainfall also affects grasslands and contributes to pasture degradation.	The project will equip the pasture users with the knowledge to sustainably assess, monitor and manage the pastures through the designing and implementation of pasture management plans. The plans aims to support pasture users to adapt to the changing climate and mitigate against any adverse impact of reduced precipitation and increased temperatures. The plans will lay out management measures for herders to respond to changing climate (see table 1). Measures include e.g. increased seasonal migration, matching mobility with vegetation greening, planning of pasture recovery periods, adaptive stocking rate strategies, etc. The project will also construct and rehabilitate water points and support the restoration of springs. Where needed, the planting of trees for shade and wind protection will protect livestock from heat and also protect soils from erosion.
Pressures on pastures. Pastures are subject to overgrazing and even undergrazing due to the poor current governance system. Tools for sustainable management are not in place. This adds pressure on pastures and soils causing their degradation - making the entire production system vulnerable to the effects of climate change.	The project will address overgrazing and pasture degradation by helping the country to introduce a sustainable pasture governance system. This includes a detailed inventory of the extent, quality and ownership of pasturelands, as well as establishing a monitoring system. Management plans define boundaries of pasture areas giving a group of users security that they can use these areas to graze their animals. This provides an incentive for them to sustainable manage pastures. Plans also lay out grazing measures,

	pasture infrastructure improvement measures and restoration actions.
Increase of torrential rain and flooding. Climate data reveals a significant increase in heavy rainfall events (>50mm/day) during summer season for the period 1981-2016. This increases the risk of top soil erosion on steep slopes of mountain pastures causing decreased pasture productivity.	Pasture management plans will identify areas prone to soil erosion and will lay out measures to reduce soil loss. This will be achieved through cost-effective and no-regret nature based measures such as grazing restrictions, reseeding, tree planning, gully rehabilitation, stonewalls or gabion baskets.

J. Project Sustainability

123. The proposed project aims to help establishing a sustainable governance system for pastures that will reduce the vulnerability of pastures and their users to climate change. It aims to support the legal reform of pasture legislation that will have significant and long-lasting impact on the sector. The project aims to help the government establish a state-of-art pasture monitoring system with remote sensing data that will help local government staff and users themselves to evaluate pasture conditions and take adaptive measures.

124. The project is based on, and is driven by, sustainability principles that are promoted throughout the project activities. The project's sustainability builds on beneficiary empowerment through: awareness raising; capacity building; cost-effective and environmentally friendly and long-lasting solutions to help restore, improve and protect the pasture ecosystem-services.

125. The project aims to contribute to resolving a main barrier of adaptation: By strengthening tenure security, pasture user groups have strong incentives to improve grazing practices and adapt climate-resilient practices.

126. Improved grazing strategies and better pasture infrastructure will also yield sustainable results at eco-system level with positive co-benefits for biodiversity and carbon sequestration.

K. Environmental and Social Impact Risks

127. According to IFAD's Environmental and Social Safeguards Screening Checklist (see Annex 3), the proposed project has a "**Moderate Environmental and Social Risk**" and a "**Moderate Climate Risk**" at concept note stage.

128. The checklist and IFAD's risk categorization of projects have been updated with the revision of IFAD's Social, Environmental and Climate Assessment Procedures (SECAP) in 2021. A project's risk to adversely impact people and the environment, as well its vulnerability to climate change are assessed and categorized into four different risk levels (low, moderate, substantial and high) in order to identify all possible risks as well as measures to mitigate them. The updated SECAP is aligned with the Adaptation Fund's Environmental and Social Policy, and its 15 safeguard areas and Gender Policy.

129. This project aims to improve the state of natural resources (mainly pastures and water). Significant negative impacts on society and environment are unlikely because of the scope of the proposed activities, which are numerous, at small scale and very localized.

130. For the full proposal, the design team will elaborate a social, climate and environmental plan and an Ex-Act carbon assessment. The team also is exploring the possibility of conducting an initial nation-wide pasture condition assessment in collaboration with the Global Development Assistance programme of the European Space Agency to inform the full project proposal.

131. The main findings of the risk screening are integrated in the table below.

Checklist of environmental and social principles	**No further assessment required for compliance**	**Potential impacts and risks – further assessment and management required for compliance**
Compliance with the Law	X	The PMU and other government authorities will ensure compliance of relevant national laws.
Access and Equity		The project aims to improve the tenure security over pastures in order to set incentives for sustainable management and climate

		change adaptation, and to ensure that vulnerable livestock keepers have access to pastures on which the rely on. The allocation of pastures (via the current regulation or the future law on pastures) bears the risk of exclusion from pastures and conflict between pasture users and user groups. The project will establish the following measures to mitigate this risk: • Establishing pasture zones/units that recognise and are based on historic and current users of pastures. • Mapping stock routes and integrating them into management plans to ensure that migration is supported and not obstructed e.g. by fencing. • Ensuring participatory and consultative processes of pastures users (including vulnerable groups such as landless households, small livestock keepers, women, youth). • Using the grievance redress mechanism to actively capture complaints and resolve them. • Monitoring compliance through progress reports; supervision missions; the mid-term review; impact assessment; and terminal evaluation.
Marginalized and Vulnerable Groups	X	The project has a targeting approach that aims to help vulnerable groups have better and more secure access to pastures.
Human Rights	X	
Gender Equity and Women's Empowerment		The project will promote gender equity and women's empowerment through its targeting strategy. Specific measures include: • Ensuring active participation women in the participatory planning process (e.g. through focus group discussions only for women). • Ensuring women are participating in committees representing the interest of a group/community. • Mainstreaming gender aspects in the project's study on climate change and in the handbook on pastures.
Core Labour Rights	X	
Indigenous Peoples	X	Not applicable as there are no indigenous peoples in Georgia.
Involuntary Resettlement	X	
Protection of Natural Habitats		The project will not intervene in national parks because of different land use objectives, management approaches, legislation and responsible agencies. The project will intervene on sites of the Emerald Network that covers nearly 15% of the country. Pasture management plans will adhere to protection guidelines of the programme. Plans will also identify areas of high value for biodiversity and will flag these as such to identify appropriate measures (e.g. grazing restrictions, fencing off woodlands at frequently visited water points). The exact project site locations will be the result of detailed analyses that will rank all communes in the target areas according to criteria. Compliance will be monitored through progress reports; supervision missions; the mid-term review; impact assessment; and terminal evaluation.
Conservation of Biological Diversity	X	There is no risk to the conservation of biodiversity. Adapted and native species will be used in reseeding and afforestation (wind breaks) activities. New genetic materials will not be introduced in Georgia (neither animal not plant) nor any natural habitat affected. A biologist and rangeland expert will be involved in setting up management plans. Areas of high value for biodiversity (such as

		riverine areas) will be flagged in management plans and appropriate measures defined to secure biodiversity.
Climate Change		The risk of increased greenhouse gas emissions is low. An assessment with the EX-ACT carbon calculation tool will be carried out for the full proposal. The risk of higher emissions through the increase of livestock number was raised in previous AF-funded projects. As done for DiMMAdapt, the environment and social management plan (ESMP) and M&E framework will include the monitoring of livestock numbers through the "National Animal Identification, Registration and Traceability System" and will report numbers of cattle and sheep in areas with management plans. Capacity building activities will emphasize that the productivity per animal is of greater value that the number of animals in a herd.
Pollution Prevention and Resource Efficiency	X	
Public Health	X	
Physical and Cultural Heritage		The project is unlikely to have any adverse impacts on physical and cultural heritage of the people in the intervention areas. Management plans will flag any areas and will define measures if deemed necessary.
Lands and Soil Conservation	X	The project aims to improve vegetative cover, introduce soil conservation measures, plant resilient and diverse native plant species and improve water management.

L. Grievance and Redress Mechanism

132. The project will use the grievance redress mechanism that is in operation in the IFAD investment portfolio in Georgia. The mechanism complies with IFAD's social and environmental policies and its Social, Environmental and Climate Assessment Procedures (SECAP) that aims to prevent and mitigate undue harm to people and the environment.

133. The project aims to prevent grievances by consulting stakeholders from the start, by providing them with sufficient and timely information, and by responding to their concerns.

134. Those who believe that they are or can potentially be adversely affected by the project can submit a formal complaint and raise concerns that the project is not complying with its social and environmental policies or commitments. Action will be taken on all submitted grievances.

135. The grievance redress mechanism will be available in the project intervention areas. Stakeholders will have access to contact details of a focal point within the PMU to whom they can submit complaints. Information about the existence and functioning of the project's grievance redress mechanism will be shared with communities and other stakeholders during the project inception workshop and subsequent meetings with beneficiaries.

136. A complaint for alleged non-compliance with IFAD's social and environmental policies and mandatory aspects of its SECAP must meet the following criteria:

- The complainants claim that IFAD has failed to apply its social and environmental policies and/or the mandatory provisions set out in SECAP.
- The complainants claim that they have been or will be adversely affected by IFAD's failure to apply these policies.
- Complaints must be put forward by at least two people who are both nationals of the country concerned and/or living in the project area.
- Complaints from foreign locations or anonymous complaints will not be taken into account.
- Complaints must concern projects currently under design or implementation. Complaints concerning closed projects, or those that are more than 95 per cent disbursed, will not be considered.

137. The mechanism has three levels to resolve grievances. The first is at the field level with field staff aiming to resolve the complaint. If the grievance is not resolved at this level, it will be escalated to the PMU - the second level of the mechanism. A resolution will be sought by the PMU and Steering Committee meetings. All submitted complaints at this level will be included in progress reports to IFAD for reporting and monitoring purposes. If still no resolution is found, the grievance is escalated to the third level of the mechanism. IFAD will be responsible for addressing grievances related to violation of any of the provisions of the Environmental and Social Policy of the Adaptation Fund.

138. In cases where the project does not adequately respond or if the complainants feel they might be subject to retaliation, the issue may be brought straight to IFAD. More information can be found on the website of IFAD's accountability and complaints procedures

PART IV: ENDORSEMENT

A. Record of Endorsement by Designated Government Authority

Ms Nino Tandilashvili Deputy Minister of Environmental Protection and Agriculture of Georgia	Date: _08 August 2022_____

A new letter of endorsement will be provided with the new title of the CN: Dairy Modernization and Market Access: Adaptive and climate-resilient pasture management (DiMMAdapt+)

საქართველო
GEORGIA

გარემოს დაცვისა და სოფლის მეურნეობის საქართველო
MINISTRY OF ENVIRONMENTAL PROTECTION AND AGRICULTURE OF GEORGIA

N 7852/01
08/08/2022

7852-01-2-202208081132

Letter of Endorsement

To: The Adaptation Fund Board
c/o Adaptation Fund Board Secretariat
E-mail: Secretariat@Adaptation-Fund.org
Fax: 202 522 3240/5

Subject: Endorsement for Holistic and Climate-Resilient Pasture Management Project

In my capacity as designated authority for the Adaptation Fund in Georgia, I confirm that the above national project proposal is in accordance with the government's national priorities in implementing adaptation activities to reduce adverse impacts of, and risks, posed by climate change in Georgia.

We express our readiness to work intensively with your team on the further preparation of the mentioned project design in order to address all priority issues in it.

Accordingly, I am pleased to endorse the above project proposal with support from the Adaptation Fund. If approved, the project will be implemented by the International Fund for Agricultural Development (IFAD) and executed by the Ministry of Environmental Protection and Agriculture (MEPA).

Sincerely,

Nino Tandilashvili
Deputy Minister
Designated Government Official

0159, საქართველო, თბილისი, მარშალ გელოვანის გამზ. №6, ტელ.: +(995 32) 2378013 / +(995 32) 2378044
www.mepa.gov.ge
6, Marshal Gelovani ave., Tbilisi 0159, Georgia, Phone:+(995 32) 2378013 / +(995 32) 2378044

B. Implementing Entity Certification

<table>
<tr><td colspan="2">I certify that this proposal has been prepared in accordance with guidelines provided by the Adaptation Fund Board, and prevailing National Development and Adaptation Plans and subject to the approval by the Adaptation Fund Board, commit to implementing the project/programme in compliance with the Environmental and Social Policy of the Adaptation Fund and on the understanding that the Implementing Entity will be fully (legally and financially) responsible for the implementation of this project/programme.</td></tr>
<tr><td colspan="2">Implementing Entity coordinator:

Mr Tom Mwangi Anyonge
Director a.i
Environment, Climate, Gender and Social Inclusion Division</td></tr>
<tr><td>Date: _08 August 2022_____</td><td>e-mail:
t.anyonge@ifad.org
ecgmailbox@ifad.org</td></tr>
<tr><td>Ms Janie Rioux
Senior Technical Specialist (Climate change),
ECG Division</td><td>email:
j.rioux@ifad.org</td></tr>
<tr><td colspan="2">Project contact person:

Mr Walid Nasr, Regional Climate and Environment Specialist (a.i.)</td></tr>
<tr><td colspan="2">e-mail: w.nasr@ifad.org</td></tr>
<tr><td colspan="2">Mr Fidy Rajaonson, IFAD Libya Country Director</td></tr>
<tr><td colspan="2">e-mail:
f.rajaonson@ifad.org</td></tr>
</table>

ANNEXES

Annex 1. Letter of request from MEPA to IFAD

IFAD received the following letter from the Deputy Minister of MEPA requesting further financial resources to support sustainable pasture management in Georgia in September 2021.

საქართველოს გარემოს დაცვისა და სოფლის მეურნეობის სამინისტრო

MINISTRY OF ENVIRONMENTAL PROTECTION AND AGRICULTURE OF GEORGIA

საქართველო
GEORGIA

N 9733/01
15/09/2021

9733-01-2-202109151641

To: Mr. Vrej Jijyan
Country Programme Manager
IFAD

Dear Mr. Jijyan,

First of all, I would like to express my gratitude for the very important support that IFAD and the Adaptation Fund are providing to the dairy sector of Georgia in the framework of the Dairy Modernization and Market Access Programme (DiMMA) and its adaptation component DiMMAdapt.

The goals and objectives of the DiMMAdapt programme are fully in line with the strategy of the Government, in particular to help smallholder farmers adopt best practices in pasture management, reduce the vulnerability of the dairy value chain to the deleterious impacts of climate change and enhance the resilience to climate change of vulnerable dairy producers.

The Georgian dairy sector still needs financial/technical assistance in order to create fully climate-proof pastoral ecosystem (through water management, pasture regeneration, disaster risk reduction) and build the resilience of vulnerable smallholders. These priorities are covered by the DIMMAdapt programme, for which the Government would like to see DiMMAdapt cover the entire country.

0159, საქართველო, თბილისი, მარშალ გელოვანის გამზ. №6. ტელ.: +(995 32) 2378013 / +(995 32) 2378044
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6, Marshal Gelovani ave., Tbilisi 0159, Georgia, Phone:+(995 32) 2378013 / +(995 32) 2378044

We kindly request IFAD to undertake the development of a new proposal to the Adaptation Fund, for an amount of 10 million USD to scale up DiMMAdapt so that it may become a national programme.

We express our readiness to work closely with you to develop the project proposal and endorse the allocation of additional funds.

Once again, please accept the assurances of my highest consideration.

Sincerely,

Nino Tandilashvili
Deputy Minister

Annex 2. SECAP Review Note

1. Introduction

The SECAP Review Note accompanies the Adaptation Fund concept note. It is largely based on detailed assessments that have been carried out during the design of Dairy Modernization and Market Access Project (DiMMA) and DiMMAdapt.

2. Situational analysis and potential project impacts

A. Overall situation

The rural population of Georgia is in decline. Almost 1 million people or one fourth of Georgia's population live abroad. The country's population (excluding the population of occupied territories) amounted to 3.7 million people (by January 1, 2015) with almost 42.8 percent living in rural areas, 30 percent living in Tbilisi, the capital city, and the remaining 27 percent residing in cities and small towns. The population of regions significantly varies in size, with Racha-Lechkhumi being the smallest region - with population of about 32,000 people and Imereti being the largest, with population of about 400,000.

Migration to other countries. There has been a significant outmigration of Georgians abroad, triggered by a search of better employment opportunities. More educated, and highly skilled people tend to migrate to OECD countries, while manual labor migration is dominated by the closer destinations, such as Russia, Armenia, and Ukraine. Most emigrants (are between 20 to 50 years bracket between 70 percent and 80 percent according to different surveys) with about 40 percent of them being below 30 years, and with majority being men.

Relative to other countries of the Commonwealth of Independent States, the remittances do not play significant role in country's economy, but their share in the GDP is still high. About 7-10 percent of the resident population of Georgia receives remittances from abroad annually. The World Bank estimates personal remittances making about 13.3 percent of the GDP in 2020. Various studies shown that remittances are mostly spent on consumption needs, with smaller share spent on healthcare and education.

Internal migration's rate is high. About 7 percent of population in Georgia are internal migrants, who migrated from occupied Georgian regions of Abkhazia, and Tskhinvali Region/South Ossetia (internally displaced persons). More than half of these persons still live in state provided collective housing centers. Additional almost 2,000 people were resettled by the Government as a result of natural disasters and classified by legislation as eco-migrants. Majority of emigrants and internal immigrants come from rural areas, as it was registered by the Census 2014 that rural population decreased during the last decade by more than a half a million of people. Mountainous and remote from Tbilisi and other urban settlement areas have been losing its population the most, i.e. Racha-Lechkhumi and Kvemo Svaneti (decrease of 37.4%), and Samegrelo-Zemo Svaneti (decrease of 29%) regions.

Unemployment in Georgia is high. According to the 2012 Census, 16.1 percent of the labour force is out of work. Women have higher unemployment than men: 19.0 percent against 13.6 percent. Migration to cities and abroad is at large caused by lack of decent employment and opportunities. The majority of those, who migrate from Georgia are men of 24-34 years old.

Poverty is still persistent. Georgia was classified by the World Bank as lower middle-income country with GNI per capita US$3,810 in 2017. Poverty reached its highest level in country's history of 46.7 percent in 2010 (using international poverty line of US$2.50/day, 2005 PPP), then decreased to 36.2 percent in 2013 and further to 32 percent in 2016 (2011 PPP). The Government of Georgia is assessing poverty level in country using two methods: i) Registered Poverty for assessing beneficiaries of social assistance programmes, ii) Relative Poverty based on median consumption. According to the GoG 20.6 percent of people lived below relative poverty line in Georgia in 2016. World Bank assessed that about 32 percent of people lived below poverty line in 2016 using international poverty line of US$2.50 a day (2011 PPP), and another 60 percent of people are still vulnerable to poverty (WB Poverty Assessment, 2017).

Poverty is more pronounced in rural areas. Two thirds of all poor households live in rural areas, where every second household can be considered poor along the US$2.50/day international poverty line (in urban areas poverty is considerably lower, affecting one out of every four households). The mean monthly income per household in rural areas was 92.2 GEL in 2015, making it 21 percent less compared to urban areas, where it was 1,142.3 GEL (Geostat data, 2015). The average income of

those self-employed in agriculture (including in-kind consumption) is only around 20 percent of that of urban salaried workers.

Poverty level has geographic characteristics in Georgia. Different regions develop unequally, with Tbilisi, the capital, accounting for half of the country's GDP. The city-region's per capita output levels are almost twice the national average and more than three times that of the most lagging regions. However, poverty is not fully defined by administrative boundaries in Georgia. It is evident that poverty in general is lower in industrial (Kvemo Kartli) and services oriented regions (Adjara), than in agrarian (Mtskheta-Mtianeti). Poverty level is the lowest in Tbilisi and is highest in Shida Kartli and Mtskheta Mtianeti region. The latest official data gives a picture of a poverty level by region by tracking those who applied and were registered to be recipients of the Targeted Social Assistance (TSA) and on the actual recipients of the TSA by region. The Social Services Agency's data for 2016 and 2017 is in line with the poverty data by regions assessed by the World Bank in 2015.

There is a large variation of poverty level within the regions. The large variation of the recipients of TSA by municipalities shows various level of poverty level within the regions. It can be seen, that the number of poor in one municipality can range from 5.3 percent to 32.6 percent in Imereti, from 5.5 percent to 46.8 percent in Samegrelo-Zemo Svaneti, and from 2.7 percent to 15 percent in Samtskhe-Javakheti.

The demographic and employment factors of the household can affect poverty level of community. The causes of poverty in rural areas include the level of education, labour market status and gender of the household head. According to the WB Poverty Assessment, the poor and bottom 40 are more likely: (i) to live in larger households with a greater number of dependents; (ii) to live in households headed by someone with less than secondary education; (iii) to be unemployed or economically inactive; (iv) to have household heads who are less likely to be in paid work and more likely to be self-employed (which is largely how subsistence farmers are classified); and (v) to live in households headed by women. Among those households where the head is unemployed, poverty rate is 24 percent as compared to 14 percent among households whose head is employed.

Poor and extremely poor households in Georgia own limited land and livestock. About 36 percent of poor households report no land ownership, and 50 percent of landless are extremely poor. Poor households in general do not hold cattle, and only 16,5 percent of those who live under poverty line have cattle, with no more than three heads.

According to the Economic and Social Vulnerability Assessment in Georgia conducted by the UNDP (2013), households living in mountainous areas are more prone to economic and environmental shocks. Of all households that took part in the assessment, and who have experienced at least one shock with a negative impact, 50 percent did not have the resources to resort to any mitigation strategy. This group of population, along with the IDPs, have also much lower access to education and health services, due to financial constraints. Moreover, lack of market opportunities is more pronounced among households living in mountainous areas. They are less likely to be able to raise cash and 55 per cent of the participant in the assessment claimed that it is very difficult to find a job and generate income in their area.

According to the Integrated Household Budget Survey only 16.5% of those who live under poverty line had cows, most of them 91.4% had no more than 3 cows in 2014. However, to be eligible for state social benefits, household should not possess any livestock and thus, poor households prefer not to have livestock.

Country has a high number of vulnerable groups, such as Internally Displaced Persons (IDP). These are people had escaped conflicts or had to leave their homes in two waves: first wave was in the early nineties from the Tskhinvali Region-South Ossetia and the Abkhazian Autonomous Republic, and second wave was again in August 2008. The IDP status in Georgia is granted to the children of IDPs as well. The number of IDPs in country reached 246,974 in 2014, making them 6 percent of total population. Families displaced from Abkhazia have mainly settled in the adjacent regions of Samegrelo and Imereti, and in major urban areas such as Tbilisi and Batumi. IDPs from the Tskhinvali Region - South Ossetia are largely located in the adjacent region of Shida Kartli. The GoG provides IDPs with the one-off cash assistance, universal status-based welfare assistance that includes, among other benefits, the provision of a monthly cash allowance to IDPs. The IDP families living in extreme poverty are also eligible for a one-time cash allowance and rental assistance. However, about 80 percent of the IDPs are unemployed and still face livelihood challenges.

Social transfers were major drivers of poverty reduction till 2013. Major drivers of poverty reduction before 2013 were development of services sector with higher level of employment, and Government's social spending and subsidies. Public spending reached almost 12 percent of GDP in 2013, with social spending making about 40 percent of the amount, half of which was in a form of direct cash transfers -

TSA. Coverage and benefits have been increased for the TSA almost two times in 2013. In addition, Government of Georgia introduced Universal Health Coverage (UHC) program, oriented to provide coverage for the large segment of the population without any health insurance. Together social transfers account for 50 percent of the decline in the income-based poverty observed between 2006 and 2012, and 80 percent of the decline observed between 2010 and 2012.

Agricultural products sale and labour wages are becoming key factors of poverty reduction in rural areas. The WB poverty assessment concluded that rural poverty reduction is only associated with the rural growth and growth in agricultural sector, and was not influenced by the urban growth, meaning that agricultural product sales have not increased or if they have, have not affected rural poverty levels. In addition to social benefits, the major drivers of poverty reduction have been wages, which have increased 1.8 times, sales of agricultural products, which increased 1.6 times, and income from self-employment, which increased 1.5 times during last five years.

B. Gender

Demographics and social characteristics. There are more women than men in Georgia: 52.1 percent of women and 47.9 percent of men in 2017 (Geostat, as of January 1, 2017). There almost twice as many women as men over the age of 65 (71 percent of all receiving retirement pensions are women)

There is a significant number of women headed households in Georgia. Nearly 31 percent of the family holdings were headed by women in 2014 (Agricultural Census, 2014). Women household heads are less likely than men heads of comparable households to be employed and 30 percent of such households fall under the 40 percentile of poor (WB< Poverty Assessment, 2016). Households headed by women are more likely to be poor than those headed by men (Geostat, 2013). Interestingly, however, having more women in the household is associated with a lower risk of poverty.

Challenges for women' economic participation. Women have little involvement in economic decision-making within the family and do not have the same rights and responsibilities as men do. The major challenges relate to high domestic workload, lack of childcare support services, especially in rural areas, unequal access to assets and resources, as well as traditional patriarchal and in some cases religious attitude to working women.

Women are concentrated in the informal sector and lower-paying part-time work (health care, education, and subsistence agriculture). Almost two-thirds of employed women are self-employed and about 50 percent of all employed women work in agriculture. On average, women engage in agricultural work 80 days more than men do, yet their involvement is mostly as unpaid labour. The 2010 USAID gender assessment reported that women and men had distinct and often unequal roles. The study revealed that farms were generally owned and managed by men, and that most female farm owners were over 60, suggesting that "women farmers are less likely to be running farms for commercial purposes."

Women in Georgia are actively engaged in the livestock sector. The mean annual number of days that women are engaged in the animal husbandry value chain is 260. For men, the number is significantly smaller: 166. Women are engaged in milking animals twice a day, processing and often marketing dairy products. Women who live near markets, are in charge of selling dairy products, while in remote villages, usually men take dairy products to the markets (if there are no middlemen collecting dairy products in remote villages). Also, when men are absent, women are also engaged in feeding animals and cleaning animals' sheds. Men are mostly engaged in livestock activities which require physical strength, such as cleaning sheds, ensuring insemination and animal health, grazing animals, slaughtering and marketing meat.

Women play an important role in livestock sub sector. Women in Georgia are engaged in livestock with milking, processing and sale of milk and dairy products. Small scale producers are increasingly interested to sell fresh raw milk rather than use it to produce and sell cheese because of the intensive labour required. Interviewed men and women stated that making cheese takes significant time (about 2-3 hours daily) and efforts. Analyzing the experience of women in the livestock sector experience has generated important lessons. Support to women engaged in livestock value chain in Georgia has been provided through different means. Thus, one of the important targeting of women has been through organizing training and awareness for them in relation to HACCP system. Since women play a key role in home based dairy production and processing, it is crucial for those women who would like to continue to be engaged in commercial dairy production to adopt HACCP principles to be able to market, although the investment required for compliance to the new food safety laws will be a significant barrier.

C. Youth

Youth makes about fifth of the population in Georgia. About 40 percent of population in Georgia are children and young people up to 29 years old, and every fifth Georgian is 15-29 years old (Population census, 2014). However, the share of young people has decreased by 4 percent during the last decade. More than 40 percent of young people of 15-29 year old live in rural areas.

Unemployment is an issue for youth. Young people, especially in rural areas experience many challenges, and especially lack of decent employment opportunities. At age 29, 81.3 percent of males are economically active, against 61.7 percent of females. At the same time, almost 30 percent of young people of 15-29 year old were unemployed in 2014, with significantly more women being out of labour market than men. Data suggests, that chances for poverty are higher in households with young people.

Due to lack of off farm employment, many in rural areas are engaged in agriculture, but with limited knowledge and skills they are mostly working as labour, or self-employed as subsistence or semi subsistence smallholders. A significant group of young people continues to work in agriculture: at age 25 – 29, 16.6 percent of males and 9.9 percent of females work as self-employed farmers. When they are motivated to increase their production, they face problems with access to finances mostly due to lack of credit history and collateral. Several state and donor funded programmes address issues of young people in rural areas through improvement of their skills to match current demands with reforming vocational professional training programmes, introducing work based learning in agricultural sector. Several NGOs work with young farmers empowering them through coaching and training programmes based on the Farmers Field School (FFS), providing matching grants while facilitating their access to loans.

D. Nutrition

The primary food security and nutrition issue is the affordability of food, with various data suggesting that an average household in Georgia spends more than half, and poor households more than 56 percent of the income on purchasing food. Hunger does not present significant problem in Georgia, with stunting prevalence in country 11.3 percent, wasting at 1.6 percent in 2015 (UNICEF, WHO and WB). Of children less than five years, underweight prevalence was 1.2 percent, wasting 1.6 percent, and stunting 11 percent. Overall, food consumption is generally sufficient in calories with average dietary supply adequacy at 116% (2014-2016), and an average protein intake of 75 g/day. However, food consumption is characterized by low to medium nutritional diversity leading to worrisome levels of the obesity among adult population and children, with adult and child obesity prevalence at 20 percent, and non-pregnant women at 42 percent (2015, UNICEF, WHO and WB).

E. Environmental assessment

Georgia is a mountainous country with rich biodiversity and varying climate and precipitation. Almost the entire infrastructure, industrial and agricultural lands are located in the lowlands. About half of the area is farmland, constituting mostly of hay land and pastures due to the mountainous structure. Arable land often requires land reclamation measures. The key environmental problems (not in order of priority and described further below) in Georgia include pollution to air and water, land degradation, forest degradation and loss of biodiversity, affecting the provision of ecosystem services negatively.

Pasture resources. “Part A” of the concept note provides an overview of the pasture resources and the main challenges with regards to their management.

Water resources. The country can be divided into two main river basin groups: The Black Sea Basin, in the west of the country. The internal renewable surface water resources (IRSWR) generated in this basin are estimated at 42.5 km3/year. Although water is abundant in Georgia, it is unevenly distributed geographically. Almost 80% of the fresh water is found in the western part of the country, while a majority of industrial facilities, irrigated land, and population is situated in the eastern part. This can cause diluting problems, which - in combination with failing infrastructure for water supply, sewage, and wastewater treatment – can pollute watercourses and affect human health. Many of the rivers, especially Mtkvari and Rioni, are heavily polluted, affecting water quality nationally as well as in downstream countries.

Soil and land degradation issues. Georgia is among the countries having very diverse soil types within a small area, stipulated by vertical zonality consisting from five climatic zones. Distribution of the major soil types are shown on the map.

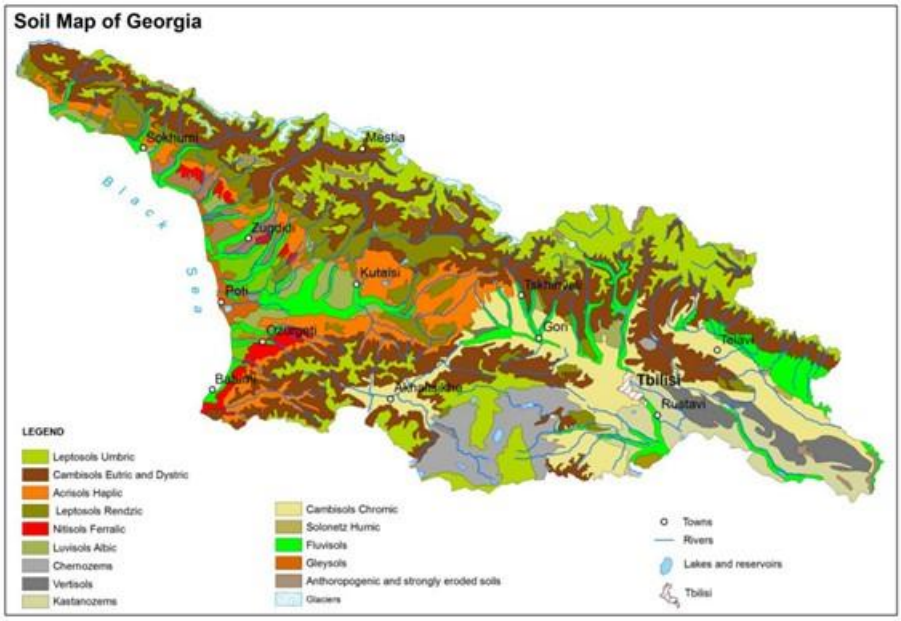

Figure 1: *Soil map of Georgia (Source: JRCEC, Soil Resources of Mediterranean and Caucasus Countries, 2013)*

Soil erosion, desertification (mainly in east Georgia) and salinization (most common in east Georgia) are growing problems. Water and wind erosion, environmentally degrading agricultural practices and other anthropogenic (e.g. uncontrolled logging growing lately following Geostat, 2016) and natural processes has led to an almost 35% degradation of farmland. Given the scarcity of arable land, soil erosion remains one of the greatest problems, unfortunately no study has been led on the subject yet. There is no systematic monitoring of industrial pollution of soils. There is however, an increase in the use of chemical substances (fertilizers, pesticides, herbicides, etc.) which may affect the soil quality. Bad waste management practices, including insanitary landfills (official and illegal dumping sites) cause constant pollution of soil, water and air.

Vegetation cover. Forests, which cover almost 40% of the land area, are mainly located in mountainous areas and large parts are severely degraded, currently the average density of the forest has reached a critical threshold in 52% of the land area. The intensive deforestation since the late 1990s is unprecedented in the history of Georgia. Unsustainable forestry practices are affecting the diversity, quality and productivity of the forests. Deforestation is mainly due to an almost complete reduction of timber import from Russia. Besides, a sharp reduction of fuel import has been compensated by illegal logging by the population. Degraded forests have drastically decreased protective functions (protection of soils, storage of waters, regulation of waters, sanitary-hygienic functions, etc.) and self-recovery ability. Landslides and avalanches are becoming more frequent. Deforestation exerts a negative influence on the entire ecological state in Georgia.

The mountain ranges with the predominant grasslands are very rich in species with many endemic to the region. Overgrazing is the primary cause of degradation followed by Climate Change, unfortunately legal and institutional framework on pasture management is inexistent in the country. The pastoral lands are regulated informally by groups of farmers with an implicit and cultural understanding of the resources. Projects already worked on pasture management in Georgia but were only limited to protected areas (e.g. UNDP in cooperation with the Ministry of Environment and Natural Resources Protection[1]). Examples in the region can be found in Kyrgyzstan and Tajikistan were IFAD is leading projects on pastoral lands[2].

Biodiversity. Because of its high landscape diversity and low latitude, Georgia is home to about 5,601 species of animals, including 648 species of vertebrates (more than 1% of the species found worldwide) and many of these species are endemics. The Caucasus is one of the most biologically rich areas on earth and is ranked among the planet's 25 most diverse and endangered hotspots by Conservation

1.

[1] Sustainable management of pastures in Georgia to demonstrate climate change mitigation and adaptation benefits and dividends for local communities, EU-UNDP, 2013-2016

[2] LMDP-II and LPDP IFAD projects

International. The bulk of biodiversity is found in the forests, freshwater habitats, marine and coastal ecosystems and high mountain habitats; these are also where the threats are the greatest.

F. Climate trends and impacts

Following the IPCC, at regional level in West Asia, upward temperature trends are notable and robust in recent decades. Also, a weak but non-significant downward trend in mean precipitation was observed in recent decades, although with an increase in intense weather events. Recent study from the National Adaptation Plan for Agriculture (NAPA) in Georgia observed changes in climate and therefore in agro-climatic zones in Georgia[3]. Change of agro-climatic zones against the background of the temperature increase and change of precipitation is one of the highest risks caused by climate change for the agriculture sector. Following the report, the total active temperature has increased in most part of the country. According to the data of 1991-2015, precipitation in the vegetation period decreased only slightly.

The analysis of the last decades climatic patterns (1960-2016) done by IFAD in 2017[4], in support of the DIMMdesign missions, confirms that the climate in Georgia has already changed and that the main trends foreseen by the IPCC and the NAP are becoming evident. Extremes in maximum and minimum temperatures have an increasing trend since 1960, meaning warmer maximum temperature in summer and colder minimum temperature in winter, significantly for most of the Regions in the country.

Significant decrease in annual rainfall since 1981 is observed for several of the municipalities in Georgia but not at regional level except for Shida Kartli region. Georgia has several microclimates and the trends for annual precipitation can vary from one municipality to another within the same region (i.e. significant increase in Martvili and significant decrease in Tskhakaia within the Samagrelo and Zemo Svaneti region). Significant decrease of annual rainfall is noted at local level in most of the municipalities in Imereti particularly during summer and in the North of Kakheti Region throughout the whole year. Those municipalities have experienced smallest amount of annual rainfall since 1981 three years in a row (2014-2015-2016). The study shows a significant increase in heavy rainfall events (>50mm/day) during summer season for the period 1981-2016 in the 4 regions of the programme (see Annex 1).

Study of trends in snow cover for the period 2000-2016 was also conducted by IFAD[5] based on satellite imagery from Landsat, NASA (see Annex 2) Results show as expected that the percentage of the territory covered by snow is higher during December-January-February-March. In the two regions situated in the north of the country (Racha-Lechkhumi and Kvemo (lower) Svaneti, Samergelo and Zemo (upper) Svaneti) the study shows a negative trend for January to March since 1981 meaning a decrease in snow cover over time during the snowy months of the year.

Also, the significant variability in total annual rainfall since 1981 has been coupled with pasture areas to identify the most vulnerable pastoral lands in Georgia.

From the above data we can conclude the following: (i) although there is uncertainty of increase or decrease in annual rainfall in certain areas of the country at regional level, significant trends can be observed at lower level. Rains are more concentrated and heavier in summer, increasing the torrential regime and thus the risk of flooding, soil erosion, and reduced infiltration of water in the soils (lower availability of water in during the warm season); (ii) the precipitation decrease in summer months and increased evaporation caused by higher temperatures could have negative impact on water availability leading to longer drought events in the future.

Climate change forecasts for Georgia is derived from 35 available global circulation models (GCMs) used by the Intergovernmental Panel on Climate Change (IPCC) 5th Assessment Report[6]. The Climate Change Knowledge Portal (CCKP)[7] of the World Bank presents the IPCC data CMIP5 multi-model in the figure x.

1.

[3] Climate Change National Adaptation Plan for Georgia's Agriculture Sector, Ministry of Environment and Natural Resources Protection of Georgia, 2017

[4] Georgia Georeferenced Climate Trends Assessment 1981-2016. IFAD 2017.

[5] Georgia Georeferenced Climate Trends Assessment 1981-2016. IFAD 2017.

[6] https://www.ipcc.ch/report/ar5/

[7] http://sdwebx.worldbank.org/climateportal/

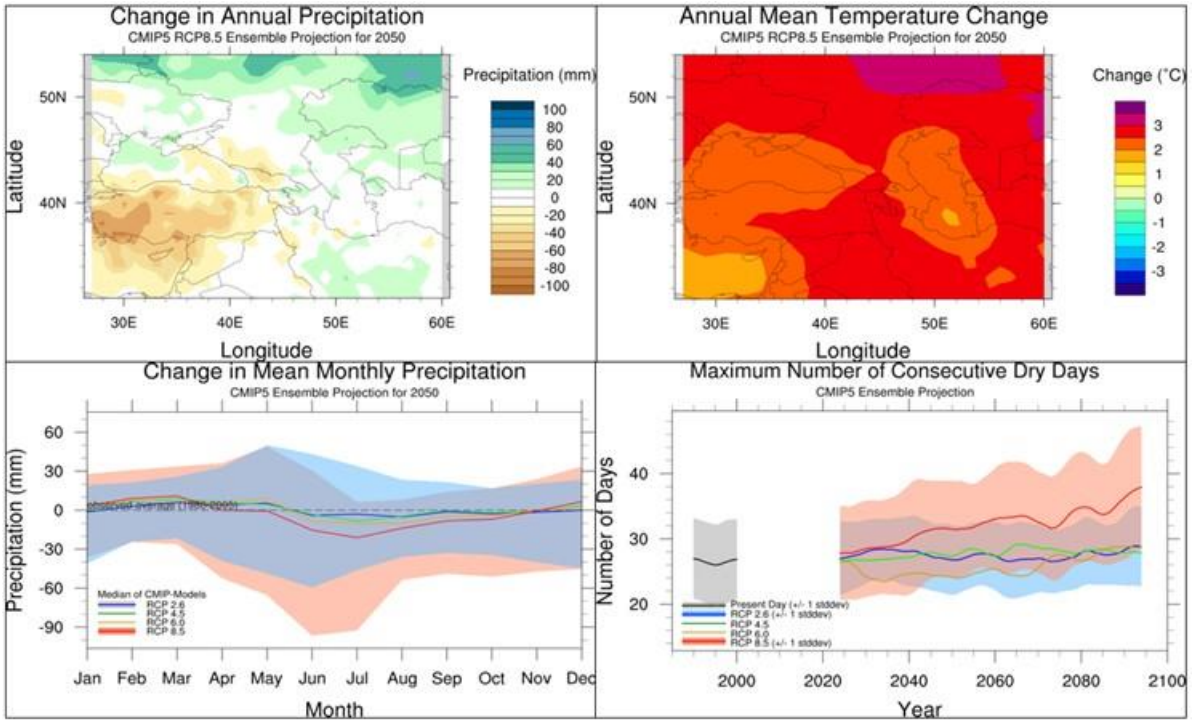

***Figure x**: Change in annual precipitation (upper left), annual mean Temperature (upper right) and in Mean Monthly Precipitation (lower left) for 2050 compared to 1996-2005 baseline; Maximum Number of Consecutive Dry days (lower right) in Georgia (IPCC-CCKP).*[8]

Future climatic ENSEMBLE models under the scenario RCP8.5 predict higher temperatures in the whole country and less rainfall especially during summer months, with higher probability of drought in those areas with higher maximum number of consecutive dry days. The third communication to the UNFCCC (2014) similarly predicts higher temperature by 2070-2100 for the whole territory. The study also predicts an increasing trend for annual rainfall in the mountainous area until 2050, followed by a decrease except for some areas (Batumi, Pskhu and Mta – Sabueti). Significant decrease of precipitation is expected by 2100 on whole territory of Georgia, mostly in Samegrelo, Kvemo Kartli and Kakheti (22%).

According to the Initial National Communication Report to the United Nations Framework Convention on Climate Change (UNFCCC) published in 2014 and the National Adaptation Plan for Agriculture (NAPA) published in 2017, the climate of Georgia is affected by global climate changes and variability. The clearest indicators include:

***Table 1**: Climate change impacts in Georgia*

Resource	Impact
Water resources	As a result of observations on cattle watering in hot days of summer in Kakheti and Kvemo Kartli it was found that with the growth of temperature (30–38C) a supply of animals with water in June-September decreases every day. In ponds originated from rainwater (which is often a single source of watering) water is gradually decreasing or is generally dried out. The remaining pounds are often subject to pollution due to animal high pressure. The impact of climatic factors on a high-water level of rivers should also be taken into consideration, when rivers often change riverbeds grasping thousand hectares of soil every year, including even territories of populated areas. In such a case old burial grounds of anthrax might be washed off and stripped off, several cases of anthrax in animals were recorded in the south of Georgia in 2013. It was stated that the focus of infection was the soil washed off by the heavy rains in that year.
Agriculture and Livestock	Current climate change has already influenced cattle breeding. Frequent precipitation, strengthened as a result of warming, causes washing-off of the soil from the slopes, which, against the background of intense utilization of the grass cover, is accompanied by harsh reduction of productivity of mowing and grazing lands.

1.

[8] World Bank Climate Portal: http://sdwebx.worldbank.org/climateportal/

	Heat waves, which are projected to increase under climate change, could directly threaten livestock, reducing weight gain and sometimes causing fatal stress. Heat stress affects animals both directly and indirectly; it can increase an animal's vulnerability to disease, reduce fertility, and reduce milk production in dairy animals. Year 2000 was one of the worst harvest years for wheat due to "great" drought. According to the data of Dedoplistskaro meteorological station, aggregate precipitation in the wheat vegetation period was the lowest value in 1961-2015 period. The drought was further aggravated by increased temperatures. Average temperature for June in 2000 was the highest temperature in 1961-2015 period. Drought in 2014 has significantly damaged grain crops in some municipalities of Kakheti (East Georgia) and has serious negative impact on agricultural production in general.
Vegetation and Biodiversity	Displacement of natural boundaries at sensitive areas of eastern Georgia (temperature forest ecosystems), loss of resilience of flora and fauna to invasive species, loss of natural ecosystems "corridors" for migration of rare and endemic species, increased cases of forest fires (Summer 2017) degradation of landscape diversity, loss of biodiversity impact on livelihood.

3. Institutional analysis

The following institutions play an important role in the pasture sector in Georgia.

The **Ministry of Environmental Protection and Agriculture (MEPA)** is the leading government body of environmental protection, agriculture and rural development. It hosts departments that are relevant to the pasture sector such as on land use, climate change mitigation and adaptation, and land degradation. The Ministry facilitates the implementation of pasture projects and directs the formulation of the law on pastures.

The **National Agency for State Property (NASP)** under the Ministry of Economy and Sustainable Development (MoESD) is currently responsible for the disposal of state-owned lands – which include 70-80% of pastures. Currently pastures are leased out by the NASP for a maximum of 49 years through an electronic auction in which the bid starts with a set annual floor price per hectare. There was an oral moratorium on pasture leasing since 2015 but in 2021 the State Program for Access to State-Owned Pastures re-opened the possibility of leasing state pastures, this time for three years. Under this program, the **National Agency for Sustainable Land Management and Land Use Monitoring** (NASLM) has been delegated responsibility for pasture disposal by the NASP.

Municipalities provide extension services to pasture users. They hold around 6.9% of pastures in their own right and can allocate them to users by auction and by direct disbursement. Many municipality staff are livestock keepers themselves.

The **National Agency of Public Registry (NAPR)** holds cadastral information on pastures.

The **National Food Agency** is the main agency responsible for stock tracks. They determine the timing of movements to seasonal pastures. The agency is also responsible for veterinary control points on herding routes, governed by veterinary rules.

The **Agency for Protected Areas** is responsible for pastures in national parks. A small percentage of pastures are under responsibility of the **Forest Fund**. The proposed project will not target these pastures, because the management approaches, land use objectives and legal situation is different.

FAO, IFAD and United Nations Environmental Programme (UNEP) are currently the main **United Nation agencies** with projects specifically dedicated to pasturelands.

The several **civil society organizations** in Georgia active in the pasture section. The Regional Environmental Centre for the Caucasus (RECC) is a main implementer of pasture related projects. The Centre for Biodiversity Research & Conservation (NACRES) has extensive experience with pastures in national parks. Georgia's Shepherds Association represents the interests of livestock owners.

The Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) has piloted a number of pasture-related activities, including assessment methodologies, a pasture ticket system and pasture management plans for national parks.

Section "E. Standards" of the concept note lists important regulations for the pasture sector. In additional the project will comply with the following overarching laws and codes:

Law on Food Safety, Veterinary and Plant Protection (No. 2285 of 17 April 2014). The purpose of this law is to protect human life and health, consumer interests, animal health and welfare, and plant health as well as to define the unified principles of state regulation and to form an effective system of state control in the fields of food/feed safety, veterinary and plant protection. The project will ensure alignment with this law in component one through the promotion of fodder diversification and improved

conservation methods that will ensure better livestock health through improved animal nutrition and general animal health with improved shade and watering points.

Law on Water (No. 494 25 March 2013). The legislation intends to protect water bodies and ensure the rational use of water resources considering the interests of present and future generations and the principles of sustainable development. Through the promotion of nature conservation as forms of DRR component one aims to retain water in soil; improve drainage; promote water spring restoration; and shade through reforestation in water points.

Law on Environmental Impact Permits (No. 5602 01 January 2008). This law regulates any organised activity or action which poses a threat to human health or life.

Code of Good Agricultural Practices (CGAP) (GoG 2007). The code contains legal obligations, recommendations and practical advice envisaged for individual growers and farmers, large agricultural companies, agriculture service and extension employees and for everyone who is involved in agricultural production and preservation of the rural environment. Through partnership with IFAD and its experience of successful project implementation in Georgia, the proposed project will ensure adherence to the CGAP.

Law on Agricultural Land Ownership (No. 389 14 June 2000). The law provides a legal framework for farming organised on rational land use, and improve agrarian structures, to avoid the fragmentation and inappropriate use of land.

Forest Code (22 June 1999). The Forest Code of Georgia establishes legal grounds for conducting tending, protection, restoration, and use of the Georgian Forest Fund and its resources. It conserves and protects unique natural and cultural environment and its specific components - flora and fauna inclusive, biodiversity, landscape, cultural and natural monuments located in forests, and endangered plant species; regulating harmonized interrelations between these components. The project will ensure adherence to the forest code through developing pasture management plans that will promote the conservation and regeneration of natural landscapes used as pastures.

Law on Environmental Protection (10 December 1996). The law ensures the protection of the environment and rational use of nature by the state, as well as to provide an environment harmless for human health, in accordance with ecological and economic interests of society, taking into consideration the interests of current and succeeding generations. Environmental protection is the main objective of the proposed project. This will be achieved through multiple avenues such as training of pasture users and the development of pasture management plans to ensure pasture conservation and increased productivity.

4. Environmental and social category

According to IFAD's Environmental and Social Safeguards Screening Checklist (see Annex 3), the proposed project has a "Moderate Environmental and Social Risk" at concept note stage. Section K "Environmental and Social impacts" presents identified risks and mitigation measures.

5. Climate risk category

According to IFAD's Environmental and Social Safeguards Screening Checklist (see Annex 3), the proposed project has a "Moderate Climate Risk" at concept note stage.

6. Social and environmental impacts of the project

Social impacts. The project will like to have a number of social benefits, including the following:

- **Increased access to natural resources**. Through increased tenure security and the rehabilitation of stock routes, pasture users and their communities will have better access to pastures and water sources. Secure access to pastures is of great importance for vulnerable households and individuals such as women and youth, because many do not own land and rely on the commons to feed their animals. The demarcation of state-owned pastures and documentation of current users of these pastures will inform the pasture allocation procedure. Greater tenure security is achieved through the participation of vulnerable users in the pasture-use planning procedure and assigning usage rights to groups of users with whom the project will develop management plans.

- **Strengthened social cohesion**. Because of the project, pasture users will be better coordinated and in a better position to sustainably manage pastures, as well as respond to climate extremes. Group cohesion will be strengthened through the participatory establishment of management plans and agreeing on broad rules and conditions for pasture use. Youth and women will be fully engaged in the process. The better pasture users are organized, the less likely a “tragedy of commons” scenario will occur where individual users act independently according to their own self-interest causing the degradation of pasture resources.
- **Increased awareness and knowledge**. Training and demonstration sites will increase pasture users knowledge on pasture management in the context of climate change. Users will be more aware of the impacts of grazing activities on pastures and be in a better position to respond to climate change.

Environmental impacts. Healthy pastures ecosystems have a greater capacity to adapt to a drier, hotter and more variable climate. The project is likely to have a number of environmental benefits, including the following:

- **Improved pasture health**. Better grazing management, effective pasture recovery periods, reseeding, control of invasive species and other pasture improvement measures will lead to pastures that are more productive and in a better condition.
- **Reduced soil erosion**. Improved grazing management, soil conservation measures such as gully rehabilitation, as well as planting of trees will reduce soil loss on sites that are prone to soil erosion.
- **Improved ecosystem services**. A successful project will improve ecosystem services associated with grazing. Roaming livestock distribute nutrients contained in dung and urine across landscapes. By carrying seeds in their guts and coats, livestock distribute seeds and support habitat connectivity.
- **Protection of riverine vegetation and other sensitive habitats**. Management plans will lay out areas with measusres (e.g. grazing restrictions or fencing) to protect for habitats of high ecological value such as wetlands and riverine vegetation. There areas are important as emergency feed reserves, water quality, and biodiversity as habitats for plants and animals.

7. Recommendations and further studies needed

The proposad project should be aware of the following during implementation.

Land tenure. Strengthening the usage rights over pastures enables a group of users to effectively manage the resource. It also means they have the right to exclude other groups. The allocation of pastures (via the current regulation or the future law on pastures) bears the risk of exclusion from pastures and conflict between individual pasture users and user groups. The project needs measures to manage this risk such as:

- Establishing pasture zones/units that recognise and are based on historic and current users of pastures.
- Mapping stock routes and integrating them into management plans to ensure that migration is supported and not obstructed e.g. by fencing.
- Ensuring participatory and consultative processes of pastures users (including vulnerable groups such as landless households, small livestock keepers, women, youth).
- Using the grievance redress mechanism to actively capture complaints and resolve them.

Protected areas. The project will not intervene in national parks because of different land use objectives, management approaches, legislation and responsible agencies. The project will intervene on sites of the Emerald Network that covers nearly 15% of the country. Pastures also host many different types of plants and animals and are bordering other land use of high-ecological value such as riverine vegetation. The project should take the following measures into account:

- Pasture management plans will adhere to protection guidelines of the Emerald Network programme.
- Plans will also identify areas of high value for biodiversity and will flag these as such to identify appropriate measures (e.g. grazing restrictions, fencing off woodlands at frequently visited water points).
- Reseeding and afforestation will occur with adaptive and native species.

- Compliance will be monitored through progress reports; supervision missions; the mid-term review; impact assessment; and terminal evaluation.

During the development of the full proposal, the project design team will develop the following plans and carry out the assessments listed here:

- **Environmental, climate and social management plan** that lays out monitoring and mitigation measures of environmental, climate and social risks.
- **Initial assessment of pasture conditions** at national scape through the Global Development Assistance programme of the European Space Agency to help identify vulnerable pasture areas to guide the project in its targeting.
- **Ex-Act carbon** analysis to estimate the amount of carbon sequestration that could occur through pasture improvements.