AFB/PPRC.24/15
24 September, 2018

Adaptation Fund Board
Project and Programme Review Committee
Twenty-Third Meeting
Bonn, Germany, 9-10 October, 2018

Agenda Item 9 h)

# PROPOSAL FOR GEORGIA

**Background**

1. The Operational Policies and Guidelines (OPG) for Parties to Access Resources from the Adaptation Fund (the Fund), adopted by the Adaptation Fund Board (the Board), state in paragraph 45 that regular adaptation project and programme proposals, i.e. those that request funding exceeding US$ 1 million, would undergo either a one-step, or a two-step approval process. In case of the one-step process, the proponent would directly submit a fully-developed project proposal. In the two-step process, the proponent would first submit a brief project concept, which would be reviewed by the Project and Programme Review Committee (PPRC) and would have to receive the endorsement of the Board. In the second step, the fully-developed project/programme document would be reviewed by the PPRC, and would ultimately require the Board's approval.

2. The Templates approved by the Board (Annex 5 of the OPG, as amended in March 2016) do not include a separate template for project and programme concepts but provide that these are to be submitted using the project and programme proposal template. The section on Adaptation Fund Project Review Criteria states:

> *For regular projects using the two-step approval process, only the first four criteria will be applied when reviewing the 1st step for regular project concept. In addition, the information provided in the 1st step approval process with respect to the review criteria for the regular project concept could be less detailed than the information in the request for approval template submitted at the 2nd step approval process. Furthermore, a final project document is required for regular projects for the 2nd step approval, in addition to the approval template.*

3. The first four criteria mentioned above are:
   (i) Country Eligibility,
   (ii) Project Eligibility,
   (iii) Resource Availability, and
   (iv) Eligibility of NIE/MIE.

4. The fifth criterion, applied when reviewing a fully-developed project document, is:
   (v) Implementation Arrangements.

5. It is worth noting that at the twenty-second Board meeting, the Environmental and Social Policy (ESP) of the Fund was approved and at the twenty-seventh Board meeting, the Gender Policy (GP) of the Fund was also approved. Consequently, compliance with both the ESP and the GP has been included in the review criteria both for concept documents and fully-developed project documents. The proposal template was revised as well, to include sections requesting demonstration of compliance of the project/programme with the ESP and the GP.

6. At its seventeenth meeting, the Board decided (Decision B.17/7) to approve "Instructions for preparing a request for project or programme funding from the Adaptation Fund", contained in the Annex to document AFB/PPRC.8/4, which further outlines applicable review criteria for

both concepts and fully-developed proposals. The latest version of this document was launched in conjunction with the revision of the Operational Policies and Guidelines in November 2013.

7. Based on the Board Decision B.9/2, the first call for project and programme proposals was issued and an invitation letter to eligible Parties to submit project and programme proposals to the Fund was sent out on April 8, 2010.

8. According to the Board Decision B.12/10, a project or programme proposal needs to be received by the secretariat no less than nine weeks before a Board meeting, in order to be considered by the Board in that meeting.

9. The following fully-developed project/programme document titled “Dairy Modernization and Market Access: Adaptation Component (DiMMAdapt)” was submitted for Georgia by the International Fund for Agricultural Development (IFAD) which is a Multilateral Implementing Entity of the Adaptation Fund.

10. This is the first submission of the proposal using the one-step submission process.

11. The current submission was received by the secretariat in time to be considered in the thirty-third Board meeting. The secretariat carried out a technical review of the project proposal, assigned it the diary number GEO/MIE/Agric/2019/1, and completed a review sheet.

12. In accordance with a request to the secretariat made by the Board in its 10th meeting, the secretariat shared this review sheet with IFAD, and offered it the opportunity of providing responses before the review sheet was sent to the PPRC.

13. The secretariat is submitting to the PPRC the summary and, pursuant to decision B.17/15, the final technical review of the project, both prepared by the secretariat, along with the final submission of the proposal in the following section. In accordance with decision B.25.15, the proposal is submitted with changes between the initial submission and the revised version highlighted.

**Project Summary**

Georgia – Dairy Modernization and Market Access: Adaptation Component (DiMMAdapt)

Implementing Entity: International Fund for Agricultural Development (IFAD)
Project/Programme Execution Cost: 358,727USD
Total Project/Programme Cost: **4,280,918**USD
Implementing Fee: 363,876USD
Financing Requested: **4,644,794**USD

Project Background and Context

Georgia's historical climate trend has been one of longer dry periods and more intense rainfall leading to increased pasture vulnerability through increased flooding, soil erosion, mudlisdes and landslides that have adversely impacted the pastoral ecosystem services which the rural poor, including women, youth and the landless poor depend on for their livelihoods. The 3 regions targeted by the project are already subject to change risks in the form of frequent seasonal and yearly droughts, heat waves, rainfall storms and associated land degradation.

The objective of the project is to enhance the resilience to climate change of vulnerable dairy producers through the creation of an enabling environment developed through training and capacity building, implementation of a pasture management plan and introduction of climate-smart technology demonstrations and alternative livelihood diversification.

Component 1: Climate-proofing pastoral ecosystem services (water management, pasture regeneration, and disaster risk reduction) (USD 2,794,111)

This component aims to support the design and development of climate resilient pastoral ecosystem services to reduce the negative impacts from climate change and climate variability on agricultural and rural livelihood development achieved through the development of an enabling environment developed through training and capacity building and through the implementation of pasture management plans.

Component 2: Supporting the climate resilience of market vulnerable smallholders (USD 1,128,080)

This component aims to build the capacity of households to face climate related shocks and stressors as well as promote technology transfers for climate change adaptation achieved through climate-smart technology demonstrations and livelihood diversification as well as through the creation of alternative, complementary, non-competitive and non-extractive livelihood jobs.

# ADAPTATION FUND BOARD SECRETARIAT TECHNICAL REVIEW OF PROJECT/PROGRAMME PROPOSAL

PROJECT/PROGRAMME CATEGORY: Full Proposal

Country/Region: **Georgia**
Project Title: **Dairy Modernization and Market Access: Adaptation Component (DiMMAdapt**)
Thematic Focal Area: **Agriculture**
Implementing Entity: **International Fund for Agricultural Development (IFAD)**
AF Project ID: **GEO/MIE/Agric/2019/1**
IE Project ID: Requested Financing from Adaptation Fund (US Dollars): **4,644,794**
Reviewer and contact person: **Cristina Dengel (AFSEC)** Co-reviewer(s): **John D. Sottong (GEF), Dirk Lamberts**
IE Contact Person:

| Review Criteria | Questions | Comments | IFAD responses 5 February 2019 |
|---|---|---|---|
| Country Eligibility | 1. Is the country party to the Kyoto Protocol? | Yes | |

| Review Criteria | Questions | Comments | IFAD responses 5 February 2019 |
|---|---|---|---|
| | 2. Is the country a developing country particularly vulnerable to the adverse effects of climate change? | Yes.<br>Georgia's historical climate trend has been one of longer dry periods and more intense rainfall leading to increased pasture vulnerability through increased flooding, soil erosion, mudslides and landslides that have adversely impacted the pastoral ecosystem services which the rural poor, including women, youth and the landless poor depend on for their livelihoods. The 3 regions targeted by the project are already subject to change risks in the form of frequent seasonal and yearly droughts, heat waves, rainfall storms and associated land degradation. | |
| Project Eligibility | 1. Has the designated government authority for the Adaptation Fund endorsed the project/programme? | Yes. Endorsement letter from Designated Authority dated Sep 7, 2018 attached on pg. 49 | |

| Review Criteria | Questions | Comments | IFAD responses 5 February 2019 |
|---|---|---|---|
| | 2. Does the length of the proposal amount to no more than Fifty pages for the project/programme concept, including its annexes; or One hundred pages for the fully-developed project document, and one hundred pages for its annexes? | Yes. | |

| Review Criteria | Questions | Comments | IFAD responses 5 February 2019 |
|---|---|---|---|
| | 3. Does the project / programme support concrete adaptation actions to assist the country in addressing adaptive capacity to the adverse effects of climate change and build in climate resilience? | Yes.<br>. The project will enhance the resilience to climate change of vulnerable dairy producers via two primary components: Component 1: Climate-proofing pastoral ecosystem services (water management, regeneration, and disaster risk reduction) and Component 2: Supporting the climate resilience of market vulnerable smallholders.<br>A few examples of concrete adaptation actions include:<br>• Climate resilient and DRR technologies and knowledge dissemination through exchange visits and demonstrations in 16 sites with over 1,200 field days for 6,000 farmers.<br>• Introduction of new climate-smart infrastructure will promote adoption of new energy and money saving technologies that will contribute to building climate adaptation into the dairy value chain. The project will target 3,900 vulnerable market dairy producers with on farm demonstrations.<br>Demand driven, complementary, noncompetitive and non-extractive forms of income | **CR1: Sufficiently addressed**<br>The revised proposal provides more details on the sustainability aspect in para 96 (page 38 of the revised full proposal document) which is built on the premise that the stakeholders themselves will have been drivers of change; they will be the owners of the results and will have learned, designed, implemented and benefitted financially from their own solutions to climate change adaptation and environmental natural resource management through their own Pasture management Plans. The revised proposal also addresses the issue of replicability through the capacity building it provides for the beneficiaries to organize, design and manage pastures sustainably themselves, through awareness raising and education about the environment, climate change and gender mainstreaming, which is designed to encourage organic replication. |

| Review Criteria | Questions | Comments | IFAD responses 5 February 2019 |
|---|---|---|---|
| | | strategy to reduce stressors on pasture eco-services, they also provide safety net diversification in case of a climate event.<br><br>The project would be improved by taking into consideration the points below:<br>- Expanding the positive impacts and results of this project to other areas of the country with potential upscaling of successful interventions to other areas;<br>- Consider the sustainability of outcomes as well as scalability and replicability aspects.<br>**CR1**: Please clarify how these points are being taken into consideration in the project proposal. | |

| Review Criteria | Questions | Comments | IFAD responses 5 February 2019 |
|---|---|---|---|
| | 4. Does the project / programme provide economic, social and environmental benefits, particularly to vulnerable communities, including gender considerations, while avoiding or mitigating negative impacts, in compliance with the Environmental and Social Policy and Gender Policy of the Fund? | Yes.<br>Households from the economically underdeveloped and more vulnerable populations (i.e., youth, women, landless poor) located especially in the mountainous and foothill areas are to be targeted.<br>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, and by creating new economic opportunities through resilient eco-businesses.<br>In doing so the project will target 3,900 market vulnerable dairy producers, support the creation of over 4,000 jobs (30 percent of jobs for youth and 30 percent for women) and 1,900 will benefit from the improved pasture productivity.<br><br>Environmental benefits will be achieved by the construction of watering points for summer droughts; the restoration of 9,500ha of degraded pastures through fencing, improved vegetative cover, improved fodder management and introduction of drought-resilient plant species. Climate-smart and energy efficient mechanisation of | **CR2: Insufficiently addressed**<br><br>The revised proposal provides some additional clarification (para 32-34 on pg. 68 and 69) on avoiding additional emissions related to the program of gradual replacement of dairy cows with better breeds through artificial insemination. Furthermore, it mentions that through the project's ESMP, the response is that all the cows under this project will be tracked under the new Livestock Identification and Traceability System (LITS) which will be monitored through the ESMP and integrated into the combined M&E framework and measures have been added to the Mid-Term Review (MTR) and the completion survey in paragraphs 118 and 120 to include monitoring of cattle numbers through the LITS programme.<br>In addition to the retirement of old non-commercial farms, the increased productivity of better breeds, the reduction of her sizes, improved milk processing technology, the tracking of the cows through the LITS on GHG reduction is impact of quality feed. To this end the proposal has presented research in para 34 page 69 showing that the provision of year-round quality pastoral land as fodder is a recognized climate-smart means of dairy production.<br><br>However, the monitoring of heads of cattle through the LITS, seems to be rather inconsequential since no management response is available. Additional information need to be included on the measures to be put in place put by the IE should the number of cattle rise?<br><br>**CR1**: Please elaborate more on a management response should the heads of cattle rise? |

| Review Criteria | Questions | Comments | IFAD responses 5 February 2019 |
|---|---|---|---|
| | | According to Georgia's Third National Communication, approximately 40% of Agricultural emissions comes from dairy cattle. While the project document does address the potential of GHG emissions increasing (due to introduction of new cattle breeds), it remains unclear how the justification for avoiding these emissions was determined, the scope of the increase, and what credible measures are in place to avoid such an increase in GHG emissions.<br><br>**CR2**: Please elaborate more on the justification for avoiding these emissions and the credible measures in place to avoid such emissions. | |

| Review Criteria | Questions | Comments | IFAD responses 5 February 2019 |
|---|---|---|---|
| | 5. Is the project / programme cost effective? | The project will cover 36 percent of all rural settlements and more than half of Georgia's total rural population. The Adaptation Fund project will be a blended project and will benefit from sharing resources and structures by being fully integrated into the IFAD supported "Dairy Modernisation and Market Access Programme (DiMMA)." However, the demonstration of the cost-effectiveness is too general.<br><br>**CR3**: Please use quantitative or qualitative indicators to measure cost-effectiveness and put the two scenarios (business as usual versus if the project activities are implemented) including their quantitative results in a table for comparison. | **CR3: Sufficiently addressed**<br><br>The revised proposal provides sufficient details on the cost-effectiveness of the project by presenting the business-as-usual versus the AF additionality scenarios, including quantitative indicators (para 77, tables 5 and 6 on pgs. 28-30). Additionally, a table showing the management costs covered by the IFAD loan but serving both DIMMA and the current project is also presented, bringing additional cost-effectiveness to the Adaptation Fund (table 5 on pg. 28-30). |

| Review Criteria | Questions | Comments | IFAD responses 5 February 2019 |
|---|---|---|---|
| | 6. Is the project / programme consistent with national or sub-national sustainable development strategies, national or sub-national development plans, poverty reduction strategies, national communications and adaptation programs of action and other relevant instruments? | Yes. The project is a result of a thorough national assessment of the climate change adaptation needs and recommended course of action, presented in Georgia's 2017 Climate Change National Adaptation Plan (CCNAP). Georgia has also ratified several conventions into national policies and action plans to which the project is aligned in order to build climate change adaptation and resilience into the dairy value chain (e.g. UNFCCC, National Biodiversity Strategy and Action Plan II (NBSAP II) 2014-2020, Agricultural Development Strategy (ADS) 2017-2020).<br>In addition, the project will respect and adhere to the following national laws and codes of the GoG: Law on Food Safety, Veterinary and Plant Protection (No. 2285 of 17 April 2014), Law on Water (No. 494 25 March 2013), Law on Environmental Impact Permits (No. 5602 01 January 2008), Code of Good Agricultural Practices CGAP (GoG 2007), Law on Agricultural Land Ownership (No. 389 14 June 2000), Forest Code (22 June 1999), and the Law on Environmental Protection (10 December 1996). | |

| Review Criteria | Questions | Comments | IFAD responses 5 February 2019 |
|---|---|---|---|
| | 7. Does the project / programme meet the relevant national technical standards, where applicable, in compliance with the Environmental and Social Policy of the Fund?? | Yes | |
| | 8. Is there duplication of project / programme with other funding sources? | No | |

| Review Criteria | Questions | Comments | IFAD responses 5 February 2019 |
|---|---|---|---|
| | 9. Does the project / programme have a learning and knowledge management component to capture and feedback lessons? | Page 31 includes some details on learning and knowledge management, but it is insufficiently developed.<br><br>**CR4**: Please include more details on how these lessons will be captured and disseminated | **CR4: Sufficiently addressed**<br><br>The revised proposal provides details on the knowledge management component through the inclusion of awareness raising leaflets and visual learning materials for pasture management demonstrations, silage production demonstrations and manure composting demonstrations as part of component 1 (table 14, pg. 51).<br><br>As the implementing modality is through the PMU which in turn is part of MEPA, it helps facilitate transfer of CCA, and Gender knowledge that is generated and disseminated by the project DIMMAdapt to the national implementing entities. Additionally, the M&E officer will also oversee the completion of the impact assessment of DiMMAdapt at the end of the project cycle that inter alia will also collect stories, lessons learned and best practices for upscaling. |
| | | | Furthermore, the lessons that will have been learned and collected from DiMMAdapt will contribute significantly to the national dairy policy dialogue forum through the MoA that will bring together many key national and international stakeholders and partners. |

| Review Criteria | Questions | Comments | IFAD responses 5 February 2019 |
|---|---|---|---|
| | 10. Has a consultative process taken place, and has it involved all key stakeholders, and vulnerable groups, including gender considerations in compliance with the Environmental and Social Policy and Gender Policy of the Fund? | The consultations that have taken place and lists of persons consulted are described in detail in Annex 2.<br><br>There is no evidence of consultations with vulnerable groups, nor of gender considerations in these consultations.<br><br>**CR 5:** Please elaborate more on consultations with project beneficiaries, particularly women's groups. | **CR5: Sufficiently addressed**<br><br>The revised proposal includes a list with women's groups and groups that deal with women affairs which were consulted by IFAD during project design (Annex 2) |
| | 11. Is the requested financing justified on the basis of full cost of adaptation reasoning? | Yes | |
| | 12. Is the project / program aligned with AF's results framework? | Yes | |
| | 13. Has the sustainability of the project/program | Yes. Measures to ensure sustainability across the components are mentioned on pages 34-35. | |

| Review Criteria | Questions | Comments | IFAD responses 5 February 2019 |
|---|---|---|---|
| | me outcomes been taken into account when designing the project? | | |

| Review Criteria | Questions | Comments | IFAD responses 5 February 2019 |
|---|---|---|---|
| | 14. Does the project / programme provide an overview of environmental and social impacts / risks identified, in compliance with the Environmental and Social Policy and Gender Policy of the Fund? | Unclear. It is not presented in the required format.<br><br>**CR6**: Please complete the table in section II.K of the project application template.<br><br>The ESP requires that the environmental and social risks of AF projects are identified in a comprehensive way. The proposed project is said to be an integral part of a larger IFAD investment referred to as 'DiMMA', for which the AF project will support "the climate proofing of the DiMMA investments". Para 72 of the proposal states: "The activities of the DiMMAdapt project are a product of the screening by IFAD of DiMMA through its Social Environmental and Climate Assessment Procedures (SECAP)." Para 74: " The objective of DiMMAdapt is to ensure that the challenges identified in the SECAP are fully addressed and integrated into the IFAD DiMMA project." Para 77: "The Adaptation Fund project will be a blended project, fully integrated into the IFAD supported "Dairy Modernisation and Market Access Programme (DiMMA)". p. 34: "The implementation of the DiMMAdapt ESMP will ensure | **CR6: Addressed**<br><br>The revised proposal includes the completed table as requested (table 9, pages 39-40)<br><br>**CR7: Not adequately addressed. Substantively, ESP compliance is not comprehensive as:**<br>- The risk of increased greenhouse gas emissions is acknowledged in some places in the proposal, but the proposed mitigation is limited to monitoring through a not yet fully operational system (LITS) of the total number of cattle. The project could not address an increase in cattle numbers and possible associated increase in GHG emissions, a management response would not be possible, also because the required policy/legal framework to e.g. limit cattle numbers appears not to exist. Apart from that, the link between GHG emissions and the project outcome is acknowledged but the net outcome cannot be determined. The Adaptation Fund ESP Guidance document includes recommended options to demonstrate compliance:https://www.adaptation-fund.org/document/guidance-document-implementing-entities-compliance-adaptation-fund-environmental-social-policy/<br>- The activities of components 1.2 and 2.1 have yet to be selected. The ESMP does not have adequate provisions for risks identification for concrete activities of these components<br>- The two projects are inextricably amalgamated, and it is not demonstrated that the IE's ESMS (SECAP) provides safeguard outcomes equivalent to those required for ESP compliance.<br><br>**CAR1:** Please demonstrate compliance of the project with the Adaptation Fund ESP and Gender Policy. For more guidance, kindly refer to the Guidance document on compliance attached above. |

| Review Criteria | Questions | Comments | IFAD responses 5 February 2019 |
|---|---|---|---|
| | | 44, p. 62: “The DiMMAdapt project is in effect the ESMP for the larger DiMMA project”.<br><br>It seems that in practice both projects will be indistinguishable. Therefore, it may not be possible to disaggregate the environmental and social risks associated with the AF funded activities from those of DiMMA.<br><br>**CR7**: Please demonstrate that ESP compliance is comprehensive.<br><br>The risks identification presented in Annex 3 extensively refers to the DiMMA project and its characteristics to justify its risks findings. Most of that information is not available, and the adequacy of the findings cannot be appreciated.<br><br>The project includes several activities that are not fully identified (unidentified sub-projects, USPs, components 1.1, 1.2, 2.1), and consequently their ESP risks cannot be adequately determined at this stage. The ESMP does not include provisions for the ESP risk identification during implementation as per the ESP guidance of the Fund. | 20 |

| Review Criteria | Questions | Comments | IFAD responses 5 February 2019 |
|---|---|---|---|
| Resource Availability | 1. Is the requested project / programme funding within the cap of the country? | Yes | |
| | 2. Is the Implementing Entity Management Fee at or below 8.5 per cent of the total project/programme budget before the fee? | Yes | |
| | 3. Are the Project/Programme Execution Costs at or below 9.5 per cent of the total project/programme budget (including the fee)? | Yes | |
| Eligibility of IE | 4. Is the project/programme submitted through an | Yes. The project is submitted through a multilateral implementing entity accredited by the AF (IFAD) | |

| Review Criteria | Questions | Comments | IFAD responses 5 February 2019 |
|---|---|---|---|
| | eligible Implementing Entity that has been accredited by the Board? | | |
| Implementation Arrangements | 1. Is there adequate arrangement for project / programme management, in compliance with the Gender Policy of the Fund? | **CR8**: Please clarify in the project document, if there are measures in place for the integration of gender considerations in project/program implementation.<br><br>The project could elaborate on the following considerations:<br>-Does the implementation team have gender expertise and a gender focal point?<br>- Are partner organizations aware of and trained to address gender inequalities among beneficiaries?<br>- Encourage to executing partners to designate its own organizational gender focal point to facilitate the exchange with partners on any gender-specific issue that might come up | **CR8: Partially addressed**<br><br>The revised proposal offered more details on the existence of a gender Focal Point (covered by the IFAD DIMMA project) within the executing entity (MEPA) who will ensure gender aspects are reflected in monitoring and evaluation principles ensuring gender disaggregated data and knowledge is being generated (more information in para 104, page 42). Gender awareness raising will also be included in the learning materials that will be produced and distributed widely as part of the demonstrations and DiMMA stakeholder platforms (included under para 87 page 35 under the Learning and Knowledge Management).<br><br>The project could elaborate on the ways it would benefit from IFAD's lessons learned exercise on its previous project in Georgia by elaborating further on the improved targeting strategy it plans to adopt with regards to gender equity and women's empowerment. |

| Review Criteria | Questions | Comments | IFAD responses 5 February 2019 |
|---|---|---|---|
| | 2. Are there measures for financial and project/programme risk management? | Yes, mentioned on page 36-37 | |
| | 3. Are there measures in place for the management of for environmental and social risks, in line with the Environmental and Social Policy and Gender Policy of the Fund? | Yes | The information provided in Annex 3 “DiMMAdapt Environmental and Social Management Plan” does not allow distinction between risks associated with the AF funded activities and others. In addition, the same applies to proposed management and mitigation measures.<br><br>The proposal contains USPs. The Environmental and Social Management Plan does not have clear provisions for the identification of the associated ESP risks, nor for the assessment of impacts and management or mitigation of identified risks and impacts.<br><br>The SECAP information presented in Annex 4 is per se not relevant to the application. Compliance with the IE ESMF is recommended but compliance with the AF ESP and gender Policy are funding eligibility requirements. The latter is not demonstrated.<br><br>**CAR2**: Please include measures for the management of environmental and social risks in line with AF ESP and Gender Policy. |
| | 4. Is a budget on the Implementing Entity Management Fee use included? | Yes | |

| Review Criteria | Questions | Comments | IFAD responses 5 February 2019 |
|---|---|---|---|
| | 5. Is an explanation and a breakdown of the execution costs included? | Yes | |
| | 6. Is a detailed budget including budget notes included? | Yes | |
| | 7. Are arrangements for monitoring and evaluation clearly defined, including budgeted M&E plans and sex-disaggregated data, targets and indicators, in compliance with the Gender Policy of the Fund? | Yes | |

| Review Criteria | Questions | Comments | IFAD responses 5 February 2019 |
|---|---|---|---|
| | 8. Does the M&E Framework include a break-down of how implementing entity IE fees will be utilized in the supervision of the M&E function? | Yes | |
| | 9. Does the project/programme's results framework align with the AF's results framework? Does it include at least one core outcome indicator from the Fund's results framework? | Yes | |
| | 10. Is a disbursement schedule with time-bound milestones included? | Yes | |

| | |
|---|---|
| Technical Summary | The objective of the project is to enhance the resilience to climate change of vulnerable dairy producers through the creation of an enabling environment developed through training and capacity building, implementation of a pasture management plan and introduction of climate-smart technology demonstrations and alternative livelihood diversification.<br><br>The initial review finds that while the planned activities are described relatively clearly, further details should be considered.<br><br>The following comments should be addressed:<br>**CR1**: Please clarify how these points are being taken into consideration in the project proposal<br>- Expanding the positive impacts and results of this project to other areas of the country with potential upscaling of successful interventions to other areas;<br>- Consider the sustainability of outcomes as well as scalability and replicability aspects.<br>**CR2**: Please elaborate more on the justification for avoiding these emissions and the credible measures in place to avoid such emissions.<br>**CR3**: Please use quantitative or qualitative indicators to measure cost-effectiveness and put the two scenarios (business as usual versus if the project activities are implemented) including their quantitative results in a table for comparison.<br>**CR4**: Please include more details on how these lessons will be captured and disseminated<br>**CR 5:** Please elaborate more on consultations with project beneficiaries, particularly women's groups.<br>**CR6**: Please complete the table in section II.K of the project application template.<br>**CR7**: Please demonstrate that ESP compliance is comprehensive.<br>**CR8**: Please clarify in the project document, if there are measures in place for the integration of gender considerations in project/program implementation.<br><br>The final technical review finds that while some clarification requests (CRs) have been addressed sufficiently, additional corrective action requests (CARs) and clarification requests (CRs) are needed, as follows:<br><br>**CR1**: Please elaborate more on a management response should the heads of cattle rise<br>**CAR1:** Please demonstrate compliance of the project with the Adaptation Fund ESP and Gender Policy. For more guidance, kindly refer to the Guidance document on compliance attached above.<br>**CAR2**: Please include measures for the management of environmental and social risks in line with AF ESP and Gender Policy. |

| | |
|---|---|
| Date: | February 13, 2019 |

ADAPTATION FUND

**REQUEST FOR PROJECT**
**FUNDING FROM THE ADAPTATION FUND**

The annexed form should be completed and transmitted to the Adaptation Fund Board Secretariat by email or fax.

Please type in the responses using the template provided. The instructions attached to the form provide guidance to filling out the template.

Please note that a project/programme must be fully prepared (i.e., fully appraised for feasibility) when the request is submitted. The final project/programme document resulting from the appraisal process should be attached to this request for funding.

Complete documentation should be sent to:

The Adaptation Fund Board Secretariat

1818 H Street NW

MSN P4-400

Washington, D.C., 20433

U.S.A

Fax: +1 (202) 522-3240/5

Email: afbsec@adaptation-fund.org

ADAPTATION FUND

# PROJECT PROPOSAL TO THE ADAPTATION FUND

## Table of Contents

**List of Figures**

**List of Tables**

## CURRENCY EQUIVALENTS

| Currency Unit | | |
|---|---|---|
| EUR 1 | = | USD 1.18 |
| EUR 1 | = | GEL 3.12 |

## WEIGHTS AND MEASURES

| | | |
|---|---|---|
| 1 kilogram | = | 1000 g |
| 1 000 kg | = | 2.204 lb. |
| 1 kilometre (km) | = | 0.62 mile |
| 1 metre | = | 1.09 yards |
| 1 square metre | = | 10.76 square feet |
| 1 acre | = | 0.405 hectare |
| 1 hectare | = | 2.47 acres |

## ABBREVIATIONS AND ACRONYMS

| | |
|---|---|
| ACDA | Agricultural Cooperative Development Association |
| ADS | Agricultural Development Strategy |
| AI | Artificial Insemination |
| AMMAR | Agriculture Modernisation, Market Access and Resilience Project |
| APMA | Agriculture Projects Management Agency |
| APR | Annual Project Report |
| ASP | Agency of State Property |
| CCKP | Climate Change Knowledge Portal |
| CCNAP | Climate Change National Adaptation Plan |
| CMIP5 | Coupled Model Intercomparison Project Phase 5 |
| DCFTA | Deep and Comprehensive Free Trade Area |
| DiMMA | Dairy Modernisation and Market Access Programme |
| DRR | Disaster Risk-Reduction |
| ENRM | Environmental Natural Resource Management |
| ERASIG | Enhancing Resilience of Agriculture Sector in Georgia |
| ESIA | Environmental and Social Impact Assessment |
| FAO | United Nations Food and Agriculture Organisation |
| GCM | Global Circulation models |
| GIS | Geo-localized Information System |
| GoG | Government of Georgia |
| IFAD | International Fund for Agricultural Development |
| IPCC | Intergovernmental Panel on Climate Change |
| IRSWR | Internal Renewable Surface Water Resources |
| KMS | Knowledge Management Strategy |
| LCO | Local Coordination Office |
| LEDS | Low Emission Development Strategy |
| LITS | Livestock Identification and Traceability System |
| LME | Liquid Milk Equivalent |
| M&E | Monitoring and Evaluation |
| MEPA | Ministry of Environmental Protection and Agriculture |
| MoE | Ministry of Energy |
| MoENRP | Ministry of Environmental and Natural Resources Protection |
| MoESD | Ministry of Economy and Sustainable Development |
| MoA | Ministry of Agriculture |
| MoF | Ministry of Finance |
| MOLI | Market Opportunities for Livestock Innovators |
| MRDI | Ministry of Regional Development and Infrastructure |
| MTR | Mid-Term Review |
| NAPA | National Adaptation Plan for Agriculture |
| NAPR | National Agency of Public Registry |
| NBSAP | National Biodiversity Strategy and Action Plan |
| PAF | Pasture Adaptation Fund |
| PEC | Project Execution Costs |
| PIM | Project Implementation Manual |
| PMP | Pasture Management Plan |
| PMU | Programme Management Unit |
| PUA | Pasture User Association |
| RO | Regional Office |
| SAD | Strategy for Agricultural Development |
| SECAP | Social Environmental and Climate Assessment Procedures |
| SP | Service Providers |

| | |
|---|---|
| TNC | Third National Communication |
| TSA | Targeted Social Assistance |
| UHT | Ultra-High Temperature Processing |
| UNCBD | United Nations Convention on Biological Diversity |
| UNDP | United Nations Development Programme |
| UNFCCC | United Nations Framework Convention on Climate Change |
| VC | Value Chain |

# PART I: PROJECT INFORMATION

| | |
|---|---|
| **PROJECT CATEFORY:** | **REGULAR** |
| **COUNTRY:** | **GEORGIA** |
| **TITLE OF PROJECT:** | **Dairy Modernization and Market Access: Adaptation Component (DiMMAdapt)** |
| **TYPE OF IMPLEMENTING ENTITY:** | **MULTILATERAL IMPLEMENTING ENTITY (MIE)** |
| **IMPLEMENTING ENTITY:** | **INTERNATIONAL FUND FOR AGRICULTRUAL DEVELOPMENT (IFAD)** |
| **EXECUTING ENTITY:** | **MINISTRY OF ENVIRONMENTAL PROTECTION AND AGRICULTURE (MEPA)** |
| **AMOUNT OF FINANCING REQUESTED:** | **USD 4,644,794** |
| **MAIN PARTNER:** | **MINISTRY OF FINANCE (MOF)** |

## PROJECT BACKGROUND AND CONTEXT

### Project Context

### A. Geography and Climate

1. The Republic of Georgia is situated in the South Caucasus region and covers an area of 69,700 square kilometres. It is surrounded by Russia to the North, Azerbaijan to the East, Armenia and Turkey to the South, and the Black Sea to the West. 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. Nearly 40 percent of land is covered by forests, mainly located in the mountainous areas. Georgia is rich in water resources with more than 26,000 rivers within its borders amounting to 54,768 km in total length. Rivers are supplied by water from glaciers, precipitation and underground sources, and river flow equals 49.8 $km^3$ in Western Georgia and 16.5 $km^3$ in Eastern Georgia. Georgia has 850 lakes, totalling 170 $km^2$, most of which are very small. The largest lakes are located in South Georgia's mountainous region. Almost 80 percent of the fresh water is found in the western part of the country.

2. 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 moderating 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.

3. Georgia is a country rich in biodiversity, most of which can be found in the forests, freshwater habitats, marine and coastal ecosystems and high mountain 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.

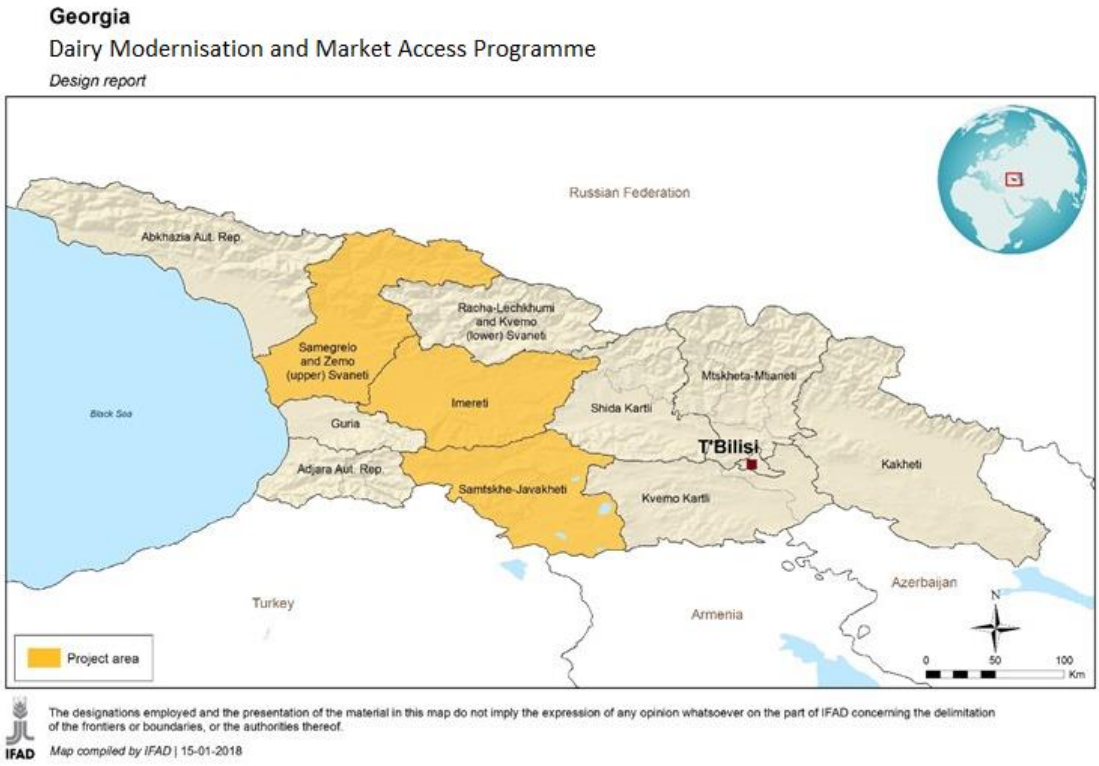



**Figure 1 Project Regions**

## B. Socio-Economic Context

4. Georgia has a population of about 3.7 million, of which 1.7 million live in rural areas (46.2percent). The rate of urbanization is high, (about 55percent in 2000) with 1.5 million people (27 percent of the population) living in the capital, Tbilisi. Georgia has experienced a slow but steady loss of population due primarily to economic outmigration (reducing 0.5 percent annually), and the rural population is decreasing at over twice the rate of the urban population. Regions where high external migration has taken place, such as Racha, are significantly less able to engage in agricultural production. However, as agriculture is increasingly seen as a viable livelihood opportunity, these external migrants could bring back valuable skills, contacts, and capital to invest in the agricultural sector.

5. **Youth.** About 40 percent of the population in Georgia are children and young people up to 29 years old and life expectancy is 73 years. The education level in Georgia is high, and as much as 17.5 percent of the population have a post-secondary education. Nearly 30 percent of 15-29 year olds were unemployed in 2014, with significantly more women being out of the labour market than men. Youth unemployment can be explained by low motivation to practice farming, and a desire to have salaried jobs which are mainly offered in larger cities. Nevertheless, a significant group of young people continue to work in agriculture despite facing problems with shortage of knowledge, skills, lack of resources, and limited access to finance.

6. **Gender.** About one third of the households in Georgia are led by women, who are more prone to poverty compared to male-headed households. In general, female remuneration is about 20 percent lower than male (Geostat, 2016) in the agriculture sector. Georgian legislation recognizes equal rights of men and women. A Gender Equality Law adopted in 2010, a Non-discrimination Law adopted in 2014, and the Gender Equality Strategy for 2014-2016 all aim to ensure women's security, equality in the labour market and the strengthening of women's political participation. Livestock is an important sector for women, with high engagement especially in milking, but also processing milk into cheese and other products, and local marketing. Animal care is also important, especially when men are in seasonal or long-term migration. Women especially value dairy cows as they can help ensure family's nutrition and food security.

7. The average number of cattle per household is 1.54 (Geostat, Agricultural Census, 2014). 94 percent of households have less than 10 cattle, and only 103 holdings have more than 100 heads. Many smallholder farmers are older with little understanding of, or interest in, livestock as an attractive business opportunity. Instead, livestock keeping is seen to be a coping strategy for a semi-subsistence lifestyle supplemented by other agricultural and non-agricultural activities. Some of the more enterprising households use livestock as a "cash cow" and diversity into other activities.

**Agriculture**

8. Since 2010 Georgian agriculture has been reversing its long-term decline, with output increasing by 19 percent from 2010 to 2016. The state budget for agriculture also increased from 1.3 percent to 3.8 percent from 2010 to 2018, suggesting a growing commitment by the GoG to the economic and social importance of the agricultural sector. Today, agriculture in Georgia accounts for 45 percent of rural household income, a further 28 percent coming from social payments and pensions and only 27 percent from salaried work. The structure of the rural economy and demographics suggest that farming is likely to remain the dominant source of employment and income for the majority of rural citizens in the medium term.

9. There are approximately 1 million head of cattle in Georgia, about 50 percent of which are producing dairy cows. Average milk yield per cow is low at 1,400 kg per year (6,900 kg per cow per year in the EU 28). Cattle numbers and dairy cow population have been decreasing in recent years (15 percent and 25 percent respectively, from 2004 to 2014). However, milk productivity per cow has increased by 40 percent, with overall milk production increasing by 11 percent from 2006 to 2015. Total demand for dairy products in Georgia is estimated at 680 million liquid milk equivalent (LME)[1], while local milk production is estimated at 530 million LME and valued at around USD 140 million. The deficit is met by imports of dairy products valued at around USD 50 million in 2016. The biggest share of these imports is represented by skimmed milk powder used in the industrial and medium scale dairy industry.

10. Pastures can be divided into summer pastures and communal (lowland) pastures. Summer pastures are used 4 to 5 months a year in high mountainous areas and are of high nutritional value. Summer pastures, under the ownership of the Ministry of Economy, are entirely self-regulated, with informal grazing rights held by villages. They are served by roads/ tracks in disrepair and many are only accessible by foot or horse back. Cattle pens are absent or basic and it is not possible to collect raw milk regularly from most summer pastures. Thus, milking is done in inadequate hygienic conditions, the milk is processed into cheese using inadequate hygienic facilities and stored without refrigeration equipment, which can lead to microbial contamination. Cheese is carried on horseback to the nearest village or road, usually every 10 days. Most of the lowland communal pastures belong de jure to the Ministry of Economy. They are usually overgrazed, resulting in heavy degradation of quality and significant loss of productivity. Lowland communal pastures remain very important for the poorer and subsistence-oriented smallholder farmers, but the cows from more commercially minded farmers use a combination of public and privately-owned pastures, forage crops grown on arable land, and purchased feed.

11. Pastures in Georgia are included under agricultural lands. According to the Strategy for Agricultural Development (SAD) in Georgia for 2015-2020, agricultural lands accounts for over 3 million ha and constitute 43.4 percent of the whole territory of Georgia, and includes in addition to arable lands, pastures and meadows. It is estimated that 25 percent of Georgia's total land area is classified as permanent pastureland which represents about 1.7 million ha of Georgia total land area of 6.9 million ha. This confirms the importance of pastures, as they constitute over 50 percent of the total agricultural lands in Georgia. Following Georgia's independence, an important part of the agricultural land was privatized although the official status of agricultural land registration remains unclear. To date, there are no clear delineation of state-owned, municipal and privately-owned land for agricultural land and only 20-30 percent of the agricultural lands are officially registered by the National Agency of Public Registry (NAPR). In 2010, with the issuance of the Law of State Property, privatization of pasture was de facto stopped; however, some of pasture lands were already acquired by private owners between the independence and the issuance of the Law. The current ownership of pastures is estimated as follows:

- Private owners: 15 - 25 percent

[1] Liquid milk equivalent is a measure of the quantity of fluid milk used in a processed dairy product measured on a milkfat basis.

- Municipalities: 2-5 percent
- APA: 2 percent (out of the 7 percent of the total Protect Areas territory at national level)
- Public Property: 70 - 80 percent

12. Currently, conflicting policies are driving the pastures registration process. On one hand, the Agency of State Property (ASP) is conducting a national inventory of all state land, including pastures, in view of strengthening the administration of state property. An inventory was completed and the ASP is coordinating with municipalities and concerned ministries for the registration process of state property. On the other hand, the Ministry of Regional Development and Infrastructure (MRDI) is supporting municipalities to register state property, including pastures in view of strengthening the decentralization process in Georgia. This process is aiming at improving revenues of municipalities and is linked to various on-going legal, institutional and financial support to local development.

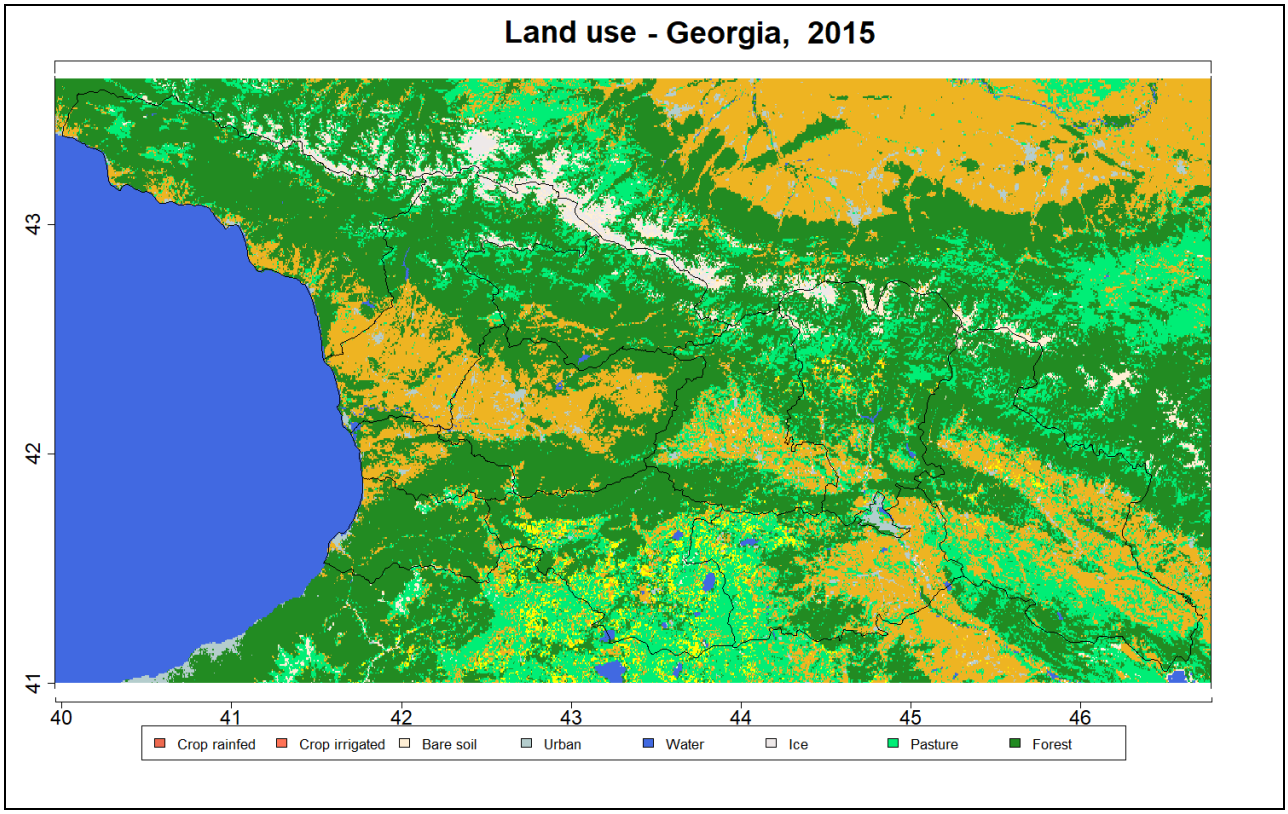



**Figure 2 Land use in Georgia in 2015.[2]**

13. Georgia has a very old and strong food culture, with cheese being a central feature. The demand for authentic, natural and organic cheese in Georgia is growing, with many of its unique cheese specialities now being re-discovered. Around 85 percent of local milk production is transformed by the producers into homemade cheese such as imeruli (cheese base), sulguni (soft cooked cheese), and naduri (a type of ricotta). The remaining 15 percent (approx. 75 million LME) is supplied to formal processing units for cheese and other dairy products. About 25 percent of homemade cheese is consumed in the household while the remaining 75 percent (330 million LME) is sold by producers to cheese traders at the farm level, who sell it on rural markets. Medium scale processors are used to produce cheese sold in shops and supermarkets within the region and occasionally in Tbilisi. Industrial processors mainly use milk powder and other imported ingredients for producing liquid milk, fermented milk, liquid ultra-high temperature processing (UHT) milk, yogurt, cheese, and other western-style products.

[2] Data Source: Sentinel 2 European Spatial Agency

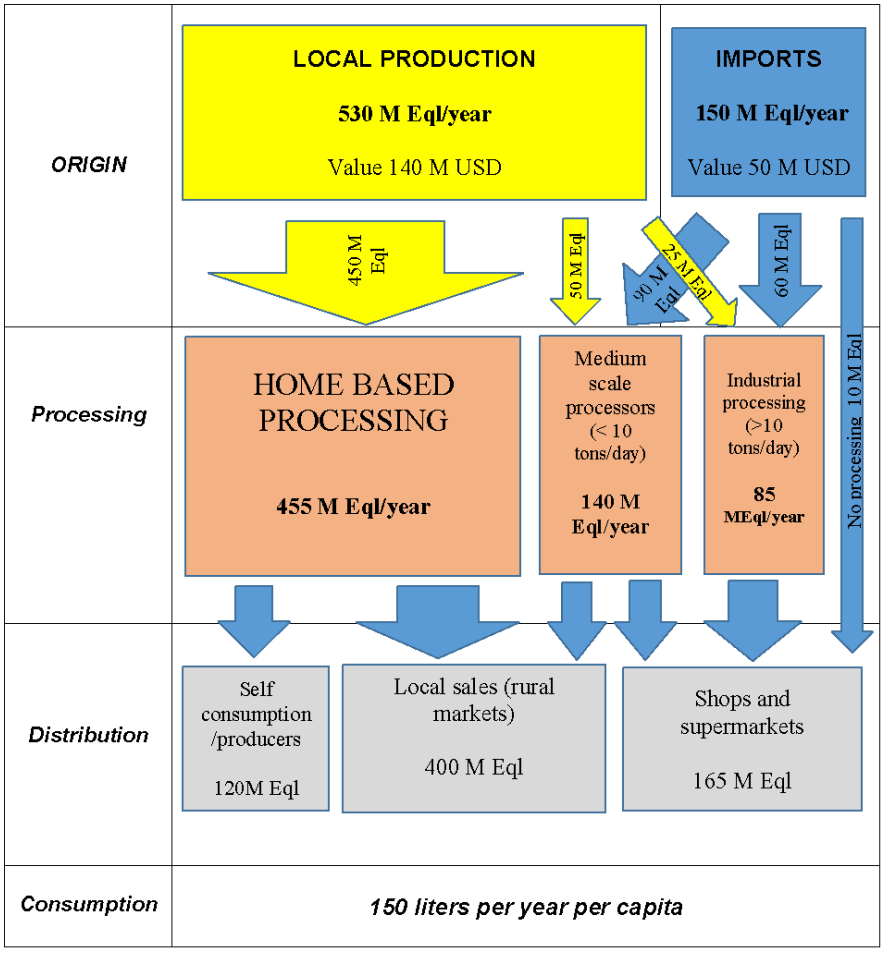



**Figure 3 Quantitative chart of the Georgian value chain (quantities in Eql)**

14. The dairy value chain (VC) in Georgia is transforming rapidly, due to changes in consumer habits and expectations, and progressive enforcement of new food safety regulations. Georgia and the EU signed an Association Agreement in 2014 (entered into force 2016), which introduces the Deep and Comprehensive Free Trade Area (DCFTA). By 2029, all Georgian SPS (sanitary and phytosanitary) regulations will have to be aligned to those of the EU. At National level, Dairy Georgia has recently been revived but currently mainly represents industrial processors. The National Milk Producers Association representing dairy farmers is not very active. The Ministry of Environmental Protection and Agriculture (MEPA) actively promotes cooperatives through the Agricultural Cooperative Development Association (ACDA), which has special programs targeted at dairy processing and pasture management. ACDA provides capital investment and technical assistance to agricultural cooperatives for equipping them with modern milk collection and processing infrastructure; for purchasing laboratory equipment to control raw milk and necessary equipment for artificial insemination (AI) to improve breeds. At local level, there are no established community development participatory mechanisms that could incorporate the dairy VCs. Much of dairy policy formulation and legislative reform are driven by DCFTA and EU approximation. The government is receptive to the establishment or strengthening of dairy platforms as a means of communicating with all actors in the dairy VC, from smallholders to industrial processors.

## C. Policy, Governance and Institutional Issues

15. **The Constitution of Georgia** (1995, last amended in 2013) lays down the legal framework that guarantees environmental and social protection, and public access to information with regard to environmental conditions. Along with the national regulations, Georgia is signatory to a number of international conventions related to environmental and social protection.

16. **The Ministry of Economy and Sustainable Development of Georgia (MoESD)** is the competent authority for implementing and enforcing environmental legislation and policy, including the requirements relating to environmental impact assessments (EIAs) since the recent merging of the Ministry of Environmental and Natural Resources Protection (MoENRP), the previous Ministry in charge of environmental aspects, within the MoESD and the Ministry of Environmental Protection and Agriculture (MEPA). In addition to the MoESD and MEPA, a number of other ministries, departments and agencies are responsible either directly or indirectly for the implementation of environmental and social related legislation and policy, including:

    - Ministry of Health, Labour, and Social Affairs of Georgia.
    - Ministry of Regional Development and Infrastructure of Georgia.
    - Ministry of Environmental Protection and Agriculture of Georgia.
    - Ministry of Culture and Monument Protection of Georgia.

17. MoESD has an important role in the supporting agricultural and pastoral development as well as pastures through its role in overseeing land management policies in general and the process of privatization of state owned lands as well as their registration in specific. One of the most important goals of the Ministry is to support sustainable development of the country in the field of environment, to elaborate and implement state policy and international commitments within its competence.

18. **Ministry of Energy (MoE)** of Georgia implements State Energy Policy for Georgia, participates in the development of strategies and programs that address the priorities in the energy sector, monitors their implementation, and works out appropriate recommendations. The Ministry structure includes the Department for Energy Efficiency and Renewable Energy.

19. **The Ministry of Environmental Protection and Agriculture's (MEPA)** core function is to develop and implement a unified government policy on the development of agricultural sector of Georgia. Along with other issues, the Ministry is in charge of agro-production, agro-processing, land conservation and productivity improvement, crops, livestock, fisheries, agro-engineering and veterinary, as well as promotion of upgrade and accessibility of agricultural technology. Since the merging of the MoENRP with the MEPA, it can play a key role in supervising environmental projects funded by international funds, providing implementation support to enhance impact.

20. **The Ministry of Regional Development and Infrastructure (MRDI)** is in charge of regional development policies in addition to overseeing the development of the infrastructure, including water, roads and others. In terms of agricultural development and pastures management, MRDI provides needed infrastructure to farmers. To date, the municipalities are in charge of issuing pastures lease contracts to shepherds on their pastures; municipalities are also aiming at acquiring state land in order to further improve their revenues. The leasing is made mostly according to cadastral zoning, but occasionally, it can follow local customary grazing habits; this could include managing pastures outside the cadastral areas of the municipality.

21. **The National Adaptation Plan for Agriculture (NAPA)** published in 2017 by the MoENRP intends to reduce the knowledge gap on climate related impacts on agriculture. However, even though the document gives us a broad idea on main crops in Georgia, the document is not complete yet and the recommendations for adaptation measures should be strengthened. However, there is an existing knowledge gap for data gathering, which makes challenging to improve the adaptation analysis. As an example, erosion risk is well known in Georgia but no recent study on this issue was conducted so far to identify the location and the related adaptation activities. In addition, there is a need to enable systematic quality control of the data used in the analysis. Technical training to share experience and best practice with the deployment of these adaptation practices in similar regions. Also, according to the National Adaptation Plan for Agriculture, relevant government institutions have limited systems, capacity and expertise to address challenges related to climate change efficiently as this is quite a new challenge in the country.

## D. Development Context

22. Georgia is classified as a lower middle-income country by the World Bank with GNI per capita of USD 3,810 (2017). There are around 550,000 rural households with an average of 3.3 people per household (GeoStat, 2014). Agriculture accounts for 45 percent of rural household income, a further

28 percent coming from social payments and pensions and only 27 percent from salaried work. Land privatization that followed the fall of the Soviet Union has resulted in fragmented holdings (75 percent households with less than 1 ha of land) and neglect of the agricultural sector until recently, has contributed to the dominance of subsistence farming.

23. **Poverty** was estimated at 32 percent in 2016, decreasing from a peak of 46.7 percent in 2010. Poverty is more spread in rural areas, where every second household can be considered poor along the USD2.50/day international poverty line. Although poverty level varies by regions, a more profound difference is within the regions themselves, between urban and rural, mountainous, remote and near towns, industrial and service oriented and more agrarian settlements.

24. Years of economic crisis and large-scale forced migration of populations from the territories of Abkhazia and former Soviet Ossetia due to military conflicts caused the impoverishment of a large section of the Georgian population. Poverty reduction does not automatically follow economic growth. Since 2010, greater social and political stability, along with the resumption of economic growth, have brought about a significant reduction in poverty. However, not nearly enough. In the Georgia context, poverty is mostly linked to employment status, ownership of productive assets and labour markets. Those who are unable to work (the inactive, elderly or disabled) or do not have work (the unemployed) are much more likely to be chronically poor. Inequality, however, has slightly declined; the estimated Gini coefficient dropped from 41.3 in 2010 to 38.5 in 2016 (World Bank).

25. Social transfers were major drivers of poverty reduction until 2013, with growing significance of agricultural products sale and labour wages. The Targeted Social Assistance (TSA) programme was a key vehicle for poverty reduction till 2013, accounting 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 (World Bank). Rural poverty is only associated with the rural growth and growth in agricultural sector, and was not influenced the urban growth. In addition to social benefits, 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 are becoming the major drivers of poverty reduction.

**Table 1 Distribution of Average Monthly Incomes per Household (GEL)[3]**

| Sources of income | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|---|---|---|---|---|---|---|
| **Income, total** | **605.4** | **673.8** | **774.1** | **861.6** | **899.8** | **924.9** |
| Wages | 214.3 | 247.3 | 297.0 | 325.5 | 382.9 | 391.3 |
| From self-employment | 54.7 | 66.7 | 72.7 | 75.8 | 81.2 | 80.6 |
| From selling agricultural production | 47.1 | 48.0 | 50.2 | 70.5 | 79.7 | 75.0 |
| Property income (leasing, interest on deposit etc.) | 5.5 | 4.3 | 7.5 | 9.1 | 9.0 | 10.0 |
| Pensions, scholarships, assistances | 87.0 | 96.2 | 124.5 | 151.1 | 149.5 | 158.7 |
| Remittances from abroad | 29.0 | 28.7 | 34.8 | 36.0 | 28.6 | 29.6 |
| Money received as gift | 74.3 | 91.9 | 102.7 | 103.7 | 85.3 | 95.8 |
| Non-cash income | 93.4 | 90.8 | 84.6 | 89.9 | 83.6 | 84.0 |
| **Other cash inflows** | 100.6 | 114.6 | 113.2 | 122.3 | 122.5 | 117.3 |
| Property disposal | 16.0 | 21.0 | 7.9 | 9.1 | 8.0 | 8.0 |
| Borrowing and saving | 84.5 | 93.6 | 105.2 | 113.2 | 114.5 | 109.3 |
| **Cash and non-cash inflows, total** | **705.9** | **788.4** | **887.2** | **983.9** | **1022.3** | **1042.2** |

26. **Food security and nutrition** is an issue mainly due to food affordability. Poor households spend more than 56 percent of income on purchasing food. Yet hunger is not a significant problem in Georgia according to WHO, with prevalence of stunting of 11.3 percent[4], wasting at 1.6 percent and underweight at 1.2 percent for children less than five years. Overall, food consumption is sufficient in calories with average dietary supply adequacy at 116 percent (2014-2016), and an average protein

[3] Source: Geostat, 2017. Change rate: 3.12 GEL/EUR on the 01.01.2018
[4] Global 22.2% according to WHO, 2017

intake of 75 g/day. However, food consumption is characterized by low to medium nutritional diversity causing worrisome levels of the obesity among non-pregnant women (42 percent) and children (20 percent).

27. **Infrastructure.** The inadequacy or lack of basic and productive infrastructure, particularly irrigation, limited off-farm opportunities, critical gaps in VCs, availability of inputs and services, reduced human and social capital, and rural-urban migration especially of youth, has hindered the development of the agricultural sector. The land privatization has resulted in smallholdings (approximately 75 percent of households ended up with less than 1ha of land). Land fragmentation, and neglect of the agricultural sector by the GoG until recently, has led to the development of subsistence farming and overall decline in agriculture as a profitable business.

## E. Areas of Intervention

28. **Programme area:** The programme will start to be implemented in the three contiguous regions of Imereti, Samegrelo-Zemo Svaneti and Samtskhe-Javakheti. There are 1,315 rural settlements in these regions with almost 600 thousand people, and 116 thousand holdings with livestock. Thus, the Programme will cover 36 percent of all rural settlements and more than half of a country's total rural population. While these regions are not the poorest in country, poverty levels are still high, especially in remote and mountainous communities where climate vulnerability is an issue. During implementation and by the Mid Term Review it will be decided on whether to expand the Project Area to other regions.

29. The regions were selected based on a geographical targeting approach that took several factors into consideration. The first level of geographical targeting has already been embedded in the selection of the programme area in a manner that it contains 50 percent of the national cattle population. Almost 99 percent cattle owners are smallholders with less than 20 heads of cattle. More than half of the total rural population in the country (with more pronounced poverty levels) is located in the programme area. These regions have relatively large mountainous areas where the households are more prone to economic and environmental shocks. These conditions will enable DiMMA to support a relatively large group of target households to sustainably produce sufficient amounts of milk to sustain the dairy processing enterprises in the area throughout the year and deliver economies of scale to all VC actors.

30. The second level of geographical targeting measures will assure that the aggregator level business plans are adequately incentivised to include the target households from the economically underdeveloped and more vulnerable communities located especially in the mountainous and foothill areas and identified as priority communities during the preliminary mapping exercise. Aggregators that achieve more than 50 percent of their linkage outreach to target households from the priority communities will be eligible for programme support. Similarly, pasture user associations with at least 50 percent membership of target households from the priority communities will be eligible for grants for pasture improvement activities.

31. The 3 regions covered by the project are already, and will be even more severely subject to, climate change risks in the form of frequent seasonal and yearly droughts, heat waves, rainfall storms and associated land degradation (see Annex I[5]).

32. **The region of Samtskhe-Javakheti** is the most developed of the three regions of the project. Situated in the south west of the country, the region is mainly constituted of high plateaus with most of the land (80 percent) considered as high mountain (above 1500m) and with an average altitude of 1865 meters above sea level. The dairy market in this region was particularly improved during the last decade, supported by the government and private investments and the unemployment rate is the lowest of the three regions (5.9 percent in 2017) even though there is a large variation of poverty level within the region. The region is divided in the following municipalities: Adigeni, Akhaltsikhe, Borjomi, Aspindza, Akhalkalaki, Ninotsminda.

33. **The Imereti region** is situated in the west part of the country, in the mountainous chain between the Greater and the Lesser Caucasus mountains. The region is composed of high mountains in the east and lower plains in the east. The Imereti region is the most populated of the three project regions, with 507 thousands of people but is also the region with the highest unemployment rate, around 14

[5] Of SECAP in Annex 4

percent in 2017. The potential of development is quite high with great demand in dairy products at national and international level and the highest number of cattle heads in the country with the Samegrelo Zveno-Svaneti region. The region is divided in the following municipalities: Khoni, Tskaltubo, Samtredia, Tkibuli, Kutaisi, Terjola, Chiatura, Sachkere, Zestafoni, Vani, Baghdati, Kharagauli.

34. **The Samegrelo Zveno-Svaneti region** has both high mountains in the Greater Caucasus and low plains facing the Black sea. With more than 50 percent of its territory with high slopes (above 10 degrees) and more heavy rainfall events in summer over the past 40 years, this region is subject to an increase in erosion. The high number of cattle heads could worsen the situation if adequate pasture management is not established rapidly. The region is divided into the following municipalities: Mestia, Tsalenjikha, Chkorotsku, Martvili, Zugdidi, Senaki, Khobi, Poti, Abasha.

35. **Target group**: DiMMAdapt is fully integrated into DiMMA's targeting strategy. The benefits of which will reach 3 categories of value chain actors comprising: (i) smallholder dairy producers; (ii) farm level service providers (FLSPs); and (iii) dairy aggregators, who will develop market linkages with the dairy producers. Non-commercial rural households will also benefit from pilot non-extractive livelihood projects and employment in small enterprises supported by the programme. Within each of these categories, the projects will have special focus on the inclusion of women and youth.

## Threats to Agriculture Development

### A. Unsustainable Environmental and Natural Resource Management

36. 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, constituted 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.

37. **Pollution.** 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 $km^3$/year. Although water is abundant in Georgia, it is unevenly distributed geographically. Almost 80 percent 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. Coliform bacteria levels in reservoirs and water supply systems have reached dangerous levels in many areas. The quality of drinking water often does not comply with human health and safety standards. The major sources of water pollution are domestic, industrial and agricultural activity, including inadequate waste management practices. Compounding this, the Black Sea is heavily polluted by uncontrolled sewage, agricultural runoff, oil spills and dumping of wastes. The entire ecosystem of the Black Sea has begun to collapse, and the wetlands (including Ramsar sites) are heavily affected.

38. Georgia is among the countries having very diverse soil types within a small area, stipulated by vertical zonality consisting of five climatic zones. 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 according to Geostat, 2016) and natural processes has led to an almost 35 percent 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 soil quality. Bad waste management practices, including insanitary landfills (official and illegal dumping sites) cause constant pollution of soil, water and air.

39. **Forests,** which cover almost 40 percent of the country, 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 percent of the forest 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 halt to 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.

40. **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 percent 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 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.

41. **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 the legal and institutional framework on pasture management is weak 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 for example the United Nations Development Programme (UNDP) in cooperation with the Ministry of Environment and Natural Resources Protection). Examples in the region can be found in Kyrgyzstan and Tajikistan were IFAD is leading projects on pastoral lands. Knowledge and learnings from those projects will be valuable to develop DiMMA pasture management activities at implementation for Pasture user associations and pasture management plans, hereby reducing the vulnerability of pastures and the related dairy production systems to the effects of climate change.

42. Even with farm modernisation, the current dependence of the smallholders on mountainous summer pastures and communal (lowland) pastures for animal nutrition is likely to continue to be driven by the cost and niche quality advantages associated with pasture-based production systems. Current pasture usage and management practices have a negative impact on animal productivity, and exposes some of the pastures to overgrazing, land degradation hereby increasing their vulnerability to the effects of climate change.

## B. Climate change

43. The Intergovernmental Panel on Climate Change (IPCC) reports that at regional level in West Asia, upward temperature trends have been 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. A recent study from the National Adaptation Plan for Agriculture (NAPA) in Georgia observed changes in climate and therefore in agro-climatic zones. The change of agro-climatic zones against the background of the temperature increases and changes in precipitation patterns is one of the highest risks caused by climate change for the agriculture sector. Following the report, the total overall temperatures have increased in most part of the country. According to the 1991-2015 data, precipitation in the vegetation period decreased only slightly.

44. The analysis of the last decade's climatic patterns (1960-2016) completed by IFAD in 2017 (see Annex 1 of SECAP[6]) in support of the design missions, confirms that the climate in Georgia has already changed and that the main trends foreseen by the IPCC and the NAPA are becoming evident. Trends in extremes in maximum and minimum temperatures for most of the regions in the country, have been increasing since 1960, resulting in warmer maximum temperatures in summer and colder minimum temperatures in winter.

45. A significant decrease in annual rainfall since 1981 is observed for several of the municipalities in Georgia but not at regional level with the exception of the Shida Kartli region. Georgia has several micro climates and the trends for annual precipitation can vary from one municipality to another within the same region (i.e. a significant increase in Martvili and a significant decrease in Tskhakaia within

[6] See SECAP in Annex 4

the Samagrelo and Zemo Svaneti regions). Significant decreases in annual rainfall have been noted at local levels in most of the municipalities, and in Imereti particularly during the summer and in the north of the Kakheti region throughout the whole year. Those municipalities have experienced the smallest amount of annual rainfall since 1981 three years in a row (2014 - 2016).

46. A shift in intra-annual monthly rainfall is observed in 3 regions of the programme except in Samtskhe-Javakheti with an increase in concentration of monthly rainfall in early autumn and late winter and a decrease in summer (a negative trend of around 1mm/year for August). Rainfall events are not equally distributed during the summer season and assessments show trends of longer dry periods and bigger rainfall events hereby increasing erosion and provoking mudflows and landslides.

47. Climate change forecasts for Georgia are derived from 35 available global circulation models (GCMs) used by the IPCC 5th Assessment Report. The Climate Change Knowledge Portal (CCKP) of the World Bank presents the IPCC data Coupled Model Intercomparison Project Phase 5 (CMIP5) multi-model in the figure below.

48. 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 United Nations Framework Convention on Climate Change (UNFCCC) (2014) similarly predicts higher temperatures 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 percent).

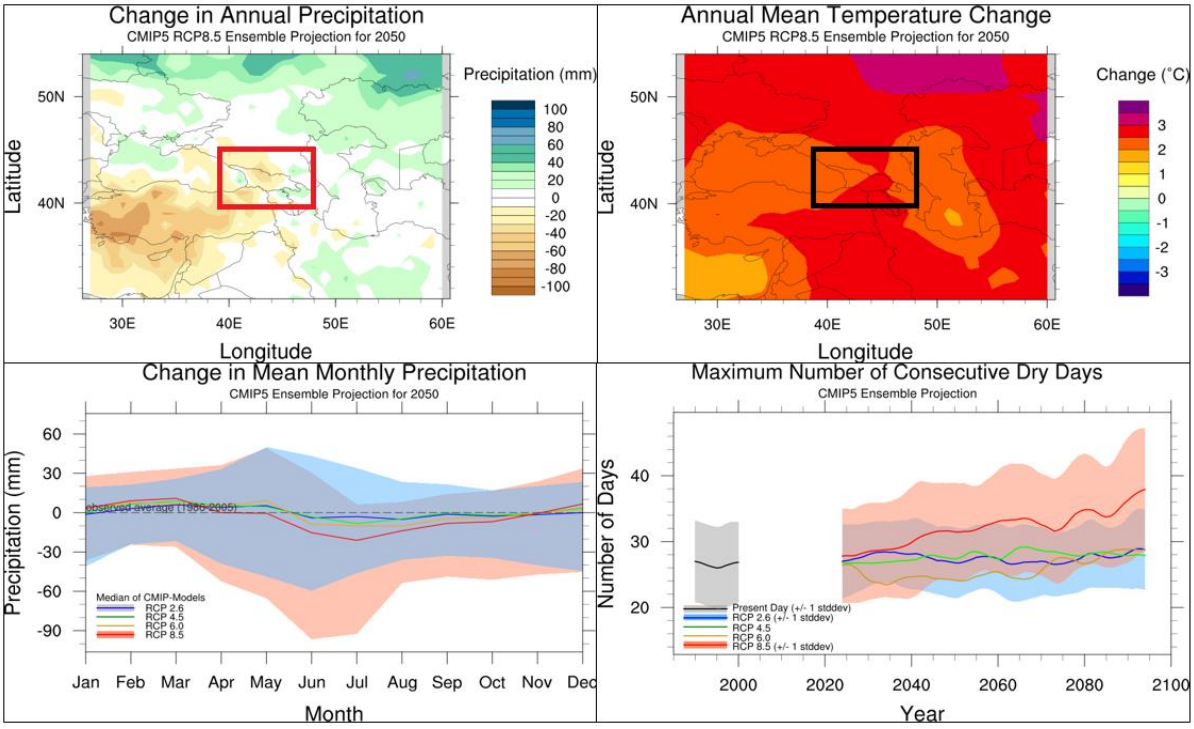



**Figure 4 IPCC data CMIP5 multi-model[7]**

**IFAD Study on Climate Change Impact on Agriculture.**

49. IFAD led a study that focused on the possible impacts of climate variability and change over the past years on agriculture in Georgia. An analysis of the daily rainfall events shows a significant increase in heavy rainfall days (>50mm/day) during summer season for the period 1981-2016 in the 3 regions of the project (see figure 1). The West part of the country, closer to the Black Sea, is more often affected

[7] 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).

by those events and this difference is getting even more marked geographically with time. Racha-Lechkhumi and Kvemo (lower) Svaneti region situated next to the project area shows the same trends and was part of the study for verification purposes.

50. The study of trends in snow cover for the period 2000-2016 was also conducted by IFAD based on satellite imagery from Landsat, NASA (see figure 6). Results show as expected that the percentage of the territory covered by snow is higher during December-January-February-March. In the region situated in the north of the country (Samergelo and Zemo (upper) Svaneti) the study shows a negative trend for January to March since 1981 meaning a decrease in snow cover area over time during the snowy months of the year. Over time, more and more hectares of so called “summer pastures” are no longer snow covered.

51. Also, the significant variability in total annual rainfall since 1981 has been coupled with pasture land use areas to identify the most vulnerable pastoral lands in Georgia. Three of the regions within the programme area are negatively affected by significant decreases in total annual rainfall and the situation may worsen if the trend is maintained over the coming decades.

52. From the data presented in figures 4 to 7 a number of conclusions can be drawn: (i) That despite the uncertainty of annual rainfall patterns at regional level, significant trends can be observed at local level. Rains are more concentrated and heavier during the summer, increasing the torrential regime and therefore the risk of flooding, soil erosion, and reduced infiltration of water in the soils as well as an overall decreased availability of water in during the warm season; (ii) The precipitation decrease in summer months for 3 regions in the programme area and increased evaporation caused by higher temperatures could have negative impact on water availability leading to longer drought events in the future; (iii) The reduction of snow cover during winter, over time may not only affect soil protection and decrease the water uptake by soil, it may also disturb the equilibrium in pasture plant species, having a negative impact on plant appetence and nutrition value for cattle. A changing climate however also presents opportunities, and earlier access to summer pastures could help shepherds improve resource management by reducing grazing pressures on lowland pastoral areas and also reduce local overuse of pasture by the communities.

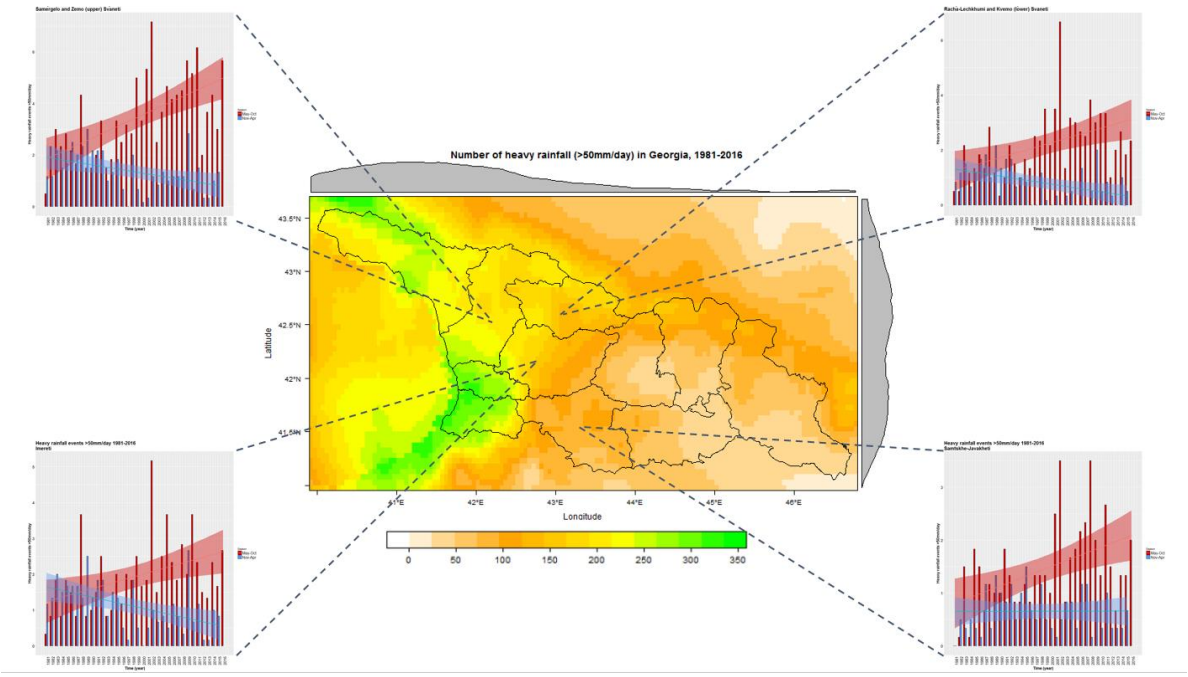



**Figure 5 Number of heavy rainfall events (>50mm/day) in Georgia 1981-2016.[8]**

[8] Analysis completed by IFAD. Data source: CHIRPS/Climate Hazards Group-USGS

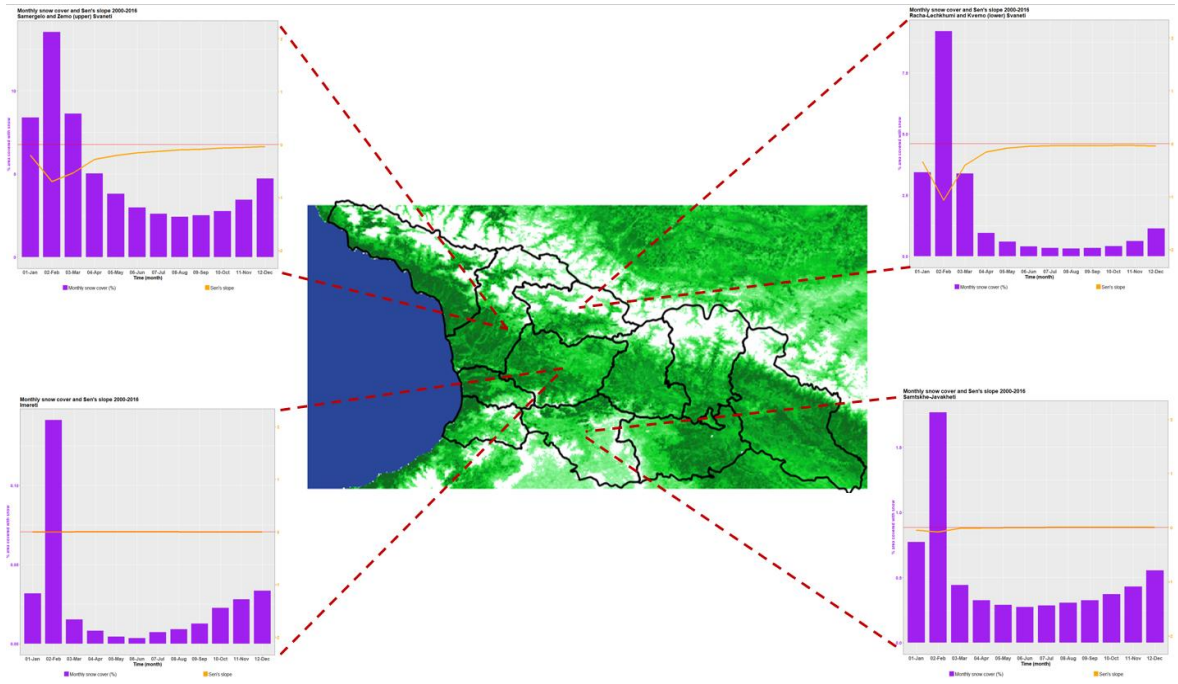


**Figure 6 Snow cover in Georgia for the period 2000-2016.[9]**

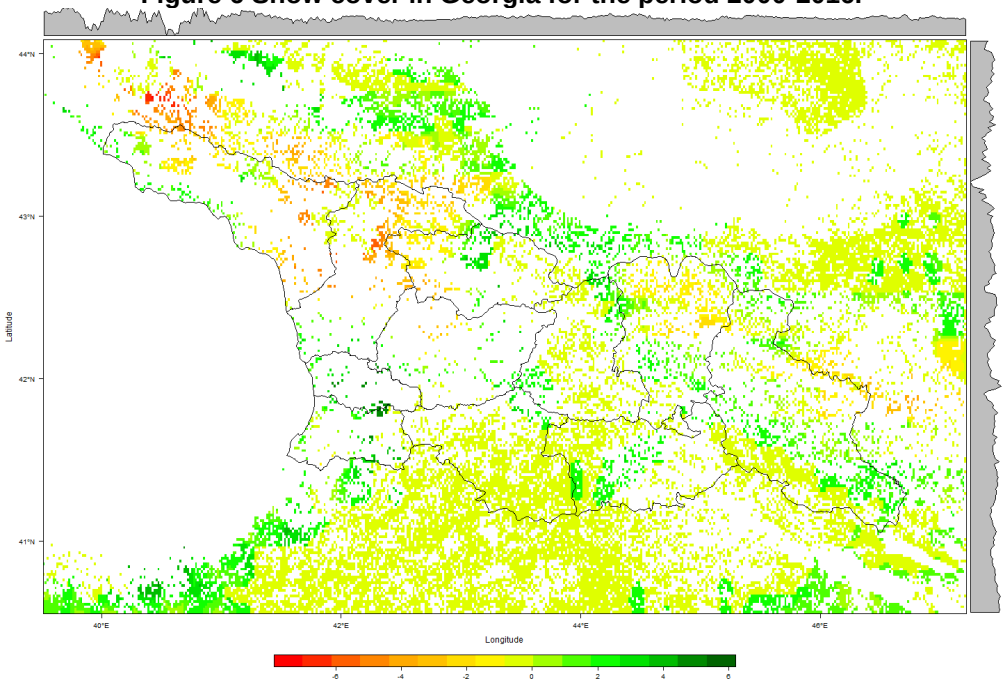



**Figure 7 Significant change in annual rainfall 1981-2017 in pastoral areas.[10]**

53. According to the Initial National Communication Report to the UNFCCC published in 2014 and the NAPA published in 2017, the climate of Georgia is affected by global climate changes and variability. The clearest indicators include:

**Table 2 Climate Change impacts in Georgia**

| Resource | Impact |
|---|---|

[9] Analysis completed by IFAD. Data source: Landsat, NASA.
[10] Study performed by IFAD. Data source: CHIRPS/Climate Hazards Group-USGS - Sentinel 2 European Spatial Agency

| 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 increase of temperature (30–38C) water supply for animals 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 ponds are often subject to pollution due to animal high pressure.<br><br>The impact of climatic factors on riparian areas should also be taken into consideration, when rivers often change riverbeds flooding and eroding thousand hectares of soil every year, including population centres. 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. Torrential 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.<br><br>Heat waves, which are projected to increase in frequency and severity, 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.<br><br>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. 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. |
| **Vegetation and Biodiversity** | Change in temperature creates the displacement of natural boundaries at sensitive areas of eastern Georgia (forest ecosystems), the loss of resilience of flora and fauna to invasive species, the loss of natural ecosystems "corridors" for migration of rare and endemic species, the increased cases of forest fires (Summer 2017), the degradation of landscape diversity, and the loss of biodiversity in general. Those effects have a direct negative impact on livelihood. |

54. According to the National Adaptation Plan for Agriculture, relevant government institutions have limited systems, capacity and expertise to address challenges related to climate change efficiently as this is a relatively new challenge for the country. Capacity development, institutional strengthening and investment are the pillars of the projects led by IFAD and the Adaptation Fund and will ensure the building of capcity of both institutions and beneficiaries. The GoG has already identified priority measures to reduce the climate change adaptation deficit in rural areas by ensuring capacity building in the following domains: i) of technical offices of rural municipalities and villages to ensure climate resilience of infrastructures and services; and ii) of smallholders, associations and institutions in the field of natural resource management, sustainable livestock management systems including pasture management and other key topics.

## PROJECT OBJECTIVES

**Goal:** The overall goal of the project is to reduce the vulnerability of the dairy value chain to the deleterious impacts of climate change.

**Objective:** The project objective is to enhance the resilience to climate change of vulnerable dairy producers.

55. The project will achieve the stated goal and objective through three outcomes:

- **Outcome 1.1** An enabling environment developed through training and capacity building.
- **Outcome 1.2** Pasture Management Plans Implemented
- **Outcome 2.1** Climate-smart technology demonstrations and alternative livelihood diversification.

## PROJECT COMPONENTS AND FINANCING

**Table 3 Project Components and Financing**

| Project/Programme Components | Expected Outcomes | Expected Outputs | Countries | Amount (USD) |
|---|---|---|---|---|
| **1.** Climate-proofing pastoral ecosystem services (water management, pasture regeneration, and disaster risk reduction). | **Outcome 1.1** An enabling environment developed through training and capacity building. | **Output 1.1.1:** Climate resilient and DRR solutions for pasture rehabilitation and increased productivity promoted. | Georgia | 1,691,047 |
| | **Outcome 1.2.** Pasture Management Plans Implemented | **Output 1.2.1:** Climate resilient and ecosystem-based adaptive pastoral investments implemented. | | 1,103,064 |
| **2.** Supporting the climate resilience of market vulnerable smallholders. | **Outcome 2.1** Climate-smart technology demonstrations and livelihood diversification. | **Output 2.1** Climate-smart technologies and alternative livelihood measures promoted. **Output 2.2** Alternative, complementary, non-competitive, non-extractive livelihood jobs created. | | 1,128,080 |
| **Total** | | | | **3,922,191** |
| Project/Programme Execution Cost (9.1%) | | | | 358,727 |
| **Total Project Cost** | | | | **4,280,918** |
| Project Cycle Management Fee Charged by the Implementing Entity (8.5%) | | | | 363,876 |
| **Amount of Financing Requested** | | | | **4,644,794** |

**Table 4 Dates of the following milestones for the proposed project**

| Milestones | Expected Dates |
|---|---|
| **Start of Project/Programme Implementation** | **2020** |
| **Mid-term Review** | **2022** |
| **Project/Programme Closing** | **2024** |
| **Terminal Evaluation** | **2024** |

# PART II PROJECT JUSTIFICATION

## PROJECT COMPONENTS

56. The project is structured around two components:

- Component 1: Climate-proofing pastoral ecosystem services (water management, regeneration, and disaster risk reduction).
- Component 2: Supporting the climate resilience of market vulnerable smallholders.

Each component is explained in more detail below:

**Component 1: Climate-proofing pastoral ecosystem services (water management, pasture regeneration, and disaster risk reduction) USD 2,794,111**

57. This component aims to support the design and development of climate resilient pastoral ecosystem services to reduce the negative impacts from climate change and climate variability on agricultural and rural livelihood development. The historical climate trend has been one of longer dry periods and more intense rainfall leading to increased pasture vulnerability through increased flooding, soil erosion, mudslides and landslides that have adversely impacted the pastoral ecosystem services which the rural poor, including women, youth and the landless poor depend on for their livelihoods. In the future, the agriculture sector is expected to have to further adapt to increasing temperatures and changing rainfall patterns that will increase the prevalence of periods of drought and intense rainfall. In order to support the shift towards a climate resilient economy in agriculture in the targeted areas, the project will focus on the following outputs and activities:

**Outcome 1.1: An enabling environment developed through training and capacity building.**

**Output 1.1.1: Climate resilient and DRR solutions for pasture rehabilitation and increased productivity promoted.**

58. This output aims to build capacity and increase the level of awareness about climate change. Existing groups of pasture users will be identified and the development of formal PUAs will be promoted through the DiMMA project. The Adaptation Fund will support the climate proofing of the DiMMA investments through demonstrations targeted at the Pasture User Associations (PUAs) but also smallholder and progressive farmers on collective pasture management approaches and methodologies for improving grassland productivity and on introducing modern, innovative, climate resilient and cost-effective milk production technologies. Through contracting Service Providers (SP), the project will train the PUAs to design, develop and implement community-based Pasture Management Plans (PMP's) that will integrate Climate Change adaptation resilience and disaster risk-reduction (DRR) measures into the broader DiMMA project.

59. The activities under this output are:

- **Pasture management and adaptation demonstrations.** Climate resilient and DRR technologies and knowledge dissemination through exchange visits and demonstrations in 16 sites with over 1,200 field days for 6,000 farmers. Technological areas will include improved fodder varieties, improved fodder production and conservation techniques for year-round production (silage making, for higher nutritional content, better nutrient preservation, more palatability to livestock); manure composting; and climate resilient collective pasture management techniques including but not limited to the construction / rehabilitation of watering points; the restoration of degraded pastures; water management measures; measures to mitigate against the increased prevalence of torrential rain; and the restoration of riverine vegetation. As part of the demonstrations and under the supervision of the DiMMA M&E Officer responsible for implementation of the Knowledge Management Strategy (KMS), the project will oversee the production of awareness raising leaflets and visual learning material. These will be widely disseminated during the demonstration sessions as well as at DiMMA stakeholder platforms.

- **Design Pasture Management Plans (PMPs).** Train and provide technical backstopping to the 76 PUAs as well as smallholder and progressive farmers in the designing of the climate resilient PMPs. Areas will include: the designing of community-based pasture assessment maps, including GIS mapping; vulnerability assessments; annual pasture usage plans; pasture improvement plans; forage production and conservation as a means to build climate resilience; construction or rehabilitation of watering points; water management measures for pasture resilience; the restoration of degraded pastures; and restoration of riverine vegetation. The PMP's will include, but not be limited to: generating threat analyses, designing an adaptation strategy with related adaptation activities, a management plan, fees and revenue generation, and proposals for Pasture Adaptation Fund (PAF) grants.
- **Support a member-elected volunteer.**[11] Each PUA will appoint one member-elected volunteer who will coordinate with the DiMMA service provider and support the implementation of the PUAs. The volunteers will receive a small cash incentive to cover transport and communications expenses.
- **A baseline study** carried out in the first year of project implementation to establish future monitoring and impact assessment benchmarks

**Outcome 1.2: Pasture Management Plans Implemented**

**Output 1.2.1: Climate resilient and ecosystem-based adaptive pastoral investments implemented.**

60. This output focuses on the implementation of the PMPs that will have been designed by the PUAs with technical support from the SPs. The implementation of the activities that will climate-proof the environmental services provided by the pastures, will be made possible through the setting up of a PAF, that in turn will be financed by the Adaptation Fund and channelled by the Agriculture Projects Management Agency (APMA) in line with the design determined by the PMPs. The exact amount of each grant will be linked to the PUA membership, pasture area, level of poverty, livestock number, and institutional capacity of PUA and evaluated against agreed upon indicators. The climate-smart investments are expected to build resilience to climate variability into the agricultural productivity of a total of 50 lowland and 26 highland collectively-managed pastoral ecosystems with an estimated total surface area of 9,500 ha managed by 76 PUAs benefiting an expected 3,800 households.

61. The activities eligible under this output are:

- **The construction / rehabilitation** of watering points, particularly in summer pastures when they are increasingly vulnerable to extended periods of drought.
- **The restoration** of degraded pastures including forests through: rotation / fencing; improved vegetative cover and fodder yield through the interspersing of fodder with highly diverse native plant species such as grasses, leguminous plants and small bushes that are highly tolerant to extended summer droughts.
- **Water conservation** measures such as measures to retain water in soil; drainage; water spring restoration; and protection and shade through reforestation in water points. These activities will favour pasture resilience through increased water retention and regulation, improving water availability and decreasing evapotranspiration, thereby mitigating the threat of drought.
- **Torrential rain management.** Measures to mitigate against the increased prevalence of torrential rain leading to soil erosion, mudslides and floods. These activities will include the plantation of bushes and trees, that will protect against soil erosion and function as barriers against storms and high winds, while also serving as a possible source of by-products such as fruit, berries, fodder and wood.
- **Restoration of riverine vegetation** for better regulation of water; barriers against floods; improving water quality, and functioning as a source of fodder.
- **Fodder production:** fodder varieties for improved, year-round, quality fodder availability.
- **Silage production:** fodder conservation techniques for higher nutritional content, better nutrient preservation, greater palatability to livestock.

[11] Volunteers are also referred to as facilitators.

62. **<u>Component 2:</u> Supporting the climate resilience of market vulnerable smallholders USD 1,128,080.**

63. The project applies a resilience model that aims to build the capacity of households to face climate related shocks and stressors as well as promote technology transfers for climate change adaptation. In addition to helping restore, climate-proof and improve the productivity of the pastures, this component will target women and youth-headed households and the landless poor to reduce pressures on the ecological services and thereby improve agricultural productivity. This will be achieved through pilots promoting complementary, non-competitive and non-extractive forms of livelihoods that are not directly dependent on these eco-services. This component will also promote energy-saving and climate-smart pilots that will build climate change adaptation into the DiMMA project through mechanisation hereby improving the quality of the dairy produce.

**Outcome 2.1: Climate smart technology demonstrations and livelihood diversification.**

**Output 2.1.1 Climate-smart technologies and alternative livelihood measures promoted.**

64. Climate-smart infrastructure is an essential innovation that will introduce new energy and money saving technologies that will contribute to building climate adaptation into the dairy value chain. The project will target 3900 vulnerable market dairy producers with on-farm demonstrations. Precooling of fresh warm milk saves considerably on energy usage particularly when this is achieved through water at least 15$^{o}$C lower than that of the milk. Pre-cooling milk requires additional equipment inter alia pumps, tanks, pipes and fittings, but also crucially heat exchangers. For the best results in milk precooling, milk can be instantly cooled to 4$^{o}$C with ice and this energy demand will be met with renewable solar energy.

65. The activities eligible under this output are:

- **Energy-saving, climate-smart pilots.** Demand-driven, on-farm demonstrations will be held on topics such as climate-smart energy-saving milk pre-cooling heat exchanger technology, and solar power for reducing energy consumption in processing units.

**Output 2.1.2 Alternative, complementary, non-competitive, non-extractive livelihood jobs created.**

66. As part of the climate resilience model adopted by the project, demand driven, complementary, non-competitive and non-extractive forms of income will be promoted as a pillar in the strategy to reduce stressors on pasture eco-services, they also provide safety net diversification in case of a climate event. Each project region faces different challenges from an increasingly variable climate, the activities will therefore be assessed for their suitability given the climate modelling predictions for each region. The promotion of beekeeping, mushroom cultivation, greenhouses and orchards will increase the food security of these most vulnerable communities and build the economic-base of the target groups as a means of building climate resilience into the dairy value chain.

67. The activities eligible under this output are:

- **Beekeeping.** 250 market vulnerable farmers will be trained and supported with grants for beekeeping equipment. The project initially will support demonstrations that will be held in 10 locations with pilots of 16 beehives each including equipment such as smokers and smoking suits. Promoting beekeeping as a means of climate change adaptation will have multiple benefits as it improves income through added value processing as beeswax to make candles, soap etc.; it also provides improved pollination and traditional medicinal benefits.[12]
- **Mushroom cultivation** will be promoted as part of the package of complementary, non-competitive climate change adaptation income diversification jobs. Mushroom cultivation can directly improve livelihoods through the generation of fast yielding economic, nutritional and medicinal contributions.[13]
- **Greenhouses and orchards.** Closed water system greenhouses and orchards promoted in regions will provide for improved food security, sustainable water usage, job creation and function as a climate change safety net.

[12] FAO, 2011. Diversification booklet 1: Beekeeping and sustainable livelihoods (second edition). ISSN 1810-0775
[13] FAO, 2009. Diversification booklet 7: Making money by growing mushrooms.

## PROJECT BENEFITS

### Social Benefits

68. The Adaptation Fund project will generate social benefits by building resilience to climate vulnerability into the promotion of investments and activities aimed at enhancing and/or creating linkages between targeted vulnerable households, SPs and dairy aggregators along the dairy value chain. Georgia is a lower middle-income country suffering from persistently high poverty, high levels of rural poverty, and youth- and gender-disaggregated unemployment with a significant proportion of youth working in agriculture. The added impact of climate change on the sector means that smallholders and many youths are being pushed out of the dairy value chain. Within this context the project will target 3,900 market-vulnerable dairy producers, or 12,870 people (average household is 3.3 GEOSTAT), and it will also help 1900 households through establishing 76 PUAs for the rehabilitation and climate resilience of the pastures. To ensure youth inclusion the project will set targets of 30 percent participation in all sectors, including as SPs, in providing climate-smart mechanisation. The added value of youth inclusion beyond economic empowerment is the increased ease with which younger people adopt new technologies.

69. **The project will further target the landless rural poor.** 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 living below the poverty line own cattle, with no more than three heads. The project will support 620 non-commercial rural households with 250 pilot complementary, non-competitive, non-extractive livelihood projects to relieve pasture overgrazing. In doing so, it will prioritise women and youth to encourage and nurture new micro-enterprises to develop new additional sources of income and become producers of alternative commodities with growth potential or SPs for the wider community.

70. **The gender-sensitive approach** adopted by the project in targeting 30 percent women reflects their significant role in the livestock sector. Women are a vulnerable group that crosscut all types of beneficiaries. They play an important role in livestock rearing at the household or farm level, although mostly as labour; women are present among commercially-oriented farms in Georgia, as well as among SPs and as small-scale producers, especially in supporting premium quality cheese production. As with youth, women experience difficulties due to patriarchal attitudes, with limited access to decision-making at the family- and community-level, and limited resources and assets to increase and improve production.

### Economic Benefits

71. The project targets the vulnerable youth and women as well as the landless rural poor with enterprising activities aimed at climate-resilient economic regeneration and sustainable environmental management. 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, and by creating economic opportunities through resilient eco-businesses. In doing so the project will target 3900 market-vulnerable dairy producers; it will create 30 percent of jobs for youth and 30 percent for women, support 3800 jobs for the 76 PUA's, create 250 youth jobs in alternative livelihood activities, and 1900 will benefit from the improved pasture productivity.

### Environmental Benefits

72. IFAD is committed to enhancing environmental sustainability and climate resilience in small-scale agriculture, promoting the sustainable natural resource and economic base for rural people that makes them more resilient to climate change and environmental degradation. Climate adaptive and environmental benefits are built into the DiMMA project through Adaptation Fund support mitigating the identified adverse environmental and climate risks and helping beneficiaries adapt to the adverse impacts of a changing climate. The activities of the DiMMAdapt project are a product of the screening by IFAD of DiMMA through its Social Environmental and Climate Assessment Procedures (SECAP).

73. The SECAP assessment was carried out during the IFAD design missions by the Adaptation Fund team, that analysed and identified the environmental problems and risks posed by climate change. Based on the SECAP and other assessments undertaken during the preparation of the concept note and design of DiMMA the programme's climate risk was rated as moderate due to the exposure of Georgia's agricultural sector to historical and predicted variabilities in temperature and rainfall. It identified the risks and challenges from changing rainfall patterns causing historical trends such as

the increased prevalence of droughts and flooding, landslides, reduced soil permeability and resulting topsoil erosion.

74. The objective of DiMMAdapt is to ensure that the challenges identified in the SECAP are fully addressed and integrated into the IFAD DiMMA project. This will be achieved through interventions that both improve the environmental and climate resilience and resulting productivity of the pastures. It will also support the economic base of the rural poor and vulnerable target groups, helping them find alternative sources of income that reduce the pressures on the ecosystem services provided by the pastures, making them more resilient to the climate shocks.

75. Sustainable community-based environmental natural resource management (ENRM) measures to reduce risks related to climate change, will be one of the main benefits of the project. It will achieve this through raising the environmental awareness of the communities directly dependent on the pasture eco-services through field demonstrations and capacity building by SPs. The long-term environmental benefits will be ensured by demonstrating the importance of sustainable ENRM, but also the training of the PUA's to design PMPs. The environmental benefits of the sustainably managed pasture land will be ensured through the resulting pasture assessment maps; vulnerability assessments; annual pasture use plans; and pasture improvement plans. They will result in the construction of watering points for summer droughts; the restoration of 9,500ha of degraded pastures through fencing, improved vegetative cover, improved fodder management and introduction of resilient plant species, including highly resilient and diverse native plant species tolerant to drought; water management measures for both water conservation and restoration of water points, but also the DRR of flooding events through increased vegetative cover and better river management against flooding.

76. The second main environmental benefit will be two-fold. The project will focus both on strengthening the economic base of the rural poor to build resilience against climate shocks by reducing their dependency on the pasture eco-services through alternative incomes; and promote energy efficient mechanisation of the dairy value chain through milk pre-cooler heat exchangers and solar power technologies.

## COST EFFECTIVENESS

77. The Adaptation Fund project will be a blended project, fully integrated into the IFAD supported "Dairy Modernisation and Market Access Programme (DiMMA)" 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); also, the implementation of complementary project interventions in the project districts. In financial terms the IFAD loan for DiMMA will cover a total of around USD 1,160,000 in management costs as shown in the table below. These management actions will serve both DiMMA and DiMMAdapt.

**Table 5 Table showing cost savings for fixed costs**

| Costs | Unit | Quantity | Cost per unit USD | Standalone fixed costs USD |
|---|---|---|---|---|
| **PMU salaries** | | | | |
| Project manager | Person / month | 12 x 4 years | 2,950 | 141,600 |
| Finance manager | Person / month | 12 x 4 years | 2,832 | 135,936 |
| Accountant | Person / month | 12 x 4 years | 2,124 | 101,952 |
| Procurement specialist | Person / month | 12 x 4 years | 2,006 | 96,288 |
| M&E specialist | Person / month | 12 x 4 years | 2,006 | 96,288 |
| KM and gender specialist | Person / month | 12 x 4 years | 2,006 | 96,288 |
| Infrastructure engineer | Person / month | 12 x 4 years | 2,006 | 96,288 |

| Costs | Unit | Quantity | Cost per unit USD | Standalone fixed costs USD |
|---|---|---|---|---|
| **Sub-Total** | | | | **764,640** |
| **Operating costs – Office** | | | | |
| PMU office rent and annual utilities | Month | 12 x 4 years | 5,900 | 283,200 |
| Regional office rent and annual utilities | Month | 12 x 4 years | 767 | 36,816 |
| LCOs rent and annual utilities | Month | 12 x 4 years | 590 | 28,320 |
| **Sub-Total** | | | | **348,336** |
| **Operating costs – Transport** | | | | |
| Transportation costs for coordinators & facilitators | Vehicle / yr | 5 x 4 years | 1,000 | 20,000 |
| Fuel allowances PMU | Litres | 7,000 x 4 years | 1 | 28,000 |
| **Sub-Total** | | | | **48,000** |
| **Total** | | | | **1,160,976** |

78. The DiMMA project uses blended finance allowing it access different sources of funding in the form of private investments, concessional loans to the GoG, GoG co-financing and the Adaptation Fund grant. The private investments will focus on areas including equipment and productive commercial facilities and animal health; and the loans and co-financing will support value chain organisation, facilitating and incentivising private investment, supporting extension services and infrastructure. The cost-effectiveness of the partnership with DiMMA means that the Adaptation Fund will benefit from the blended finance and that the grants can be targeted where it is needed, namely in facilitating adaptive innovation, targeting activities that countries would be reluctant to take out loans for such as support the collective management of pastures.

79. As shown in table 6 below, the cost-effectiveness of the Adaptation Fund project is present throughout all the project's components and activities. It aims to create an enabling environment for a long-term sustainable approach to climate change adaptation for the pasture resources in the Imereti, Samegrelo-Zemo Svaneti and Samtskhe-Javakheti regions upon which the dairy value chain depend. It will achieve this in component one through outreach activities, demonstrations and by providing the beneficiaries with the required tools through capacity building and making use of the network of 76 PUAs set up by the IFAD DiMMA project, it will also cost-effectively make use of community volunteers for coordination with the SPs, adding to the sense of beneficiary ownership. The beneficiaries will learn how to map and monitor the pastures as well as design and implement PMPs.

80. The project will build on this cost-effective approach to implement sustainable low-cost no-regret measures to manage the natural resources and build climate resilience into the dairy value chain, hereby increasing productivity for long-lasting results. In component one the project will also adopt the most efficient and cost-effective, nature-based approach through the planting of trees, fodder and general vegetative cover for pasture restoration and water management improvement, thereby increasing water retention and decreasing evaporation. The project will increase yields through the planting of climate tolerant and highly diverse plant species; manage floods with riverine vegetation to strengthen flood defences; and plant trees to prevent soil erosion, mudslides and floods. Further cost-effective measures to adapt to changing water availability will be to construct watering points for the

periods of drought; livestock shelters for the increased frequency and intensity of heatwaves; and fences for shade and wind breaks.

81. Ensuring local ownership is a sustainable and cost-effective approach. The project will achieve this by developing an economic-based model to conservation and climate change adaptation in component two. By empowering the target groups through economic incentives for conservation and by educating them on the positive role that a sustainable natural resource management approach can have on improving resilience and long-term productivity, the project will ensure that those who depend on the pasture ecosystem services will, out of necessity, also become its stewards. This approach is cost-effective due to the high potential for a return on investment through job creation and it will be further strengthened as the pressures on the eco-services and its climate resilience capacity are relieved as beneficiaries diversify into alternative forms of income such as beekeeping, mushroom production, greenhouses and orchards. The project will also be piloting the introduction of climate-smart technologies. The introduction of milk pre-cooling heat exchangers and solar energy will improve the quality of the dairy products while reducing production costs but also the carbon footprint of producers. The potential for replication among the community is high which helps make this a cost-effective activity.

**Table 6 Table measuring cost-effectiveness through business as usual vs AF additionality**

| Business as Usual | Adaptation fund Additionality |
|---|---|
| **Component 1: Climate-proofing pastoral ecosystem services (water management, pasture regeneration, and disaster risk reduction).** | |
| **Vulnerability of pastures:** The historical climate trend has been one of longer dry periods and more intense rainfall leading to increased pasture vulnerability through increased flooding, soil erosion, mudslides and landslides that have adversely impacted the pastoral ecosystem services which the rural poor, including women, youth and the landless poor depend on for their livelihoods. Current pasture usage and management practices have a negative impact on animal productivity. It also exposes the pastures to overgrazing, land degradation and increases their vulnerability to effects of climate change.<br><br>**Low productivity of dairy animals.** Under a business as usual scenario, in the absence of AF additionality funding dairy cows would continue to remain of low productivity. This is caused by factors such as inadequate feeding of dairy animals which it is shown in paragraph 33, increases their GHG emissions; reduces the fertility of dairy cows; and reduces the genetic potential of animals. This is compounded by bad management of reproduction and short lactation period. | - Awareness will be raised for 6,000 farmers in technological areas including improved fodder varieties, improved fodder production and conservation techniques for year-round production (silage making, for higher nutritional content, better nutrient preservation, more palatability to livestock); manure composting; and climate resilient collective pasture management techniques including but not limited to the construction / rehabilitation of watering points; the restoration of degraded pastures; water management measures; measures to mitigate against the increased prevalence of torrential rain; and the restoration of riverine vegetation.<br>- The project will train and provide technical backstopping to the 76 PUAs as well as smallholder and progressive farmers in the designing of the climate resilient PMPs. Areas will include:<br>• Designing of community-based pasture assessment maps;<br>• Vulnerability assessments; annual pasture usage plans; pasture improvement plans; forage production and conservation as a means to build climate resilience;<br>• Construction or rehabilitation of watering points; water management measures for pasture resilience;<br>• Restoration of degraded pastures;<br>• Restoration of riverine vegetation.<br>- A baseline study will be carried out in the first year of project implementation to establish future monitoring and impact assessment benchmarks. |

| Business as Usual | Adaptation fund Additionality |
|---|---|
| | - 9,500 ha of pastoral land will be rehabilitated and managed benefitting 3,800 households. The Adaptation Fund will support the construction and rehabilitation of watering points; the restoration of degraded pastures; the management of torrential rain; restoration of riverine vegetation; fodder and silage production. |
| **Component 2: Supporting the climate resilience of market vulnerable smallholders.** | |
| **Milk Processing.** Most of the local milk (around 600M litres) is currently transformed by the farmers themselves. A very limited percentage of the locally produced milk (75 M ltrs) is processed in formal processing units with industrial processors mostly using milk powder while medium scale processors focus on cheese production that requires local milk. Without Adaptation Fund support DiMMA will promote the development of processing units without the additionality of reducing GHG through the promotion of innovative renewable energy solutions.<br><br>**Income diversification.** Several macro trends, of which the most important are climate change and EU approximation, will inevitably push a number of smallholders out of - and may prevent youth from choosing or finding employment in - the dairy value chain. Adaptation Fund additionality provides for alternatives to the dairy sector for the climate vulnerable and addresses the need for a more diversified and resilient rural economy, reducing the risk of income loss at household and community levels, while also encouraging climate vulnerable smallholders to opt out of the dairy sector. | - Adaptation Fund will support awareness raising pilots for 3900 vulnerable market dairy producers for innovative energy and money saving technologies that will reduce the GHG impact of the dairy value chain. The energy demand from instantly cooling fresh milk to 4$^{o}$C will be met from renewable energy sources.<br>- 250 market vulnerable farmers will be trained and supported with grants for beekeeping equipment. The project initially will support demonstrations that will be held in 10 locations with pilots of 16 beehives each including equipment such as smokers and smoking suits.<br>- The Adaptation fund will support job creation and diversification away from the dairy sector for the smallholders through promoting mushroom cultivation and Greenhouses and orchards. The exact number will be determined on an on-demand basis and budget restrictions. |

## STRATEGIC ALIGNMENT

82. Georgia is a signatory to several international conventions, including the UNFCCC, the Kyoto Protocol, and the United Nations Convention on Biological Diversity (UNCBD). These conventions have been ratified into national policies and action plans to which the project is aligned in order to build climate change adaptation and resilience into the dairy value chain and natural resources management, as described here below.

- **UNFCCC.** In alignment with the recommendations made in Georgia's Third National Communication (TNC) to the UNFCCC, the project will:
  - Reduce the risk caused by climate change such as mudflows by engaging the local population in the implementation of preventative measures to reduce the risk of mudflows.
  - Raise the awareness of the local population and local government on their role in effective implementation of measures against mudflows.
  - Support DRR through developing the monitoring capacity of local populations.
  - Promote the development of farmer's associations.
  - Facilitate of all kinds of windbreaks.
  - Introduce measures to assess and combat drought and reduced precipitation.

- Provide riverbank protection measures for reducing flood and flash flood risks;
- Promote the vegetative reclamation of abandoned and eroded lands;
- Develop a portfolio of activities to reduce risks for the development of animal husbandry in conditions of global warming (pasture management, improved animal feed).

- **National Biodiversity Strategy and Action Plan II (NBSAP II) 2014-2020.** The NBSAP II follows on from the original that was a product of the 10th Meeting of the Parties to the Biodiversity Convention. The NBSAP II defines a six-year action plan in the sphere of biodiversity protection and reasonable use of biological resources. The project is aligned through promoting stabilised ecological systems, natural habitats, species, endemic/native varieties and breeds, through the implementation of in-situ and ex-situ conservation activities; raising public awareness on the value of the country's natural heritage and the importance of its preservation for future generations; promote sustainable practices applied in agriculture, that minimise the impact on biodiversity, maintaining the wildlife of farmlands and the rich agrobiodiversity of the country, whilst contributing to the welfare of local communities.
- **Climate resilient poverty alleviation.** The project is aligned with the GoG programme operated by the ACDA, and the APMA, to alleviate poverty and boost production. The ACDA and APMA collectively operate grants aimed at inter alia beekeeping and dairy production through Agricultural Cooperatives, offering matching grants for purchasing dairy production equipment with special programs targeted at dairy processing and pasture management. Also, Enterprise Georgia facilitates private sector development, offering financial and technical assistance to SMEs. It facilitates access to finance by bank loan interest rate subsidies and partial collateral guarantee of new investments. The Adaptation Fund will support the promotion of climate change adaptation and reduce stressors on pasture eco-services in line with national programmes for poverty alleviation and productivity improvement ensuring long-term sustainability.
- **Agricultural Development Strategy (ADS) 2017-2020.** The Ministry of Environmental Protection and Agriculture (MEPA) through the ADS aims to improve food security by monitoring the food security situation in-country and providing support to subsistence farmers to reduce their risk; by supporting further commercialization of the agriculture sector and facilitating increase of income from farm wages; by raising the level of food self-sufficiency in Georgia. DiMMAdapt is in alignment with the 20 basic recommendations developed by MEPA on food security and nutrition, and the Food Security Bill, submitted to Parliament in July 2017 and that further reinforces the Government's commitment towards these issues.

## STANDARDS

83. As an integral part of the IFAD DiMMA project, the Adaptation Fund financed component is the result of IFAD's Social and Environmental and Climate Assessment Procedures (SECAP) screening process. Moreover, all IFAD supported projects are appraised before approval. During appraisal, appropriate experts and stakeholders ensure that the project has been designed with a clear focus on agreed results. The appraisal is conducted through the formal meeting of the Quality Evaluation Committee established by IFAD. The committee members are independent in that they should not have participated in the formulation of the project and should have no vested interest in the approval 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. The project also adheres to the Social and Environmental Policy of the Adaptation Fund.

84. The project will respect and adhere to the national laws and codes of the GoG, in particular the project will comply with the following GoG 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, DiMMAdapt 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 the endangered plant species; regulating harmonized interrelations between these components. The project will ensure adherence to the forest code through the design and development of the PMP's that will promote the conservation and regeneration of natural landscapes used as pastures, including forests.
- **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 DiMMAdapt project, this will be achieved in multiple approaches including through awareness raising demonstrations, training, the development of PMPs to ensure pasture and fodder conservation, increased productivity but also DRR with reduced flooding, mudslides and general land degradation.

## DUPLICATION

85. Following in-country consultations the project design missions verified that there is no risk of duplication with other projects or programmes. The AF project is a result of a thorough national assessment of the climate change adaptation needs and recommended course of action, that have been presented in the Climate Change National Adaptation Plan (CCNAP). The CCNAP was a product of the IFAD / GEF project Enhancing Resilience of Agriculture Sector in Georgia (ERASIG) that built climate change resilience into IFAD's preceding project: the Agriculture Modernisation, Market Access and Resilience Project (AMMAR). The needs assessment process from these IFAD and GEF projects and the detailed analysis of the synergies and potential overlaps with other projects, as displayed in the table below, shows that the majority of the projects and initiatives have either already been completed or do not overlap geographically with the project area of intervention. Drawing lessons learned from thematically relevant projects in different regions to the DiMMA / DiMMAdapt, is challenging as the climate modelling predicts that each region in Georgia will be impacted differently by climate change.

**Table 7 Comparative and synergies table with other projects and partners.**

| Other Projects / Partners | Summary | Geographic overlap with proposed project area of intervention | Synergies with the proposed project. |
|---|---|---|---|

| Other Projects / Partners | Summary | Geographic overlap with proposed project area of intervention | Synergies with the proposed project. |
|---|---|---|---|
| IFAD / GEF-SCCF (USD 5.3m) "Enhance Resilience of Agriculture Sector in Georgia (ERASIG)". 2015 - 2018 | The project aims to enhance the adaptive capacity of farmers to climate risks through resilient agricultural systems. | National project with regional overlap in all regions: Imereti, Samegrelo-Zemo Svaneti and Samtskhe-Javakheti | Improving water availability and smallholders' income through investments in climate-resilient systems and technologies. Although no overlap in the type of technologies. |
| IFAD / GEF / MoA / Ministry of Environment and Natural Resources Protection. Climate Change National Adaptation Plan (CCNAP) for Georgia's Agricultural sector. 2017 | A knowledge product of the IFAD/GEF ERASIG project providing climate change impact analysis and recommendations for the Pasture ecosystem services, the livestock farming sector and other agricultural products. | Positive overlap with all regions: Imereti, Samegrelo-Zemo Svaneti and Samtskhe-Javakheti | The activities of DiMMAdapt are based on the recommendations by the CCNAP on building climate resilience into Georgia's pastoral ecosystems and livestock farming sectors. |
| EU-funded and implemented by UNDP (USD 1.4m) "Sustainable management of pastures in Georgia programme" 2013 - 2016 | Restoration of 4000ha of degraded pastures.<br>Pilot farms established to demonstrate sustainable pasture management.<br>Establishment of veterinary service for 30,000 sheep. | No regional overlap | |
| SDC funded (CHF 5m) programme "Market Opportunities for Livestock Innovators (MOLI) 2011-2018 | Reduction of rural poverty by using a Making Markets Work for the Poor (M4P) approach in livestock, milk and meat sectors. | No regional overlap | The programme worked with veterinarians, artificial insemination providers, feedstuffs, fodder, seeds, fertilizer and other supporting functions in the market system, and milk processors. |
| EU-funded and implemented by World Vision (USD 0.8m) "Economic development for IDPs in Georgia" 2010-2012 | 10 demonstration plots established for beekeeping, soil farming and animal husbandry.<br>10 demonstration plots for food processing facilities. | No regional overlap | The use of demonstration activities to promote beekeeping and food processing facilities. |
| DANIDA-SDC (CHF 11m) **"**Rural Economic Development in southern Caucasus" (RED) 2012-2017 | Strengthen the Potato and Dairy Value chains through the introduction of modern technologies, business practices, marketing tools, public awareness/promotion and internationally-recognized quality standards in order to enhance the financial viability of the potato and dairy/livestock sectors, increase incomes | Samtskhe-Javakheti | The project introduced modern dairy technologies to contribute to economic development. |

| Other Projects / Partners | Summary | Geographic overlap with proposed project area of intervention | Synergies with the proposed project. |
|---|---|---|---|
| EU (EUR 102 million) "European Neighborhood Programme for Agriculture and Rural Development" (ENPARD) 2013-2020 | Main goal is to reduce rural poverty. Programme assistance is provided to the government and also to NGOs working directly with communities on the ground. | Country-wide programme | Poverty reduction. |
| EBRD Implemented by UN Food and Agriculture Organisation - FAO (USD 5m) "Improving food safety in Georgia's dairy sector" 2016-2017. | The central component of the programme is training and knowledge transfer to farmers in the dairy sector including encouragement of investments to the sector. | No regional overlap | Training and knowledge transfer to farmers in the dairy sector and encouraging investment. |
| GoG Agricultural Cooperatives Development Agency (ACDA) | Supports cooperatives through inter alia grants and subsidies for improving and increasing milk and dairy production, streamlining milk collection and processing, upgrade quality of milk and dairy products, cattle breed improvement. Provides capital investment and technical assistance to agricultural cooperatives for equipping them with modern milk collection and processing infrastructure; for purchasing laboratory equipment to control raw milk and necessary equipment for artificial insemination to improve breeds. | Country-wide | Supporting farmers with technological upgrades for improved milk collection, processing, technical assistance and artificial insemination for improved breeds. |

## LEARNING AND KNOWLEDGE MANAGEMENT

86. Learning and knowledge management are integrated throughout the project from its inception. The project is based on a knowledge product of the IFAD/GEF ERASIG project: The Climate Change National Adaptation Plan. The CCNAP analysed and produced recommendations on the impact of climate change inter alia on both pastures and on livestock farming. The sustainability of AF investment rests on capacity building provided by the SPs in training PAUs in pasture assessment and mapping and management, forage production and conservation. As a result of this learning, the project will generate knowledge through the designing of community-based pasture assessment maps, vulnerability assessments, annual pasture use plans, pasture improvement plans and ultimately the Pasture Management Plans. The project will also actively engage in outreach activities through demonstrations that will increase awareness, these will be in: (i) fodder production; (ii) fodder conservation techniques; (iii) manure management; (iv) energy-saving, climate-smart pilots; and (v) collective pasture management.

87. DiMMAdapt will benefit from the cost-effectiveness of being fully integrated with DiMMA and the knowledge management component thereof, that will be managed by the M&E officer as part of the DiMMA KMS. The KMS for DiMMA will be further defined in IFAD's Project Implementation Manual (PIM), but will include the knowledge material generated from DiMMAdapt. These will include the CCA and gender awareness raising leaflets and visual learning material that will be produced as part

of the demonstrations under component 1. They will be distributed widely among the participants as well as at DiMMA stakeholder platforms comprising representatives of all types of cluster stakeholders includingl beneficiary farmers, processors and service providers who meet the eligibility criteria of the DiMMA programme, in particular young people and women. Additionally, the M&E officer will also oversee the completion of the impact assessment at the end of the project cycle that inter alia will also collect stories, lessons learned and best practices for future upscaling.

88. The results, lessons learned and best practices generated from DiMMAdapt will have an enhanced impact as they will contribute directly to the DiMMA national dairy policy dialogue forum through the Ministry of Agriculture (MoA). This will bring together representatives of Government, producers, Georgian Farmers' Association; national level service providers; processors, research institutions; NGOs and donors - and the costs of which will be supported by DiMMA. The forum will promote an innovative nationwide dialogue for better regulation of pastures and rangeland ecosystems but also crucially, for the development of a Climate Change Adaptation strategy for the livestock sector – if accepted by the government, policy topics will include climate change adaptation/mitigation, disaster risk reduction and environmental sustainability.

## CONSULTATIVE PROCESS

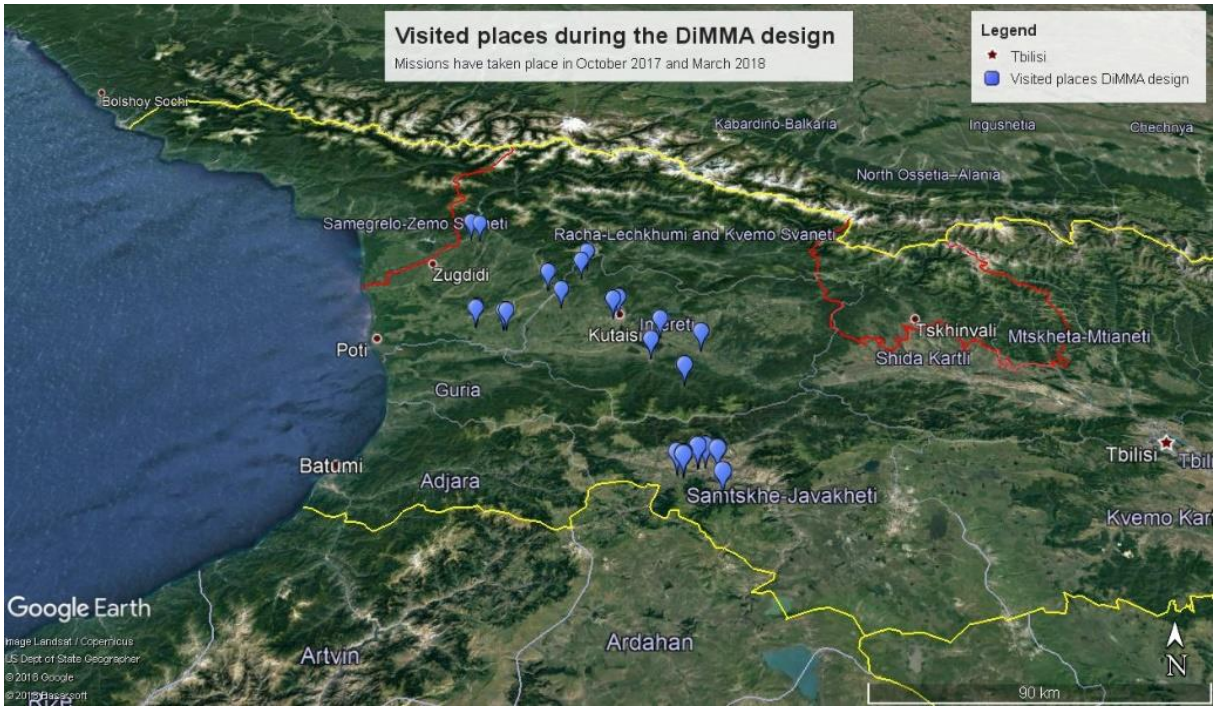
89. The design of the DiMMAdapt and DiMMA projects happened over the course of two design missions, the first one in October 2017[14] and the second in March 2018. The eleven-strong team of IFAD specialists and consultants met with stakeholders at national, international and beneficiary levels. These included representatives from the Department of External Relations, Ministry of Environmental Protection and Agriculture (MEPA), Ministry of Finance (MoF), and Ministry of Regional Development, municipalities and local government.

90. The team also met and discussed with inter alia a broad selection of women groups (presented in Annex 2), international donors and development partners: the European Bank for Reconstruction and Development (EBRD), the Swiss Agency for Development and Cooperation (SDC), the Swedish International Development Cooperation Agency (SIDA), the French Embassy, the Food and Agriculture Organization (FAO), the United Nations Development Programme (UNDP), Mercy Corps, the Cooperative for Assistance and Relief Everywhere (CARE), the EKS-HEPER and Oxfam. While in field in rural Georgia, the team visited and met with large and medium/small-scale dairy processors, commercial banks and microfinance institutions, service providers, farmer cooperatives/producer associations and smallholder farmers (see figure 8 below for the locations visited in the 3 regions of the project).

91. Checklists were used for both the environmental/climate change data gathering as well as the gender-disaggregated data gathering. The latter is presented in Annex 5 while the former in the last Annex of the SECAP in Annex4 (pages 102-105). The areas that the gender questions focused on covered defining the target group; actions recommended for a particular beneficiary; possible relevant policies / partnerships that would provide support towards improved livelihoods for a particular category of beneficiary; and the shocks the beneficiary category were likely to experience during project implementation or after the project.

[14] List of persons met available in Annex 2

**Figure 8 Diagram of locations visited by IFAD and AF design team.**




## JUSTIFICATION FOR FUNDING

92. This project functions as additional climate adaptation financing to build resilience to climate change variability into the IFAD baseline dairy value chain investment. It aims to promote a shift away from the baseline scenario characterised by an over-dependency of the dairy value chain on pasture eco-services that are in turn being degraded both by direct anthropogenic pressures as well as those from an increasingly variable climate. The table below outlines the baseline and the alternative adaptation scenario, the Adaptation Fund will help materialise.

**Table 8: Table showing the baseline and alternative project benefits.**

| Baseline scenario | Alternative Adaptation Benefits of Adaptation Fund Project. |
|---|---|
| **Increased periods of drought.** Significant decreases of overall annual rainfall have already been observed at local level in most of the municipalities. 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.<br>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 due to a high concentration of animals.<br>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 causes the drying out of grassed and resulting pasture degradation. | The project will equip the PUAs with the knowledge and technical capacity to sustainably assess, monitor and manage the pastures through the designing and implementation of the Pasture Management Plans.<br>Through the PMPs the project intends to adapt to the changing climate and mitigate against any adverse impact of reduced precipitation and increased temperatures. These will include the construction / rehabilitation of watering points, particularly in summer pastures when they are increasingly vulnerable to extended periods of drought. Shade points will also be constructed to provide relief for the livestock as will the restoration of spring water, improved drainage for soil water retention.<br>The project will also pilot new resilient fodder plant species, including highly resilient and diverse native plant species tolerant to drought, fodder conservation, and silage techniques that will increase the productivity of the pastures.<br>The project will also address the threat that climate change poses to milk production, through the promotion of climate-smart technology pilots. The milk pre-cooling heat exchanger pilots will increase the quality of the milk produce offsetting reductions in production, but also come with environmental cost-effective and sustainable benefits. The energy requirements will be met through renewable solar power which will reduce the carbon footprint. |
| **Increase of torrential rain and flooding.** Research 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.<br>The impact on the steep slopes of the Alpine pastures, means that the area is affected significantly by topsoil erosion and denudation causing decreased meadow/pasture productivity. | Through the design and implementation of the PMPs, the project will promote a DRR approach to reduce soil erosion, the risk of flooding and mudslides. This will be achieved through cost-effective and no regret nature based measures. The PAUs will be equipped with the tools to assess, monitor and implement PMPs that will include the planting of bushes and trees to protect against soil erosion and function as barriers against storms and high winds, they also serve as a possible source of by-products such as fruit, berries, fodder and wood. River flood waters will be managed through the restoration of riverine vegetation as barriers against floods, to reinforce river banks and function as sources of fodder. |
| **Climate change impact on livestock.** Changing climatic conditions will affect the high-productive breed of livestock, rather than indigenous species. The high productive species will be more susceptible to permanent nonspecific factors of resistance such as: the protective ability of the skin mucous membranes; the protective ability of normal microflora; phagocytosis and barrier function of a lymphatic system; humoral factors (lysozyme, complement, normal antibodies and others); Physiological factors (temperature, changing processes, and metabolism). | The DiMMA project will strengthen the adaptive capacity of the livestock to the increasingly variable climate. This will happen by supporting a programme of AI and crossbreeding of rustic breeds of cows resilient to climate shocks. The breeds being introduced are better suited to the local climate and suffer fewer complications from increasingly hotter climate and will increase the productivity of the pastures. The implementation of the DiMMAdapt ESMP will ensure that awareness is raised about the impact additional livestock have on GHG emissions and climate change. |

| Baseline scenario | Alternative Adaptation Benefits of Adaptation Fund Project. |
|---|---|
| **Pressures on pastures.** Sub-Alpine fields have been subject to increased grazing due to increases in population, putting added pressure on soils already degraded because of overgrazing and increased topsoil erosion.<br>The high mountain pastures are also under significant overgrazing stress. They are overloaded with cattle and goats causing added erosion and degradation of grass cover. Elementary plot-substitutive grazing regimes are not being followed and there are no pasture assessment and management mechanisms in place. | The project will address the overgrazing pressures by supporting the training of PUA's in pasture assessment and management. These will contribute to the comprehensive PMPs being implemented by the DiMMA project and will include areas such as vulnerability assessment, livestock inventory, pasture assessment map, annual pasture use plan and map, pasture improvement plan and infrastructure improvement plan.<br>The project will promote initiatives to manage the pressure stressors weighing on the pastures. It will achieve this through dual approach of piloting economic incentives to encourage the market-vulnerable smallholders not to depend on the pasture eco-services. The pilots will include beekeeping, mushroom growing, greenhouses, and orchards. By introducing fodder conservation and diversification pilots, the project will also improve the productivity of the pastures, thereby reducing the overgrazing pressures. |

## PROJECT SUSTAINABILITY

93. The project is based on, and is driven by, sustainability principles that are promoted throughout the project activities. The project's sustainability rests on beneficiary empowerment through: awareness raising; capacity building; economic incentives and job creation; cost-effective and environmentally friendly and long-lasting solutions to help restore, improve and/or protect the pasture eco-services; pilot projects for climate-smart technologies; and promote alternative forms of non-extractive income generating activities to build climate resilience to a climate event. The project long-term sustainability is ensured through the alignment of its activities to national programmes offering grants, subsidies, facilitated bank loan interest rates, collateral guarantees aimed at the activities promoted in the DiMMAdapt project.

94. Component one is rooted in the community through supporting the SPs to train beneficiaries and provide technical backup on how to design and implement the community-based Pasture Management Plans, including on how to develop pasture assessment maps; vulnerability assessments; annual pasture use plans; pasture improvement plans; forage production and conservation plans. The 76 PUA's will be given the tools and increased awareness on the importance of sustainable pasture ENRM towards building resilience to an increasingly variable climate and that this will provide a sustainable productivity improvement. The activities to be implemented by the PUAs will be based on cost-effective and sustainable no-regret nature based solutions through the planting of trees, bushes, fodder diversification and conservation, fences and general vegetative cover. These will provide sustainable solutions towards pasture restoration, water and fluvial management, to mitigate against increases in the number and temperature of hot days, increase in periods of drought, flooding, soil erosion and mudslides.

95. Component two focuses on developing a sustainable economic-based model to conservation and climate change adaptation. This will be achieved through creating jobs for the market-vulnerable smallholders that that don't depend on the pasture eco-services thereby relieving pressure on the pasture eco-services such as beekeeping, mushroom farming, and greenhouses and orchards. The project will also pilot climate-smart milk precooling heat exchangers, that will improve milk production and quality and is more environmentally-friendly than traditional methods. Solar power will also be introduced, all of which is both environmentally sustainable but also sustainable in the long-run as the likelihood of future adoption by producers is high.

96. The project exit strategy will be ensured through the sustainability of the project as farmers learn of the benefits of sustainable pasture management by seeing the impact in improved productivity through pasture rehabilitation and sustainable management. Equally as the market driven approach

allows farmers to function independently, they will out of self-interest, provide essential self-reinforcing and lasting results. Policy actions emerging of the policy dialogue taking place through the DiMMA project will further strengthen sustainability.

## ENVIRONMENTAL AND SOCIAL IMPACT RISKS

97. Much of the DiMMAdapt project has been based on the thorough national climate change adaptation assessment that resulted from the previous IFAD Agriculture Modernisation, Market Access and Resilience Project (AMMAR). As such, the project is fully aligned with the climate change needs and priorities of Georgia. Furthermore, the project has also benefitted from two environmental and social screening reviews. Firstly, the IFAD SECAP (presented in annex 4) that ensured that the DiMMA project meets IFAD's environmental and social considerations by building environmental and social safeguards into the larger project through DiMMAdapt. Secondly, the DiMMAdapt project has also been screened against the fifteen Adaptation Fund Environmental and Social Principles (ESP) as well as an Environmental and Social Management Plan (ESMP) having been designed and fully integrated into the project. Annex 3 presents the ESP review in table 17 as well as the ESMP in table 18 including a detailed risk analysis, the identification of mitigation and enhancement measures that have been fully integrated into DiMMAdapt's monitoring, reporting and reviewing processes; the public consultation activities; the delegation of responsibilities; project costs; and capacity building.

**Table 9 Adaptation Fund environmental and social checklist**

| 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 | Through partnership with MEPA, the PMU (government authorities) will ensure compliance of relevant national laws. |
| Access and Equity | | There may be a slight risk that some project activities may exacerbate existing inequalities, through targeting some support to "lead farmers", generally better off than their peers.<br>DiMMAdapt will benefit from IFAD's lessons learned exercise on its previous project in Georgia with an improved targeting strategy. This will ensure access and equity for beneficiaries.<br>Compliance will be monitored through progress reports; supervision missions; the mid-term review; impact assessment; and terminal evaluation. |
| Marginalized and Vulnerable Groups | X | There is no risk to marginalised and vulnerable people as DiMMAdapt will benefit from IFAD's lessons learned exercise on its previous project in Georgia with an improved targeting strategy which includes marginalised and vulnerable groups that is fully integrated into DiMMAdapt, and specific activities for diversification. |
| Human Rights | X | The project will respect international human rights, it integrates overarching human rights principles in order to strengthen social and environmental sustainability by including measures to assist the republic of Georgia in these respects. Georgia has furthermore not been cited in any of the Human Rights Council Special Procedures. |
| Gender Equity and Women's Empowerment | | DiMMAdapt will benefit from IFAD's lessons learned exercise on its previous project in Georgia with an improved targeting strategy. This will ensure access and equity for beneficiaries in general, but also for ensuring to include the marginalised and vulnerable groups.<br>Compliance will be monitored through progress reports; supervision missions; the mid-term review; impact assessment; and terminal evaluation. |

| Checklist of environmental and social principles | No further assessment required for compliance | Potential impacts and risks – further assessment and management required for compliance |
|---|---|---|
| Core Labour Rights | | Beneficiaries may be exposed to the risk of accidents while engaging in project implementation activities.<br>The project will ensure that all appropriate health and safety measures are taken in accordance to both national and international standards. Georgia has been a member of the ILO since 1993 and it has ratified the eight Fundamental Conventions.<br>Compliance will be monitored through progress reports; supervision missions; the mid-term review; impact assessment; and terminal evaluation. |
| Indigenous Peoples | X | Not applicable as there are no indigenous peoples in Georgia. |
| Involuntary Resettlement | X | The project does not involve any involuntary resettlement. At all times the project will work through the national authorities, namely MEPA, to ensure that the vulnerable and marginalised will not be adversely affected.<br>The project will engage in participatory consultative processes that will ensure that everyone's voice can be heard and any concerns addressed. IFAD will broadly advertise its grievance procedures. |
| Protection of Natural Habitats | | There is a risk that Project activities could be conducted in designated areas of natural beauty.<br>The exact project site locations will be the result of detailed analyses that will rank all communes in the target areas along identified key criteria. The project will identify and exclude national parks in this process and will not operate within areas of important biological diversity.<br>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. New genetic materials will not be introduced in Georgia (neither animal not plant) nor any natural habitat affected. |
| Climate Change | | There is no risk of increased GHG emissions as this will be a gradual and natural rate of replacement of cows.<br>Nevertheless, the ESMP and M&E framework includes the monitoring of the LITS programme and reporting on the numbers of cows bred for the project and compare the numbers with the natural increase for the project areas. |
| Pollution Prevention and Resource Efficiency | X | The project will meet international and national standards for pollution prevention and resource efficiency. |
| Public Health | X | The project is designed and will be implemented in a way that avoids potentially significant negative impacts on public health. |
| Physical and Cultural Heritage | X | The project will not have any adverse impacts on physical and cultural heritage of the people in the intervention areas identified. |
| Lands and Soil Conservation | | The PAUs will design and implement collective pasture management plans (PMPs) for improving pastoral land. The project will result in improved vegetative cover, improved fodder management and planting of plant species, including highly resilient and diverse native plant species tolerant to drought; water |

| Checklist of environmental and social principles | No further assessment required for compliance | Potential impacts and risks – further assessment and management required for compliance |
|---|---|---|
| | | management measures for both water conservation and restoration of water points, but also the DRR of flooding events through increased vegetative cover and better river management against flooding.<br>This will be monitored through a baseline study; progress reports; supervision missions; the mid-term review; impact assessment; and terminal evaluation. |

## GRIEVANCE AND REDRESS MECHANISM

98. The proposed project will utilize the existing IFAD's grievance mechanism to allow affected to raise concerns that the proposed project is not complying with its social and environmental policies or commitments. The consultative process with the community and beneficiaries aims to ensure prevention of grievances that might arise from the project activities. However, if at all, there are any grievances, the below redressal mechanism is proposed:

    - Grievance redressal mechanism would be shared with the community during the project inception workshop and subsequent meetings with the beneficiaries
    - As part of the grievance redressal mechanism, the contact details of the project partners - Cluster Coordinator/ Project Manager would be made available to stakeholders including project beneficiaries and the community. Contact numbers would be displayed at common or predominant places along–with the project details. This is expected to promote social auditing of project implementation. The grievance mechanism will be available to the entire project intervention areas. However, the functionality of the mechanism rests with the beneficiaries considering that the project including the grievance mechanism is envisaged to be a bottom up approach.

99. Grievances are aimed to be addressed at the field level by the project team which will be the first level of redressal mechanism. If the grievance is not resolved at the field level, it will be escalated to the PMU and then to IFAD who will be responsible for addressing grievances related to violation of any of the provisions of Environmental and Social Policy of the Adaptation Fund. All grievances received and action taken on them will be put up before the PMU and Steering committee meetings and will also be included in the progress reports to the NIE for reporting and monitoring purposes.

# PART III IMPLEMENTATION ARRANGEMENTS

## IMPLEMENTATION ARRANGEMENTS

100. **The implementation** of the project will build on IFAD's existing project coordination and management structure that is currently implementing five projects for a total value of USD 119.1 million. The Adaptation Fund project aims to build climate resilience into the IFAD's USD 59 million Dairy Modernisation and Market Access Programme and is fully integrated into the DiMMA project management structure. The MEPA will be the lead executing agency through the Programme Management Unit (PMU) established in the MEPA Department of External Relations which manages IFAD and World Bank funded projects. The Ministry of Finance (MoF) will act as the official Representative of Georgia as the Borrower/Recipient in this capacity the MoF will be responsible for: (i) providing inter-agency coordination when required; (ii) fulfilling the government fiduciary oversight and management responsibilities; and (iii) providing sufficient counterpart contribution in a timely manner to finance the Programme activities (where agreed).

101. **The programme structure.** The project will commence implementation in the second year vis-à-vis DiMMA's schedule. It will comprise the PMU in Tbilisi that will be responsible for day-to-day management and implementation of programme activities, covering overall management / supervision, fiduciary aspects, procurement, monitoring and evaluation. The Regional Office (RO) located in Kutasi will operate from rented premises and be responsible for technical backstopping, implementation support and supervision of the activities of the Local Coordination Offices (LCOs) in each region. It will also supervise the activities of the SPs and ensure the technical adequacy of the inputs provided by the Service Providers. LCOs will be based in each of the three regions and will support the implementation of DiMMA / Adaptation Fund project activities at the local level. The LCOs will work closely with municipal staff, both administrative and technical, in step with Georgia's unfolding decentralisation process – it will especially emphasise the downward accountability of public service providers, and of private service providers contracted by the programme. Wherever possible, the LCO will be housed in the municipality or other government premises. Where required they will operate from rented premises and will be resourced by DiMMA.

102. The SPs hired by the project will be vetted as competent individuals, consultancy firms, NGOs, government organisations and commercial Dairy enterprises. They will provide technical services such as training capacity building and implementation support such as conducting Training of Trainers (ToTs) for field facilitators and train PUAs in developing and implementing PMPs. The volunteers / field facilitators will be a pool of young graduates hired in each of the regions to facilitate programme implementation and they will be capacitated through training by the SPs. While the CBSPs will mainly concentrate their inputs on the processors and service providers the field facilitators will concentrate on the training capacity building and implementation support to the market vulnerable dairy producers. As and when required, the programme will hire the field facilitators from the pool of professionals trained for this purpose based on their past performance and availability.

103. IFAD will supervise the project directly and the IFAD PMU will provide continuous back support and guidance. A baseline study will be carried out in the first year of project implementation to establish future monitoring and impact assessment benchmarks. A Mid-Term review will be carried out jointly with the government to evaluate project progress, identify areas for further improvement and revise project approach, activities and budgets on the basis of MTR findings.

104. **Gender.** DiMMAdapt will be overseen by the Project Management Unit (PMU) gender focal point. The Ministry of Environmental Protection and Agriculture (MEPA) is the lead executing agency through the PMU. The gender focal point at the PMU will ensure that gender aspects are reflected in monitoring and evaluation principles that will ensure gender disaggregated data and knowledge will be produced. It expected that the PMU focal point would dedicate approximately 50 percent of her/his workload to tackle gender-related management aspects in programme implementation. Moreover, a gender perspective will be systematically mainstreamed at individual and organisational levels into PMU management from the start via quantitative and qualitative participatory monitoring and evaluation, ad

hoc studies, and workshops. As per AF gender policy, during implementation the gender focal point will ensure project compliance with the gender policy guidelines. The assessment will include but not be limited to the questions under Implementation, Performance Monitoring and Evaluation.[15]

## FINANCIAL RISK MANAGEMENT

105. Good governance is one of Georgia's strongest points, since the country has taken a number of critical steps toward improving its anti-corruption policies in recent years. On the Transparency International 2016 Corruption Perception Index Georgia ranks as number 44 out of 176 countries, which is considered to be among the best in post-Soviet countries (Baltic States excluded). IFAD's experience and the assessment made during formulation is that in general management terms, the satisfactory performance of the existing Programme Management Unit (that will implement the Adaptation Fund project and DiMMA) in managing ongoing IFAD projects provides a solid foundation for overall programme management that will help mitigate various risks. Notwithstanding, during the course of programme implementation several risk factors are anticipated. The main potential risks to programme success and mitigation strategies are summarized in the table below.

**Table 10 Main potential risks to programme success and mitigation strategies**

| Risk | Initial risk assessment (H = high, M = moderate, L = low) | Proposed mitigation measure | Final risk assessment |
|---|---|---|---|
| Low interest and capacity of smallholder dairy producers to adopt new climate smart approaches and technologies. | M | The programme will pay attention to technical and environmental capacity building and training as a key factor in the upgrading process. It will carry out demonstrations and raise general environmental and climate change awareness and train farmers on the economic and environmental benefits for the adoption of systems and new technologies. | L |
| The current policy and regulatory environment for pasture does not encourage the sustainable management of collective pasture, leading to degradation of this resource. | M | The programme will pilot small community–driven pasture management initiatives at local or municipality level, as a practical contribution to the policy discussion on pasture management. The national dairy platform in the DiMMA project will address national policy issues including those related to pasture and will advance the national agenda on pasture policy. | L |
| Climatic shock: the main effect of climate change on weather patterns is the increased occurrence of extreme weather events: droughts and flooding in particular. These weather shock can have a direct impact on animals but also contribute to the emergence of diseases | M | The programme will introduce climate smart infrastructure and will ensure that climate adaptation measures are implemented. It will in particular ensure that breeds used in crossbreeding strategies are resilient to climate shocks (utilization of rustic breeds); Promotion of fodder | M |

[15] https://www.adaptation-fund.org/wp-content/uploads/2017/03/GenderGuidance-Document.pdf

| | | | |
|---|---|---|---|
| | | conservation and of use of concentrate feeds will contribute to improving resilience; to drought; Surveillance of emerging diseases will be addressed as mentioned above. | |
| Insufficient capacities to appropriately manage the day-to-day implementation of the project | M | The PMU has administrative and financial management autonomy and will assumes the fiduciary management functions of the project.<br>IFAD will participate as an observer in all stages of the recruitment process.<br>The staff of the PMU will be linked to the project by renewable annual contracts based on a performance evaluation. | L |

## ENVIRONMENTAL AND SOCIAL RISK MANAGEMENT

106. The project has carried out a detailed Social, Environmental and Climate Assessment (SECAP) (see Annex 4) that informs the Environmental and Social Management Plan (Annex 3). It includes a summary of positive and negative impacts and a detailed assessment of how the project will address them in line with the 15 principles. Table 17 provides a detailed list of the identified risks as per the ESA vis-a-vis the relevant components and activities but also the potential impacts, mitigating measures and verification responsibilities. The ESMP is detailed in table 18 where the potential risks are detailed for each relevant principle is presented with the proposed mitigation measures, the monitoring plan, indicators and verification responsibilities. Furthermore, the design of the proposal is such that the outputs 1.1, 1.2 and 2.1 will be developed in more detail during implementation. To address the AF concerns at proposal approval stage, that it is not possible to sufficiently identify the risks associated with said outputs, ESP and gender risk assessments will be conducted as the activities are defined in sufficient detail. In alignment with the AF ESP guidance document[16] this will include technical identification and assessment of risks, effective consultation of stakeholder, a process for affected people to express grievance with the project/programme, monitoring and adaptive management.

## MONITORING AND EVALUATION

107. **Project Monitoring and Evaluation (M&E)** will be under the oversight of the PMU, and led by the M&E officer who will work closely with the implementing partners. The M&E system should: (i) produce, organize and disseminate the information needed for the strategic management of the Project, (ii) document the results and lessons learned for internal use and for public dissemination on the achievements and (iii) respond to the information needs of Adaptation Fund, IFAD and the Government on the activities, immediate outcomes and impact of the Project. A monitoring and evaluation manual that will describe a simple and effective system for collecting, processing, analysing and disseminating data will be prepared in the first year of the Project.

108. A computerized database will be developed that will enable the generation of dashboards used in IFAD projects. The system will be regularly fed from data collected in the field by the implementing partners and the various studies carried out as part of the projects' implementation. The monitoring and evaluation system will be coupled with a geo-localized information system (GIS) that will allow mapping and spatio-temporal analyses. Trainings will be organized to strengthen the capacities of the various stakeholders involved in the monitoring and evaluation system.

109. Day to day monitoring of implementation progress will be the responsibility of the project team, based on the project's Annual Work Plan and its indicators. During the first months of the project, the project

[16] https://www.adaptation-fund.org/document/guidance-document-implementing-entities-compliance-adaptation-fund-environmental-social-policy/

team will complete and fine-tune baseline data for each indicator, and will define and fine-tune performance. Specific targets for the first year of implementation, progress indicators, and their means of verification will be developed at the Inception Workshop (below).

110. **Project Inception Workshop.** A DiMMA/Adaptation Fund inception workshop will be conducted within two months of project start up with the full project team, relevant government counterparts and IFAD. The inception workshop is crucial to building ownership for the project results and to plan the first-year annual work plan. A fundamental objective of the Inception Workshop will be to present the modalities of project implementation and execution, and assist the project team to understand and take ownership of the project's goals and objectives.

111. **A Project Inception Report** will be prepared immediately following the Inception Workshop. It will include: (i) a detailed First Year/Annual Work Plan divided in quarterly time-frames detailing the activities and progress indicators that will guide implementation during the first year of the project; (ii) the detailed project budget for the first full year of implementation, prepared on the basis of the Annual Work Plan; (iii) a detailed narrative on the institutional roles, responsibilities, coordinating actions and feedback mechanisms of project related partners; (iv) a section on progress to date on project establishment and start-up activities and an update of any changed external conditions that may affect project implementation.

112. **Baseline study.** A baseline study will be conducted within the first year to collect data and serve as the basis for the assessment of how efficiently the activity has been implemented and results achieved. The study will include the target group and a control group which will be essential to determine the attribution of results to programme activities.

113. **Quarterly Progress Reports** will also be prepared by project implementing partners in the field, and submitted to the PMU to ensure continuous monitoring of project activities and identify challenges to adopt necessary corrective measures in due time.

114. **Technical reports** – such as a best practices and lessons learned report - will also be completed, as determined during the project inception report.

115. **Annual Project Report (APR).** The project team will prepare an APR to reflect progress achieved in meeting the project's Annual Work Plan and assess performance of the project in contributing to intended outcomes through outputs and partnership work. The format of the APR will be flexible but should include the following issues: (i) an analysis of project performance over the reporting period, including outputs produced and, where possible, information on the status of the outcome; (ii) the constraints experienced in the progress towards results and the reasons for these; (iii) the three (at most) major constraints to achievement of results; (iv) AWP and other expenditure reports; (v) lessons learned; (vi) clear recommendations for future orientation in addressing key problems in lack of progress.

116. **Annual Stakeholder Evaluation Workshops.** As part of DiMMA annual stakeholder evaluation workshops will be held that also will benefit the AF project. This will start from year 2 of the programme and will be convened by the LCOs. The achievements and the challenges facing programme implementation will be discussed and corrective steps and responsibilities suggested.

117. **Supervision** will be by IFAD (under its direct Supervision framework and guidelines), with a Supervision mission mobilized at least once per year. Additional implementation support from IFAD on specific identified issues will be mobilized if considered necessary by GoG and IFAD or recommended by the Supervision mission. The composition of the Supervision missions would be based on an annual supervision plan. The supervision plan would highlight, in addition to the routine supervision tasks (fiduciary, compliance and programme implementation), the main thematic or performance areas that require strengthening and would imply deployment of additional inputs for capacity building, in-depth analytical studies or review of existing policies.

118. **Mid-term Review (MTR).** The MTR will be carried out in year 3. It will assess operational aspects such as programme management and implementation of activities as well as the extent to which the objectives are being fulfilled and corrective actions needed for the programme to achieve impact. Depending on the achievements the programme and the resources available, the possibility of scaling up the activities to other regions will also be considered in consultation with the government. The MTR will also monitor data from the LITS programme to ensure cow numbers are not increasing a will make recommendations on corrective action if necessary.

119. **A Final Evaluation** will be conducted three months before project closure which will include the programme completion survey (below).

120. **Programme completion survey** (impact evaluation): Will include the same set of questionnaires included at baseline to allow for comparison against baseline results. In addition, a panel of households will be interviewed to provide a thorough analysis of programme impact. Moreover, analysis will be done by type of beneficiary, region and gender of household head. As part of the evaluation, stories, lessons learned and best practices will be collected for upscaling and dissemination. The impact survey will also review and report on the data from the LITS programme to report on final cow numbers.

**Table 11 Breakdown of M&E fee utilisation.**

| IE Fees Breakdown of M&E Supervision | Responsibility | Timeframe | Budget (USD) |
|---|---|---|---|
| Inception Workshop Report | PMU | After Workshop | 0 (as completed by PMU) |
| Baseline Study | PMU | First Year (2020) | 20,000 |
| Supervision Visits | IFAD, PMU, Government | Biannual | 55,691 |
| Annual Work Plans and Budget | PMU | Annual | 0 (as completed by PMU) |
| Semi-Annual Progress Report | PMU | Semi-annual | 0 (as completed by PMU) |
| Annual Project Report | PMU | Annual | 0 (as completed by PMU) |
| Final Evaluation | IFAD, External consultants | 2024 | 29,130 |
| **Total** | | | **104,821** |

## RESULTS FRAMEWORK

**Table 12 Results Framework**

| Project Objective(s) | Project Objective Indicators | Baseline | Target | Means of Verification | Assumptions |
|---|---|---|---|---|---|
| **Overall objective:** Enhancing the resilience to Climate Change of vulnerable dairy producers. | Number of hectares of pasture rehabilitated, restored or protected. | | 9,500 ha of pastures rehabilitated, restored or protected. | • Project M & E reports<br>• Progress reports<br>• Mid-term and final project evaluations | • Good participation and involvement of local communities.<br>• Good survival rate of planted vegetation.<br>• The interest of young people remains high throughout project implementation. |
| | Number of households benefitting from climate resilient improvements. | | 4,050 households (13,365 people) will benefit from climate resilient improvements. | | |
| **Component 1: Climate-proofing pastoral ecosystem services (water management, pasture regeneration, and disaster risk reduction)** | | | | | |
| **Outcome 1.1 An enabling environment developed through training and capacity building.** | | | | | |
| **Output 1.1.1:** Climate resilient and DRR solutions for pasture rehabilitation and increased productivity promoted. | Number farmers receiving pasture management, silage and fodder conservation demonstrations. | | 6,000 farmers are to receive awareness raising demonstrations. | • Project M & E reports<br>• Progress reports<br>• Mid-term and final project evaluations | • Good participation and involvement of local communities. |
| | Number of PUA's receiving training | | 76 PUA's to receive capacity building in pasture management. | | |
| **Outcome 1.2. Pasture Management Plans Implemented.** | | | | | |
| **Output 1.2.1:** Climate resilient and ecosystem-based | Number of hectares of pasture land rehabilitated, improved | | 9,500ha of pasture land will be rehabilitated, improved or protected. | • Project M & E reports | • Good participation and involvement of |

| Project Objective(s) | Project Objective Indicators | Baseline | Target | Means of Verification | Assumptions |
|---|---|---|---|---|---|
| adaptive pastoral investments implemented. | or protected. | | | • Progress reports<br>• Mid-term and final project evaluations. | local communities.<br>• Good survival rate of planted vegetation. |
| | Number of households benefitting from pasture rehabilitation. | | 3,800 households will benefit from Climate resilient and ecosystem-based adaptive pastoral investments | | |
| **Component 2: Supporting the climate resilience of market vulnerable smallholders** | | | | | |
| **Outcome 2.1 Climate smart technology demonstrations and livelihood diversification.** | | | | | |
| **Output 2.1.1**<br>Climate-smart technologies and alternative livelihood measures promoted. | Number of farmers exposed to climate smart technology demonstrations in milk-precooling, AI and crossbreeding and solar power. | | 25% of market vulnerable farmers to receive climate-smart demonstrations. | • Project M & E reports<br>• Progress reports<br>• Mid-term and final project evaluations | • The interest of young people remains high throughout project implementation<br>• Good participation and involvement of local communities. |
| **Output 2.1.2**<br>Alternative, complementary, non-competitive, non-extractive livelihood jobs created. | Number of households benefitting from alternative non-extractive industry activities. | | 250 jobs will be created for the market vulnerable beneficiaries. | | |

## ALIGNMENT WITH ADAPTATION FUND

121. The table below demonstrates how the project aligns with the Results Framework of the Adaptation Fund.

**Table 13 Project alignment with Adaptation Fund results framework.**

| Project Outcomes | Project Outcome Indicators | Adaptation Fund Outcomes | Fund Outcome Indicators | Grant Amount (USD) |
|---|---|---|---|---|
| **Outcome 1.1** An enabling environment developed through training and capacity building. | Number of field days when farmers from the community will gather on the demonstrate site. | **Outcome 3:** Strengthened awareness and ownership of adaptation and climate risk reduction processes at local level | **3.1.** Percentage of targeted population aware of predicted adverse impacts of climate change, and of appropriate responses. **3.2.** Modification in behaviour of targeted population. | |
| **Outcome 1.2** Pasture Management Plans Implemented | Percentage of farmers with increased productivity from improved pastures. | **Outcome 2:** Strengthened institutional capacity to reduce risks associated with climate-induced socioeconomic and environmental losses | **2.2.** Number of people with reduced risk to extreme weather events | 3,922,191 |
| | | **Outcome 5:** Increased ecosystem resilience in response to climate change and variability-induced stress. | **5.** Ecosystem services and natural assets maintained or improved under climate change and variability-induced stress. | |
| **Outcome 2.1** Climate smart technology demonstrations and livelihood diversification. | | **Outcome 6:** Diversified and strengthened livelihoods and sources of income for vulnerable people in targeted areas. | **6.1** Percentage of households and communities having more secure (increased) access to livelihood assets. | |

| Project Objective(s) | Project Output Indicators | Adaptation Fund Outputs | AF Output Indicators | Grant Amount (USD) |
|---|---|---|---|---|
| **Component 1: Climate-proofing pastoral ecosystem services (water management, pasture regeneration, and disaster risk reduction)** | | | | |
| **Output 1.1.1:** Climate resilient and DRR solutions for pasture rehabilitation and increased productivity promoted. | Number farmers receiving pasture management, silage and fodder conservation demonstrations.<br>Number of PUA's receiving training.<br>Number of service providers supported to provide training and technical backstopping to the PUA's. | **Output 3:** Targeted population groups participating in adaptation and risk reduction awareness activities. | **3.1.1** No. and type of risk reduction actions or strategies introduced at local level. | 1,691,047 |
| **Output 1.2.1:** Climate resilient and ecosystem-based adaptive pastoral investments implemented. | Number of hectares of pasture land rehabilitated, improved or protected.<br>Number of households benefitting from pasture rehabilitation. | **Output 2.2:** Targeted population groups covered by adequate risk reduction system.<br>**Output 5:** Vulnerable physical, natural, and social assets strengthened in response to climate change impacts, including variability. | **2.2.1.** Percentage of population covered by adequate risk-reduction systems.<br>**2.2.2.** No. of people affected by climate variability<br>**5.1.** No. and type of natural resource assets created, maintained or improved to withstand conditions resulting from climate variability and change (by type of assets). | 1,103,064 |
| **Component 2: Supporting the climate resilience of market vulnerable smallholders** | | | | |
| **Output 2.1.1** Climate-smart technologies and alternative livelihood measures promoted. | Number of farmers exposed to climate smart technology demonstrations in milk-precooling, AI and crossbreeding and solar power. | **Output 3:** Targeted population groups participating in adaptation and risk reduction awareness activities | **3.1.1** No. and type of risk reduction actions or strategies introduced at local level. | 774,080 |

| Project Objective(s) | Project Output Indicators | Adaptation Fund Outputs | AF Output Indicators | Grant Amount (USD) |
|---|---|---|---|---|
| **Output 2.1.2** Alternative, complementary, non-competitive, non-extractive livelihood jobs created. | Number of households benefitting from alternative non-extractive industry activities. | **Output 6:** Targeted individual and community livelihood strategies strengthened in relation to climate change impacts, including variability. | **6.1.2.** Type of income sources for households generated under climate change scenario | 354,000 |

## PROJECT BUDGET

122. The table below presents the detailed budget of the project per activity.

**Table 14 Detailed project budget per activity.**

| Item/activity | Amount (USD) |
|---|---|
| **Component 1: Climate-proofing pastoral ecosystem services (water management, pasture regeneration, and disaster risk reduction)** | |
| **Outcome 1.1. An enabling environment developed through training and capacity building.** | |
| **Output 1.1.1: Climate resilient and DRR solutions for pasture rehabilitation and increased productivity promoted.** | |
| **Training support** and exchange visits for the development of Pasture Management Plans by the PUA's and smallholder and progressive farmers (GIS mapping, PMP format, threat analysis, adaptation strategy, adaptation activities, management plan, fees and revenue generation, business plan for PAF grant, herd and grazing management). | 475,403 |
| Development of Pasture Management Plans | 140,119 |
| Pasture adaptation demonstrations for PUA farmers (including construction or rehabilitation of watering points; restoration of degraded pastures; water management measures; soil conservation; mudslide and flood mitigation measures; riverine vegetation promotion). | 472,000 |
| Pasture management demonstrations for private pasture farmers (including the production and dissemination of awareness raising and visual learning materials). | 149,643 |
| Silage production (fodder conservation) demonstrations (including the production and dissemination of awareness raising and visual learning materials). | 358,856 |
| Manure composting demonstrations (including the production and dissemination of awareness raising and visual learning materials). | 34,464 |
| On-demand demonstrations (including the production and dissemination of awareness raising and visual learning materials). | 60,562 |

| | |
|---|---|
| **Sub-total** | **1,691,047** |
| **Outcome 1.2. Pasture Management Plans Implemented.** | |
| **Output 1.2.1: Implementation of climate resilient and ecosystem-based adaptive pastoral grants.** | |
| Construction or rehabilitation of watering points. | 885,000 |
| Restoration of degraded pastures. | |
| Water management measures to favour pasture resilience. | |
| Measures to prevent soil erosion, mudslides and floods. | |
| Restoration of riverine vegetation for better water management as barriers against floods, to improve water quality and as a source of fodder. | |
| Fodder production (seed capital financing). | 109,032 |
| Silage production (fodder conservation). | 109,032 |
| **Sub-total** | **1,103,064** |
| **Cost for Component 1** | **2,794,111** |
| **Component 2: Supporting the climate resilience of market vulnerable smallholders.** | |
| **Outcome 2.1 Climate smart technology demonstrations and livelihood diversification.** | |
| **Output 2.1.1 Climate-smart technologies promoted though on-farm demonstrations.** | |
| Energy efficient milk pre-cooling heat exchangers and renewable energy. | 774,080 |
| **Sub-total** | 774,080 |
| **Output 2.1.2: Alternative non-extractive livelihoods.** | |
| Non-extractable livelihood support (Beekeeping, mushroom production, greenhouses and orchards). | 354,000 |
| **Sub-total** | 354,000 |
| **Cost for Component 2** | **1,128,080** |
| **Project Execution Costs (9.1%)** | |
| Recruitment of a Climate Change Specialist | 63,858 |
| Facilitator Salaries | 203,967 |
| Facilitator Incentives | 90,901 |
| **Total Project Execution Costs** | **358,727** |
| **Total Project Costs** | **4,280,918** |

| **Project Cycle Management Implementing Entity Fee[17] (8.5%)** | |
|---|---|
| Supervision Missions and Final Evaluation Costs[18] | 104,821 |
| Audit: USD 23,000 for 5 years | 115,000 |
| Field monitoring: USD 15,000 for 5 years | 75,000 |
| KM officer: USD 13,811 for 5 years | 69,055 |
| **Total Project Cycle Management Implementing Entity Fee** | **363,876** |
| **Amount of Financing Requested** | **4,644,794** |

[17] Idem
[18] Refer to table 11

## DISBURSEMENT SCHEDULE

**Table 15 Disbursement percentage schedule**

| Outputs | 2020 | | | | 2021 | | | | 2022 | | | | 2023 | | | | 2024 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 |
| **Component 1: Climate-proofing pastoral ecosystem services (water management, pasture regeneration, and disaster risk reduction)** | | | | | | | | | | | | | | | | | | | | |
| **Output 1.1.1:** Climate resilient and DRR solutions for pasture rehabilitation and increased productivity promoted. | | | | 36 | | | | 74 | | | | 90 | | | | 97 | | | | 100 |
| **Output 1.2.1:** Implementation of climate resilient and ecosystem-based adaptive pastoral investments. | | | | 20 | | | | 33 | | | | 60 | | | | 87 | | | | 100 |
| **Component 2: Supporting the climate resilience of market vulnerable smallholders** | | | | | | | | | | | | | | | | | | | | |
| **Output 2.1.1** Climate-smart technologies promoted though on-farm demonstrations. | | | | - | | | | 50 | | | | 100 | | | | - | | | | - |
| **Output 2.1.2:** | | | | - | | | | 50 | | | | 100 | | | | - | | | | - |

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alternative non-extractive livelihoods. | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| **Project Execution Costs (9.1%)** | | | | 16 | | | | 36 | | | | 61 | | | | 86 | | | | 100 |
| **Project Cycle Management Fee (2.5%)** | | | | 30 | | | | 40 | | | | 51 | | | | 62 | | | | 100 |

**Table 16 Project disbursement in USD**

| | | Year | | | | | |
|---|---|---|---|---|---|---|---|
| | | 2020 | 2021 | 2022 | 2023 | 2024 | Total USD |
| Component 1 | Output 1.1.1 | 610,353 | 636,062 | 278,510 | 113,572 | 52,550 | 1,691,047 |
| | Output 1.2.1 | 218,064 | 147,500 | 295,000 | 295,000 | 147,500 | 1,103,064 |
| Component 2 | Output 2.1.1 | - | 387,040 | 387,040 | - | - | 774,080 |
| | Output 2.1.2 | - | 177,000 | 177,000 | - | - | 354,000 |
| Total | | 828,417 | 1,347,602 | 1,137,550 | 408,572 | 200,050 | 3,922,191 |
| Project Execution Costs (9.1%) | | 57,003 | 72,742 | 89,000 | 90,513 | 49,468 | 358,727 |
| Total Project Costs | | 885,420 | 1,420,344 | 1,226,550 | 499,085 | 249,517 | 4,280,918 |
| IE fee (8.5%) | | 75,261 | 120,729 | 104,255 | 42,422 | 21,209 | 363,876 |
| Total | | 960,681 | 1,541,073 | 1,330,805 | 541,508 | 270,726 | 4,644,794 |

# PART IV: ENDORSEMENT

## A. Record of endorsement on behalf of the government[19]

| | |
|---|---|
| *Ms. Nino Tandilashvili*<br>*Deputy Minister of Environmental Protection and Agriculture of Georgia* | Date*: September 2018* |

## *B.* Implementing Entity Certification

| | |
|---|---|
| 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. | |
| *Margarita Astrálaga, Director, Environment Climate Gender and Social Inclusion Division, IFAD*<br>Implementing Entity Coordinator | |
| Date: *(Month, Day, Year)* | Tel. and email: +39 06 54592151<br>m.astralaga@ifad.org |
| Project Contact Person: Nicolas Tremblay, Lead Regional Environment and Climate Specialist – Near East, North Africa, Europe and Central Asia, IFAD | |
| Tel. And Email: *+39 06 5459 2704; n.tremblay@ifad.org* | |

6. Each Party shall designate and communicate to the secretariat the authority that will endorse on behalf of the national government the projects and programmes proposed by the implementing entities.

## ANNEX 1 LETTER OF ENDORSEMENT BY THE GOVERNMENT

საქართველო

გარემოს დაცვისა და სოფლის მეურნეობის სამინისტრო

N 7845/01
07/09/2018

7845-01-2-201809071523

**Letter of Endorsement - Government of Georgia**

**September** 2018

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

Ref: Endorsement for the project Dairy Modernisation and Market Access Programme (DiMMA)

In my capacity as Designated Authority for the Adaptation Fund in Georgia, I confirm that the above 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.

Accordingly, I am pleased to endorse the above project proposal with support from the Adaptation Fund. If approved, the project/programme will be implemented by IFAD and executed by the Ministry of Environmental Protection and Agriculture.

Sincerely,

Ms. Nino Tandilashvili
Deputy Minister of Environmental Protection and Agriculture of Georgia

ნინო თანდილაშვილი

მინისტრის მოადგილე

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

# ANNEX 2 LIST OF PERSONS MET.

| Name | | Tel | Email | Position | Website |
|---|---|---|---|---|---|
| Tamar | Toria | +995577774034 | ttoria@gfa.org.ge | Georgian Farmers' Association - Executive Director | www.gfa.org.ge |
| Mamuka | Meskhi | +995322359440 | mamuka.meskhi@fao.org | FAO Representation in Georgia - Assistant Representative | www.fao.org/georgia |
| David | Tsiklauri | +995599589201 | dtsiklauri@usaid.gov | USAID - Office Economic Growth - Project Manager | www.usaid.gov/georgia |
| Shorena | Dzotsenidze | +995322982207-13 | sdzotsenidze@georgiareap.org | USAID - REAP - Gender Focal Point | www.reap.ge |
| Tornike | Kapanadze | +995595036078 | tornike.kapanadze@apma.ge | Agricultural Projects' Management Agency - Project Manager | www.apma.ge |
| Tamar | Sabedashvili | +995599501168 | tamar.sabedashvili@unwomen.org | UN Women - National Programme Officer | georgia.unwomen.org |
| Erika | Kvapilova | +99532220870-106 | erika.kvapilova@unwomen.org | UN Women Country Representative in Georgia | georgia.unwomen.org |
| George | Nanobashvili | +995599936909 | george.nanobashvili@undp.org | UNDP - Economic Development Team Leader | www.ge.undp.org |
| Nodar | Kereselidze | +995599224473 | nodar.kereselidze@moa.gov.ge | Ministry of Agriculture of Georgia - First Deputy Minister | www.moa.gov.ge |

| Name | | Tel | Email | Position | Website |
|---|---|---|---|---|---|
| Vakhtang | Mshvidobadze | +995577602525 | vakhtang.mshvidobadze@ada.gv.at | Austrian Embassy Technical Cooperation - Programme Manager | www.entwicklung.at |
| Gerhard | Schaumberger | +995322434400 | gerhard.schaumberger@ada.gv.at | Austrian Embassy Technical Cooperation - Head of Office / Counsellor | www.entwicklung.at |
| Simona | Ruadze | +995599727485 | | Demo Plot - Kakheti - Gurjaani - Chumlaki - Drip Irrigation and Hail Protection Net | |
| Davit | Napireli | +995599937796 | | Grant Beneficiary - Drip Irrigation | |
| Teimuraz | Kiknadze | +995595968271 | | Grant Beneficiary - Tractor - Equipment | |
| Maia | Gutsadze | +995595901106 | mguntsadze@geostat.ge | National Statistics Office of Georgia - Geostat - Deputy Executive Director | www.geostat.ge |
| Nino | Kizikurashvili | +995599270455 | nino.kizikurashvili@moa.gov.ge | AMMAR GEF Coordinator | |
| Nino | Tkhilava | +995595119745 | ntkhilava@gmail.com | Ministry of Environment and Natural Resources Protection of Georgia - Head of Environmental Policy and International Relations Department | www.moe.gov.ge |
| Maka | Manjavidze | +995599490222 | m.manjavidze@moe.gov.ge | Ministry of Environment and Natural Resources Protection of Georgia - Land Resources Protection and Mineral Resources Service Chief Specialist | www.moe.gov.ge |
| Natia | Kobakhidze | +995577755339 | natia.kobakhidze@giz.de | GIZ - Senior Advisor | www.giz.de |

Republic of Georgia
Dairy Modernisation and Market Access Programme Adaptation Component (DiMMAdapt)
Annex 2 List of Persons Met.

| Name | | Tel | Email | Position | Website |
|---|---|---|---|---|---|
| Giorgi | Dididze | +995577112145 | giorgi@mrdi.gov.ge | Ministry of Regional Development and Infrastructure of Georgia - Deputy Head of Department of European Integration and Infrastructure of Georgia | www.mrd.gov.ge |
| Tengiz | Lakerbaia | +995599258570 | t.lakerbaia@ag.ge | LLC Georgian Amelioration - Deputy General Director | www.ag.ge |
| Giorgi | Misheladze | +995577080047 | giorgi.misheladze@acda.gov.ge | Agricultural Cooperatives Development Agency (ACDA) - Chairman | www.acda.gov.ge |
| Eleonora | Lomineishvili | +995577052305 | eleonora.lomineishvili@acda.gov.ge | Agricultural Cooperatives Development Agency (ACDA) - Advisor | www.acda.gov.ge |
| Mamuka | Kvaratskhelia | +995595036071 | mamuka.kvaratskhelia@apma.ge | Agricultural Projects' Management Agency - Director | www.apma.ge |
| Lasha | Dolidze | +995599447977 | lasha.dolidze@fao.org | FAO Representation in Georgia - National Project Manager | www.fao.org/georgia |
| Ekaterine | Grigalava | +995599130047 | e.grigalava@moe.gov.ge | Ministry of Environment and Natural Resources Protection of Georgia - Deputy Minister | www.moe.gov.ge |
| George | Khanishvili | +995595555555 | george.khanishvili@moa.gov.ge | Ministry of Agriculture of Georgia - Deputy Minister | www.moa.gov.ge |

| Name of Organization | Tel / contact details | Tel | Information | Website |
|---|---|---|---|---|
| NGO "Women Information Center" | Contact Person: Elene Rusetsakia<br><br>**Address:**<br>0102, Tbilisi, Georgia, Tsinamdzgvrishvili str #40 | +995 32 2 95 29 34 | • Gender Equality and Women's Rights Issues Implementation;<br>• Raising Awareness of the Society on Gender Issues<br>• Provide Trainings in women's Socio-Economic development | http://www.wicge.org |
| NGO "Taso Foundation" | **Contact Person:** Marina Tabukashvili<br><br>**Address:** Tabukashvili street 15, 0108 Tbilisi, Georgia | +995 32 292 05 95 | • Making grants to support initiatives of women activists, women´s groups and organizations;<br>• Implement operational programs; implement mixed (operational & grant-giving) projects;<br>• Act as women´s memory research center (resource center with library and textual, photo and video archives);<br>• Participate in policy making and act as an advocate for ensuring gender equality and women´s rights; | http://www.taso.org.ge/-about-us |
| NGO "Atinati" | **Address:** Rustaveli st 94. Zugdidi 2100, Georgia | +995 0415 25 00 56 | Atinati's mission is to promote the establishment of an educated, tolerant and free society. To accomplish its mission, ATINATI raises information awareness of the citizens in Western Georgia and implements projects that aim to strengthen citizen rights and involvement. The organization pays special attention to the needs of most vulnerable groups among IDP's. | www.atinati.org |
| NGO "NEFA" (Community fund) | **Contact Person:** Nino Korshia<br><br>**Address:** Samegrelo, Village Anaklia, Georgia | | • Working on Women's Economic Empowerment Issues;<br>• Gender Budgeting;<br>• Women's Right;<br>• Promote Gender equality issues with trainings;<br>• Working with migrant and IDP women. | https://nefaanaklia.wordpress.com |
| Women's Room In Georgia | **Address:** 6, G. Gegechkori Street 0186, Tbilisi, Georgia | (+995) 32 225 2471 | Women's Rooms are part of the SDC-funded and Mercy Corps-implemented Alliances Lesser Caucasus Programme (ALCP) support to rural inhabitants, most of whom are dependent on livestock. | www.ALCP.ge |
| Fund of Women Entrepreneurs | **Address**: #6, Mgaloblishvili st, Kutaisi 4600, Georgia<br><br>**Email:** | (+995 431) 27-29-02 | • Supporting women's active involvement in decision-making processes and strengthening their civil capacities.<br>• Supporting women's sustainable development for economic independence and poverty reduction.<br>• Increasing integration opportunities for IDP women and national minorities in | www.fwe.ge |

| Name of Organization | Tel / contact details | Tel | Information | Website |
|---|---|---|---|---|
| | womenfund37@mail.ru<br>meri_gelashvili@yahoo.com | | local communities.<br>• Supporting women's involvement in peacebuilding processes. | |
| Cooperative – Shuro Vumu | **Contact Person:** Nona Kadaria<br><br>**Address:** Samegrelo Region, Village Teklati | +995 577 576655 | • Cooperative with 11 members (women)<br>• Produce milk and Cheese;<br>• Sell on local market; | |
| Cooperative "Edelvice" | **Contact Person:** Natalia Udesiani<br><br>**Address:** Samegrelo-Zemo Svaneti region, Tsalenjukha, Villige Pakhulani<br><br>**Email**<br>nataliaudesiani@gmail.com | +995 592 190149 | • Cooperative with 24 members (12 women)<br>• Livestock, Milk and Cheese production; | |
| Cooperative- "Mada" | **Contact:** Tsiala Absandze<br><br>**Address:** Samegrelo-Zemo Svaneti region, Zugdidi, Villige Koki<br>**Email:**<br>kooperativi.mada@gmail.com | +995 577 628951 | • Cooperative with 24 members (12 women)<br>• Livestock, Milk and Cheese production; | |

## ANNEX 3 ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

# DiMMAdapt Environmental and Social Management Plan

### A. Summary of impacts

1. The DiMMAdapt project is born out of the need to build climate change resilience and sustainable environmental management into the larger IFAD DiMMA project. It aims to promote a shift away from an over-dependency of the dairy value chain (VC) on pasture eco-services that are being degraded both by direct human activity as well as indirectly from increasingly intense weather patterns. The majority of the activities will be based on cost-effective and sustainable no-regret nature based solutions, through pasture rehabilitation and the planting of trees, bushes, fodder diversification and conservation, fences and general vegetative cover. The project will mainly result in positive direct and indirect environmental, social and economic impacts.

2. The DiMMAdapt project is a largely environmentally positive project with few adverse impacts, it is a project that is the result of the Climate Change National Adaptation Plan sponsored by IFAD and the concerns raised in the IFAD SECAP assessment of the DiMMA project. The SECAP identified DiMMA as a 'category B' project for which no full-scale Environmental and Social Impact Assessment (ESIA) is required. Overall the potential environmental and social risks posed by the DiMMAdapt project are limited and the project will make a net-positive contribution to ENRM.

**Positive Impacts**

3. **Environmentally** it will increase the environmental awareness of the communities directly dependent on the pasture eco-services through field demonstrations and capacity building by Service Providers (SPs). The long-term environmental benefits will be ensured by demonstrating the importance of sustainable ENRM, but also the training of the Pasture User Associations (PUA's) to design Pasture Management Plans (PMPs). The PMPs will reduce the environmental impact, and increase the climate resilience of the IFAD DiMMA project by producing pasture assessment maps; vulnerability assessments; annual pasture use plans; and pasture improvement plans. They will reduce climate vulnerability through the construction of watering points for summer droughts; it will restore 9,500ha of degraded pastures through fencing, improved vegetative cover, improved fodder management and introduction of indigenous resilient plant species, including highly resilient and diverse native plant species tolerant to drought; water management measures for both water conservation and restoration of water points, but also DRR by reducing the risks of flooding and landslides caused by increasing torrential rain trends through increased vegetative cover and better river management against flooding.

4. **Socially.** The project will directly target the landless rural poor. In Georgia 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 living below the poverty line own cattle, with no more than three heads. The project will support 620 non-commercial rural households with 250 pilot complementary, non-competitive, non-extractive livelihood projects to relieve pasture overgrazing. In doing so, it will prioritise women and youth to encourage and nurture new micro-enterprises to develop new additional sources of income and become producers of alternative commodities with growth potential for SPs for the wider community.

5. **Economically.** The project targets the vulnerable youth and women as well as the landless rural poor with enterprising activities aimed at climate-resilient economic regeneration and sustainable environmental management. 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, and by creating economic opportunities through resilient eco-businesses. In doing so the project will target 3900 market-vulnerable dairy producers; it will create a minimum of 30 percent of jobs for youth and a minimum 30 percent for women, support 3800 jobs for the 76 PUA's, create 250 youth jobs in alternative livelihood activities, and 1900 will benefit from the improved pasture productivity. The project will also focus on strengthening the economic base of the rural poor to build resilience against climate shocks by reducing their dependency on the pasture eco-services through

alternative incomes; and promote energy efficient mechanisation of the dairy value chain through milk pre-cooler heat exchangers and solar power technologies.

**Potential Risks for Negative Impact**

6. Following the Environmental and Social Assessment (ESA)[20] carried out by IFAD for the Adaptation Fund, a number of potential risks have been identified and measures to mitigate against them, integrated into the project design. The main potential risks are:

    a) **Non-compliance with national laws (see Principle 1 below)** for example in the construction of watering points but also in the restoration of degraded pastures and forests and generally the implementation of water management measures. Non-compliance could expose the project to legal liabilities and lead to health and safety concerns, should infrastructure not meet national standards**.**

    b) **Exacerbating existing inequalities (see Principle 2 below)** through the project's targeting strategy could result in an increased feeling of disenfranchisement, wealth inequalities and potentially greater social conflict.

    c) **Uncontrolled species invasion (see Principle 10 below).** There is a small risk that plant species used in the restoration of riverine vegetation and pastures such as barriers to torrential rain and improving fodder varieties may not be indigenous. This could have the undesired and adverse impact of hostile specie invasion hereby causing biodiversity loss.

    d) **Being a net GHG emitter (see Principle 11 below).** There is a risk that the DiMMAdapt will contribute - through association with the DiMMA project - towards the gradual replacement of cows that contribute to GHG emissions. This could potentially mean that the project risks being a net GHG contributor.

    e) **Causing increased soil erosion (see Principle 15 below).** The phasing in of climate resilient livestock poses a risk, potentially undermining the project's efforts in soil conservation particularly on fragile soils located on steep slopes with thin soils. The added pressures could compound the impact of increased torrential rain on fragile soils and worsen soil erosion.

**B. Risk Mitigation and Enhancement Measures.**

7. As identified in the risk assessment table 16 below, the above risks have been mitigated against and addressed in the project design. The Adaptation Fund ESP principles have been addressed as follows:

**Principle 1: Compliance with the Law.**

8. IFAD has a long record of respecting legal frameworks related to the countries it operates in, which is also the case for Georgia. The detailed project design consultation process has undertaken a thorough review of the relevant domestic laws that have been integrated into the project, these are:

    **a) 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.

    **b) 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 Disaster Risk Reduction (DRR) the project will contribute to the protection of water bodies by retaining water in soil, improving drainage, promoting water spring restoration and shade through reforestation in water points.

    **c) 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 as well as cultural and material values. After careful review, it has been determined that the planned activities under the

[20] See table17

DiMMAdapt project will not trigger domestic requirements for Environmental Impact Permits. The list of trigger activities under Georgian law are as follows:

a. Processing of mineral deposits (processing of construction materials (including inert materials) are not subject to ecological examination except for those under (c).
b. Any production technology involving asbestos;
c. Production of cement, asphalt, lime, carbonic calcium gypsum, plaster and brick;
d. Production of glass and glassware;
e. Waste recovery, except for non-hazardous waste pre-treatment;
f. Waste disposal, except for non-hazardous waste pre-treatment;
g. Production of any capacity related to coal gasification, liquefaction, briquetting and carbonisation;
h. Construction of trunk oil and gas pipelines;
i. Arrangement of storage facilities and terminals for oil and oil products, also for liquid and natural gas;
j. Construction of international and intrastate highways and railways, and bridges;
k. Laying of high voltage aerial and cable power lines;
l. Placement of a hydro and thermal power plants;
m. Construction of an underground railway;
n. Arrangement of water reservoirs (with the volume of 10,000 cubic meters and more);
o. Arrangement of wastewater treatment facilities;
p. Arrangement of airdromes, airports, railway stations, and sea ports;
q. Construction of dams, harbours, berths, piers, and wing dams;
r. Chemical industry;
s. Oil and gas processing industries (producing more than 500 tons per 24 hours);
t. Any metallurgical industry (with production capacity of more than one ton per hour), except for cold processing of metals and production of jewellery;
u. Arrangement of storage facilities for toxic and other hazardous substances.

**d) 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 IFAD's partnership with MEPA and building on its experience of successful project implementation in Georgia, DiMMAdapt will ensure adherence to the CGAP.

**e) 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. IFAD will work through MEPA to ensure that the project will not run counter to the provisions stated in this law. Specifically, it will ensure that no activity will be undertaken that will directly or indirectly cause the fragmentation and inappropriate use of land.

f) **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, biodiversity, landscape, cultural and natural monuments located in forests, and the endangered of plant species; regulating harmonized interrelations between these components. The project will ensure adherence to the forest code through the design and development of the PMP's that will promote the conservation and regeneration of natural landscapes used as pastures, including forests.

g) **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 DiMMAdapt project, this will be achieved in multiple approaches including through awareness raising demonstrations, training, the development of PMPs to ensure pasture and fodder conservation, increased productivity but also DRR with reduced flooding, mudslides and general land degradation.

**Principle 2: Access and Equity**

9. The DiMMA targeting strategy (and by extension also that of DiMMAdapt) was developed after a review of key concerns related to the smallholder livestock farmers in Georgia, such as poverty, outmigration of youth from rural areas to cities and abroad, women's roles and interests in the livestock sub-sector and proposed governance mechanisms to ensure inclusiveness. The targeting strategy is developed based on the findings of the preparation mission in 2016, the detailed design mission of 2017, the final mission of 2018 and learning from previous IFAD financed programmes' experience in Georgia. The Country Strategy and Programme Evaluation (CSPE) for Georgia, conducted in 2017 concluded that "IFAD interventions weakly targeted the poor, women and the marginalised" and youth had never been explicitly targeted. The evaluation concluded that the performance on gender has been below average, women were not targeted, and measures were not taken to raise their participation. One of the issues raised by the CSPE was that gender related systemic issues were not recognized and addressed (e.g. gendered access to resources, land). Lessons accumulated by the Government of Georgia and other development partners in the livestock sector in regard to targeting have also been considered and reflected in the project design.

10. As DiMMAdapt is fully integrated into the DiMMA project consequently the targeting strategy for the AF funded project will be fully aligned. It will promote the inclusion of target households, women and youth in cluster level dairy VCs. In order to ensure target household inclusion, the project will adopt: (i) geographical targeting measures to reach those areas with higher concentration of target households; (ii) self-targeting by aggregators offering business opportunities in the dairy VCs suitable enough and of interest to the target households; and (iii) direct targeting of youth and women.

**Principle 3: Marginalised and Vulnerable Groups.**

11. Georgia has a high number of vulnerable groups, such as Internally Displaced Persons (IDPs). These are people have escaped conflicts or have 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 also extended to the children of IDPs and the number of IDPs in country reached 246,974 in 2014, making them 6 percent of the 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.

12. Poverty in Georgia was estimated at 32 percent in 2016, decreasing from a peak of 46.7 percent in 2010. Poverty is more widespread in rural areas, where every second household can be considered poor along the USD2.50/day international poverty line. Also, the youth and women experience difficulties in Georgia due to patriarchal attitudes, with limited access to decision-making at the family- and community-level, limited resources and assets to increase and improve production. The project will address these challenges by directly targeting vulnerable households and creating linkages between the latter, Service Providers (SPs) and dairy aggregators along the dairy value chain. To ensure the inclusion of the identified vulnerable groups, the youth will comprise a minimum of 30% of the project as SPs, in providing climate-smart mechanisation, and AI services. The project will also have a strong gender-sensitive approach by also targeting a minimum of 30% of women, that is reflective of the extent of their contribution to the livestock sector. The risk assessment carried out by IFAD on the parent DiMMA project through the SECAP - of which DiMMAdapt is an integral part - has further identified that the project will not generate significant adverse social impacts to local communities, including disadvantaged and vulnerable groups and indigenous people. IFAD has further verified that the project area does not include indigenous, tribal or other vulnerable groups.

13. In alignment with the DiMMA project, DiMMAdapt will ensure that it includes marginalized groups, such as IDPs and ethnic minorities addressing their specific needs and using appropriate outreach approaches, such as elaboration of programme materials in other languages and organizing information delivery to these groups. The policy and legislation development supported by DiMMA would ensure that all have fair and equitable access, as well as protected rights to these natural resources; and that IDPs, ethnic minorities, women, youth and other vulnerable groups have representation or voice in decision making. There will be specific efforts made in undertaking effective outreach activities to increase awareness and disseminate information among these groups on the project's benefits and opportunities.

**Principle 4: Human Rights.**

14. The project will respect international human rights, it integrates overarching human rights principles in order to strengthen social and environmental sustainability by including measures to assist the republic of Georgia in these respects. Georgia has furthermore not been cited in any of the Human Rights Council Special Procedures.

**Principle 5: Gender Equality and Women's Empowerment.**

15. There are more women than men in Georgia: 52.1 percent of women and 47.9 percent of men in 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 an evident general preference of boys over girls, with an average 110 boys for every 100 girls born in 2015. Boys ratios at birth were even higher in rural areas (113.4 boys per 100 girls), and varies by the regions: 113 in Adjara, 114 in Kakheti, 115 in Samtskhe-Javakheti, and 116 in Kvemo Kartli (UNFPA, 2015). There were more women with higher education than men (women make 55 percent among those who have higher education) and at the same time there are more illiterate women than men (54 percent of women among all illiterate) in 2015.

16. 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 poverty percentile (World Bank - Poverty Assessment, 2016). Households headed by women are more likely to be poor than those headed by men. Interestingly however, having more women in the household is associated with a lower risk of poverty.

17. Women in Georgia are self-employed, engaged in agriculture but mostly as unpaid household labour. Although women's access to education is high, it is not yet reflected in their overall employment and economic participation. About half of economically active women are not in the labour force. It is evident that responsibility for child caring and household errands in Georgia falls disproportionally on women, with 17 percent of women in economically active age being housewives. Due to prevailing traditional gender stereotypes, women are rarely engaged in activities outside the household. This situation is nearly the same in all regions, with increased exclusion (due to language and cultural barriers) for women in areas populated by ethnic and religious minorities.

18. 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."

19. The gender pay gap in Georgia is still pervasive. Although the average difference in monthly remuneration between men and women has decreased from 2012, it is still high, making female's remuneration about 44 percent lower than men's (Geostat, 2016). The difference is smaller in agriculture, where average female remuneration is about 20 percent lower than that of men. 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.

20. 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.

**Gender Equality Policy and Legal Framework**

21. Women enjoy equal rights in Georgian legislation. It does not discriminate against women and the Constitution of Georgia guarantees equal rights to both men and women. A Gender Equality Law was adopted in 2010 and aimed to ensure women's security, equality in the labour market and the strengthening of women's political participation. The Law established the Advisory Council on Gender Equality which is tasked to monitor the implementation of national action plans on gender equality, check the gender component of legislative acts, make recommendations and provide annual reports to the Parliament. The Law also states that local self-government bodies along with central legislative bodies are obliged to ensure identification and elimination of discrimination based upon sex. The budget, socio-economic development priorities, municipal programmes and plans of local self-government bodies are to be implemented in such a way as to exclude any kind of gender-based discrimination.

22. The Non-discrimination Law was adopted in 2014. This Law states the principles of equality and non-discrimination on the basis of gender identity and sexual orientation along with race, colour, language, national, ethnic or social belonging, sex, pregnancy or maternity, marital or health status, disability, age, nationality, origin, place of birth, place of residence, internal displacement, material or social status, religion or belief, political or any other grounds. The Law includes the principle of equality established by the UN Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW), according to which temporary special measures developed in order to achieve factual equality shall not be considered discrimination. Georgia ratified the CEDAW in 1994, and the Optional Protocol to CEDAW in 2002. The country is a member of the Council of Europe, and ratified the European Convention on Human Rights in 1999.[21]

23. **Targeting of women:** Through DiMMA, the project will develop a gender strategy regarding interventions that can increase women's incomes, enhance their decision-making and empowerment. Direct targeting and self-targeting measures will be adopted for inclusion of women.

    a) **Direct targeting measures** for women's inclusion will involve at least 30% quota reserved for financing women headed households and women managed business out of the total number of: (i) seed capital investments directed to the adoption of improved dairy production systems by target households and adoption of alternative livelihood activities by youth; (ii) jobs created by the small enterprises in the programme area; and (iii) PUA members in PUAs selected for grant financing for improving pastures.

    b) **Self-targeting measures** will be driven by the practice of high women's engagement in milking, processing milk into cheese and other products, local marketing of dairy products and animal care especially when men are in seasonal or long-term migration. Women members will be provided with technical assistance regarding measures to improve farm level production, adoption of adequate hygienic measures which will make them more employable in the jobs created at the aggregator level which generally favour the employment of women. Capacity building for production of niche cheese and dairy products will stimulate higher self-employment of women. Finally, adoption of farm improvement measures such as machine milking by target households will reduce hard labour for women.

**Principle 6: Core Labour rights.**

24. Georgia has been a member of the ILO since 1993 and it has ratified the eight Fundamental Conventions on: forced labour; freedom of association and protection of the right to organise; the right to organise and collective bargaining; equal remuneration; abolition of forced labour; discrimination (employment and occupation); minimum age; and worst forms of child labour. Georgia has also ratified the governance (priority) convention on employment policy; the tripartite consultation (international labour standards) will enter into force in May 2019. Through MEPA the project will ensure that at all times, domestic and international labour rights will be upheld and fully integrated into the project.

**Principle 7: Indigenous Peoples.**

25. Not applicable as there are no indigenous peoples in Georgia.

**Principle 8: Involuntary resettlement.**

26. At all times the project will work through the national authorities, namely MEPA, to ensure that the vulnerable and marginalised will not be adversely affected. The project will engage in participatory consultative processes that will ensure that everyone's voice can be heard and concerns addressed. IFAD will broadly advertise its grievance procedures so that anyone that is involuntarily displaced can find due recourse.

**Principle 9: Protection of Natural Habitats.**

27. The project will be implemented in the three contiguous regions of Imereti, Samegrelo-Zemo Svaneti and Samtskhe-Javakheti. The regions in which the project will be implemented have been selected based on a geographical approach explained under paragraphs 48 – 54 of the DiMMAdapt project document. The regions are relatively large mountainous areas where the households are more prone to economic and environmental shocks. The exact project site locations however, will be the result of a detailed analysis that will rank all communes in the target areas along identified key criteria. This will include: i) the ratio of dairy cows of commune to number of cows in the region to identify location with high potential for development of dairy livestock; ii) number of dairy cows per population to ensure existence of larger commercial smallholder farms in selected commune with up to 15 cows; iii) ratio of pasture and arable land per cow in commune to identify those with most feeding base resources available for natural grazing and fodder growing; iv) ratio of arable land and pastures of one commune to the total area of arable land and pastures in the region to select communes with higher potential.

28. As a result of the SECAP, the site selection process for the DiMMA and DiMMAdapt projects will identify and exclude national parks ensuring that they will not directly or indirectly impact protected areas or high value conservation areas. The project will also ensure not to engage in the unjustified conversion or degradation of critical natural habitats, including those that are legally protected; officially proposed for protection; recognized by authoritative sources for their high conservation value, including as critical habitat; or recognized as protected by local communities.

**Principle 10: Conservation of Biological Diversity.**

29. The project will identify and exclude national parks as detailed in Principle 9 and will furthermore not operate within areas of important biological diversity. The project will however be actively improving or otherwise protecting natural ecosystem services. The project will not be exposed to any risks related to conservation and biodiversity as the project will be implemented by the government who will ensure that the national laws are being adhered to.

**Principle 11: Climate Change.**

30. The climate in Georgia has already changed and the main trends foreseen by the IPCC and the NAPA are becoming evident. Trends in maximum and minimum temperature extremes have been increasing ever since 1960. This has given rise to warmer maximum temperature in summer and colder minimum temperature in winter for most of the regions in the country. Significant decrease in annual rainfall since 1981 is observed for several of the municipalities in Georgia. Climate models under the scenario 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.

31. The DiMMAdapt project is a result of a thorough national assessment of the climate change adaptation needs and recommended course of action, that have been presented in the Climate Change National Adaptation Plan (CCNAP). The CCNAP was in turn a product of the IFAD / GEF project Enhancing Resilience of Agriculture Sector in Georgia (ERASIG) that built climate change resilience into IFAD's preceding project: the Agriculture Modernisation, Market Access and Resilience Project (AMMAR). The CCNAP has identified a number of climate change related impacts. These are: (i) Localised precipitation is more concentrated and heavier in summer, increasing the torrential regime and hereby increasing the risk of flooding, soil erosion, and reduced soil percolation; also (ii) Precipitation is reduced in the summer months for 3 regions in the programme area and increased evaporation caused by higher temperatures will likely have negative impacts on water availability leading to longer drought events in the future.

32. The DiMMA programme aims at rural economic development and poverty reduction by contributing to the modernization and emergence of a competitive diversified resilient and sustainable dairy industry. One of the main pillars of the strategy relies on AF support for the climate-smart intensification and modernization of dairy production through a gradual replacement of the current livestock. One of the outputs of DiMMA will be to promote artificial insemination for the gradual interbreeding with local breeds to achieve a breed that is more productive and better adaptable to the changing climatic

conditions. Emphasis needs to be made that this will be a slow and gradual replacement process as existing heads die or are slaughtered over time - not one of additional cows. The aim is for a reduction of cattle numbers and GHG emissions through a combination of retirement of old non-commercial farms; increased productivity through better breeds and improved nutrition leading to fewer cows for the same output and more work per cow.

33. Through the DiMMAdapt ESMP and combined M&E framework - structures will be in place to track these cattle and monitor that they will not in any way be additional. Spurred by Georgia's 2020 aim to be compliant with food safety, hygiene and animal welfare requirements, as per the Georgia's Deep and Comprehensive Free Trade Agreement (DCFTA) with the European Union, Georgia has been undergoing a modernisation process including a programme of cattle tagging. Georgia is engaged in an ambitious programme called the Livestock Identification and Traceability System (LITS), the design of which has been supported by FAO and the Swiss Government, and is currently being upgraded. More than 50 percent of cattle have been identified as of early 2018 and as of the 1st January 2018, animals are only accepted in abattoirs for slaughtering if they are tagged. The same should have also already been applied for the delivery of milk in a milk collecting centre by the end of 2018. The ESMP and M&E framework will make use of the LITS system to credibly track and report on cow numbers.

34. There is a wide body of research supporting the concept of reducing dairy cow GHG emissions through improved fodder by means of improved pastures. As a by-product of the restrictions placed on the availability of arable land for purchase or renting because of national land tenure issues – DiMMA's supply of fodder will come from pastures. Sustainable climate-smart pasture management is therefore fundamental to the success of the DiMMA programme and is also an integral part of the climate-smart livestock production system. Improved pastures through the PMP's will ensure for improved feeding throughout the year with minimal usage of herbicides and chemical fertilisers and the use of manure as compost. Research shows[22,23,24,25] that subsistence farming has a low productivity mainly due to low feed quality, with low protein and energy intakes particularly during drier periods that also leads to higher GHG emissions. Feed quality and production efficiency are major factors contributing to GHG emissions and climate-smart production systems reduce the GHG emissions (methane mainly, but also $CO^2$ and $N_2O$) per kg of milk, meat and also accumulate carbon.

**Principle 12: Pollution Prevention and Resource Efficiency.**

35. The project will meet international and national standards for pollution prevention and resource efficiency. As stated under Principle 11, the project will not be a net emitter of GHG's additionally it will bring environmental benefits in sustainable resource management for example in addressing the overgrazing pressures by supporting the training of PUA's in pasture assessment and management. These will include vulnerability assessments, livestock inventories, pasture assessment maps, annual pasture use plans and maps, pasture improvement plans and infrastructure improvement plans.

36. The project will further promote initiatives to manage the pressure stressors weighing on the pastures. It will achieve this through a dual approach of piloting economic incentives to encourage the market-vulnerable smallholders not to depend on the pasture eco-services. The pilots will include beekeeping, mushroom growing, greenhouses, and orchards, and by introducing fodder conservation and diversification pilots. Secondly the project will also improve the productivity of the pastures, thereby reducing the overgrazing pressures.

37. DiMMAdapt will also reduce soil erosion and the risk of flooding and mudslides. This will be achieved through cost-effective and no regret nature based measures. The PAUs will be equipped with the tools to assess, monitor and implement PMPs that will include the planting of indigenous bushes and trees to protect against soil erosion and function as barriers against storms and high winds. River floodwaters will be managed through the restoration of riverine vegetation as barriers against floods, to reinforce river banks and function as sources of fodder. Energy efficient technologies will also be introduced through solar powered milk pre-cooling heat exchanger pilots to increase the quality of the milk produce while offsetting reductions in production. The project will further promote resource efficiency through the introduction of manure composting, this will promote the reuse of a resource that was observed during the design missions as going to waste and polluting soils and nearby water sources.

[22] FAO (2013) Tackling climate change through livestock.
[23] Gaitán L, Läderach P, Graefe S, Rao I, van der Hoek R (2016) Climate-Smart Livestock Systems: An Assessment of Carbon Stocks and GHG Emissions in Nicaragua. PLOS ONE 11(12)
[24] Dr, Jan Dijkstra (2015) Large impact of grass quality on methane emission. Wageningen University.
[25] T.V. Vellinga and I.E: Hoving. Maize silage for dairy cows: mitigation of methane emissions can be offset by land use change. April 2011, Volume 89, Issue 3, pp 413–426

**Principle 13: Public Health.**

38. The project is designed and will be implemented in a way that avoids potentially significant negative impacts on public health. The project will indeed have a positive contribution to public health as healthier, more resilient pasture ecosystems have positive impacts on health, by supporting livelihoods and local economies, improved diets, food security and reduced vulnerability to climate shocks.

**Principle 14: Physical and Cultural Heritage.**

39. The project will not have any adverse impacts on physical and cultural heritage of the people in the intervention areas identified. A public consultation was conducted in the project areas and the chances of damage to physical assets are determined to be extremely low. Furthermore, through the integration with the DiMMA project, DiMMAdapt will directly support the cultural heritage of Sulguni and Imeruli cheese making by supporting the formulation and registration of collective brand, label or denomination of origin for local premium cottage cheese. This will enable small and medium scale processors, especially those in mountainous areas, to differentiate and protect their products.

**Principle 15: Lands and Soil Conservation.**

40. Georgia has a wide variety of soil types within a small area and soil erosion, desertification and salinization are growing problems. Water and wind erosion, environmentally degrading agricultural practices and other anthropogenic activities such as uncontrolled logging as well as natural processes has led to the degradation of around 35 percent of farmland. The mountain ranges for example with the predominant grasslands are very rich in species with many endemic to the region, but they are vulnerable to overgrazing that is the primary cause of degradation followed by Climate Change.

41. Some of the main objectives of the DiMMAdapt project include the promotion of soil conservation and the avoidance of degradation of pasture lands. The activities the project will undertake to directly reduce soil degradation and promote soil conservation include:

    **a)** Carrying out demonstrations targeted at the Pasture User Associations (PAU's) on collective pasture management approaches and methodologies for improving grassland productivity.

    **b)** Increasing awareness of climate change.

    **c)** Training and providing technical backstopping to the PUAs in the designing of the Pasture Management Plans. Areas will include: the designing of community-based pasture assessment maps; vulnerability assessments; annual pasture use plans; pasture improvement plans; forage production and conservation; construction or rehabilitation of watering points; water management measures for pasture resilience; the restoration of degraded pastures; and restoration of riverine vegetation, generating threat analyses, designing an adaptation strategy with related adaptation activities, a management plan, fees and revenue generation.

    d) Restoring of degraded pastures including forests through: rotation / fencing; improved vegetative cover and fodder yield through the interspersing of fodder with highly diverse native plant species such as grasses, leguminous plants and small bushes that are highly tolerant to extended summer droughts.

    e) Introducing water management measures to improve water soil retention; drainage; water spring restoration; and protection and shade through reforestation in water points.

    f) Measures to mitigate against the increased prevalence of torrential rain leading to soil erosion, mudslides and floods. These activities will include the plantation of bushes and trees, that will protect against soil erosion and function as barriers against storms and high winds, while also serving as a possible source of by-products such as fruit, berries, fodder and wood.

**C. Monitoring, Reporting and Reviewing.**

42. The monitoring programme will be fully aligned with the larger IFAD DiMMA project, it will be will be under the oversight of the Project Management Unit (PMU), and led by the M&E officer who will work closely with the implementing partners. Within two months of project start-up an inception workshop will be carried out where awareness will be raised about the ESMP, climate change, the importance of environmental sustainability and the need to regularly monitor and update the ESMP as activities are developed and implemented. Following the workshop, the DiMMAdapt project will produce an inception report that will integrate the ESMP fully into activities and progress indicators that will guide implementation during the first year of the project. A detailed narrative including on the implementation

of the ESMP will be produced on the institutional roles, responsibilities, coordinating actions and feedback mechanisms of project related partners.

43. The baseline study that will be conducted within the first year, will serve as the basis for comparison to assess project success during the terminal evaluation process. The project will also produce quarterly progress reports that will include indicators for measuring progress on mitigating the risks identified in the Adaptation Fund ESP Principles. The quarterly progress reports will be particularly useful as a basis for the annual supervision missions, the mid-term review and the terminal evaluation. Furthermore, the project will produce technical reports on best practices, and lessons learned; annual progress reports will be prepared by the project team on meeting the project's annual work plan, assessing performance of the project in contributing to intended outcomes through outputs and partnership work. The terminal evaluation that will be conducted at the end of the project cycle will also be supported by the programme completion survey (impact evaluation). The risks posed to the ESP principles will be reviewed periodically and the ESMP adjusted accordingly throughout the project cycle. The monitoring programme will, from inception to completion, have the ESMP fully integrated within the project's monitoring and reporting activities.

**D. Public Consultation Activities.**

44. The ESMP is fully integrated into the DiMMAdapt. Public consultation activities form an integral part of the project activities with beneficiaries and local communities being consulted during the inception workshop, the baseline study and supervision missions. Further consultations on the Climate Change Adaptation strategy for the livestock sector - policy dialogue on climate change adaptation/mitigation, disaster risk reduction and environmental sustainability will be held through the stakeholder platforms, consultations and workshops as part of the DiMMA project. The aforementioned forums will be the avenue through which the project will also communicate project scheduling and the disclosure of monitoring programmes to local communities and other stakeholders.

**E. Responsibilities.**

45. The DiMMAdapt project is in effect the ESMP for the larger DiMMA project. All its activities are designed to build climate resilience and environmental sustainability into IFAD's USD 59 million Dairy Modernisation and Market Access Programme and is therefore fully integrated into the DiMMA project management structure. MEPA will be the lead executing agency and will be responsible for project implementation through the Programme Management Unit (PMU) located in the MEPA Department of External Relations, the Regional Office (RO) located in Kutaisi and the Local Coordination Offices (LCO) in each region. This will include mitigating the risks identified as part of the ESA such as compliance with relevant national laws; ensuring that the project's targeting strategy is correctly implemented so as to minimise the risk of exacerbating inequalities; monitoring that all plant species being introduced are indigenous to the local areas; and ensuring that the PMP's are being correctly designed and implemented. Progress will be regularly monitored by a team of external experts during the annual supervision missions and the mid-term review that will allow for the identification of challenges and ensuring that the identified ESMP mitigation measures are being correctly implemented and recommending any necessary corrections to project implementation.

**F. Preliminary costs**

46. As the ESMP is fully integrated into the DiMMAdapt project no additional financing will be required. All monitoring activities will effectively be covered by the aforementioned monitoring programme as detailed in table 10 of the DiMMAdapt project document that identifies the M&E fee utilisation.

**G. Capacity Building**

47. The project has an extensive and detailed capacity building programme in place that addresses the environmental management and climate change adaptation challenges of the larger DiMMA project and while doing so, also addresses the risks that have been identified in the ESA for the Adaptation Fund.

**Table 17 Mitigating measures for management of environmental and social risks.**

| Activities | Identified Risks as per AF's ESP | Potential Impacts if Risks Materialise | Mitigating Measures | Verification Responsibilities |
|---|---|---|---|---|
| Component 1 | | | | |
| Pasture management demonstrations.<br>Climate resilient and DRR technologies and knowledge dissemination through demonstrations in 16 sites with over 1,200 field days for 6,000 farmers. | ESP 2<br>There may be a slight risk that some project activities may exacerbate existing inequalities. | A weak targeting strategy that is not inclusive of the poor, women, youth and marginalised would result in greater disenfranchisement, increased wealth inequalities and potentially greater social conflict. | IFAD has conducted a lesson learned exercise on its previous project in Georgia that has identified shortcomings in the targeting strategy. The DiMMAdapt project is fully integrated into the IFAD DiMMA project and will benefit from the improved targeting strategy which will mitigate against this risk. | PMU<br>RO<br>LCO<br>Quarterly Progress Reports<br>Annual Supervision missions<br>Mid-Term Review<br>Terminal Evaluation. |
| Design PMP's.<br>Train and provide technical backstopping to the 76 PUAs in the designing of the climate resilient PMPs. | ESP 2<br>There may be a slight risk that some project activities may exacerbate existing inequalities. | | | |
| The construction / rehabilitation of watering points. | There is no risk that the project will not comply with national laws in the construction or rehabilitation of watering points. | | The project will be implemented by a government agency hereby ensuring that all relevant laws and norms are abided by. The PMU will also be located within the MEPA hereby facilitating communication channels with the appropriate authorities on environmental protection and the compliance with the country's legal framework and construction standards on both public and private property.<br>The project will actively engage with beneficiaries and always ensure permissions | PMU<br>RO<br>LCO<br>Quarterly Progress Reports<br>Annual Supervision missions<br>Mid-Term Review<br>Terminal Evaluation. |
| The restoration of degraded pastures including forests | There no risk that the project may not comply with national laws in the restoration of degraded pastures including forests. | | | |
| | There is no risk that the species being used in restoring riverine vegetation and as barriers to torrential rain may not be indigenous. | | | |

| Activities | Identified Risks as per AF's ESP | Potential Impacts if Risks Materialise | Mitigating Measures | Verification Responsibilities |
|---|---|---|---|---|
| | | | are granted prior to any modifications are made to private property. | |
| Water management measures such as fences for shade; measures to retain water in soil; drainage; water spring restoration; and protection and shade through reforestation in water points. | There no risk that the project will not comply with national laws in implementing water management measures. | | The project will be implemented by a government agency hereby ensuring that all relevant laws and norms are abided by. | PMU<br>RO<br>LCO<br>Quarterly Progress Reports<br>Annual Supervision missions<br>Mid-Term Review<br>Terminal Evaluation. |
| Torrential rain.<br>Activities will include the plantation of bushes and trees, that will protect against soil erosion and function as barriers against storms and high winds. | There no risk that the project will not comply with national laws and norms. | | Through MEPA and regular monitoring, the project will ensure that all vegetative restorations for protection against torrential rain or other riverine management techniques and improved fodder varieties, will be implemented with the use of indigenous and non-invasive species. | PMU<br>RO<br>LCO<br>Quarterly Progress Reports<br>Annual Supervision missions<br>Mid-Term Review<br>Terminal Evaluation. |
| Restoration of riverine vegetation through better regulation of water; barriers against floods; improving water quality, and functioning as a source of fodder. | | | | |
| Fodder conservation pilots: Silage making for higher nutritional content, better nutrient preservation, more palatability to livestock; improved fodder varieties, improved fodder production and conservation techniques for year-round | | | | |

| Activities | Identified Risks as per AF's ESP | Potential Impacts if Risks Materialise | Mitigating Measures | Verification Responsibilities |
|---|---|---|---|---|
| production. | | | | |
| Component 2 | | | | |
| Beekeeping.<br>250 market vulnerable farmers will be trained and supported in beekeeping. | ESP 2<br>There is a risk that the project may exacerbate existing inequalities. | A weak targeting strategy that is not inclusive of the poor, women, youth and marginalised would result in greater disenfranchisement, increased wealth inequalities and potentially greater social conflict. | IFAD has conducted a lesson learned exercise on its previous project in Georgia that has identified shortcomings in the targeting strategy. The DiMMAdapt project is fully integrated into the IFAD DiMMA project and will benefit from the improved targeting strategy which will mitigate against this risk. | PMU<br>RO<br>LCO<br>Quarterly Progress Reports<br>Annual Supervision missions<br>Mid-Term Review<br>Terminal Evaluation. |
| Mushroom cultivation will be promoted as part of the package of complementary, non-competitive climate change adaptation income diversification jobs. | | | | |
| Greenhouses and orchards promoted in regions to provide for improved food security, job creation and function as a climate change safety net. | | | | |

**Table 18 Monitoring and Evaluation Plan**

| Principles | Potential Impacts and Risks as per AF's ESP | Mitigation Measures | Monitoring | Indicators | Verification Responsibilities |
|---|---|---|---|---|---|
| Compliance with the Law | There no risk that the project may not comply with national laws in the restoration of degraded pastures including forests and implementing water management measures. | Through partnership with MEPA, the relevant authorities will ensure compliance of relevant national laws. The project will also engage in extensive consultations with beneficiaries and | • Baseline study<br>• Progress reports<br>• Supervision missions<br>• Mid-Term review<br>• Impact assessment<br>• Terminal evaluation. | • No. of applicable Laws.<br>• No. and type of activities that may violate laws. | • PMU<br>• Steering Committee<br>• MEPA<br>• IFAD |

| Principles | Potential Impacts and Risks as per AF's ESP | Mitigation Measures | Monitoring | Indicators | Verification Responsibilities |
|---|---|---|---|---|---|
| | | relevant stakeholders which will also include ensuring compliance with all applicable laws. | | | |
| Access and Equity | There is a slight risk that some project activities may exacerbate existing inequalities. | DiMMAdapt will benefit from IFAD's lessons learned exercise on its previous project in Georgia with an improved targeting strategy. This will ensure access and equity for beneficiaries in general, but also for ensuring to include the marginalised and vulnerable groups. | • Progress reports<br>• Supervision missions<br>• Mid-Term review<br>• Impact assessment<br>• Terminal evaluation | • No. of market-vulnerable dairy producers and PUAs included<br>• Transparent PUA and market-vulnerable dairy producer selection processes | • PMU<br>• MEPA<br>• IFAD |
| Marginalised and Vulnerable Groups | There no risk that the project will adversely impacts marginalised and vulnerable groups. | | • Progress reports<br>• Supervision missions<br>• Mid-Term review<br>• Impact assessment<br>• Terminal evaluation | • % of women targeted<br>• % of youth targeted<br>• No. of non-commercial rural households targeted | • PMU<br>• MEPA<br>• IFAD |
| Gender Equality and Women's Empowerment | There is no risk that the project will not sufficiently include women. | | • Progress reports<br>• Supervision missions<br>• Mid-Term review<br>• Impact assessment<br>• Terminal evaluation | • % of women targeted | • PMU<br>• MEPA<br>• IFAD |
| Core Labour rights | Beneficiaries may be exposed to the risk of accidents while engaging in project implementation activities. | Through the government, the project will ensure that all appropriate health and safety measures are taken in accordance to both national and | • Progress reports<br>• Supervision missions<br>• Mid-Term review<br>• Impact assessment<br>• Terminal evaluation | No. of project related accidents where health and safety guidelines were not adhered to. | • PMU<br>• MEPA<br>• IFAD |

| Principles | Potential Impacts and Risks as per AF's ESP | Mitigation Measures | Monitoring | Indicators | Verification Responsibilities |
|---|---|---|---|---|---|
| | | international standards. Georgia has been a member of the ILO since 1993 and it has ratified the eight Fundamental Conventions | | | |
| Protection of Natural Habitats | There is a risk that Project activities may be conducted in designated areas of natural beauty. | The exact project site locations will be the result of detailed analyses that will rank all communes in the target areas along identified key criteria. The project will identify and exclude national parks in this process and will not operate within areas of important biological diversity. | • Progress reports<br>• Supervision missions<br>• Mid-Term review<br>• Impact assessment<br>• Terminal evaluation | • No. of national parks identified | • PMU<br>• MEPA<br>• IFAD |
| Conservation of Biological Diversity. | There is no risk that plant species used in the restoration of riverine vegetation and pastures such as barriers for torrential rain and improved fodder varieties may not be indigenous. | Through the government, the project will ensure that all appropriate health and safety measures are taken in accordance to both national and international standards. | • Progress reports<br>• Supervision missions<br>• Mid-Term review<br>• Impact assessment<br>• Terminal evaluation | • Types of indigenous species used. | • PMU<br>• MEPA<br>• IFAD |
| Climate Change | The gradual replacement of cows with climate resilient and more productive ones through a slow | The ESMP will track the numbers of cows through the new national LITS tracking programme hereby | • Progress reports<br>• Supervision missions<br>• Mid-Term review | • No. of awareness raising activities implemented where the impact of cows on climate change is | • PMU<br>• MEPA<br>• IFAD |

| Principles | Potential Impacts and Risks as per AF's ESP | Mitigation Measures | Monitoring | Indicators | Verification Responsibilities |
|---|---|---|---|---|---|
| | process of interbreeding, will not increase GHG emissions. | allowing for credible M&E of national cow numbers and those related to the project.<br>Improved feeding through restored pastures will help further reduce GHG emissions per cow. | • Impact assessment<br>• Terminal evaluation | explained during the AI campaign.<br>• No. of cows registered per beneficiary through the LITS programme. | |
| Lands and Soil Conservation | There are no risks to land and soil conservation through this project. | PAU's will design and implement collective pasture management plans for improving grassland productivity and conservation. | • Baseline study<br>• Progress reports<br>• Supervision missions<br>• Mid-Term review<br>• Impact assessment<br>• Terminal evaluation | • No. of PMPs designed and implemented. | • PMU<br>• MEPA<br>• IFAD |

# ANNEX 4 SECAP REVIEW

1. Major landscape characteristics and Issues (Social, natural resources, and climate)
1.1. Socio-cultural context

1. Georgia spans on a territory of 69,700 sq.km and, as of January 2016, is a home to 3.72 million people (National Statistics Office of Georgia (GeoStat), 2016). Georgia's capital – Tbilisi - is the largest city of the country with the population of 1.1 million people[26].


2. Georgian is a semi-presidential democratic state with multiparty system, has a president, as Head of the State and Prime Minister, as head of Government of Georgia (GoG). The President of the Republic and the government wield executive power. The Parliament holds the legislative power in Georgia and court power is executed by constitutional court and other united courts. Georgia is divided in nine regions: Guria, Imereti, Kakheti, Kvemo Kartli, Mtskheta-Mtianeti, Racha-Lechkhumi and Kvemo Svaneti, Samegrelo and Zemo Svaneti, Samtskhe-Javakheti, Shida Kartli. Georgia has two breakaway regions – Abkhazia and South Ossetia. A region is a non-self-governing administrative unit providing coordination and communication of several municipalities therein (with the exception of the municipalities of Adjara and that of Tbilisi) with the central government. The 'State Commissioner' or the 'Governor' leads a region being formally appointed by the Prime Minister of Georgia.

3. Each region of Georgia is sub-divided in municipalities. According to the Local Self-Government Code of Georgia (2014), a municipality is a self-governing unit where a local self-governance is implemented. The municipality could be under the form of a settlement (self-governing city) which has administrative borders or of a unity of settlements (self-governing community or 'Temi'), which has administrative borders and administrative centre. A municipality has elective representative and executive bodies, registered population and hold its own property, budget, and revenues. The executive body of the municipality is called Gamgeoba (or Municipality Board), and the highest official of the municipality is a Governor (Gamgebeli or Head of the Board), or a mayor for self-governing city. For the purposes of optimisation of governance, a municipality may be again sub-divided in administrative units.

4. Population of Georgia has significantly decreased since the collapse of the Soviet Union. In 1991, the population of Georgia was 5.464 million (State Statistics Committee of the United Soviet Socialist Republics, 1991). Georgia was named as a country with high-emigration

[26] Geostat, 2016: http://geostat.ge/

(with respect to its population), the World Bank denoted that at least 15% of the country's population had migrated permanently since 1990s[27].

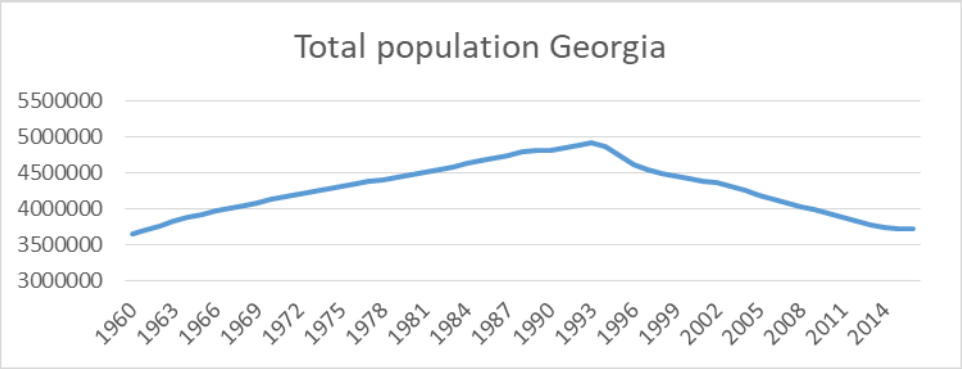



Figure 12: Total population in Georgia (World Bank, 2016)

**A.** Rural poverty. Detailed information is contained appendix 2.

**B.** Gender and youth. Detailed information is contained appendix 2.

**C.** Land and water tenure.

5. Pastures in Georgia are included under agricultural lands. According to the Strategy for Agricultural Development in Georgia for 2015-2020, agricultural lands accounts for over 3 million ha and constitute 43.4% of the whole territory of Georgia, and includes in addition to arable lands, pastures and meadows. It is estimated that 25% of Georgia's total land area is classified as permanent pastureland which represents about 1.7 million ha of Georgia total land area of 6.9 million ha. This confirms the importance of pastures, as they constitute over 50% of the total agricultural lands in Georgia.

6. Following Georgia's independence, an important part of the agricultural land was privatized although the official status of agricultural land registration remains unclear. To date, there no clear delineation of state- owned, municipal and privately-owned land for agricultural land and only 20-30% of the agricultural lands are officially registered by the National Agency of Public Registry10. In 2010, with the issuance of the Law of State Property, privatization of pasture was de facto stopped; however, some of pasture lands were already acquired by private owners between the independence and the issuance of the Law. The current ownership of pastures is estimated as follows:
   - Private owners: 15% -25%
   - Municipalities: 2-5%
   - APA: 2% (out of the 7% of the total Protect Areas territory at national level)
   - Public Property: 70-80%

7. Currently, conflicting policies are driving the pastures registration process. On one hand, the Agency of State Property (ASP) is conducting a national inventory of all state land, including pastures, in view of strengthening the administration of state property. The inventory is expected to be finalized in September 2016, and ASP is coordinating with municipalities and concerned ministries the registration process of state property. On the other hand, the Ministry of Regional Development and Infrastructure (MRDI) is supporting municipalities to register state property, including pastures in view of strengthening the decentralization process in Georgia. This process is aiming at improving revenues of municipalities and is linked to various on-going legal, institutional and financial support to local development.

1.2 Natural resources and their management

8. 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

[27] World Bank, 2016

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

**A.** Water resources

9. 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.

10. Coliform bacteria levels in reservoirs and water supply systems have reached dangerous levels in many areas. The quality of drinking water often does not comply with human health and safety standards. The major sources of water pollution are domestic, industrial and agricultural activity, including inadequate waste management practices. In 1996, only 13% of domestic and industrial sewage was treated prior to discharge. Also the Black Sea is heavily polluted by uncontrolled sewage, agricultural runoff, oil spills and dumping of wastes. The entire ecosystem of the Black Sea has begun to collapse, and the wetlands (including Ramsar sites) are heavily affected.

**B.** Soil and land degradation issues

11. 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 2).

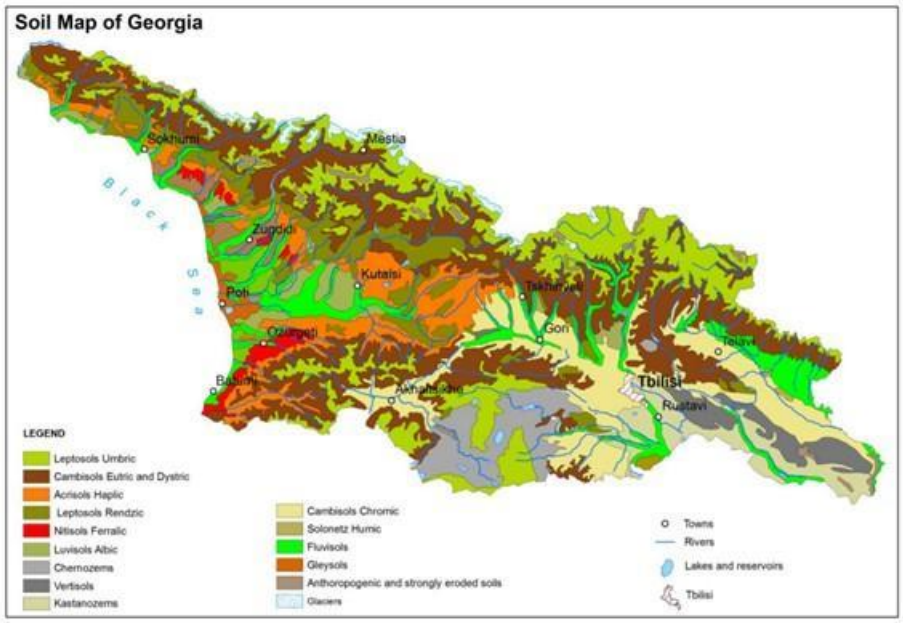



Figure 13: Soil map of Georgia
(JRCEC, Soil Resources of Mediterranean and Caucasus Countries, 2013)

12. 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.

**C.** Vegetation cover

13. 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.

14. 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[28]). Examples in the region can be found in Kyrgyzstan and Tajikistan were IFAD is leading projects on pastoral lands[29]. Knowledge and learnings from those projects will be valuable to develop DiMMA pasture management activities at implementation for Pasture user associations and pasture management plans (see Appendix 4).

**D.** Biodiversity

15. 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 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.

1.3 Climate change impacts and vulnerabilities

16. The climate of Georgia is extremely diverse, considering the nation's small size. There are two main climatic zones, roughly separating Eastern and Western parts of the country. The Greater Caucasus Mountain Range plays an important role in moderating 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 as well.

17. Much of western Georgia lies within the northern periphery of the humid subtropical zone with annual precipitation ranging from 1,000–2,500 mm. The precipitation tends to be uniformly distributed throughout the year, although the rainfall can be particularly heavy during the autumn months. The climate of the region varies significantly with elevation and while much of the lowland areas of western Georgia are relatively warm throughout the year, the foothills and mountainous areas experience cool, wet summers and snowy winters, snow cover

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

[29] LMDP-II and LPDP IFAD projects

often exceeds 2 meters in many regions. Eastern Georgia has a transitional climate from humid subtropical to continental. The region's weather patterns are influenced both by dry, Caspian air masses from the east and humid, Black Sea air masses from the west. Annual precipitation is considerably less than that of western Georgia and ranges from 400–1,600 mm.

**A.** Climate Change Impacts

18. 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[30]. 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.

19. The analysis of the last decades climatic patterns (1960-2016) done by IFAD in 2017[31] (see Annex 1), in support of the design 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.

20. 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 micro climates 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).

21. A shift in intra annual monthly rainfall is observed in 3 regions of the programme except in Samtskhe-Javakheti with an increase in concentration of monthly rainfall in early autumn and late winter and a decrease in summer (with a negative trend of around 1mm/year for August). Rainfall events are not equally distributed during summer season and assessments show trends of longer dry period and bigger rainfall events increasing erosion and provoking mudflows and landslides. 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).

22. Study of trends in snow cover for the period 2000-2016 was also conducted by IFAD32 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.

23. 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 (see map in appendix 4B). As per fact, the 3 regions within the programme area are negatively affected by significant

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

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

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

decrease in total annual rainfall and the situation may worsen if the trend is maintained in the future decades.

24. 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 for 3 regions in the programme area and increased evaporation caused by higher temperatures could have negative impact on water availability leading to longer drought events in the future. Additional in depth climatic and environmental analysis by region is shown in Annex 3.

25. 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[33]. The Climate Change Knowledge Portal (CCKP)[34] of the World Bank presents the IPCC data CMIP5 multi-model in the figure 4.

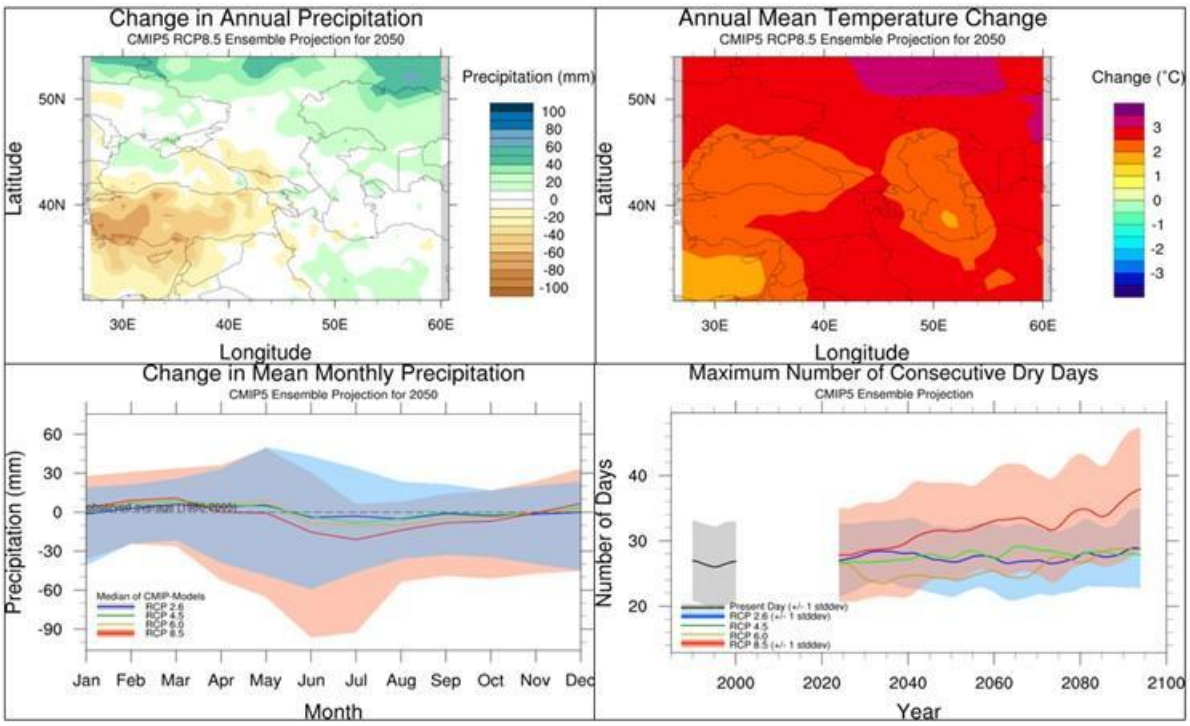



Figure 14: Change in annual precipitation (upper left), annual mean Temperature (upper right) and in Mean Monthly Precipitation (lower left) for 2050 compared to 1996-2005 baseline; Maximum Number of Consecutive Dry days (lower right) in Georgia (IPCC-CCKP ).[35]

26. 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%).

[33] https://www.ipcc.ch/report/ar5/
[34] http://sdwebx.worldbank.org/climateportal/
[35] World Bank Climate Portal: http://sdwebx.worldbank.org/climateportal/

27. According to the Initial National Communication Report to the UNFCCC published in 2014 and the 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.<br><br>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.<br><br>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.<br><br>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.<br><br>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. |

B. Impact of Climate Change on Urban Infrastructures

28. Storm-water systems in the Georgia are under-designed in Georgia. Urban development increases the amount of water runoff and localized flooding and flash floods occur in

urban areas where there are too few drains, or where their capacity is insufficient to deal with heavy precipitation. Major part of population of Georgia, lands, roads, oil and gas pipelines, hydro technical sites, energy transmission lines and mountain tourism sites periodically suffer with disasters, and area of this threat is being increased constantly. This is confirmed by disastrous processes recorded by geological office on territory of Georgia; increase of the areas damaged or under risk. Besides, great part of populated and urbanized areas of Georgia are in ecologically dangerous zone, where West Georgia is distinguished with active manifestation of disastrous processes.

C. Knowledge gap

29. The National Adaptation Plan published in 2017 intends to reduce the knowledge gap on climate related impacts on agriculture. However, even though the document gives us a broad idea on main crops in Georgia, the document is not complete yet and the recommendations for adaptation measures should be strengthened. However, there is an existing knowledge gap for data gathering, which makes challenging to improve the adaptation analysis. As an example, Erosion risk is well known in Georgia but no recent study on this issue was conducted so far to identify the location and the related adaptation activities. In addition, there is a need to enable systematic quality control of the data used in the analysis. Technical training to share experience and best practice with the deployment of these adaptation practices in similar regions.

2. Potential programme's social, environmental, and climate change impacts and risks

30. The coming EU aligned regulations in Georgia may have great adverse impacts on dairy smallholders and may foster families and especially young people to migrate from rural to urban areas. The programme will help targeted households to improve and diversify their livelihoods especially within the dairy sector, and comply with new regulations. The programme activities are gender inclusive and include the most vulnerable rural smallholders (see appendix 2 of the PDR). Indeed, the programme will support, among others, income activities targeting youth and women through matching grants. Those activities are also climate adaptive.

31. Georgia's climate change adaptation strategy is structured around the National Adaptation Plan (NAP) to Climate Change produced by Ministry of Environment and Natural Resources Protection in collaboration with other agencies including IFAD and the Third National Communication to UNFCCC. New strategies to ensure environment management and climate change mitigation and adaptation have been developed. Nonetheless, the country is still facing a major deficit in terms of climate change adaptation.

32. The CC scenario (described in the first chapter of this note) will impact natural resources (forest, pasture, water bodies, others) as well as rural infrastructures such as roads and water points and therefore livelihoods of smallholders and rural people. Neglecting smallholders' adaptation in Georgia will contribute to socio-economic issues such as rural depopulation (Rural population (% of total population) in Georgia was reported at 46.17 % in 2016 and is decreasing) and unemployment (11.8% total population) with possible consequences on the country's stability. The programme has established a clear adaptation strategy that include both investments and training/capacity building practices. In details the programme will ensure adaptation by targeting directly smallholders and institutions (central and local) taking into account the main climatic challenges of the target areas.

33. The described activities will support climate change adaptation to increase the resilience to climate change at household level, improve soil and water management securing higher pasture yield and land productivity, and mitigate the impact of the higher frequency and intensity of increased extreme weather events, such as drought, torrential rainfall/floods and

storms. In detail, the programme will ensure land development adaptation to climate for rural people with climate adaptive activities[36] by:

1.2 Implementing pasture management pilots
2.2 Creating Pasture User Associations and Pasture management Plans.

The programme will also support the installation of pilot and showcase technical innovations adaptive to climate change, among others:

3.2 Artificial insemination and crossbreeding
4.2 Fodder production and conservation techniques
5.2 Animal health and welfare practices

The programme will support climate smart income generating activities[37], among others:

6.2 Beekeeping
7.2 Mushroom production
8.2 Manure composting and fertilizer production
9.2 Greenhouses and orchards
10.2 Agro-tourism
11.2 Energy saving and climate smart pilots for processing

34. The programme will also support the branding and differentiation of premium mountain dairy products and the formulation and registration of denomination of origin for local premium cottage cheese that will enable small scale processors in mountainous areas to differentiate their products and reach high end niche markets. Furthermore the programme will improve capacities of veterinary services to cope with the possible emergence of exotic diseases from tropical areas and build capacities of small holder farmers and training and coaching of private market actors, ensuring tailored technical assistance provided by business development services provider.

3. Environmental and social category (A, B, C)

35. The programme is considered to be Category B (see annex 4). Overall, the programme is not expected to have any significant adverse environmental or social implications and though there may be some environmental risks associated with rehabilitaiton of agricultural infrastructure or rural roads, these will have to be in accordance with the new Environmental Assessment Code (June 1, 2017), which enters into effect from January 2018. Thus, the programme will have to comply with the new and improved procedures for environmental impact, Environmental Impact Assessment (EIA) report. The Ministry of Environmental Protection and Agriculture shall provide guidance on the content and preparation of this document.

36. Furthermore, the programme aims at increasing natural resource management and reduce overexploitation of land, pasture and resources. The proposed programme will enhance social cohesion due to the strengthening of the value chains and will contribute to environmental conservation and sustainability because of its emphasis on the rehabilitation of degraded land, the introduction of new management and maintenance practices and technologies and the reduction of anthropic pressure on graze lands and pastures. The proposed programme will strictly follow the existing environmental laws and regulations applicable in the country and represents a NRM oriented approach to using natural capital available in Georgia. The programme is designed to enhance sustainable and resilient business opportunities of vulnerable rural households through climate-smart natural resource management promoting the territory and its environmental integrity as main driver of local economy (see Appendix 4)

4. Climate risk category (High, Moderate, Low)

[36] Kindly refer to the annex 3 of PDR for more details.

[37] Kindly refer to the annex 3 of PDR for more details.

37. The programme's climate risk classification is: moderate (see annex 4). Based on assessments undertaken during preparation of the concept note and detailed design, the programme is expected to be moderately sensitive to climate risks, mainly due to the exposure of Georgia agriculture sector to expected changes in temperature and rainfall. However, a key aim of the programme will be to reduce the vulnerability of the rural poor to those risks and programme's funds are allocated to ensure climate adaptation and resilience of both infrastructures and livelihood strategies of rural poor. Furthermore, the programme is in the process of accessing funding from the Adaptation Fund. Also, Green Climate Fund and Global Environment Facility financing are under consideration and may reinforce programme adaptation and resilience activities.

5. Recommended features of programme design and implementation

38. The programme is applying a resilience model to identify adaptation actions to be supported and develop a scorecard to monitor changes in resilience for programme targeted households. The population's future well-being in the Georgia depends on the resilience of communities, cities and eco-systems, and resilience provides a critical point of integration for adaptation strategies. Building resilience is about the suitable actions taken at present time so that the impact of inevitable shocks and stresses are minimized and the rebound accelerated.

39. Resilience is the ability to cope with adverse shocks and stresses, and to adapt and learn to live with changes and uncertainty. The 'ability to resist, recover from, or adapt to the effects of a shock or a change'[38]. 'Resilience is a long-term approach, not only focussed on the ability to bounce back but also integrating adaptation and transformation while undergoing change'[39]. Indeed, building resilience delivers near-term economic benefits and jobs, while making everyone better prepared when a shock hits. There may be upfront costs to get this done, but money will be saved later: It costs sometimes more to rebuild in the wake of a disaster than to build in a way that can withstand the shock. Resilience can be approached at different levels, such as at the level of agroecosystems or productive territories, countries, communities or families, and facing different crises and shocks.

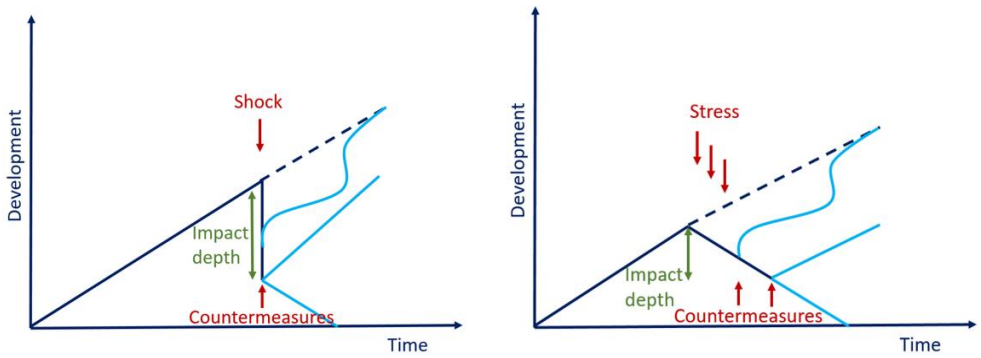
40. To a great extent, increasing resilience can be achieved by reducing vulnerabilities and increasing adaptive capacity. This can be achieved by reducing exposure, reducing sensitivity and increasing adaptive capacity, for every type of risk. The programme uses a resilience model focused on vulnerable rural families. This model helps to define the strategies of programme interventions to support the vulnerable rural in improving the management of natural resources and adaptive capacities to climate change.

41. The model followed in the programme is based on an identification and grouping of factors that contribute to the households' capacities to face climate related stresses and shocks, reducing their effects and to recover quickly avoiding persistent adverse effects. The model is explained in more detail in the following figure.

38 IDS, 2012 - Resilience: New Utopia or New Tyranny?

39 BC3, 2011 – Multidisciplinary perspectives on urban resilience

Figure 4: Impacts of shocks and stresses (green lines) on development pathways (black and blue lines) depending on different levels of resilience




42. The figure above illustrates how the factors and countermeasures associated contribute to the resilience of households according to their influence on:

- the depth of the impact (in green) that shocks (left graph) and stresses (right graph) have on households;
- the ability of households to recover (in blue) after a shock (left graph) or adjust to stresses (right graph).

43. The depth of the impact depends on factors such as; i) management of natural resources; ii) diversification of crops, income, and livelihoods; iii) quality of the diet (health); iv) road access and transportation and other services; v) quality and location of assets (infrastructure, fields an equipment); vi) existence of an early warning system and prevention strategies; vii) membership in social networks and/or producer organizations; viii) knowledge and skills to understand climate trends, risks and potential impacts on livelihoods and effectiveness of available adaptation options.

44. On the other hand, the capacity and speed of recovery and adjustments depends on factors such as: i) savings; ii) access to credit; iii) insurance (where life, health, home insurance, etc. are generally more or just as important as agricultural insurances); iv) the effectiveness of public (and private) auxiliary response programs; v) road access; vi) capacity to access new technologies and adopt them in livelihood activities; and again vi) membership in social networks and/or producer organizations.

45. In figure 4 above the light blue lines illustrate different scenarios of impact and recovery according to the presence or not of the resilience factors and countermeasures. When a stress or shock occurs, the depth of the impact may vary and the recovery may bring the households to a different level of welfare compared to the initial state depending on the factors of resilience. Finally, a systematic learning process after a crisis or shock or as part of evaluating the effectiveness of implemented approaches to cope with increased stresses, is an additional factor in strengthening the resilience to reconstruct and adopt each time something better based on the lessons learned.

A. Social and environmental management plan

Geographic targeting

46. The DiMMA activities will be limited to three regions: Imereti, Samegrelo-Zvemo Svaneti, and Samtskhe-Javakheti (out of nine regions and one autonomous republic). Half of all country's holdings with dairy cows reside in three DiMMA target regions. In each region, the programme will seek to select the areas with the highest incidence of poverty. Other criteria for final village selection include beneficiary interest, the existence of potential pasture land to be managed, opportunities for linking products to markets (particularly for progressive farmers, service providers), and high potentials for reducing climate change vulnerabilities and generating adaptation benefits. Also, in the selection of the pasture user associations and their land, the

programme will seek to identify the most vulnerable villages and with pasture land which contiguous to other PUAs, in order to allow for a more landscape-based approach, especially in summer pasture. Further details are available in the Appendix 2 of the PDR, Targeting measures - Geographic targeting.

Selection of adaptive activities

47. Appendix 4 of this PDR describes in details the implementation arrangements and planning process in selected clusters to identify resilient pasture management approaches and practices and how this process will take into account the inclusion of more vulnerable and poor households, and adaptation measures and activities to address current and future climate change and variability risks. The programme will establish three financial facilities to enable implementation of the programme components. The management of the Dairy Value Chain Development Facility (DVCF) will be entrusted to the Agriculture Programme Management (APMA) and is aligned with IFAD's social, environmental and climate policies in its selection and supervision procedures. DVCF activities will be demand driven, the BP for each sub-programme will need to be assessed from a SECAP perspective during the application/evaluation process. The same applies to financial services from other sources such as banks and MFIs. The SECAP consideration are included in the Appendix 4 Annex 1: proposed criteria for selection of farmers and aggregators for establishment of value chain clusters (DVCF).

48. The different interventions, land development and related adaptation measures to be included in the programme's activities are presented in appendix 4. This initial selection of activities was done during the two design missions jointly with the MEPA after meeting with other agencies, NGOs and producers associations. The selection covers a broad set of systems present in Georgia as well as new systems and approaches proven to have high adaptation benefits and which needs to be further up-scaled.

Systematic monitoring of adaptation benefits and resilience

49. The planning will identify the interest of the farmers in participating in the demonstrations and monitoring of the production, economic and resilience benefits of the dairy and pasture development approaches implemented. Results of the demonstration will be showcased and visits will be arranged for farmers and other stakeholders. Capacity building will also be provided to those demonstration farmers and to all the value chain actors. The system aim to give more options to farmers and in doing so increase their resilience to market and climate variability. [40]

50. The matrix below identifies the risks and vulnerabilities of rural households, activities that may be included in pasture, dairy and small entrepreneurship development to address these, and the questions proposed for the scorecard to monitor the increase in household resilience (see section 8 below in this appendix and the Monitoring and Evaluation appendix 6 section B in this PDR).

| Risks and vulnerabilities | Programme supported activities | Tentative questions for the resilience scorecard |
|---|---|---|
| Georgian law aligned with EU regulations on dairy products will affect dairy value chain in Georgia. | Sensitization and Capacity building of all dairy value chain actors. Training "technical and Business"<br><br>Organization of the value chain :<br>- Community mobilization<br>- Cluster organization<br>- Mechanization services<br>- Business & Market | 1. Can you explain how the new regulations will affect your production and access to market?<br><br>you part of a cooperative or group of pasture users?<br><br>e you participated to demonstration of adaptive practices? |

[40] For more details, kindly refer to the Appendix 4, component 1.1.

| | | |
|---|---|---|
| | Development<br>- Milk collection and processing<br><br>On-farm demonstrations and capacity building. | ve you adopted adaptive practices in the last 5 years? |
| New regulations on dairy products may severely affect smallest dairy farmers unable to comply with quality demand. | Adaptation Facility, pasture management and diversification activities.<br><br>Organization of farmers in cooperatives and associations.<br>Technical support for farmers and services providers. | you explain what options of adaptation practices and changes in your production system you can and/or may implement to address regulation changes? |
| Lack of institutional pasture land tenure may create tension between farmers | Organisation of Pasture user groups at cluster level.<br><br>Demonstration of improved feed practices and pasture management.<br><br>Enabling environment through policy platforms. | 6. Has DiMMA programme supported you in creating a Pasture user association?<br><br>If yes<br><br>6b. Has DiMMA programme supported you in developing legally registered pasture land to your PUA? Do you think your PUA will be able to manage this pasture sustainably? (why, why not?)<br><br>7. Since you started to implement pasture management activities supported by the DiMMA programme, has there been any progress noted in productivity and/or livelihood? |
| Risk of droughts and water scarcity during summer months as the amount of rainfall decreases in some areas, snow cover declines, and extreme temperatures rises. | 4500 ha - Pasture sustainably managed.<br>Promoting animal health and welfare.<br>Rehabilitation/establishment of water points.<br>Adaptation Facility supports climate smart income generating activities as beekeeping, mushroom production, orchards and compost fertilizer from manure. | 8. Does the pastoral area have sufficient access to water resources (stored in soils, water points) to cover the needs of the production and grazing livestock during the dry season?<br><br>9. Is your business supported by the DiMMA Adaptation Facility constrained by insufficient access to water? |
| Lack of water in summer pasture for livestock, gathering of animals at strategic locations, increasing pollution of streams. In winter, | Creation of pasture user associations and pasture management plans.<br>Support of manure management and compost activities. | 10. Have you implemented manure management in your village/community?<br><br>11. Does the DiMMA programme installed water points in pastoral |

| | | |
|---|---|---|
| concentration of cattle manure in barn and pollution of soils and close streams. | Rehabilitation and installation of water points in pastoral areas. Water management measures e.g. fences for shade, measures to retain water in soil, drainage, riverine and water spring restoration, protection and shade through reforestation in water points. | areas?<br><br>If yes<br><br>11b. Do you notice an improvement on milk productivity and animal health? |
| Intensification of storms and heavy rainfall events may affect pasture land, increasing erosion, loss of soils and water runoff. | Creation of pasture user associations and pasture management plans. Restoration of degraded pastures through rotation and fencing, and improvement of vegetation cover | 12. Have you introduced any practice to improve the fertility and water storage capacity of your soils, reducing erosion and water run-off?<br><br>If yes<br><br>12b. Have you observed any improvement in the yields of your pastoral land/crops by using these practices? |
| Climate variability can stimulate emergence of diseases. | Provision of inputs, including concentrate feed and veterinary drugs. Production of quality fodder will be a key priority in the programme approach. Provision of veterinary services, including preventive health care, to reduce the impact of production diseases such as mastitis, and parasites. Improved in-barn conditions for animal welfare. | 13. Do you have access to sufficient veterinary services and medicines to cover your production needs?<br><br>14. Do you notice an improvement in animal health and a better treatment of common cattle infections (e.g. brucellosis, mastitis)? |
| More productive cattle breeds imported in Georgia not adapted to environment and climatic conditions. | Artificial insemination campaign and veterinary services improved. Provision of artificial insemination services, using semen of improved breeds adapted to local conditions. | 15. Have you benefited from AI campaign (information, assistance) in your village/community from DiMMA programme?<br><br>If yes<br><br>15b. Have you observed any improvement in the milk production and animal health by using these practices? |

6. Analysis of alternatives

51. During the design, alternatives for dairy production value chains have been analysed with IFAD consultants and Ministries to come up with a broader selection of activities around the dairy sector to diversify and enhance livelihoods of targeted households increasing their resilience (sub-component 1.3). Also, the programme discussed the practices used toward environmental resources, especially in pastoral areas. The programme includes sustainable pasture management activities including creation of Pasture Users Associations and pasture management plan (sub-component 2.1), and piloting pasture and manure management (sub-component 1.1) for testing and monitoring with farmers, identify adaptation benefits and disseminate good practices.

7. Institutional analysis

52. Georgian legislation comprises various laws and international agreements. Along with the national regulations, Georgia is signatory to a number of international conventions related to environmental and social protection. The Constitution of Georgia (1995, last amended in 2013) lays down the legal framework that guarantees environmental and social protection, and public access to information with regard to environmental conditions.

53. The Ministry of Economy and Sustainable Development of Georgia (MoESD) is the competent authority for implementing and enforcing environmental legislation and policy, including the requirements relating to EIA since the recent merging of the Ministry of Environmental and Natural Resources Protection (MoENRP), previous Ministry in charge of environmental aspects, within the MoESD and the Ministry of Environmental Protection and Agriculture (MEPA). In addition to the MoESD and MEPA, a number of other ministries, departments and agencies are responsible either directly or indirectly for the implementation of environmental and social related legislation and policy, including:

- Ministry of Health, Labour, and Social Affairs of Georgia.
- Ministry of Regional Development and Infrastructure of Georgia.
- Ministry of Environmental Protection and Agriculture of Georgia.
- Ministry of Culture and Monument Protection of Georgia.

Institutional framework

54. MoESD has an important role in the supporting agricultural development as well as pastures through its role in overseeing land management policies in general and the process of privatization of state owned lands as well as their registration in specific. One of the most important goals of the Ministry is to support sustainable development of the country in the field of environment, to elaborate and implement state policy and international commitments within its competence.

55. The low emission development strategies (LEDS) implies the development strategic plans at national level to support reduction of the greenhouse gas (GHG) emissions in the process of economic growth. On 26 July 2013 Georgian Government issued the resolution on setting up high level inter-ministerial committee and LEDS and its working group, headed by the MoESD. The program aims at supporting developing countries' efforts to pursue long-term, transformative development and accelerate sustainable, climate-resilient economic growth while slowing the growth of greenhouse gas emissions.

56. Ministry of Energy of Georgia implements State Energy Policy for Georgia, participates in the development of strategies and programs that address the priorities in the energy sector, monitors their implementation, and works out appropriate recommendations. The Ministry structure includes the Department for Energy Efficiency and Renewable Energy.

57. The core function of the Ministry of Agiculture (MEPA) is to develop and implement a unified government policy on the development of agricultural sector of Georgia. Along with other issues, the Ministry is in charge of agro-production, agro-processing, land conservation and productivity improvement, crops, livestock, fisheries, agro-engineering and veterinary, as well as promotion of upgrade and accessibility of agricultural technology. Since the merging of the MoENRP with the MEPA, it can play a key role in supervising environmental projects funded by international funds, providing implementation support to enhance impact.

58. Ministry of Regional Development and Infrastructure (MRDI) is in charge of regional development policies in addition to overseeing the development of the infrastructure, including water, roads and others. In terms of agricultural development and pastures management, MRDI provision of needed infrastructure to farmers. To date, the municipalities are in charge of issuing pastures lease contracts to shepherds on their pastures; municipalities are also aiming at acquiring state land in order to further improve their revenues. The leasing is made mostly according to cadastral zoning, but occasionally, it can follow local customary grazing habits; this could include managing pastures outside the cadastral areas of the municipality.

Capacity development

59. Following the National Adaptation Plan for Agriculture (MoENRP, 2017), Relevant government institutions have limited systems, capacity and expertise to address challenges related to climate change efficiently as this is quite a new challenge in the country. The programme considers capacity development and institutional strengthening two pillars of its theory of change. Both component will ensure capacitation of both institutions and beneficiaries. The objective of the process is to reduce the climate change adaptation deficit in rural areas. The programme will ensure capacitation in the following domains: i) capacity building of technical offices of rural municipalities and villages to ensure climate resilience of infrastructures and services; ii) capacity development of smallholders, associations and institutions in the field of natural resource management, sustainable livestock management systems including pasture management and other key topics.

Additional funding

60. The programme is funded by IFAD loan to support dairy production in Georgia considering Climate Change adaptation practices and to ensure a rational and sustainable use of available natural resources. Additionally, the programme is developing a proposal to obtain funding from the Adaptation Fund. Furthermore, the programme may also be complemented by funding from GEF7 or GCF.

8. Monitoring and Evaluation

61. The Monitoring and Evaluation recommendations are described in the Annex 6 of the PDR: “Planning, M&E and learning and knowledge management”.

62. A special attention to the geo-referencing methodology for monitoring is advised. The PMU staff (M&E Officer) and implementer partners should be trained at start up and at the beginning of programme implementation to collect GPS information for all activities within the components of the programme. The M&E Officer (and other PMU staff if needed) should also be trained to use the GPS data collected with GIS software, to create maps and to analyse changes in time. The monitoring will be focused on vegetation index for activities related to pasture management and on the construction of infrastructure (roads, water points …) through satellite imagery (i.e. Landsat, Sentinel) and pictures taken on the field before and after the activities. The geo-referenced information should be gathered in a KMZ file (Google Earth) by component and subcomponent. . As reported in the PDR the whole programme will be georeferenced as was its design.

9. Further information required to complete screening, if any

63. In addition to the present note, the following tools have been designed and shared with the mission:

Google Earth Package Including the following maps, data and analysis;

- Remote Sensing Analysis of (I) Vegetation, (II) Climate trends
- Administrative Boundaries
- Soil Map
- Pasture and forestry area map
- Mountainous areas’ map
- Global Agro-ecological Zones (GAEZ)
- Potential Water Erosion map (under study)
- Map of Roads (2010)
- Georgia’s Digital Terrain Model (DTM – 2017))
- Georgia’s Slope (%) Map (2017)
- Map of visited Sites and Villages (2017)
- Watersheds' map (2017)

Remote Sensing Climate Trends (1981-2016) Analysis

64. No further information is required.

10. Budgetary resources and schedule

65. No further budget is required to develop the SECAP note. Adaptation Fund proposal is being developed. GCF and GEF additional funding are under consideration.

11. Record of consultations with beneficiaries, civil society, general public etc

66. The team met with farmer associations, NGOs, and other potential beneficiaries of DiMMA on their land. The visited places during design are presented in the figure 5 below.

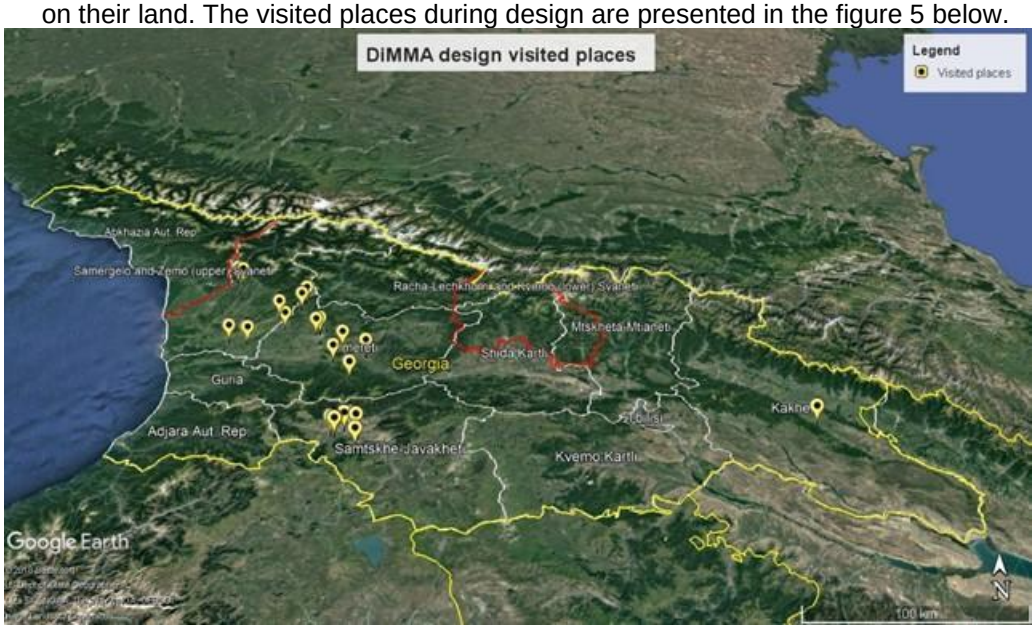
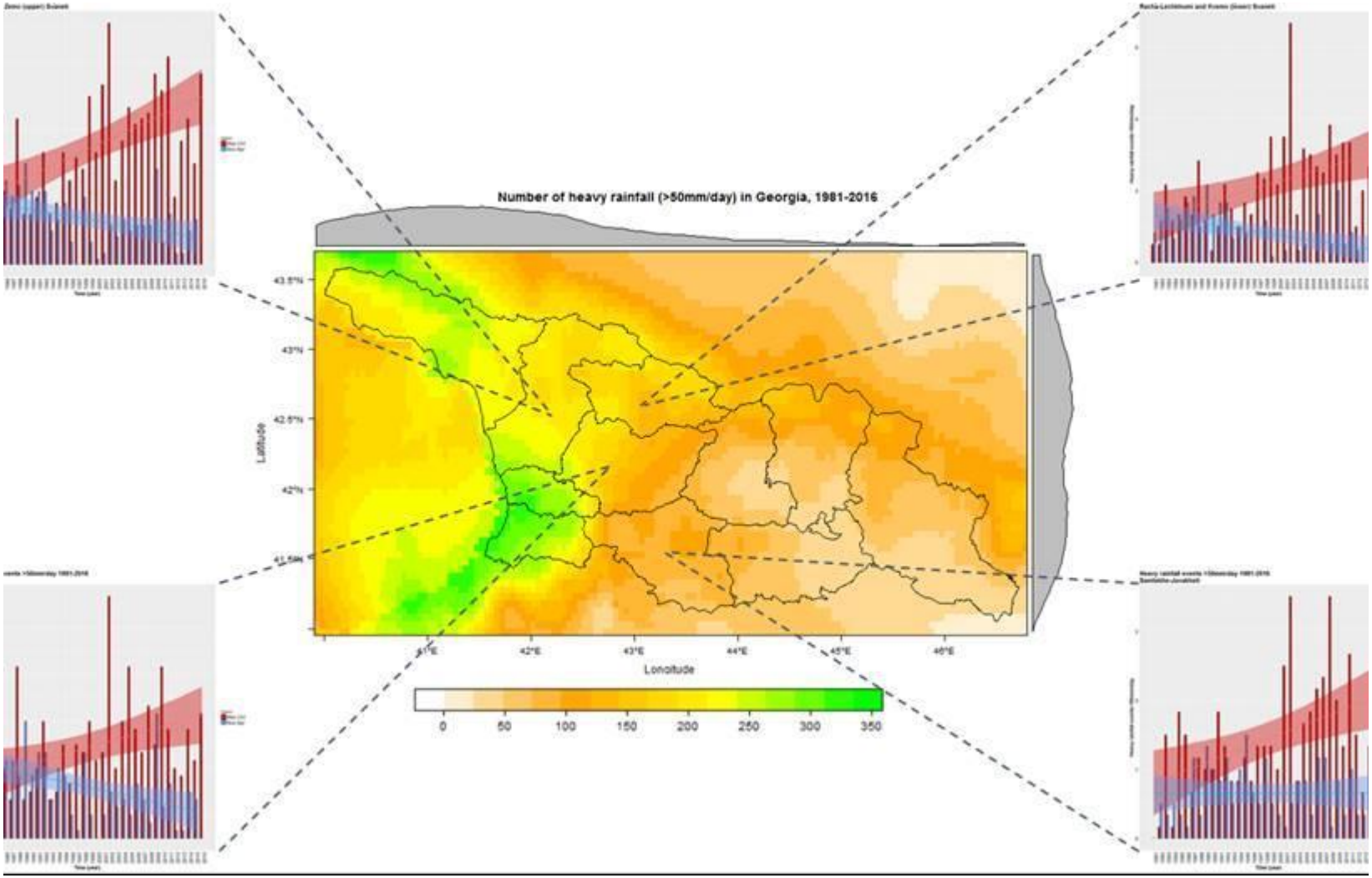


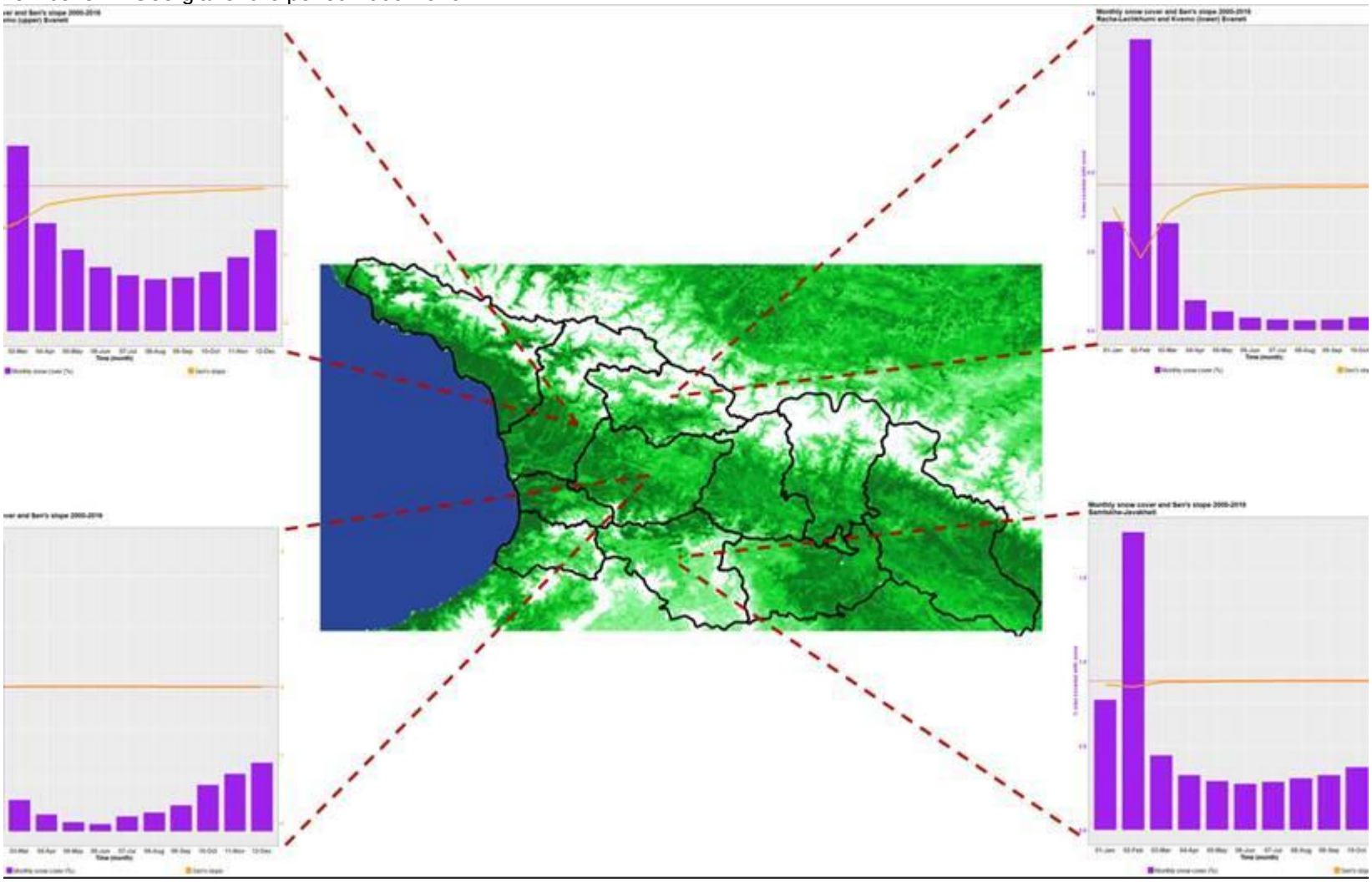

Figure 5: Visited places during Design

67. For further information kindly refer to the PDR.

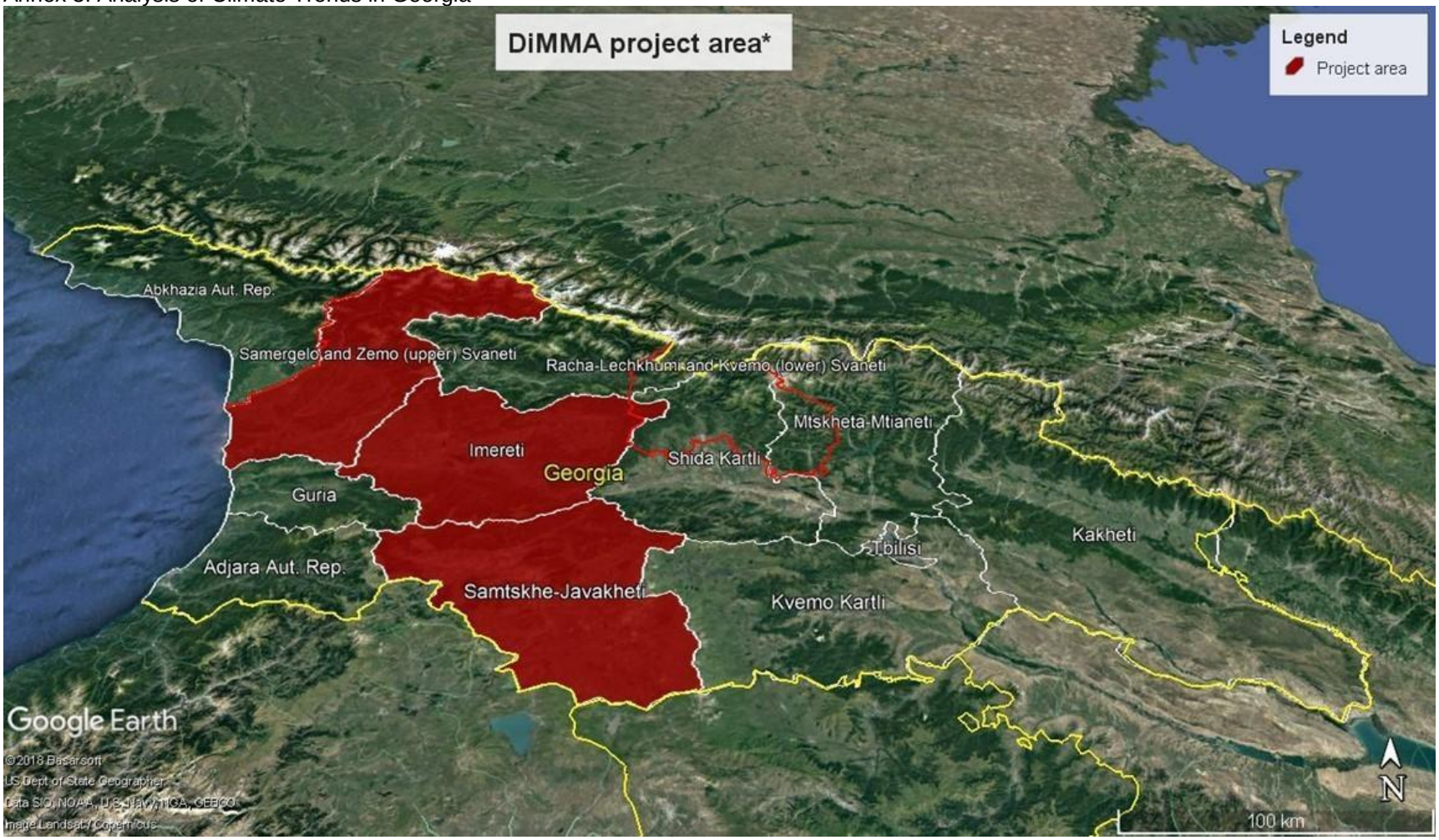
Annex 1: Number of heavy rainfall events (>50mm/day) in Georgia for the period 1981-2016



Annex 2: Snow cover in Georgia for the period 2000-2016



Annex 3: Analysis of Climate Trends in Georgia

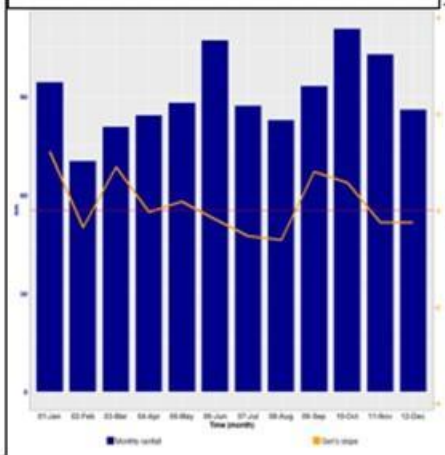



*The programme area does not include national parks and protected areas.

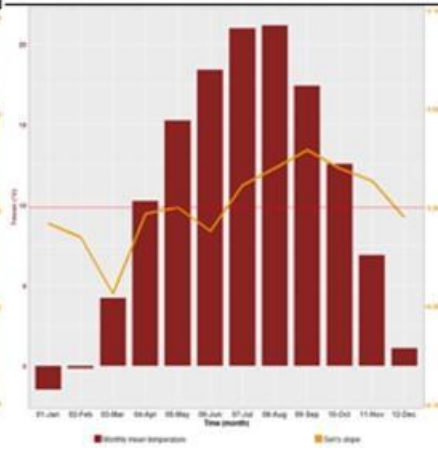
## Imereti


**Area**: 6,414 (6,479 w South Ossetia) km²
**Population**: 532,900
**Pop. Density**: 83.07 /km2
**Unemployment Rate:** 10.8%
**Annual crop area**: 151,900 ha
**Cattle (ths. heads)**: 171.4 (93.2 dairy)
*Source: Geostat 2016*
**Average Altitude MASL**: 697m
**Percent of land above 800m:** 36.6%
**Percent of land above 1500m:** 9.4%
**Slope**: 45.6% (>10°)

0Monthly Rainfall and Sen's slope 1981-2016



Monthly temperature and Sen's slope 1960-2015



## Past climatic data

### Rainfall

The trend of annual rainfall is around 1400mm/y, is decreasing on time (not significant) and has dropped drastically from 2003 to 2009. Monthly rainfall seems to decrease over time in summer and increase in Sept-Oct, January and March.

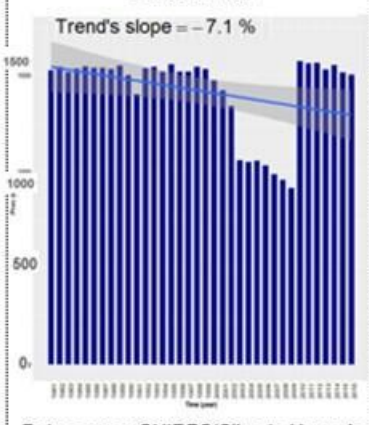
### Temperature

Average temperatures go from -2 °C in winter up to 22 °C in summer. The trend of max temperature is increasing for both seasons and is significant for May-Oct season. The trend of min temperature in decreasing especially during Nov-Apr period (not significant). Indeed, the monthly mean temperature is increasing over time for the majority of the summer months and decreasing in winter.

### NDVI[2]

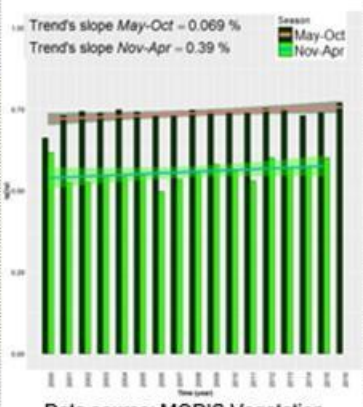
The trend of the vegetation index for both seasons is increasing over time but is not significant.

Annual rainfall



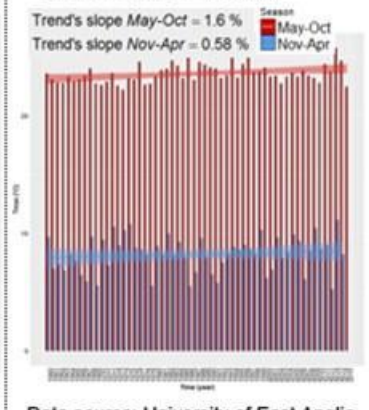

Data source: CHIRPS/Climate Hazards Group-USGS. 1981-2016

Seasonal[1] NDVI



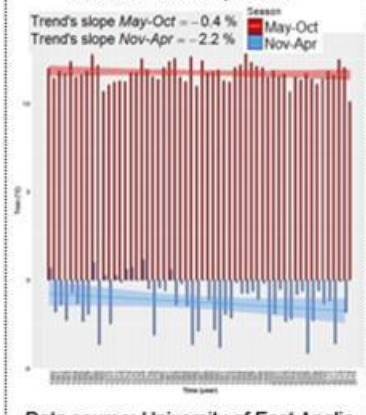

Data source: MODIS Vegetation Indices 16-Day L3 Global 250m (MOD13Q1)/NASA. 2000-2016

Seasonal[1] Max temperature




Data source: University of East Anglia Climatic Research Unit (CRU). 1960-2015

Seasonal[1] Min temperature




Data source: University of East Anglia Climatic Research Unit (CRU) 1960-2015

## Possible Impacts

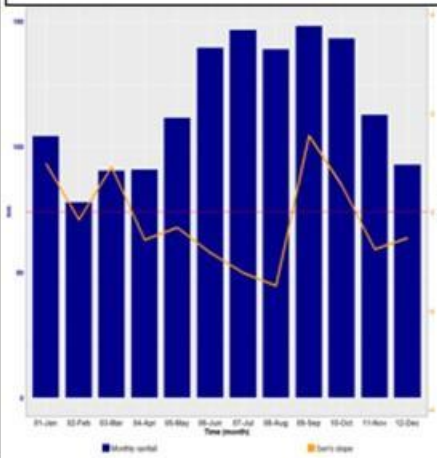
Variability in water availability (e.g. 2003-2009) combine with hot summers, could directly threaten livestock, reducing weight gain and sometimes causing fatal stress. Heat stress could affect the cattle population both directly and indirectly; it could increase their vulnerability to disease, reduce fertility, and reduce milk production in dairy cattle. Summer pasture in the highland should benefit from longer vegetation period but decrease in summer rainfall could lead to droughts and affect forage and pasture productivity. Drought reduces the amount of quality forage available to grazing livestock, and prolonged drought can permanently degrade rangelands and increase erosion and mudflow if followed by heavy rainfall period.

[1] Season 1: May to October – Season 2: November to April.
[2] The NDVI is a measurement of the balance between energy received and energy emitted by objects on Earth. When applied to plant communities, this index establishes a value for how green the area is, that is, the quantity of vegetation present in a given area and its state of health or vigour of growth. The NDVI is a dimensionless index, so its values range from −1 to +1.

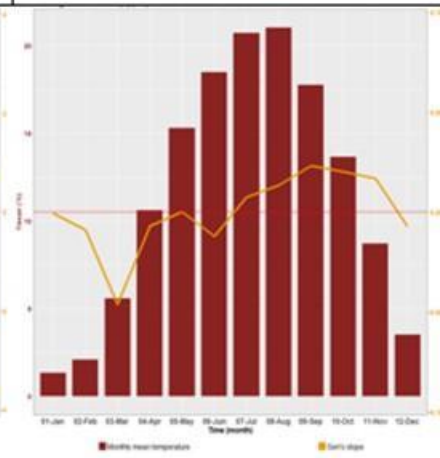
## Samergelo and Zemo (upper) Svaneti


**Area**: 7468.2 km²
**Population**: 329,700
**Pop. Density**: 44.15 /km²
**Unemployment Rate:** 10%
**Annual crop area:** 120,800 ha
**Cattle (ths. heads)**: 190.8 (98.8 dairy)
*Source: Geostat 2016*
**Average Altitude MASL**: 1224m
**Percent of land above 800m:** 54.2%
**Percent of land above 1500m:** 43%
**Slope**: 54.2% (>10°)

**Monthly Rainfall and Sen's slope 1981-2016**



**Monthly temperature and Sen's slope 1960-2015**



## Past climatic data

### Rainfall

The trend of annual rainfall is stable in time from 1981 and is around 1450mm/y. Monthly rainfall seems to decrease over time during May-Aug and Nov-Dec periods and increase at the end of winter and at the beginning of autumn.

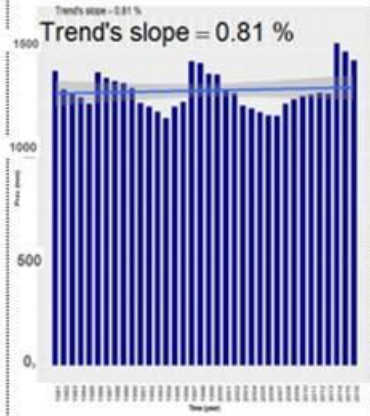
### Temperature

Average temperatures go from 2 °C in winter up to 22 °C in summer. The trend of max and min temperatures seems to increase and decrease respectively for both seasons, but neither of them significantly. Even though it is noted that temperature is increasing for the months of Jul to Nov and mostly decreasing for the rest of the year since 1960.

### NDVI[2]

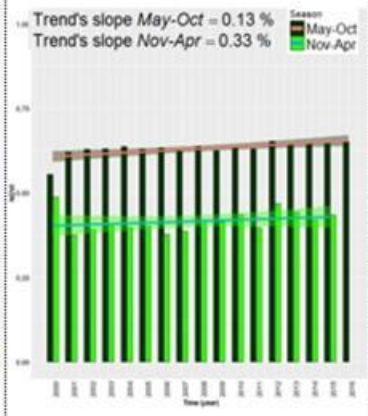
The trend of the vegetation index for both seasons is increasing significantly.

**Annual rainfall**



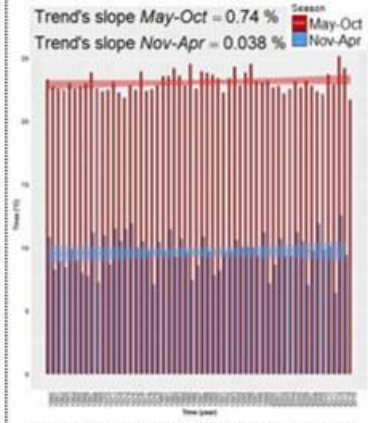

Data source: CHIRPS/Climate Hazards Group-USGS. 1981-2016

**Seasonal[1] NDVI**



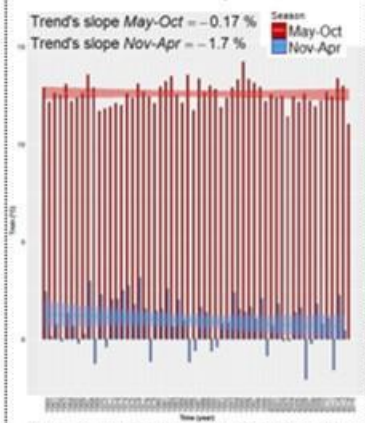

Data source: MODIS Vegetation Indices 16-Day L3 Global 250m (MOD13Q1)/NASA. 2000-2016

**Seasonal[1] Max temperature**




Data source: University of East Anglia Climatic Research Unit (CRU). 1960-2015

**Seasonal[1] Min temperature**




Data source: University of East Anglia Climatic Research Unit (CRU) 1960-2015

## Possible Impacts

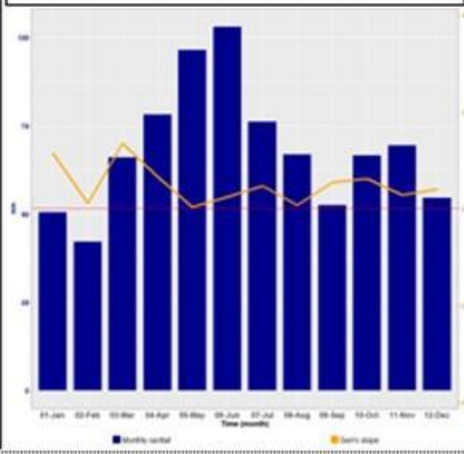
Variability in water availability during summer months could directly threaten livestock, reducing weight gain and sometimes causing fatal stress. Summer pasture in the highland should benefit from longer vegetation from higher temperature in summer and at the end of autumn but decrease in summer rainfall can lead to droughts and may affect forage and pasture productivity. Drought reduces the amount of quality forage available to grazing livestock, and prolonged drought can permanently degrade rangelands and increase erosion and mudflow if followed by heavy rainfall period and increase erosion and mudflow if followed by heavy rainfall period (Sept-Oct) especially in this region where more than half of the territory is high slope.

[1]Season 1: May to October – Season 2: November to April. [2]The NDVI is a measurement of the balance between energy received and energy emitted by objects on Earth. When applied to plant communities, this index establishes a value for how green the area is, that is, the quantity of vegetation present in a given area and its state of health or vigour of growth. The NDVI is a dimensionless index, so its values range from –1 to +1.

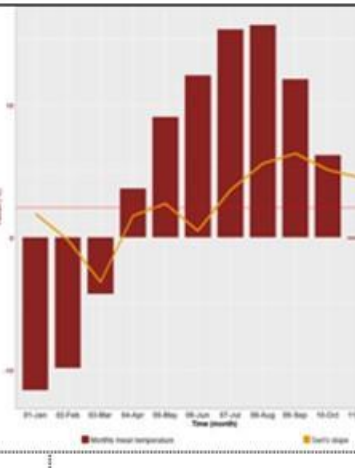
## Samtskhe-Javakheti

**Area:** 6,412 km2
**Population:** 160,500
**Pop. Density:** 25 /km2
**Unemployment Rate:** 4.1%
**Annual crop area**: 271,800 ha
**Cattle (ths. heads)**: 116.2 (61.2 dairy)
*Source: Geostat 2016*
**Average Altitude MASL**: 1865m
**Percent of land above 800m:** 99.86%
**Percent of land above 1500m:** 78.6%
**Slope**: 42.6% (>10°)

**Monthly Rainfall and trends 1981-2016**



**Monthly temperature and Sen's slope 196**



## Past climatic data

### Rainfall

The trend of annual rainfall is around 900mm/y and doesn't show any significant change in time from 1981 although we can note a slight increase. Monthly rainfall shows more rainfall in May-June and seems to increase in the beginning of Spring and in Winter.

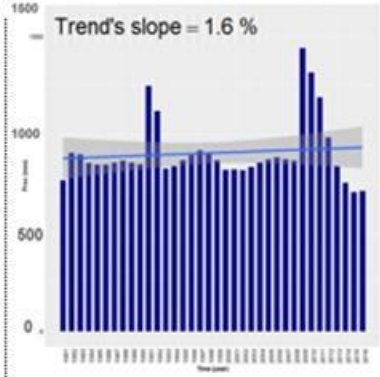
### Temperature

Average temperatures go from -12 °C in winter up to 19 °C in summer. The trends of max temperature seem to increase for both seasons and is significant for May-Oct season. At the contrary trend of min temperature is decreasing. Indeed, we can see that the monthly mean temperature is increasing in summer and decreasing in winter over time.

### NDVI[2]

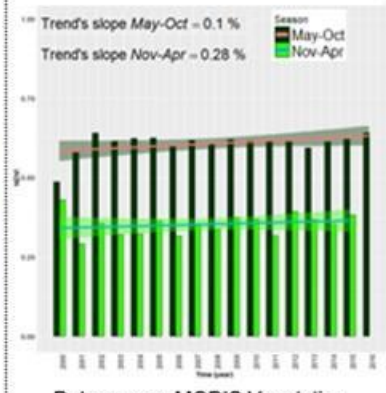
The trend of the vegetation index for both seasons is quite stable, slightly increasing.

**Annual rainfall**



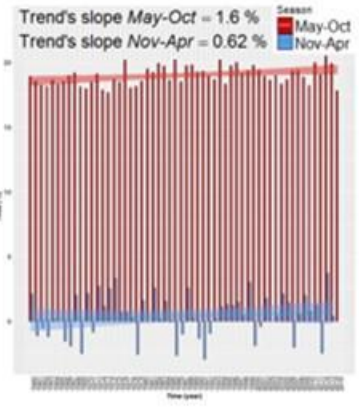

Data source: CHIRPS/Climate Hazards Group-USGS. 1981-2016

**Seasonal[1] NDVI**



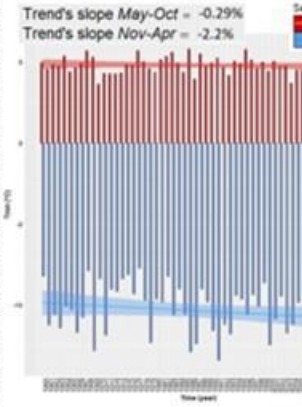

Data source: MODIS Vegetation Indices 16-Day L3 Global 250m (MOD13Q1)/NASA. 2000-2016

**Seasonal[1] Max temperature**




Data source: University of East Anglia Climatic Research Unit (CRU). 1960-2015

**Seasonal[1] Min temperature**




Data source: University of East Climatic Research Unit (CRU) 2015

## Possible Impacts

Hotter summers, could directly threaten livestock, reducing weight gain and sometimes causing fatal stress if there is no sufficient water availability or shelter. Heat stress could affe cattle population both directly and indirectly; it could increase their vulnerability to disease, reduce fertility, and reduce milk production in dairy cattle Summer pasture in the highlan most of Samtskhe-Javakheti territory should benefit from longer vegetation period and increase the production of fodder when water is available, as observed with the NDVI slightly incre in summer. More extreme events in rainfall and in temperatures could also affect the soil and increase erosion risk and mudflow.

[1] Season 1: May to October – Season 2: November to April.
[2] The NDVI is a measurement of the balance between energy received and energy emitted by objects on Earth. When applied to plant communities, this index establishes a value for how green the area is, that is, the quantity

Annex 4 – Questions to guide the screening on environmental, social and climate risks

| GUIDING QUESTIONS FOR ENVIRONMENT AND SOCIAL SCREENING | YES / NO | COMMENTS/EXPLANATION |
|---|---|---|
| CATEGORY A – THE FOLLOWING MAY HAVE SIGNIFICANT AND OFTEN IRREVERSIBLE OR NOT READILY REMEDIED ADVERSE ENVIRONMENTAL AND/OR SOCIAL IMPLICATIONS. | | |
| Programme location | | |
| 1. Would the programme develop any wetlands? (Guidance statement GS1) | No | |
| 2. Would the programme cause significant adverse impacts to habitats and/or ecosystems and their services (e.g. conversion of more than 50 hectares of natural forest, loss of habitat, erosion/other form of land degradation, fragmentation, and hydrological changes)? (GS 1, 2 and 5) | No | |
| 3. Does the proposed programme target area include ecologically sensitive areas, areas of global/national significance for biodiversity conservation and/or biodiversity-rich areas and habitats depended on by endangered species? (GS1) | No | |
| 4. Is the programme location subjected to major destruction as a result geophysical hazards (tsunamis, landslides, earthquakes, volcanic eruptions)? | No | |
| Natural resources | | |
| 5. Would the programme lead to unsustainable natural resource management practices (fisheries, forestry, livestock) and/or result in exceeding carrying capacity. For example, is their development happening in areas where little up-to-date information exists on sustainable yield/carrying capacity? (GS 4, 5 and 6) | No | The programme aim to reduce the number of cattle and improving their productivity. Thus, should have a positive impact on pasture and erosion. |
| 6. Would the programme develop large-scale aquaculture or mariculture projects, or where their development involves significant alteration of ecologically sensitive areas? | No | |
| 7. Would the programme result in significant use of agrochemicals which may lead to life-threatening illness and long-term public health and safety concerns? (GS 14) | No | |
| 8. Does the programme rely on water-based (ground and/or surface) development where there is reason to believe that significant depletion and/or reduced flow has occured from | No | |

| | | |
|---|---|---|
| the effects of climate change or from overutilization? (GS7) | | |
| 9. Does the programme pose a risk of introducing potentially invasive species or GMOs which might alter genetic traits of indigenous species or have an adverse effect on local biodiversity? (GS1) | No | The programme will even try to reduce the impact of invasive species present in pasture areas. |
| 10. Does the programme make use of wastewater (e.g. industrial, mining, sewage effluent)? (GS7) | No | |
| Infrastructure development | | |
| 11. Does the programme include the construction/ rehabilitation/upgrade of dam(s)/reservoir(s) meeting at least one of the following criteria? (GS8) more than 15 metre high wall or, more than 500 metre long crest or , more than 3 million $m^3$ reservoir capacity or, incoming flood of more than 2,000 $m^3/s$ | No | |
| 12. Does the programme involve large-scale irrigation schemes rehabilitation/development (above 100 hectares per scheme)? (GS7) | No | |
| 13. Does the programme include construction/rehabilitation/upgrade of roads that entail a total area being cleared above 10 km long, or any farmer with more than 10 per cent of his or her private land taken? (GS10) | No | The rehabilitation of roads doesn't involve area being cleared, the road already exist but are in poor condition. |
| 14. Does the programme include drainage or correction of natural water bodies (e.g. river training)? (GS7) | No | |
| 15. Does the programme involve significant extraction/diversion/containment of surface water, leaving the river flow below 20 per cent environmental flow plus downstream user requirements? (GS7) | No | |
| Social | | |
| 16. Would the programme result in economic displacement[41] or physical resettlement of more than 20 people, or impacting more than 10 per cent of an individual household's assets? (GS13) | No | |
| 17. Would the programme result in conversion and/or loss of physical cultural resources? (GS9) | No | |
| 18. Would the programme generate significant social adverse impacts to local communities (including disadvantaged and vulnerable groups and indigenous people) | No | |

[41] Economic displacement implies the loss of land, assets, access to assets, income sources or means of livelihoods (guidance statement 13).

| | | |
|---|---|---|
| or other programme-affected parties? (GS13) | | |
| Other | | |
| 19. Does the programme include manufacture and transportation of hazardous and toxic materials which may affect the environment? (GS2) | No | |
| 20. Does the programme include the construction of a large or medium-scale industrial plant? | No | |
| 21. Does the programme include the development of large-scale production forestry? (GS5) | No | |
| Rural finance | | |
| 22. Does the programme support any of the above (Q1 to Q22) through the provision of a line of credit to financial service providers? (GS12) | No | |
| CATEGORY B – THE FOLLOWING MAY HAVE SOME ADVERSE ENVIRONMENTAL AND/OR SOCIAL IMPLICATIONS WHICH CAN BE READILY REMEDIED. | | |
| Location | | |
| 23. Does the programme involve agricultural intensification and/or expansion of cropping area in non-sensitive areas that may have adverse impacts on habitats, ecosystems and/or livelihoods? (GS1, 2 and 12) | No | |
| Natural resource management | | |
| 24. Do the programme activities include rangeland and livestock development? (GS6) | Yes | |
| 25. Does the programme involve fisheries where there is information on stocks, fishing effort and sustainable yield? Is there any risk of overfishing, habitat damage and knowledge of fishing zones and seasons? (GS4) | No | |
| 26. Would the programme activities include aquaculture and/or agriculture in newly introduced or intensively practiced areas? Do programme activities include conversion of wetlands and clearing of coastal vegetation, change in hydrology or introduction of exotic species? (GS4) | No | |
| 27. Do the programme activities include natural resources-based value chain development? (GS 1, 6 and 12) | Yes | |
| 28. Do the programme activities include watershed management or rehabilitation? | No | |
| 29. Does the programme include large-scale soil and water conservation measures? (GS 1 and 5) | No | |
| Infrastructure | | |

| | | |
|---|---|---|
| 30. Does the programme include small-scale irrigation and drainage, and small and medium (capacity < 3 million m3) dam subprojects? (GS 7 and 8) | No | |
| 31. Does the programme include small and microenterprise development subprojects? (GS 12 and 13) | Yes | |
| 32. Does the programme include the development of agro processing facilities? (GS 2, 6 and 12) | Yes | |
| 33. Would the construction or operation of the programme cause an increase in traffic on rural roads? (GS10) | Yes | It is a possibility due to MCCs and processing units in villages. |
| Social | | |
| 34. Would any of the programme activities have minor adverse impacts on physical cultural resources? (GS9) | No | |
| 35. Would the programme result in physical resettlement of less than 20 people, or impacting less than 10 per cent of an individual household's assets (GS13)? | No | |
| 36. Would the programme result in short-term public health and safety concerns? (GS14) | No | |
| 37. Would the programme require a migrant workforce or seasonal workers (for construction, planting and/or harvesting)? (GS13) | No | |
| Rural finance | | |
| 38. Does the programme support any of the above (Q24 to Q37) through the provision of a line of credit to financial service providers?(GS12) | No | |

| GUIDING QUESTIONS FOR CLIMATE RISK SCREENING | YES | NO | ADDITIONAL EXPLANATION OF "YES" RESPONSE* |
|---|---|---|---|
| 1. Is the programme area subject to extreme climatic events such as flooding, drought, tropical storms or heat waves? | | x | |
| 2. Do climate scenarios for the programme area foresee changes in temperature, rainfall or extreme weather that will adversely affect the programme impact, sustainability or cost over its lifetime? | | x | |

| | | | |
|---|---|---|---|
| 3. Would the programme make investments in low-lying coastal areas/zones exposed to tropical storms? | | x | |
| 4. Would the programme make investments in glacial areas and mountains zones? | x | | In mountain zones but not subject to frequent high climatic hazards. The programme is working on reducing water runoff and erosion by improving pasture management. |
| 5. Would the programme promote agricultural activity in marginal and/or highly degraded areas that have increased sensitivity to climatic events (such as on hillsides, deforested slopes or floodplains)? | | x | Reducing number of cattle per ha with pasture management plan and AI. |
| 6. Is the programme located in areas where rural development projects have experienced significant weather-related losses and damages in the past? | | x | |
| 7. Would the programme develop/install infrastructure in areas with a track record of extreme weather events? | | x | |
| 8. Is the programme target group entirely dependent on natural resources (such as seasonal crops, rainfed agricultural plots, migratory fish stocks) that have been affected by in the last decade by climate trends or specific climatic events? | x | | The significant negative trend of rainfall in pasture in programme areas could affect yield and quality of the pasture. |
| 9. Would climate variability likely affect agricultural productivity (crops/livestock/fisheries), access to markets and/or the associated incidence of pests and diseases for the programme target groups? | | x | No direct relation between CC and pasture productivity. |
| 10. Would weather-related risks or climatic extremes likely adversely impact upon key stages of identified value chains in the programme (from production to markets)? | x | | |
| 11. Is the programme investing in climate-sensitive livelihoods that are diversified? | x | | |
| 12. Is the programme investing in infrastructure that is exposed to infrequent extreme weather events? | x | | |
| 13. Is the programme investing in institutional development and capacity-building for rural institutions (such as farmer groups, cooperatives) in climatically | x | | |

| | | | |
|---|---|---|---|
| heterogeneous areas? | | | |
| 14. Does the programme have the potential to become more resilient through the adoption of green technologies at a reasonable cost? | x | | |
| 15. Does the programme intervention have opportunities to strengthen indigenous climate risk management capabilities? | x | | |
| 16. Does the programme have opportunities to integrate climate resilience aspects through policy dialogue to improve agricultural sector strategies and policies? | x | | |
| 17. Does the programme have potential to integrate climate resilience measures without extensive additional costs (e.g. improved building codes, capacity-building, or including climate risk issues in policy processes)? | x | | |
| 18. Based on the information available would the programme benefit from a more thorough climate risk and vulnerability analysis to identify the most vulnerable rural population, improve targeting and identify additional complementary investment actions to manage climate risks? | | x | |