ANNEX 6a

ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT AND ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

VOLUME 1 – ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA)

“Enabling Implementation of Forest Sector Reform in Georgia to Reduce GHG Emissions from Forest Degradation”

Prepared for the GIZ
for submission to the
Green Climate Fund (GCF)

"Enabling Implementation of Forest Sector Reform in Georgia to Reduce GHG Emissions from Forest Degradation"

Volume 1 – Environmental and Social Impact Assessment (ESIA)

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EXECUTIVE SUMMARY

The Environmental and Social Impact Assessment (ESIA) and Environmental and Social Management Plan (ESMP) have been prepared in support of the project "Enabling Implementation of Forest Sector Reform in Georgia to Reduce GHG Emissions from Forest Degradation" (the Project) by GIZ and the Ministry of Environmental Protection and Agriculture (MoEPA) for submission to the Green Climate Fund (GCF).

The Project aims at reducing emissions from forest degradation through sustainable management of forests as well as promotion of energy efficiency and alternative fuels to reduce fuelwood consumption as a main driver of forest degradation. The Project will result in the reduction of national GHG emissions, equivalent to approximately 5.2 million tCO2 over 7 years. Furthermore, the Project will strengthen institutional and regulatory systems for low-emission planning and development, at the national and provincial levels, as well as improved law enforcement.

The duration of the Project is 7 years and will be implemented through three components:

- Component 1: Sustainable Forest Management.
- Component 2: Market Development for Energy Efficiency (EE) and Alternative Fuels (AF)
- Component 3: Livelihood opportunities and local-self-governance in forest management

Under Component 1, the project will deliver five activities:

- Activity 1.1: Development and implementation of SFM management plans
- Activity 1.2: Strengthening of forest supervision
- Activity 1.3: Provision of sustainably produced fuelwood by NFA
- Activity 1.4: Enhancement of enabling environment for the nation-wide implementation of sustainable forest management (SFM)
- Activity 1.5: Improvement of monitoring, and measurement, reporting and verification systems for the forest sector
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  - Under Component 2, the project will deliver four activities:
- Activity 2.1: EE-AF supply chain development
- Activity 2.2: Implementing consumer financing instruments for EE-AF solutions
- Activity 2.3: Creating consumer awareness and provision of advisory services for fuelwood users
- Activity 2.4: Enabling policies and regulations.
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  - Under Component 3, the project will deliver four activities:
- Activity 3.1: Development and introduction of municipal-level tools, practices, plans and capacities for participatory SFM and conservation
- Activity 3.2: Development, testing and promotion of local mechanisms to better protect interests of adversely affected stakeholders

- Activity 3.3: Development of professional skills on SFM and conservation through vocational education and international partnerships with centres of knowledge
- Activity 3.4: Introduction of selected value chains (timber, NTFP, eco-tourism)

The Project intends to support eight forest districts within the three target regions to implement Sustainable Forest Management (SFM) on 270,807 ha, based on the new forest code, and related secondary legal acts that will be revised to reflect the forest code as well as national and management-level criteria and indicators (C&I) for SFM. In addition, the project will introduce energy efficient (EE) stoves and alternative fuels such as briquettes to reduce fuelwood consumption.

The target regions, municipalities and villages visited during the stakeholder engagement process are shown below:

Region	District	Villages consulted during the Engagement process
Mtskheta-Mtianeti	Tianeti	
Kakheti	Akhmeta	Argokhi
	Telavi	Vardisubani
	Dedoplitskaro	Dedoplitskaro
	Kvareli	Shilda
Guria	Lanchkhuti	Lesa
	Chokhatauri	Zoti
	Ozurgeti	Mtispiri

The Project has been screened against the International Finance Corporation (IFC) Performance Standards and the GCF and GIZ Environmental and Social Safeguards. An assessment of the environmental and social impacts of the Project was undertaken, and the Project has been considered as Medium risk (Category B); Potentially rare or locally limited occurrence, largely reversible consequences, easy to manage.

The ESIA/ESMP is presented in three volumes:

- Stakeholder Engagement and Grievance Mechanisms Report. Presents a description of the consultation process undertaken by the Project and includes a Stakeholder Engagement Plan and a Grievance Mechanism Procedure (Annex 7a to the Funding Proposal).
- Volume 1: Environmental and Social Impact Assessment, this document presents the description of the Project, the legal framework, the Project's Requirements and Standards (GCF, IFC, and GIZ), the social and environmental baseline and the impact assessment and ratings of impacts (Annex 6a to the Funding Proposal).
- Volume 2: Environmental and Social Management Plan. Describes the commitments made by the Project to comply with the Project's requirements and standards and presents the environmental and social management actions (Annex 6b to the Funding Proposal).

Stakeholder engagement for the ESIA/ESMP was conducted from March to April 2019. The engagement process was undertaken jointly with the gender specialist to maximize efficiency and minimize stakeholder fatigue. Regional, local and community consultations were conducted in the three selected regions and eight target districts. The men and women members of the communities that participated in the consultations were identified by the local GIZ representative, with support from the NFA and the Municipality. The approach used is summarized below:

- Stakeholder Engagement and Grievance Mechanisms Report. Presents a description of the consultation process undertaken by the Project and includes a Stakeholder Engagement Plan and a Grievance Mechanism Procedure (Annex 7a to the Funding Proposal).
- Consultation meetings held with the MoEPA in Tbilisi (March 5, 2019);
- Consultation meetings held with NGOs in Tbilisi (March 25 and 26, 2019);
- Consultation meetings held with National, Regional and Municipal government representatives (see table 2-2);
- Consultation meetings held with NFA representatives at Regional and municipal level (see table 2-2);
- Consultation/Focus group discussions held with members of the population (see table 2-2);
- Public Consultation/validation workshop with the MoEPA, NGOs and other partners (April 3 and 4, 2019);
- Public Consultation with NGOs in Tbilisi (April 23, 2019); and
- Written correspondence, including company email.

In total 25 meetings were held and approximately 266 people participated in the meetings, more than 40% of the participants were women. Generally, the main issues raised by stakeholders were related to their expectations regarding improvements in their socio-economic conditions, their willingness to adapt to more environmentally sensitive practices as long as it would not increase household expenditure, and concerns about their perception that they have not been adequately consulted regarding government legislation. Overall, there was positive feedback and support for the proposed project.

The project has the potential to cause low to medium environmental and social impacts. In total, 27 impacts were identified during the assessment; 14 were identified as low, 10 were rated as medium, and the rest as negligible or could not be rated since activities included the implementation of secondary laws not yet developed.

The impacts include low to medium risks due to minor civil works during the construction phase and logging and maintenance of roads during the operations phase. Effects include impacts on wildlife, risks of sedimentation and erosion, risks of hazardous spills on soils and surface

water. Occupational, health and safety impacts were also identified as risks for the Project workers during construction and also logging activities, in particular in the mountain slopes. Minor impacts also include increased waste and minor disturbance related to noise and dust during both construction and operations.

Social impacts are mostly due to the application of the Forest Code through the development of the individual Sustainable Forest Management Plans, which will interdict communities from felling trees for fuelwood and timber and impose restrictions on livestock grazing and gathering of Non Timber Forest Products (NTFP). The main community risk concerns the restriction imposed on harvesting trees, due to the strong dependence of the communities to use fuelwood for cooking and heating community houses during the cold winter months and the high poverty status of rural communities. Appropriate actions are proposed to deal with these issues.

The project does not require any involuntary land acquisition and/or resettlement. It will require land for the construction of 14 Business Service Yards. These BSYs will be constructed in land belonging to the state and or acquiring brownfield sites, which have been abandoned. Access to the brownfield sites will only be undertaken through voluntary agreements. Where a voluntary agreement cannot be established, the land will not be used.

Prior to undertaking any of the Project's interventions, additional stakeholder engagement will be conducted to ensure that the local population is fully consulted to make sure the project will not impact them and/or their livelihoods, culture and traditions. In addition, during the implementation of the project, participatory consultation of the Sustainable Forest Management Plans will be one of the key activities of stakeholder engagement. Awareness raising regarding the sustainable use of forests and benefits of the forests will be carried out throughout the implementation of the Project.

Capacity building of the MoEPA, National Forest Agency (NFA) and Department of Environmental Supervision (DES) has been proposed as a tool to manage the project's impacts. This includes capacity building on a) conflict management, mediation and dispute resolution; b) communication and engagement with communities; c) Occupational Health and Safety (OHS); d) environmental communication; and e) fauna and flora identification and biodiversity awareness. The objective is to build institutional competencies for dialogue and cooperation and increase environmental communication capacities within the MoEPA to build inclusive sustainable development.

Other appropriate and relevant avoidance and mitigation options have been proposed in Volume 2, which will reduce the potential impacts of the project to an acceptable level.

The project will have significant environmental and social benefits. These include:

- Direct positive impact on climate action by increasing the amount of tCO_{2eq} sequestered in standing forest as well as potential to sequester additional carbon through increased growth of forest. In particular, the project will result in a reduction of 5.2 million tCO_{2eq} through the implementation of SFM on over 250,000 ha.
- Improvements on the ecological processes of forests and ecosystem services.
- Reduce the acceleration of forest degradation and mismanagement of forests to sustainable use of forests.
- Improvements in the design of SFM plans leading to stakeholder buy-in and ownership and thus improving the overall condition of forests in Georgia.
- The project has a strong focus on stakeholder engagement, this project can be the catalyst, in Government sponsored projects, on how meaningful engagement needs to be conducted with communities and other stakeholders, including the implementation of the stakeholder engagement pl
- Capacity building of the MoEPA, including data management, processing and analysis and preparation and application of standard operating procedures.
- Improvement of information available to the general public.
- Energy efficient stoves and briquettes generate less smoke than the traditional stoves and fuelwood, improving the health benefits for the users.
- Formalization of illegal forest activities will lead to positive economic effects for NFA, the wood industry, and the national economy.
- Reduction of illegal activities will lead to ecological, economic and social benefits.
- Generation of direct, indirect and induced employment and procurement opportunities for goods and services at the local and regional level. Current estimates expect the creation of 867 jobs in the forestry sector during the project life cycle for restoration, tending, harvesting, transportation, road building and maintenance and supporting about 100 SMEs - each employing approximately 20 people – which will be needed to provide the market with forest technologies.
- Development of livelihood programmes for the local population.

1 INTRODUCTION

1.1. Overview

The Project aims at reducing emissions from forest degradation through sustainable management of forests as well as promotion of energy efficiency and alternative fuels to reduce fuelwood consumption as a main driver of forest degradation. The Project will result in the reduction of national GHG emissions, equivalent to approximately 5.2 million tCO_{2eq} over 7 years. Furthermore, the Project will strengthen institutional and regulatory systems for low-emission planning and development, at the national and provincial levels, as well as improved law enforcement.

The Green Climate Fund (GCF) and the GIZ require the preparation of an Environmental and Social Impact Assessment for all Projects that have been classified as “Category B”. This report represents Volume 1 – Environmental and Social Impact Assessment and must be read in conjunction with Stakeholder Engagement and Grievance Mechanism Report and Volume 2 – Environmental and Social Management Plan.

1.2. Objectives

The purpose of the Environmental and Social Impact Assessment is to a) establish the category of the Project through an analysis of the project impacts and determine whether any of the Project’s components trigger an “A” categorization as per Green Climate Fund’s (GCF) and GIZ’s Environmental and Social Management System; b) establish the legal and institutional framework that applies to the Project; c) describe the Environmental and Social setting; d) outline the potential environmental and social impacts following an analysis of the primary data collected from the stakeholder engagement process and secondary data; and e) describe the mitigation measures proposed for each potential environmental and social impact identified. The Environmental and Social Management Plan is provided in Volume 2.

1.3. Methodology

The methodology used to develop the ESIA/ESMP included a combination of literature review and collection of primary data through the stakeholder engagement process and one-to-one meetings initiated in March 2019 and completed in April 2019. Stakeholder Engagement and Grievance Mechanism Report provides the list of meetings held with stakeholders. Analysis of the data was performed to determine the impacts and rating of impacts using the GIZ risk assessment methodology. The mitigations were developed based on the concerns of the

communities and in consultation with the project team. The mitigations were discussed during the public consultation forums.

In addition, the consultant undertook a land use map exercise to understand the land use changes from 1998 to 2018 in the three concerned Regions, this information is relevant to understand the state of affairs at the onset of a project but also to better predict change that may arise from the project, it is essential to understand the evolution of the landscape where the project is situated and where it is expected to exert an influence up to the starting date of the project (Slootweg et al. 2010).

The Environmental and Social Specialist was assisted by a Georgian Social Specialist during the stakeholder engagement process. The main steps of this consultancy included:

- Desktop analysis and literature review.
- Assessment of preliminary impacts and mitigations.
- Consultations with Government and NGOs.
- Consultation with Regional, Municipal and Local Government and communities, including development of criteria to select the villages/towns that would be visited as part of the consultation process.
- Preparation of Landuse maps for Guria, Mtskheta-Mtianeti, and Kakheti.
- Presentation of stakeholder concerns to Government and the project design team and integration of concerns into the project design.
- Presentation of the Impacts and Mitigations in two workshops.
- Update impacts and definition of mitigations measures based on feedback.
- Report preparation.
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2 PROJECT DESCRIPTION

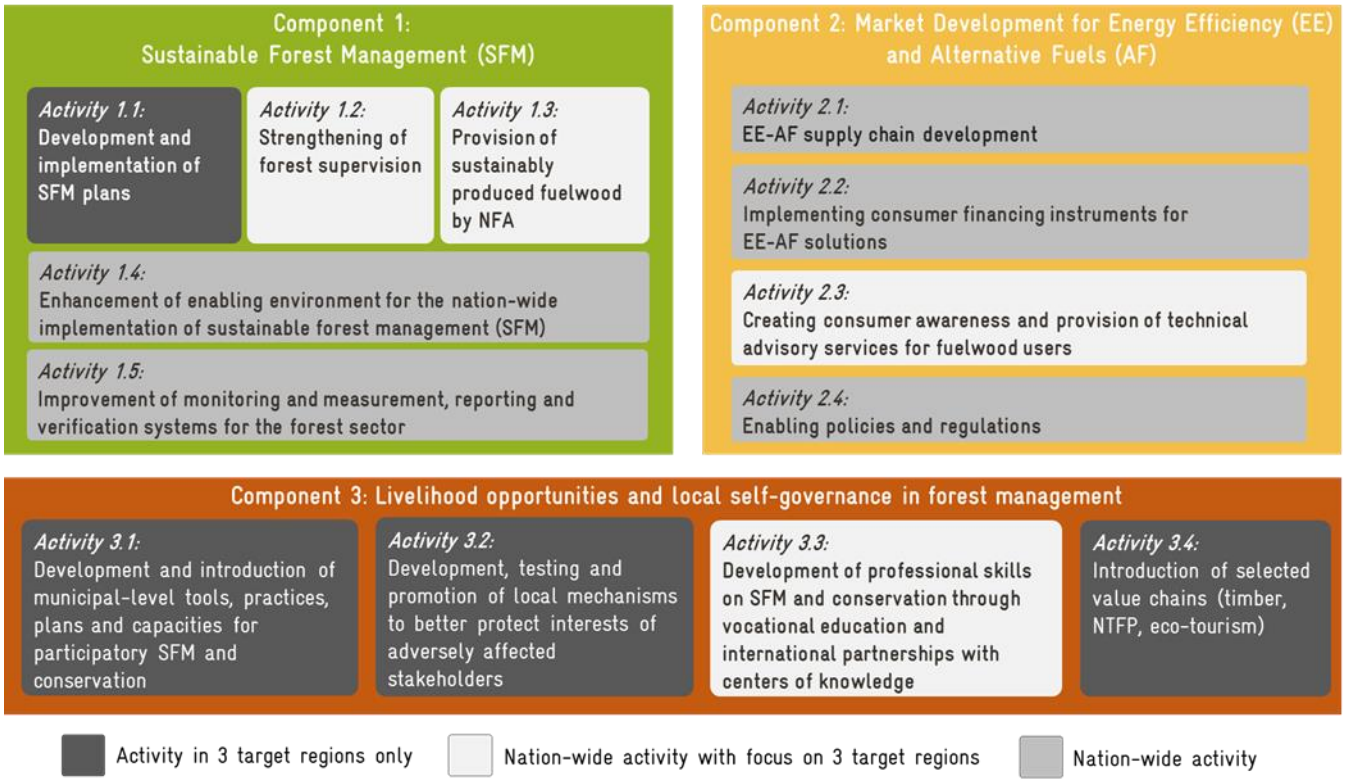

Figure 2-1: Project Overview

2.1. Project Objective

The project enables the Government of Georgia to implement its forest sector transformation by supporting the establishment of a nation-wide sustainable forest management (SFM) system at policy, planning and implementation levels. It will help the Government of Georgia to reach its ambitious policy goal to cover 1.8 million hectares of NFA-managed forests with SFM that will ensure the improvement of quantitative and qualitative characteristics of the Georgian forests thereby reducing GHG emissions from forest degradation by at least 5.2 million tCO_{2eq} on 270,000ha (in line with NDC target). As a complementary objective, the project also aims at promoting market development for energy efficient (EE) technologies and alternative fuels (AF) to address main drivers of Georgia's forest degradation, i.e. unsustainable fuelwood consumption by rural population. To this end, it is expected to facilitate over 20-fold increase in the annual sales of improved stoves and other EE/AF solutions in rural areas thereby effectively reducing annual demand for fuelwood by up to 40% compared to baseline. Component 3, addressing potential adverse effects of the forest sector reform, safeguards the reform implementation by diversifying livelihood opportunities and strengthening local self-governance in forest adjoining rural communities.

3 PROJECT IMPLEMENTATION STRUCTURE

The project will have five Executing Entities (refer to Table 3-1 below for individual responsibilities per activities):

- National Forest Agency (NFA)
- Department of Environmental Supervision (DES) – representing the State of Georgia
- Environmental Information and Education Centre (EIEC)
- Agricultural and Rural Development Agency (ARDA)
- Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Table 3-1: Institutional Structure

Components / Activities	Executing Entity(ies) in charge
Component 1	
Activity 1.1 Development and implementation of sustainable forest management plans	NFA
Activity 1.2 Strengthening of forest supervision	DES
Activity 1.3. Provision of sustainably produced fuelwood by NFA	NFA
Activity 1.4 Enhancement of enabling environment for the nation-wide implementation of sustainable forest management (SFM)	EIEC, NFA and GIZ
Activity 1.5 Improvement of monitoring and measurement, reporting and verification (MRV) systems for the forest sector	EIEC and GIZ
Component 2	
Activity 2.1 EE-AF supply chain development	ARDA and GIZ
Activity 2.2 Implementing consumer financing instruments for EE-AF solutions	ARDA and GIZ
Activity 2.3 Creating consumer awareness about EE-AF solutions and provision of technical advisory services for fuelwood users	EIEC and GIZ
Activity 2.4 Enabling policies and regulations	GIZ
Component 3	GIZ
Activity 3.1: Development and introduction of municipal-level tools, practices, plans and capacities for participatory SFM and conservation	GIZ
Activity 3.2: Development, testing and promotion of local mechanisms to better protect interests of adversely affected stakeholders	GIZ
Activity 3.3: Development of professional skills on SFM and conservation through vocational education and international partnerships with centres of knowledge	GIZ

Activity 3.4: Introduction of selected value chains (timber, NTFP, eco-tourism)	GIZ

3.1. Steering Committee Structure

The project will put in place a Steering Committee as shown in Figure 3-1. The Committee will meet two times a year and members will include department heads/directors from the MoEPA, NFA, DES, ARDA, MESD, Ministry of Finance (MoF), EIEC, National Designated Authority (NDA), Ministry of Regional Development and Infrastructure (MRDI), NGOs, SIDA, SDC and the GIZ. The mandate of the Steering Committee includes:

- Provide overall guidance for the project.
- Provide feedback and validation of annual work plans, annual reports and audits.
- Ensure project energy and coherence with the evolution of the international and national context.
- Be informed of project adherence with E&S Safeguards and Gender Action plan objectives.
- Support the coordination of project activities across different line ministries and between private and public sector and civil society.

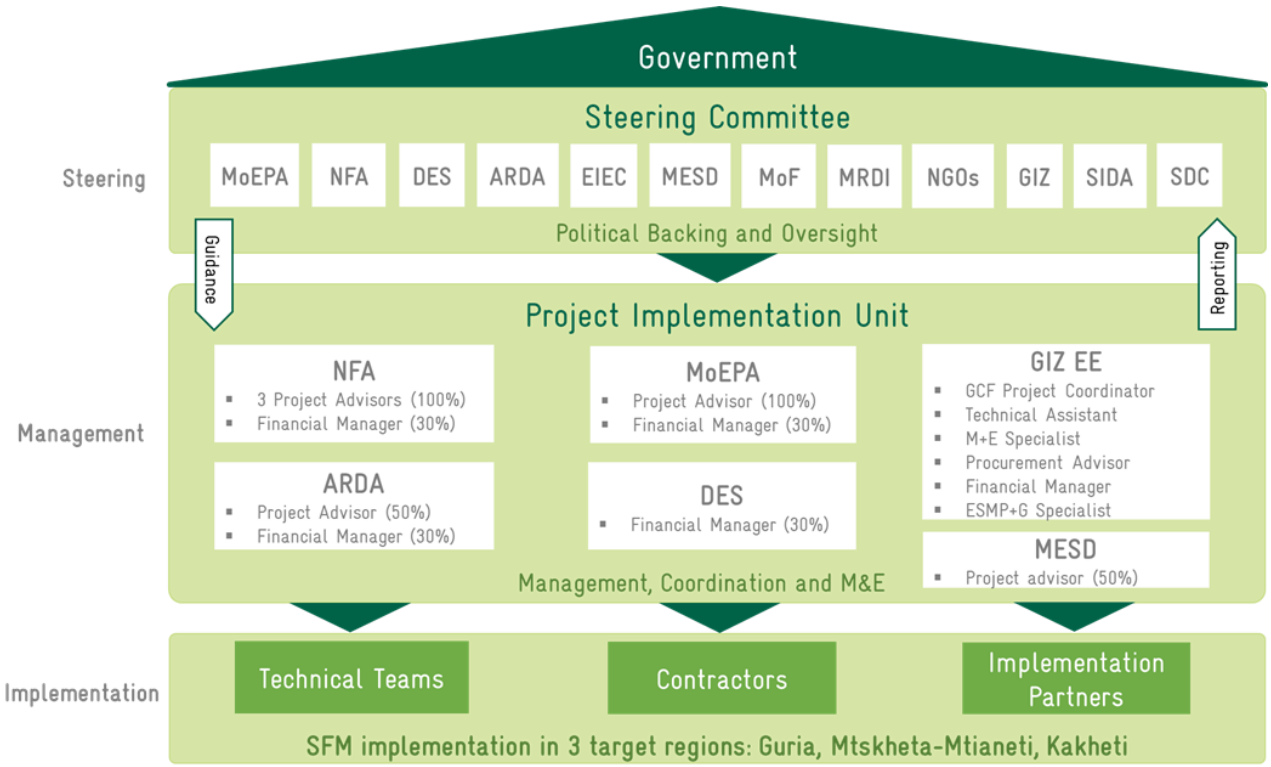

Figure 1: Governance Structure

3.2. Project Implementation Unit

A Project Implementation Unit, located within different departments of the MoEPA, will be set-up for the entire duration of the project, the structure is presented in **Error! Reference source not found.**. The mandate of the unit includes:

- Enhance common understanding among Executing Entities on the theory of change and how transformation in both sectors shall evolve.
- Discuss, monitor, and promote best possible synchronisation of implementation between the Executing Entities.
- Define, monitor and coordinate work plans.
- Ensure that budgets and work plans are on track and monitor project progress.
- Identify and resolve bottlenecks and implementation challenges relevant on project level.
- Monitor adherence to environmental, social and fiduciary safeguards; monitor implementation of the Project's Environmental and Social Management Plan (ESMP) and Gender Action Plan, and steer review of these plans if needed.
- Identify issues required to be brought to the attention of the steering committee and/or political decision makers.
- Provide for information exchange and synergies between project outputs.
- Agree on terms of reference, recruitment of experts.
- Discuss outcome and impact monitoring processes and results.
- Prepare monitoring reports.

3.3. Independent Monitoring and Evaluation Studies

The GIZ will initiate an Interim Evaluation in year four of the project (or at any time that GIZ or partners consider necessary). The Interim Evaluation will involve project stakeholders including target groups and beneficiaries, project partners and contributing development partners. The Interim Evaluation will include:

- A review of the institutional, administrative, organizational, environmental, social, economic, technical and financial aspects of the project based on the assumptions and risks included in the design (among others as specified in the Funding Proposal and Feasibility Study) and M&E system;
- A review of covenants to assess whether they are still relevant or need to be changed or waived due to altered conditions;
- A review of the viability of remaining planned impacts; and
- An assessment of the need to restructure or reformulate the project and the effects of such restructuring on the project's objective and long-term goals.

Before the completion of the project, GIZ's Accredited Entity (AE) oversight will initiate a project completion mission, in which the implementation of the project based on the project, financing and implementation agreements, the delivery of outputs and the achievement of project targets

are evaluated. The mission will involve project stakeholders including target groups and beneficiaries, project partners and contributing development partners. At the time of the project's physical completion and commissioning, and before the expiry of the guarantee period, GIZ's AE oversight will deliver a final evaluation report to the GCF Secretariat and project stakeholders.

4 LEGAL AND INSTITUTIONAL FRAMEWORK

4.1 Georgian Legal Framework

The highest legal document in Georgia is the Constitution (sakartvelos k'onstitutsia), it was approved by Parliament on August 24, 1995 and entered into force on October 17, 1995. The Constitution replaced the Decree on State Power of November 1992 which had functioned as an interim basic law following the dissolution of the Soviet Union. The latest amendment of the Constitution was passed by Parliament on March 21, 2018. Paragraphs 3 and 4 of Article 37 of the Constitution state the following regarding environmental protection.

"*Everyone has the right to live in a healthy environment and use natural and cultural surroundings. Everyone is obliged to protect the natural and cultural environment*";

and

"*The state guarantees the protection and rational use of nature to ensure a healthy environment, corresponding to the ecological and economic interests of society, and taking into account the interests of current and future generations*".

Other than the Constitution, Georgian environmental legislation includes environmental laws, international agreements, subordinate legislation, normative acts, presidential orders, government decrees, and several international conventions, treaties and agreements.

Key Environmental Laws applicable to the Project

The following table provides the list of Georgian laws and regulation regarding environmental and social issues.

Table 4-1: Applicable Georgian Legal Framework

Regulation	Description
The Law of Georgia on Environmental Protection	The Law was adopted by Parliament December 10, 1996. The Law regulates legal relations between governance bodies and natural and legal persons in the area of protection of the environment and use of natural resources within the entire territory of Georgia, including its territorial waters, air, continental shelf and special economic zone. The main objectives of the statutory authority are

	to define the principles and norms of legal relations in the field of environmental protection; to protect fundamental human rights in the field of environmental protection; to ensure protection of the environment and rational use of natural resources by the state; to maintain a healthy and safe environment; to support preservation of biodiversity, characteristic and endangered species of flora and fauna; to protect the sea and to maintain ecological balance; to preserve and protect natural landscapes and ecosystems; to legally resolve common global and regional problems in the field of environmental protection; and to ensure the establishment of conditions for sustainable development of the country. The Law represents a basis for all environmental legislation; therefore, it must be complied with during implementation of the project components, activities and sub activities.
The Law of Georgia on Environmental Protection Article 5 - Liability for Past Environmental Damages	In accordance with Article 5 of the Law on Environmental Protection, one of the main principles of planning and conducting business for state authorities as well as individuals and legal entities in Georgia is the “polluter pays” principle. Therefore, past environmental damage caused at or by a Project site should be compensated by persons or entities causing such environmental damage. The law prescribes a 10-year limitation period for requesting compensation for environmental damage from the moment when the state supervision authority finds out about the person responsible for the pollution/damage. Subsequent owners of a Project site may become liable for the past environmental damage in case they are determined to be at fault in respect of damage caused to the environment. In addition, the damage has to be a result of violating rules and requirements determined under the environmental laws of Georgia. Technical Regulation approved under the Government Decree No. 54, dated 14 January 2014, determines methods of calculating compensation for damaging the environment. The Order provides different methods of calculating damage caused to various environmental objects, e.g. air, water, soil, etc. The project needs to be aware of any past damages and potential liabilities.
The Code on Environmental Assessment	The new Code was implemented January 2018 and regulates the field of organized activities which have an impact on an indefinite number of people and are characterized by increased hazard for human life or health. The statutory authority provides a list of activities subject to mandatory ecological expertise and defines the legal principles for (a) issuance of the environmental impact permit for the purposes of conducting such activities; (b) conducting ecological expertise in the process of permit issuance; and (c) public participation and information provision in the process of conducting environmental impact assessments and issuance of the environmental impact permit and public participation in decision-making. The aim of the code is a) promote the protection of the environment, human life and/or health, cultural heritage and material assets, in the implementation of strategic documents or activities which may have significant effects on the environment, human life and/or health; b) ensure, for the purpose of the promotion of the country's democratic development, the exercise of a fundamental human

	right to obtain timely complete and objective information on the state of the environment, guaranteed by the Constitution of Georgia, as well as ensure public participation in environmental decision-making; c) proportionally take account of the environmental, social and economic interests of the State and the public in decision-making on the implementation of strategic documents or activities which may have significant effects on the environment; d) apply standards of best international practice in the implementation of environmental assessment procedures. Annex 1 of the Code lists all the activities requiring an Environmental Impact Assessment. **None of the activities proposed by this project trigger the requirement to prepare a regulatory Environmental Impact Assessment.** The list of activities requiring a regulatory ESIA is provided in Annex 1 of this report.
The Law on Soil Protection	Adopted in 1994, the law aims to: a) ensure soil integrity, fertility, and maintenance; b) determine responsibilities [land users, owners and government] for soil conservation and environmentally friendly production; c) prevent negative consequences of the use of agrochemicals; d) ensure the protection of sub-alpine and alpine meadows by preservation of endemic vegetation and soil in the highlands; and e) facilitate the coordination of activities in the field of reclamation. It prohibits various activities including: damage of soil due to forest use, cutting/altering protective forest areas, damaging soil protective structures, excessive grazing (beyond permitted limits, esp. in high mountain pastures), over exploitation of sub-alpine and alpine endangered vegetation for fuel and other purposes in mountainous regions, among others. Certain project activities could result in impacts on soil during both the construction and implementation, which could include damage to soil, erosion, and contamination from project motor vehicles, equipment and staff. As a result, the provisions of the Law related to the protection of soil from erosion, the protection of soil from pollution with hazardous and inert waste and littering must be adhered to. Topsoil protection must comply with technical regulations for topsoil removal, storage, use and reforestation (Resolution of the Government of Georgia, #415, 31 December 2013) (GCF UNDP).
The Law on Soil conservation and recovery and improvement of soil fertility	Adopted in 2003, the law aims to ensure the conservation, restoration, and improvement of soil fertility throughout the country. Regulates soil conservation and fertility restoration and improvement, as well as erosion, landslides, avalanches, flooding, soil pollution/ contamination, salinization, minerals, open pit mining, as well as other anthropogenic activities that can prevent soil loss. Includes detailed guidance on soil fertility restoration and improvement and establishes the maximum permissible levels of harmful substances in soils. The Project will conduct restoration and erosion control activities in the Forests and the Law on Soil guidance will be used as a basis for soil conservation.

The Law on Fees for Natural Resource Use	Adopted in 2004, the law defines the objects of fees for the use of natural resources and rates of fees, as well as the rules of payment. Including the fee for the use of the timber resources of the State Forest Fund, the amount of which is determined according to the groups of woody species and categories (Article 5, item 2). For non-timber resources: the fees are determined only for use of cones of fir-tree, bulbs of snowdrop and tubers of cyclamen (Article 5, item 3). According to the rule of payment, the payments are transferred to the local budgets of the region from which the resources are obtained. Based on the payment set forth in this Law, the amount of damage (penalty) inflicted by the illegally obtained resources is calculated, that is determined by the resolution. Technical regulations – the methodology for determining (calculation) environmental damage. The amount of payment is also used to determine the initial price of a license on use of nature. This law does not apply to the project activities since the concerned forests belong to the State. Nevertheless, as far as the project is concerned, this law applies mostly to the illegal harvesting of trees and the increased supervision by the DES.
Law of Georgian on Licences and Permits	Adopted in 2004, the law regulates the sphere regulated by a license and a permit, determines the comprehensive list of licenses and permits, establishes the rules for issuing licenses and permits, introducing changes and cancellation. The type of license in forestry is a general license of forest use, which includes a special license for timber production and hunting farming (Article 7, item 4), also license on use with the purpose of export of cones of fir-tree and snowdrop bulbs and/or cyclamen tubers that are included in the annexes to the convention. “On international trade in endangered species of wild fauna and flora" (CITES) (Article 7, item 9). The issue is legally specified by the Resolution of the Government of Georgia #132, "On Approval of the Regulations on the Rules and Conditions for Issuing Forest Use Licenses". The project will need to prepare a Permit Register for all the project activities (national and regional) to ensure compliance with the law, this can include construction permits for the BSYs and forest roads, waste disposal permits, and other.
The Waste Management Code	The Law adopted in 2014 aims to prevent waste and increase reuse as well as environmentally safe treatment of waste. Compliance with provisions of the Law is obligatory for all natural and legal persons.
The Law of Georgia on Protection of Atmospheric Air	The Law was adopted by the Parliament of Georgia on 22 June 1999. The Law provides a general framework for the protection of atmospheric air within the entire territory of Georgia from harmful anthropogenic impacts, including ambient air pollution by harmful substances, radioactive impacts, pollution by microorganisms and biologically active substances of microbial origin, as well as noise, vibration, electromagnetic fields and other types of physical impacts. Some of the project activities will generate exhaust emissions, dust and noise. As such, during construction and operations, the project

	will consider ambient air pollution protection requirements established by the law.
The Law of Georgia on Water	The Law was adopted on 17 October 1997, and it establishes policy requirements and principles for the protection of the country's water resources from impacts. The project will comply with the requirements of the law, for example construction buffer zones from water resources.
The Law on Compensation for Damages caused by Hazardous Materials	The Law establishes principles and procedures for compensating damage caused to human life and health, the environment, objects of historical and cultural significance, property and economic interests as a result of environmental impact through hazardous materials, irrespective of fault of the responsible person.
The Law on Cultural Heritage	Adopted in 2007, the purpose of this Law is to protect the cultural heritage of Georgia and to regulate legal relations originating in this field. The scope of the law includes a) applies to cultural heritage in the whole territory of Georgia; b) Georgia cares for the protection of the cultural heritage of Georgia located abroad; and c) The procedures for the export and import of objects of cultural heritage and cultural value from and into Georgia, as well as the procedures for the regulation of professional activities in the field of cultural heritage, shall be defined by individual legislative acts. Article10 of the law states that “if a natural or legal person identifies or discovers cultural heritage, or has reasonable grounds to presume that cultural heritage is being identified or discovered during activities which, if continued, may damage, destroy or pose a threat of damaging or destroying cultural heritage, the person conducting the activities shall immediately terminate such activities and inform the Ministry in writing, in not later than 7 days, on the subject of identifying and discovering the said cultural heritage or on the existence of a reasonable presumption that cultural heritage is being identified or discovered, as well as on the termination of the activities”. The Project needs to comply with this law during implementation of the project activities.
Red List and Red Book	Adopted in 2003, the law provides the legal definition of Red List and Red Book and regulates legal relations in the area of drawing up the Red List and the Red Book of Georgia, the protection and use of endangered species, except for the legal issues of international trade in endangered wild animals and plants, which are regulated in the jurisdiction of Georgia by the Convention on International Trade in Endangered Species of Wild Fauna and Flora.
Law of Georgia on Wildlife	Adopted in 1996, the law aims at the protection of fauna. The Law also provides for protection of their habitats, migration routes, breeding sites, ensures sustainable use of wild animals and creates legal basis for it in-situ and ex-situ conservation. During civil works activities and logging, the Project will comply with this law. Mitigations measures proposed include site specific investigations prior to the start of any construction/logging activity to minimize impacts on wildlife.

Forest Code

A forest sector reform was initiated in 2013. The aims of the forest sector reform are (a) to change current approaches to forest use and management, (b) to develop a unified legal system of forest management and (c) to improve the institutional and technical capacities of forest management bodies.

In September 2015, a coordinating committee for the development of a New Forest Code (NFC) was established. The NFC is the central element of the forest sector reform. Under the European Neighbourhood and Partnership Instrument (ENPI) East Countries Second Forest Law Enforcement and Governance (FLEG II) Program and with the technical support of the World Bank, local experts have begun to develop the new "Forest Code" and the related sub-legislative acts. The process was undertaken in the framework of the National Forestry Program, with the maximum involvement of a wide range of stakeholders. The NFC introduces a number of new social, environmental and forest categorical principles which mainly seek to manage the forest in a more sustainable way. The new forest code also envisages the establishment of ecological networks of international significance (Emerald Network, Ramsar Sites, important bird sites) and their management for conservation purposes. This approach is new for Georgia. In addition, the issue of illegal logging is being addressed in a much more comprehensive way in the document.

The new draft forest code underwent a Regulatory Impact Assessment (RIA) and a Strategic Environmental and Social Assessment (SESA) in 2016. Overall, the document and the process leading to its development were assessed largely positive and significant environmental benefits are expected from the new legislation. According to the results of the SESA, the draft forest code even has “the potential of becoming the turning point, where a bad circle of accelerating forest degradation and mismanagement is converted into wise use of natural resources based on principles of sustainability”. The draft forest code now awaits the final hearing in the Georgian parliament and is expected to be approved in autumn 2019. The main premise of this Project is to support the MoEPA implement the Forest Sector Reform.

The main regulatory document for the sector is still the 1999 Forest Code of Georgia (see Table 4-2).

Table 4-2: Legal Framework Regarding Forest Sector

Regulation	Description
The Forest Code	Adopted in 1999, the Code regulates legal relations connected with the maintenance, protection, restoration and use of the forest fund of Georgia and its resources (Article 1). Principles of protection,

	sustainable development and management of forests of Georgia are based on the Constitution of Georgia, and Declaration on Principles of Sustainable Development of Forest and principles laid down in the Article 5 of the Law of Georgia on Environmental Protection (Article 4). The goals of the Forest Code of Georgia are as follows; protecting fundamental human rights and law enforcement in the field of forest relations; b) conducting tending, protection and restoration of forests in order to maintain and improve climatic, water regulating, protective, cultural, recreational and other natural useful properties; c) conducting tending and protection for future generations and regulating harmonized interrelations between unique natural and cultural environment and its specific components thereof including vegetation and animal world, biodiversity, landscape, cultural and natural monuments located in forest, and the rare endangered plant species of plants, etc; d) establishing the rights and obligations of forest users in the field of forest relations; e) meeting environmental, economic, social and cultural needs of Georgia and its population through targeted, comprehensive and rational utilisation of the forest resources, on the basis of their scientifically substantiated potential; and f) establishing the main principles of forest management. The new Code has been drafted and is expected to be approved by the end of 2019.
Law on Management of the Forest Fund	Approved in 2011, the Law regulates matters related to the management of the forest fund, which shall be performed by NFA within the system of MoEPA (formerly MoENRP). It includes the main goals and objectives of the NFA for forest fund management, power of the agency when managing the fund, and information regarding the legal status of the agency (and clarifying that revenues from the NFA can directly support the financing of the agency). It further references types of permitted forest use (in line with forest code and ordinance on forest use [Procedures for Forest Use]), and forest user obligations, among other articles.
Concepts and Programs	
The National Forest Concept	The concept, developed in 2013, is based on the following main principles: • Principle of Sustainable Management of Forests. • Precautionary principle - to maintain protective functions of forests and the ecological balance of forests. • “All forests are local”. • Separation of regulation, management and supervision functions. • Forestry sector is an integral part of the sustainable development of the country. The Concept sets national priorities and actions in the field of forest management: • Forest management planning: restoration of degraded forests; reforestation; and sustainable use of forests. • Rational use of forest resources. • Forest ownership, management and use rights. • Adaption to the impacts of climate change.

National Forest Program	Developed in 2013, it supports the forest sector reform in Georgia, while involving all stakeholders in the decision-making process. Several thematic working groups established to support their ongoing work. Supported the development of national criteria and indicators for Sustainable Forest Management (SFM), and management-level criteria and indicators for ecosystem-based SFM.

Energy Policy

Georgia does not currently have an overarching energy strategy. The general strategic framework for energy sector development can be summarized as mostly being linked to three key priorities:

- Accession to the EU and approximation of the energy market and legislation to the EU's acquis communautaire – which is especially relevant for this GCF project as it mandates approximation of the key EU Directives in the field of energy efficiency;
- Energy independence from foreign imports of natural gas and oil products from Russia; and
- Receipt of revenues from the export of electricity to neighboring countries (especially Turkey) and acting as a physical go-between for the transport of natural gas, oil, and electricity from the energy producing countries of Russia and Azerbaijan.

The key legislation and strategic documents related to energy are discussed below:

Table 4-3: Key Georgian Energy Legislation

Regulation	Description
Law on Energy Efficiency	• Implement the EU's Energy Efficiency Directive (EED - 2012/27/EU), help Georgia to meet its commitments under the Energy Community Treaty and the EU Association Agreement, and achieve the goals set out in the National Energy Efficiency Action Plan (NEEAP). Specific elements of the law which are relevant include: • Establishment of an EE Agency to facilitate investment and carry out Monitoring, Reporting and Verification (including for EE in buildings, energy labelling and eco-design requirements) • Establishes the NEEAP as the document for establishing EE targets at a national level • Requirement of public bodies to purchase EE equipment where feasible (Responsibility of the State Procurement Agency) • Requirement of annual EE plans in municipalities (Responsibility of municipalities though the EE Agency would help) • Plan for establishment of a web based MRV system (Responsibility of the EE Agency) • Establishment of the legal basis for energy performance contracts • Requirement for setting up of certification programs for energy auditors and for publication of information on them (Responsibility of the Georgian Accreditation Center to approve certifying organizations) • A requirement that 1% of central-government owned and occupied buildings with a total useful floor area over 500 m2 should be

	renovated each year to meet EE standards (the list would be published in secondary legislation and the EE standards would be part of Energy Performance in Building secondary legislation) (Responsibility would be the EE Agency) • Language to encourage end-user energy efficiency amongst consumers via awareness raising, financial measures, and training.
Law of energy performance of buildings	To approximate the Energy Performance in Building Directive (EPBD). This includes specific relevant provisions to: • Require private buildings sold or rented and all public buildings with more than 500 m2 (lowered to 250 m2 on 30 June 2023) and visited often by the public and to have energy performance certificates • Set minimum energy performance standards for primary energy consumption for new buildings or buildings which undergo major renovations – to a cost-effective level. • Require that all new buildings shall satisfy the requirements of Nearly Zero Energy Buildings unless it is not cost-effective to do so. • Requires regular inspections of boilers • Encourages public education on the topic of EE in buildings and review of financing measures to encourage EE Various secondary legal acts are also required for the full implementation of the EPBD.
Law on Renewable Energy (Currently in draft form, adoption expected in early-to-mid 2019, being drafted by Ministry of Economy and Sustainable Development, with some delegated responsibilities to GNERC and / or local authorities)	• To define open issues and approximate the Renewable Energy Directive. Relevant provisions of the draft include: • Requiring that targets are set within the Renewable Energy Action Plan • Promotion of the installation of renewable energy sourced for new buildings and settlements amongst local self-governing units • Definitions of what constitutes renewable energy (including biomass) • Requirement of RE in new or substantially refurbished buildings starting in 2025 and for public buildings starting in 2022 • For biomass stoves, the Government should promote those conversion technologies that ensure achievement of a conversion efficiency of at least 85% for residential and commercial applications and at least 70% for industrial applications. • For solar hot water, the Government should promote the use of certified equipment and systems based on European standards where these exist, including eco-labels, energy labels and other technical reference systems established by the European standardization bodies. • Requires the setting up of training / information distribution to the public on RE, setting up of certification programs for RE installers (small-scale biomass boilers and stoves, solar photovoltaic and solar thermal systems, shallow geothermal systems and heat pumps), and may have lists of certified installers • The Government shall ensure that guidance is made available to planners and architects, as well as to all relevant actors, so that they are able properly to consider the optimal combination of renewable energy sources, of high-efficiency technologies and of district heating and cooling when planning, designing, building and renovating industrial or residential areas. • The Government with the participation of local self-government and regional governmental authorities shall develop suitable information, awareness-raising, guidance or training programs in order to inform citizens of Georgia of the benefits and practicalities of developing

	and using energy from renewable sources. • Sets up the legal basis for certificates of origin
Draft Main Directions of the State Energy Policy of Georgia (2015-ongoing, Ministry of Economy and Sustainable Development leading its elaboration)	The aim is to develop a long-term comprehensive state vision, which will later become the basis for the development of short, medium and long-term strategies for 2030, with a special emphasis on the utilization of Georgia's renewable energy resources. The Energy Policy of Georgia defines nine strategic energy policy directions of which three are related to sustainable energy: • Utilization of Georgia's renewable energy resources; • Develop and implement an integrated approach to energy efficiency in Georgia; • Gradual approximation and later harmonization of Georgia's legislative and regulatory framework with the EU Energy acquis. The development of renewable energy resources is key to tackling climate change and deploying cleaner sources of energy as well as decreasing Georgia's dependence on imported energy. Attracting investments in RES sector is a strategic goal for Georgia. With regards to its integrated approach to energy efficiency, the Energy Policy of Georgia considers the decrease of energy intensity through various measures of demand-side management (DSM). To facilitate DSM corresponding legislative framework as well as energy efficiency programs need to be created, measures on introduction and development of energy efficient technologies and equipment planned and implemented.
Main Directions of the State Energy Policy of Georgia (1st version from 2006, updated version from 2015)	The aim of the updated Energy Policy is to develop a long-term comprehensive state vision, which will later become the basis for the development of short, medium and long-term strategies for 2030, with a special emphasis on the utilization of Georgia's renewable energy resources.
Strategies and Action Plans	
National Energy Efficient Action Plan (NEEAP) of Georgia (Drafted by the Ministry of Economy and Sustainable Development, expected adoption in early 2019 for the period impacting 2019 – 2021)	Includes Georgia's indicative national energy efficiency targets for 2021, 2025, and 2030. Specific measures listed in the NEEAP which are relevant for the project include: • Adoption and implementation of the EPBD / energy efficiency standards in buildings (policy measure triggering investments) • Implementation of EE measures in schools, kindergartens, and other public buildings (to be funded through IFI / lending + donor grants) • Support for efficient biomass stoves (to be funded through donor grants) • Support for solar hot water heaters (to be funded through donor grants)
Ministry of Energy Medium-term Action Plan (Ministry of Economy and Sustainable Development 2017-2020)	Development of Action Plans for the utilization of electricity from renewable and alternative energy sources and the creation of the legislation to support energy efficiency measures – described in more detail elsewhere in this table. Specific relevant actions include: • The RE action plan is focused on electricity generation form renewables/renewable heating and cooling / and renewables in transport has been developed as of energy community guidelines and national targets defined. document is draft but expected to be approved by the end of the year.

	• Similarly, the NEEAP is in the final stage of inter-ministerial consultation process. Both action plans set requirements for establishing the relevant regulatory frameworks, adjustment of institutional settings and establishing support schemes for support of efficient biomass stoves and solar hot water heaters. The Energy Performance in Buildings Law has been drafted and submitted to the Parliament in the Fall of 2018. The Draft EE Law, RE Law and overall Law on Energy and Water supply are finalized and will be submitted to the parliament in March 2019.
State Strategy for the Development of Solid Biofuels in Georgia (MoEPA drafted strategy in 2017, currently under review)	The main goal of the strategy is to promote the use of solid biomass in Georgia by stimulating the production and use of modern solid biofuel. The strategy defines basic directions and state measures in support of UBF production and consumption in Georgia. Main directions of the strategy include: • Sustainable management and provision of supply of solid biomass residues from forest, agriculture, industry and other sources; • Support of the advancement of the new technologies and business processes for the production of the solid biofuels; • Encouragement of the sustainable production and demand for the energy received from biomass residues. The following topics are discussed in the strategy: definition of the responsible body, necessary changes in the legal framework (RE legislation, Taxation, tax incentives for UBF business, waste management); standardization (introduction of standards for biomass and fuels), as well as for appropriate manufacturing and consumption technologies; stimulation of demand; Innovative and logistic support, awareness raising and enhancement of knowledge & skills; seek financing from IFIs and climate funds; Creation of sustainable production processes.

Strategies and Programs

The following table lists the applicable central and regional strategies and plans:

Table 4-4: Central and Regional Strategies

Strategy	Description
Social-economic Development Strategy of Georgia 2020 (2014-2020)	The third main principle of the Strategy is based on rational use of natural resources, ensuring environmental safety and sustainability and avoiding natural disasters during the process of economic development. It further acknowledges the negative impacts of climate change on the country´s economy. Specific indicative statements related to EE/AF include the following: • Energy efficiency will be enhanced, and relevant legislative mechanisms will be drawn up in accordance with international and European norms in order to preserve the country's energy resources. The efficient use of energy is important as a means of increasing the country's energy independence and rational use of resources and can potentially decrease future costs. • Building natural gas infrastructure/metering in regions Government of Georgia will continue building natural gas infrastructure in villages, introducing individual meters and building electricity infrastructure in villages that have no electricity. This will lead to lessened consumption of natural resources for heating/fuel and improved social conditions in the regions. Specific indicative statements related to forests include the following: • The introduction of modern models of forest management and innovative technologies will reduce the negative consequences of forest degradation. • The protection of forests and introduction of rational practices for their use will significantly improve the population´s socio-economic standing - noting that many key economic sectors are dependent on healthy forest ecosystems (e.g. development of agriculture, hydro-electric power generation, tourism, etc.)
Rural Development Strategy of Georgia 2017-2020	Follows the EU´s six priorities for rural development including: fostering knowledge transfer in innovation in agriculture, forestry and rural areas, restoring preserving and enhancing ecosystems related to agriculture and forestry, promoting resource efficiency and supporting the shift towards a low carbon and climate resilient economy in agriculture, food and forestry sectors, and promoting social inclusion, poverty reduction and economic development in rural areas, among others. It identifies "Environmental Protection and the Sustainable Management of Natural Resources" as a priority area, with the specific objectives to: i) improve the management of water, forest and other resources in targeted rural areas, ii) promote sustainable systems of waste management in rural areas, and iii) implement activities that mitigate the negative impact of climate change.
Regional Development Programme of Georgia 2018-2021	Medium-term strategic vision to support regional development, focusing on territorial integrated interventions, considering territorially differentiated potentials. Provides a coherent framework for public and private investments to support regional development.

	Key measures within the program include the improvement of energy infrastructure and expanding renewable energy potential, and preserving and promoting natural resources, among others. It notes that current energy infrastructure hampers regional development and emphasizes the need to continue rural gasification processes and promote renewable energy and alternate fuels. The forest sector was identified as a ´high potential sector´ to be strengthened, particularly in the regions of Kakheti, Guria, Mtskheta-Mtianeti, and Racha Lechkhumi-Kvemo Svaneti. Tourism and agricultural development are also noted as priority areas for regional development.
3rd National Environmental Action Program of Georgia 2017-2021 (NEAP 3)	Outlines a number of relevant activities to be carried out in the period of 2017 – 2021, including the revision of the forest code, promotion of access to alternative fuel sources (biomass) for population and public entities, and preparation of Low Emission Development Strategy (LEDS) which includes various measures related to energy efficiency. It further discusses other climate change commitments (Biennial Update Reports, National Communications, Climate Change Strategy).
National Biodiversity Strategy and Action Plan of Georgia (NBSAP) 2014-2020	Defines the strategy and specific actions for biodiversity protection and sustainable use for the period from 2014-2020. Organized under five strategic goals, the National Biodiversity Strategy and Action Plan includes 20 targets (the "Aichi Biodiversity Targets"). The five goals are a) Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society; b) Reduce the direct pressures on biodiversity and promote sustainable use; c) Improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity; d) Enhance the benefits to all from biodiversity and ecosystem services; e) Enhance implementation through participatory planning, knowledge management and capacity-building
Second National Action Program to Combat Desertification 2014-2022	Defines the strategy and priority actions for combatting desertification for the period from 2014-2022. Highlighted main barriers for addressing desertification in Georgia, notably: inadequate funding, lack of awareness of local population, and weak technical basis, among others. Priority actions include: i) capacity building, ii) the protection, restoration and increase of forest areas, iii) increasing the role of local communities in fighting against desertification (incl. securing local communities with alternative energy sources), iv) improved identification of zones/ territories facing desertification, v) improved stock-taking of land conditions, and vi) taking action against erosion and unsustainable land management through increasing the adoption of sustainable land management in the land use sector, among others.
Strategy for Agricultural development in Georgia 2015-2020	Fostering the competitiveness of agriculture; ensuring the sustainable management of natural resources, and climate action; and achieving a balanced territorial development of rural economies and communities including the creation and maintenance of employment.
Covenant of Mayors	In 2008, the EU launched a Covenant of Mayors (COM) process in which signatory cities pledge to decrease emissions by 20% from their territory by 2020. The cities must develop Sustainable Energy and Climate Action Plans (SECAPs), monitor their implementations, and report reduced emissions. Twenty-three Georgian cities are signatories of the Covenant of Mayors and are participating in the programme. All the 8 Project targeted Municipalities have signed the COM; Tianeti, Akhmeta, Telavi, Dedoplitskaro, Kvareli, Lanchkhuti, Chokhatauri, and Ozurgeti.
Regional Plans	

Khaheti Regional Development Strategy (2014-2021)	Describes the strength, weaknesses and opportunities of the region and defines the priority areas and goals. The project activities align with the regional development goals, in particular regarding the protection of the environment.
Mtskheta-Mtianeti Regional Development Strategy (2014-2021)	Describes the strength, weaknesses and opportunities of the region and defines the priority areas and goals. The project activities align with the regional development goals, in particular regarding the protection of the environment.
Guria Regional Development Strategy (2014-2021)	Describes the strength, weaknesses and opportunities of the region and defines the priority areas and goals. The project activities align with the regional development goals, in particular regarding the protection of the environment.

Relevant International and Regional Environmental Treaties and Agreements

The list of regional and international environmental treaties and agreements, which are effective in Georgia are listed below:

- Convention on Migratory Species (CMS) (1979 Bonn Convention);
- Convention on Wetlands (1971 Ramsar Convention);
- Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES Convention, 1973 Washington DC, USA);
- Rotterdam Convention on the Prior Informed Contest for Certain Hazardous Chemicals and Pesticides in International Trade (Rotterdam 1998);
- Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters (11 February 2000);
- Convention on Biological Diversity (Rio de Janeiro, 1992);
- United Nations Framework Convention on Climate Change (New York, 1994);
- Paris Agreement on Climate Change (Agreement within the UN Framework Convention on Climate Change. 03% of greenhouse gases for ratification. Date of signature 22 April 2016 (7 June 2017).
- Vienna Convention for the Protection of the Ozone Layer (Vienna, 1985);
- Protocol to the Vienna Convention for the Protection of the Ozone Layer on Substances that Deplete Ozone Layer (Montreal Protocol, 1987);
- Beijing Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer (Beijing 1999);
- Copenhagen Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer (Copenhagen, 1992);
- London Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer (London, 1990);
- United Nations Convention to Combat Desertification in those Countries Experiencing Serious Droughts and/or Desertification, Particularly in Africa (17 June 1994);
- Agreement to the Convention of Migratory Species on the Conservation of Cetaceans of the Mediterranean and the Black Sea (Bonn, 1996);
- Stockholm Convention on Persistent Organic Pollutants (POPs) (Stockholm, 2001);
- Convention on Long-Range Transboundary Air Pollution (Geneva, 1979);

- Cartagena Protocol on Biosafety to the Convention on Biological Diversity (2000);
- International Convention for the Prevention of Pollution from Ships (Marpol Convention) (London, 1973);
- Convention on the Protection of the Black Sea Against Pollution (Bucharest, 1992);
- Kyoto Protocol to the UN Framework Convention on Climate Change (Kyoto)
- Amendment to Annex B to Kyoto Protocol to the UN Framework Convention on Climate Change (6 March 2007);
- Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal (Basel, 1989);
- Agreement to the Convention of Migratory Species on Conservation of Populations of European Bats (1991);
- Agreement to the Convention of Migratory Species on the Conservation of African-Eurasian Migratory Water-birds (The Hague, 1979);
- Convention on the Protection of the Black Sea Against Pollution (Bucharest, 1992);
- The Convention on Migratory Species of Wild Animals (1996);
- Protocol on the Protection of the Marine Environment of the Black Sea from Land-Based Sources and Activities (2009);
- Energy Charter Protocol on Energy Efficiency and Related Environmental Aspects (1995);
- International Convention Relating to Intervention on the High Seas in Cases of Oil Pollution Casualties (1969);
- Adoption of 1971 Amendments of the Limits of Compensation in the Protocol of 1992 to Amend the International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage;
- UN Convention on the Law of the Sea (1982);
- Agreement Among the Governments of the Participating States of the Black Sea Economic Cooperation (BSEC) on collaboration in Emergency Assistance and Emergency Response to natural and man-made Disasters (1998);
- Additional Protocol to Agreement Among the Governments of the Participating States of the Black Sea Economic Cooperation (BSEC) on collaboration in Emergency Assistance and Emergency Response to natural and man-made Disasters (2006);
- The Black Sea Biodiversity and Landscape Conservation Protocol to the Convention on the Protection of the Black Sea Against Pollution (2002);
- The European Landscape Convention (2000);
- International Convention on Civil Liability for Oil Pollution Damage (1969);
- Protocol to the International Convention on Civil Liability for Oil Pollution Damage (1976);
- Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade (1999);
- International Plant Protection Convention (IPPC) (FAO conference, 1997);
- Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management (1997);

- 1996 Protocol to 1972 Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter;
- Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on Their Destruction (1993);
- International Convention on Oil Pollution Preparedness, Response and Cooperation (OPRC)(1990);
- Protocol for the Suppression of Unlawful Acts against the Safety of Fixed Platforms Located on the Continental Shelf (1988);
- Convention on Early Notification of a Nuclear Accident (1986);
- Protocol to the 1979 Convention on Long-range Transboundary Air Pollution on Long-term Financing of the Co-operative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe (EMEP) (1984);
- Convention on the Physical Protection of Nuclear Material (1980);
- Convention on the Conservation of European Wildlife and Natural Habitats (1979);
- Protocol Relating to Intervention on the High Seas in Cases of. Pollution by Substances other than Oil (1973);
- International Convention for the Protection of New Varieties of Plants (UPOV) (1961);
- WTO Agreement on Sanitary and Phytosanitary Measures (1994);
- Decision on Trade in Services and the Environment (1994);
- Decision on Trade and the Environment (1994);
- Treaty on Cooperation among State Members of the Commonwealth of Independent States in the Sphere of Maintenance & Use of Genetic Resources of Cultural Plants (1999)
- Treaty of the Commonwealth of Independent States on Control of Trans-boundary Movement of Hazardous and Other Waste (1996); and
- Minamata Convention on Mercury (2013).

The European Union Association Agreement

In July 2014, Georgia signed the European Union Association Agreement. An important part of this agreement is *"The Deep and Comprehensive Free Trade Area Agreement".* In Article 233 of this agreement *"The Parties recognise the importance of ensuring the conservation and the sustainable management of forests and of forests' contribution to the Parties' eco-nomic, environmental and social objectives."* According to paragraph 2, sub-paragraph (d) of this Article, the parties agreed on exchanging information that involves the exchange accord-ing to criteria and indicators of sustainable forest management. In order to fulfil the related requirements of the EU Association Agreement, the Government initiated the development of the New Forest Code.

Sustainable Development Goals

- On September 25th, 2015, UN member countries adopted 17 Sustainable Development Goals and 169 targets to end poverty, protect the planet and ensure prosperity as part of a new sustainable development agenda. The goals seek to build on the Millennium Development Goals (MDG) and complete what the MDGs did not achieve. Governments, the private sector, and civil society are all stakeholders of the Sustainable Development Goals.
- The Government of Georgia adopted the SDGs in 2015, including 99 targets and more than 200 indicators. The Government aims to adopt all 169 targets by 2030. Table 4-5 provides details on the project's contributions towards SDGs.

Table 4-5: SDGs and the Project (GIZ Feasibility Study)

SDG #	SDG Target	Project Action
Goal 1: End poverty in all its forms everywhere.	- 1.2: By 2030, reduce at least by half the proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions - 1.4: Ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance - 1.5: By 2030, build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters	- The project has long term effects for communities in economically disadvantaged rural regions. Sustainable forest management ensures maintenance of natural resources that can be used for further economic development (prioritizing long-term gains over short-term gains). - Additionally, people will benefit from lower energy costs due to energy efficiency measures. These will improve housing conditions, too and give people access to appropriate new technology. - The project has also scope to create jobs in the forestry and energy sector, which reduces poverty in the regions.
Goal 3. Ensure healthy lives and promote well-being for all at all ages.	- 3.9: By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination.	- Installing modern, efficient stoves in households will have positive health effects since air pollution in the household is reduced.
Goal 4. Ensure inclusive and equitable quality education and promote lifelong	- 4.2: By 2030, ensure that all girls and boys have access to quality early childhood development, care and pre-primary education so that	- Positive side effects of improved air equality in households will be enhanced learning abilities of children

learning opportunities for all.	they are ready for primary education (Indicator: Proportion of children under 5 years of age who are developmentally on track in health, learning and psychosocial well-being, by sex)	
Goal 5. Achieve gender equality and empower all women and girls.	- 5.4: Recognize and value unpaid care and domestic work through the provision of public services, infrastructure and social protection policies and the promotion of shared responsibility within the household and the family as nationally appropriate - 5.5: Ensure women's full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic and public life - 5.A: Undertake reforms to give women equal rights to economic resources, as well as access to ownership and control over land and other forms of property, financial services, inheritance and natural resources, in accordance with national laws - 5.B: Enhance the use of enabling technology, in particular information and communications technology, to promote the empowerment of women	- Particularly women will benefit from forest management plans since resources they rely on are secured. Also, the project can provide women with new rights to forest and land resources. The workshop that include gender awareness can help overcoming obstacles that prevent women's participation. Improving air equality through enhanced energy efficiency will especially help women in domestic work because they usually spend more time at home.
Goal 6. Ensure availability and sustainable management of water and sanitation for all.	- 6.6: By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes	- Due to the forests' role in soil protection, water-preserving and water-regulating they have a big impact on water supply. The project contributes to maintain them.
Goal 7. Ensure access to affordable, reliable, sustainable and modern energy for all.	- 7.1: By 2030, ensure universal access to affordable, reliable and modern energy services - 7.3: By 2030, double the global rate of improvement in energy efficiency	- The project will help to give access to modern energy technology that is sustainable and improves energy efficiency. - Investments in energy efficiency will reduce energy poverty of the local population and will ensure access to sustainable energy sources.

	-7.B: By 2030, expand infrastructure and upgrade technology for supplying modern and sustainable energy services for all in developing countries, in particular least developed countries, small island developing States, and land-locked developing countries, in accordance with their respective programmes of support	
Goal 8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.	- 8.3: Promote development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation, and encourage the formalization and growth of micro-, small- and medium-sized enterprises, including through access to financial services - 8.5: By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value - 8.8: Protect labor rights and promote safe and secure working environments for all workers, including migrant workers, in particular women migrants, and those in precarious employment - 8.9: By 2030, devise and implement policies to promote sustainable tourism that creates jobs and promotes local culture and products	- New jobs in the forestry sector are created. Additionally, implementation of sustainable forest management helps to maintain healthy ecosystems and their biodiversity which is crucial for eco-tourism that has scope to develop highly in Georgia. Hence, the project con-tributes to jobs in the tourism sector. Additionally, concepts of sustainable forest management include working standards for staff. Also, monitoring of working conditions is helpful to protect labor rights,
Goal 12. Ensure sustainable consumption and production patterns.	- 12.2: By 2030, achieve the sus-tainable management and effi-cient use of natural resources -12.7:Promote public procurement practices that are sustainable, in accordance with national policies and priorities (Indicator: Number of countries implementing sustainable public	- Through the improved energy concept the project will promote a more efficient use of natural re-sources (in this case fuelwood) and sustainable consumption.

	procurement policies and action plans)	
Goal 13. Take urgent action to combat climate change and its impacts.	- 13.1: Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries - 13.2: Integrate climate change measures into national policies, strategies and planning -13.3: Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warnings	- The project will result in a reduction of 5.2 million tCO2eq through the implementation of ecosystem-based SFM on over 250,000 ha. This will meet Georgia´s target included within their Nationally Determined Contribution to the UNFCCC. - Further, the project will support assessment of climate change vulnerability in forest ecosystems that will inform forest management planning and management practices for climate-resilient eco-system-based SFM. - Management practices included within the C&I for ecosystem-based SFM, implemented by the project, will strengthen the resilience of forests to climate change (e.g. promotion of native and locally adaptive resilient species, forest fire prevention and improved management, improved pest and disease management, etc.)
Goal 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.	- 15.1 By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements - 15.2 By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally - 15.3 By 2030, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world - 15.4 By 2030, ensure the conservation of mountain	- The project will implement sustainable forest management which leads to protection of biodiversity and ecosystem services on 270,000ha. Through ecosystem-based SFM, management activities will support the protection of endemic species and restoration and rehabilitation of degraded forests. Because 98% of Georgia's forests are located in hilly and mountainous areas, the project contributes to conserve vulnerable ecosystems in the mountains.

	ecosystems, including their biodiversity, in order to enhance their capacity to provide benefits that are essential for sustainable development - 15.5 Take urgent and significant action to reduce the degradation of natural habitats, halt the loss of biodiversity and, by 2020, protect and prevent the extinction of threatened species - 15.A Mobilize and significantly increase financial resources from all sources to conserve and sustainably use biodiversity and ecosystems - 15.B Mobilize significant resources from all sources and at all levels to finance sustainable forest management and provide adequate incentives to developing countries to advance such management, including for conservation and reforestation	
Goal 16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels.	-16.7: Ensure responsive, inclusive, participatory and representative decision-making at all levels	- Especially the gender awareness benefit of the project will contribute to this since the project has scope to strengthen the participation of women and their economic and social status.

4.2 GCF Requirements and Applicable Standards

4.2.1 Green Climate Fund (GCF) / International Finance Corporation (IFC)

The GCF is in the process of developing and finalizing a set of environmental and social safeguards, as part of an Environmental and Social Policy and Environmental and Social Management System (ESMS). During the period until which time the GCF ESS Policies are finalized, accredited entities (AEs) shall adhere to the GCF's interim safeguards; these are the Performance Standards (PS) of the International Finance Corporation described in section

4.2.1.1. The safeguards and policy respond to a mitigation hierarchy that goes beyond “do no harm” as follows:

1. Anticipate and avoid adverse risks and impacts on people and the environment;
2. Where avoidance is not possible, adverse risks and impacts are minimized through abatement measures;
3. Mitigate any residual risks and impacts; and
4. Where avoidance, minimization or mitigation measures are not available or sufficient, and where there is sufficient evidence to justify and support viability, design and implement measures that provide remedy and restoration before adequate and equitable compensation of any residual risks and impacts.

The GCF Board of Directors has additionally approved an Indigenous People’s Policy (decision GCF.B.19/11). The Indigenous People’s Policy applies to the GCF, AEs and National Designated Authorities (NDAs). The Policy includes stringent safeguards for all projects/programmes that include indigenous people (IPs).

As put forward in the Environmental and Social Policy (GCF/B.19/06, Annex II) GCF will not support activities that do not comply with applicable laws, including national laws and/or obligations of the country (directly applicable to the activities) under relevant international treaties and agreements. Thus, the safeguards must be consistent with the country’s policies, laws and regulations, but if these are less stringent than the clauses of applicable international treaties, covenants or conventions, then the latter apply.

GCF has further approved its Gender Policy (GCF.B09/23, Annex XIII), which has the following main objectives:

- Building equally women and men’s resilience to, and ability to address climate change, and to ensure that women and men will equally contribute to, and benefit from activities supported by the Fund;
- Addressing and mitigating against assessed potential project/programme risks for women and men associated with adaptation and mitigation activities financed by the Fund; and
- Contributing to reducing the gender gap of climate change-exacerbated social, economic and environmental vulnerabilities.

A separate Gender Assessment and Gender Action Plan have been elaborated for this project, which provide more detail on the gender-specific risks, impacts, and risk avoidance and mitigation measures (See Annexes 8a and 8b to the Funding Proposal).

The IFC Performance Standards (IFC PS)

The IFC has developed and published policies, which apply specifically to its investments in the private sector (see Table 4-6). These include:

- The Policy on Disclosure of Information, which defines IFC's obligations to disclose information about the institution and its activities.
- The Policy on Social and Environmental Sustainability, which defines IFC's role and responsibility in supporting project performance, in partnership with project sponsors.

Table 4-6: IFC Sustainability Policy

	Requirements	Implementation
Institutional Level (IFC)	Disclosure Policy Sustainability Policy	Environmental and Social Review Procedure
Project Level	8 Performance Standards	8 Guidance Notes Environmental, Health and Safety Guidelines Best Practice Materials

The IFC Performance Standards (IFC PS), first published in April 2006 and updated in January 2012, are considered to be a comprehensive set of standards that are available to international finance institutions working with the private sector. The Performance Standards define a project's role and responsibilities for managing health, safety, environmental, and community issues to receive and retain IFC support.

The Performance Standards are summarised as follows:

- **Performance Standard 1 – Assessment and Management of Environmental and Socials Risks and Impacts:** This standard seeks to identify and assess the social and environmental impacts of the Project, including cumulative and/or sectoral impacts. It seeks to investigate technically and financially feasible alternatives and to avoid, minimize, and manage any unavoidable adverse impacts to people, their communities, and their environment. It requires the development of a formal environmental and social policy reflecting the principles of the PS. It clarifies levels of stakeholder engagement under different circumstances and required engagement beyond affected communities. It promotes improved environmental and social performance through effective management systems and periodical performance review by senior management. Finally, it refers to private sector responsibility to respect human rights.
- PS1 discusses stakeholder engagement and the purpose of stakeholder engagement which is to build and maintain a constructive relationship with affected communities. The nature and frequency of engagement should be in line with the risks to, and adverse impacts on, the communities. Engagement must be free of external manipulation, interference, coercion, and intimidation, and conducted on the basis of timely, relevant, understandable and accessible information.
- Disclosure of relevant project information helps affected communities understand the risks, impacts and opportunities of the project. If communities may be affected by risks or adverse impacts from the project, the project proponent must provide such communities with access to information on the project. Specifically, the project

proponent must disclose the purpose, nature and scale of the project, the duration of proposed project activities, and any risks to, and potential impacts on, such communities.

- If affected communities may be subject to risks or adverse impacts from a project, consultation must be undertaken in a manner that affords affected communities the opportunity to express their views on project risks, potential impacts, and proposed mitigation measures. Project proponents must give due consideration to that input in project decision-making. Consultation with affected communities should begin early in the social and environmental assessment process, focus on the risks and adverse impacts and the measures and actions envisaged for their mitigation. The method of consultation must be inclusive and culturally appropriate.
- **Performance Standard 2 – Labour and Working Conditions:** This standard seeks to establish, maintain, and improve the working relationship between workers and management. It mandates equal opportunity and fair treatment of workers and protects against child and/or forced labour practices. It demands that the workplace offer safe and healthy working conditions that promote the health and welfare of the employees. It establishes requirements for terms and conditions for migrant workers comparable to those of non-migrant workers. The mandate also introduces the quality requirements for workers' accommodation. Additionally, it requires ongoing monitoring of primary supply chain and introduces "safety" triggers.
- **Performance Standard 3 – Resource Efficiency and Pollution:** This standard intends to minimize adverse impacts on human health and the environment by minimizing pollution and reducing emissions that contribute to climate change. It introduces a resource efficiency concept for energy, water (including unacceptable water stress), and core materials inputs. Requirements on energy efficiency and greenhouse gas measurement are important, as are those relating to the concept of "duty of care" for hazardous waste disposal.
- **Performance Standard 4 – Community Health, Safety, and Security:** This standard limits risks and impacts to the local communities associated with all phases of the Project, including unusual conditions. It requires that the health and safety risks be evaluated during all phases of the Project and that preventative measures be implemented to a level that is commensurate with the risk. It considers risks to communities, associated with use and/or alteration of natural resources and climate change, through an ecosystem approach. It also gives consideration for the risks posed by security arrangements. Security arrangements must be guided by the principles of proportionality, good international hiring practices, rules of conduct, training, equipping and monitoring of security personnel, and applicable law. The use of force is typically not sanctioned and a grievance process must be established to allow affected communities to express concerns about the security arrangements and acts of security personnel.
- **Performance Standard 5 – Land Acquisition and Involuntary Resettlement:** This standard seeks to avoid and minimize involuntary resettlement and to mitigate unavoidable adverse impacts related to the Project's land acquisition. This is to be achieved through compensation for loss of economic assets and economic and

standard of living restoration measures. Land use issues are key to sustainability, and requirements regarding consultation are essential. Resettlement measures are intended to aim at improving economic and livelihood conditions.

- Not triggered since there is no involuntary resettlement. There is no need to acquire any land for the project, although there might be a need to acquire land for the construction of the Business Service Yards. The BSYs will be constructed on land belonging to the state in areas with no existing traditional land users. The forest roads that will be constructed are all within state land inside the state forests.
- **Performance Standard 6 – Biodiversity Conservation and Sustainable Management of Living Natural Resources:** This standard calls for a balance between conservation of biodiversity and the promotion of sustainable management of natural resources. It explains in detail the definitions of, and requirements for, various types of habitat. It introduces clear requirements for biodiversity offsets. The Project site is host to certain sensitive ecosystems or habitats that are important to fauna and flora species of international concern.
- **Performance Standard 7 – Indigenous Peoples:** This standard underscores the need to avoid adverse project impacts on Indigenous Peoples' communities living in the project's area of influence, or where avoidance is not feasible, to minimize and/or compensate for these impacts in a manner commensurate with the scale of project risks and impacts, the vulnerability of the Affected Communities of Indigenous Peoples, and through mechanisms that are tailored to their specific characteristics and expressed needs.
- Not triggered since there are no indigenous peoples in Georgia. A literature review of past Multilateral Development Banks (MDB) financed projects in Georgia showed that there are no projects that have ever triggered PS7 or equivalent standard from other MDBs in Georgia.
- **Performance Standard 8 – Cultural Heritage:** This standard protects cultural heritage sites from project-related impacts and promotes the equitable sharing of benefits from the use of cultural heritage in business activities. It requires clients to allow access to cultural or sacred sites.

These Performance Standards, and all IFC reference documents, are available at http://www.ifc.org and are supported by Guidance Notes for each Performance Standard.

4.2.2 GIZ Safeguards

During their planning phase, projects to be implemented by GIZ are being assessed according to GIZ's Safeguards and Gender Management System.

The safeguards established under the Safeguards+Gender Management System are congruent with the IFC PS as shown below:

Table 4-7: GCF/IFC and GIZ Comparison

GCF/IFC	GIZ

PS1: Assessment and Management of Environmental and Social Risks and Impacts	GIZ Sustainability Policy
PS2: Labor & Working Conditions	Human Rights
PS3: Resource Efficiency & Pollution Prevention	Environment, Climate Change Mitigation **(not triggered)**
PS4: Community Health, Safety & Security	Human Rights, Conflict and Context Sensitivity, Environment, Climate Change Adaptation
PS5: Land Acquisition & Involuntary Resettlement (not triggered)	Human Rights, Conflict and Context Sensitivity
PS6: Biodiversity Conservation & Sustainable Management of Living Natural Resources	Environment, Climate Change Mitigation **(not triggered),** Adaptation to Climate Change, Human Rights, Conflict and Context Sensitivity
PS7: Indigenous People	Human Rights, Conflict and Context Sensitivity **(not triggered)**
PS8: Cultural Heritage	Environment, Human Rights, Conflict and Context Sensitivity
GCF Gender Policy	GIZ Gender Strategy
GCF Indigenous Peoples Policy	Human Rights

The Safeguards+Gender Management System was established in December 2016. The objectives of the Safeguards are as follows:

- In the areas of the environment, climate change mitigation and adaptation, human rights, conflict and context sensitivity and gender equality, the system allows unintended negative impacts to be identified at an early stage and addressed in the design and implementation of projects through targeted mitigation measures. In the area of climate change adaptation, this approach extends to external risks based on climatic parameters (climate change) while in the area of gender equality it also involves identifying potential support measures. Client-specific requirements (above all the assessment of potential benefits in relation to the environment and climate, conflict and context sensitivity and the assessment of the positive impact on human rights) are also considered.
- It enables unintended negative impacts, external risks based on climatic parameters (climate change), and in the case of gender potential for promoting gender equality, to be monitored throughout the project cycle and makes it possible to respond quickly and appropriately when necessary.
- GIZ is better able to provide information on unintended negative impacts, external risks based on climatic parameters (climate change), and in the case of gender potential for promoting gender equality, to commissioning parties, external auditors and the public. This helps improve the overall quality and sustainability of GIZ projects.

The safeguards used by the GIZ include:

1. **Safeguards – Environment, Climate Change Mitigation and Adaptation to Climate Change:** The aim of the environment and climate safeguards is to ensure that environmental and climate aspects are systematically considered - both strategically and operationally.

2. **Safeguard – Human Rights:** The human rights safeguard describes how the observance of human rights is assessed and what criteria are used. The assessment reviews the interactions between the programme and its context and the alignment of the project with human rights standards.
3. **Safeguard – Conflict and Context Sensitivity:** The conflict and context sensitivity safeguard is needed to minimise or prevent development measures from having unintended negative impacts on fragile and conflict- or violence-prone contexts.
4. **Safeguard – Gender Equality:** To achieve positive and sustainable results, it is particularly important to actively promote the achievement of gender equality and women's rights. In the area of gender equality, the Safeguards+Gender Management System therefore goes beyond checking for and assessing any unintended impacts in the sense of a do-no-harm approach.

The Safeguards and Gender Management System has been incorporated into GIZ's four-phase commission management process, which consists of the following phases: a) Phase 1: Clarification of the commission and preparation; b) Phase 2: Offer preparation and acquisition, c) Phase 3: Implementation of the commission; and d) Phase 4: Completion of the commission.

Of relevance to the ESIA process are phases 1 and 2:

- Phase 1: This is the screening phase to determine if the project falls within the scope of the Safeguards+Gender Management System. The screening is performed using a checklist against the four GIZ Safeguards mentioned above and uses significance of the risks or potential benefits as a benchmark employing specific criteria to assess the significance.
- Phase 2: If the screening of projects has identified significant potential for improving the environmental or climate situation or contributions that could be made to peace and security, an in-depth assessment of risks is required. This applies to the environment, climate change mitigation and adaptation to climate change, and conflict and context sensitivity. This ESIA represents phase 2 or GIZ's Commission Management Process.

4.3 Comparison between National Environmental Code and the IFC/GCF

This section provides a comparison between the regulatory ESIA conditions and the lender requirements. Noting that the category and this type of project does not require a regulatory ESIA.

Table 4-8: Comparison between National Environment Code and IFC/GCF

ISSUE	GCF/IFC	GOG Environment Code	GAP Harmonization
Environmental and Social	IFC Policy on Environmental and Social Sustainability. PS requires:	The Environment Code describes the permitting	The GIZ Project will comply with the

Policy, Standards, Regulations	(i) Assessment and Management of Environmental and Social Risks and Impacts (ii) Labor & Working Conditions (iii) Resource Efficiency & Pollution Prevention (iv) Community Health, Safety & Security (v) Land Acquisition & Involuntary Resettlement (vi) Biodiversity Conservation & Sustainable Management of Living Natural Resources (vii) Indigenous People (viii) Cultural Heritages GCF: (i) Indigenous Peoples Policy (ii) Gender PolicyF (i) (ii) Gender Policy	procedure and requirements for an environmental assessment. Environmental assessment.	Georgian Regulation, the IFC PS, the GCF and GIZ requirements.
Screening and Categorization	Project screening and categorization is required as part of IFC's review of a project's expected environmental and social risks and impacts, IFC assigns an environmental and social category (A, B, or C, or FI-1, FI-2, or FI-3) that is intended to reflect (i) the magnitude of risks and/or impacts posed by the project and (ii) IFC's institutional requirements for environmental and social disclosure in accordance with IFC's Access to Information Policy. GCF classifies categories as A, B, and C.	Screening is done at early stage of the project. The Environmental Assessment Code provides a list of A and B category activities.	The project has been categorized as Category B for IFC/GCF/GIZ requirements. The Georgian Environment Code does not apply to this project since no ES assessment is required.
ESIA Report	IFC Category A projects undergo a formal and participatory assessment process through a comprehensive environmental and social impact assessment (ESIA), including an ESMP which is generally part of the overall ESIA document. Category B projects also undergo due diligence process to identify and assess potential future impacts.	EIA report is required for Annex 1 listed projects. For Annex 2 project need of EIA is decided based on a scoping procedure. The content of the EIA report is structured in the Environmental Assessment Code Code.	The ESIA/ESMP follows the requirements of the IFC/GCF and GIZ. There is no need to prepare a regulatory ESIA.
Stakeholder Engagement and Public Consultation	Carry out meaningful consultation with affected people and facilitate their informed participation and identifying the range of stakeholders. Involving stakeholders, project- affected people and concerned NGOs early in the project preparation and ensure that their views and concerns are made known and understood by decision makers and	Publication of information in national and regional mass media. Arrange two public meetings – one at the scoping stage, another not later that at 55th date from submission of the draft EIA report to MoEPA. All	Consultations have been carried out by the project and a stakeholder engagement plan details the consultation process that needs to be implemented during the different project cycle.

	taken into account. Continue consultations with stakeholders throughout project implementation as necessary to address environmental assessment- related issues.	stakeholders are invited for the meetings. One two one meetings and consultations with stakeholders during EIA process. Consultation not later than 60 days from the date of publication..	
Disclosure	For each proposed Category A and B project, IFC discloses a summary of its review findings and recommendations, the Environmental and Social Review Summary (ESRS). The An environmental and social category is assigned anytime after appraisal and before public disclosure. Category A projects require a minimum 60-day disclosure period. All other projects require at least 30 days.	The scoping document is available for public review for 45 days before public consultations.	The project's ES information will be published in the GCF, GIZ and Government website for a minimum of 30 days.

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5 ENVIRONMENTAL AND SOCIAL BASELINE DESCRIPTION

Georgia is located in the Caucasus region of Eurasia between Eastern Europe and Western Asia. It is bordered by the Black Sea in the west, the Russian Federation in the North, Turkey and Armenia in the South and Azerbaijan in the east. Georgia has a diverse landscape; high mountains in the north, middle to lower mountains, covered with alpine and sub-alpine meadows and forests in the central and southern parts, lowland plains, marsh-forests, swamps, rainforests, snows and glaciers towards the west and floodplain valleys, forests, and semi-desert in the eastern side. The territory of Georgia covers 69,700 km^2.

The country is divided into 9 administrative regions (Figure 5-1) which are further divided into 67 districts, the capital Tbilisi, and two autonomous republics.

Figure 5-1: Administrative Regions of Georgia

5.1 Autonomous Regions in Georgia

The civil wars in Tskinvali Region (South Ossetia) in 1991-1992 and in Abkhazia in 1992-1994 resulted in thousands of deaths and the displacement of hundreds of thousands of ethnic Georgians to other parts of Georgia. Abkhazia declared independence from Georgia after the fall of the Soviet Union in 1991. The war resulted in forced displacement of ethnic Georgian from the territory of Abkhazi to other regions of Georgia. The majority of ethnic Georgians that fled Abkhazia became Internally Displaced People (IDP) in Georgia. International organization, including United Nations, Georgia and most other countries in the world, with some exceptions,

including Russia, do not recognize independence of Abkhazia and consider the region to still be a part of Georgia. There are few ethnic Abkhazians in Georgia outside of Abkhazia.

Approximately 70,000 Ossetians lived in the autonomous region of Tskinvali Region (South Ossetia) in 1989, with a further 100,000 elsewhere in Georgia before the outbreak of the conflict. Many Georgian residents of the autonomous region fled as a result of the conflict, but an estimated 20,000 remained in villages typically intermingled with Ossetian villages. Similar to the ethnic Georgians that fled Abkhazia, a large number of the ethnic Georgians that fled Tskinvali Region (South Ossetia) also became IDPs. There has been significant intermarriage between Ossetians and Georgians, but statistics are unavailable. The 2003 Rose Revolution led to a pro-western foreign policy aimed at integration with Nato and the European Union, introduction of democratic and economic reforms and strengthened state institutions. In August 2008, there was a brief Russo-Georgian war over Tskinvali Region (South Ossetia) and Abkhazia, followed by the global financial crisis of 2007-2009 resulting in an interruption in Georgia's progress from which it has since recovered (GCF-UNDP). Today both Abkhazia and Tskinvali Region are considered occupied territories.

Figure 5-2: Abkhazia and Tskinvali Region (Autonomous Regions)

Figure 5-2 shows the location of the two autonomous regions in Georgia. There are no project activities in Abkhazia and South Ossetia. However, the western part of the Mtskheta-Mtianeti Region, one of the target regions, is controlled by the breakaway Republic of South Ossetia.

5.2 Socio Economic Profile

The Republic of Georgia is currently home to 3.72 million people, including 1.9 million women and 1.7 million men (Table 5-1). The average population density is 65 people per square kilometre.

Table 5-1: Population in Georgia - Thousands (Geostat 2019)

	2017			2018			2019		
	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural
Georgia	**3,726.4**	**2,161.9**	**1,564.5**	**3,729.6**	**2,174.8**	**1,554.8**	**3,723.5**	**2,184.3**	**1,539.1**
Tbilisi	1,145.5	1,115.1	30.4	1,158.7	1,128.4	30.3	1,171.1	1,140.7	30.4
Autonomous republic of Abkhazia	-	-	-	-	-	-			
Autonomous republic of Adjara	343.0	192.6	150.4	346.3	195.2	151.1	349.0	197.7	151.4
Guria	111.5	31.8	79.7	110.5	31.6	78.9	109.4	31.4	78.0
Imereti	514.4	250.8	263.6	507.0	247.8	259.2	497.4	244.9	252.5
Kakheti	315.9	71.6	244.3	314.7	71.4	243.3	312.5	71.0	241.5
Mtskheta-Mtianeti	93.9	21.7	72.2	93.9	21.9	72.0	93.6	22.1	71.6
Racha-Lechkhumi & Kvemo Svaneti	30.8	7.0	23.8	30.2	6.9	23.3	29.7	6.8	22.9
Samegrelo-Zemo Svaneti	324.2	127.7	196.5	320.8	126.5	194.3	316.2	125.0	191.2
Samtskhe-Javakheti	157.2	55.0	102.2	155.9	55.0	100.9	154.1	54.4	99.8
Kvemo Kartli	429.7	185.1	244.5	432.3	187.1	245.1	433.2	188.4	244.7
Shida Kartli	260.4	103.5	157.0	259.3	102.9	156.4	257.3	101.9	155.4

The most densely populated regions include the capital city Tbilisi (1.171 million inhabitants, Imereti Region (497,000 inhabitants) followed by Kvemo Karli (433,000 inhabitants). Figure 5-3 shows the population distribution. The median age within the country is 38 years, with 2.6 million inhabitants between the ages of 15 and 64.

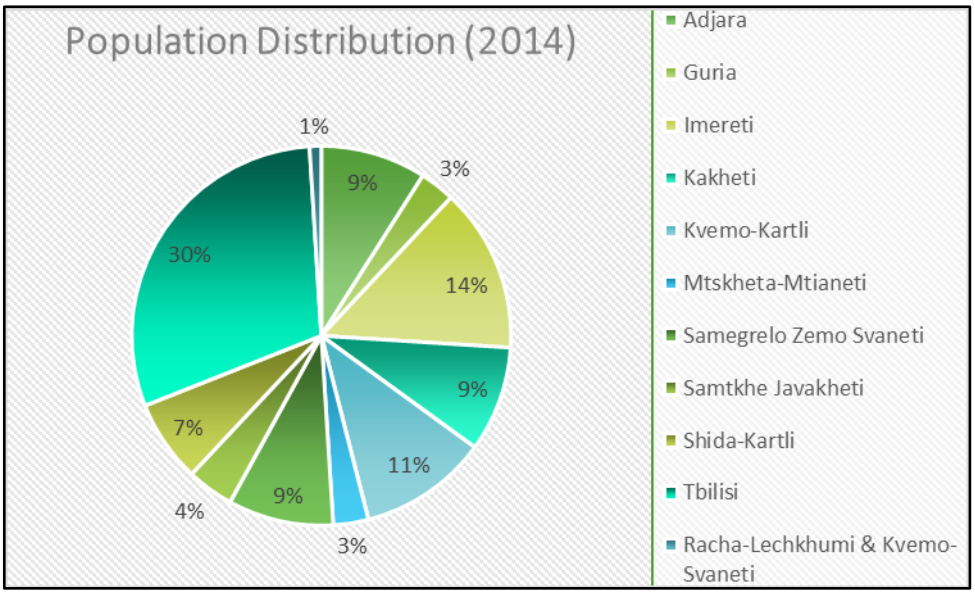


Figure 5-3: Population Distribution in Georgia – 2014 (MoRDI 2018)

Just over 86% of the population are ethnic Georgians. Other ethnic groups present in the country include Azeris (6.3%), Armenians (4.5%), Russians (0.7%), Ossetians (0.4%), Yazidis (0.3%), Ukrainians (0.2%), Kists (0.2%), Greeks (0.1%), Assyrians (0.1%), among others (0.4%).

Georgia's population is increasingly urban, with 58% of the population living in urban areas. The remaining 42% of the population live in rural areas with less developed infrastructure, limited access to services, and a stronger reliance on fuelwood for their energy needs.

5.2.1 Employment, poverty and inequality in Georgia

In total, 52% of the population is considered economically active. The average monthly earnings in 2019 for Guria, Kakheti, and Mtskheta-Mtianeti was 547, 554 and 795 Georgian Lari (GEL) respectively (Geostat 2019). Table 5-2 provides the average monthly income in Georgia.

Table 5-2: Average monthly nominal earnings by regions - 2010-2017 (Geostat 2019)

	GEL by Year							
Year	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**
Total	**597.6**	**636.0**	**712.5**	**773.1**	**818.0**	**900.4**	**940.0**	**999.1**
Tbilisi	753.0	791.0	871.5	942.8	997.2	1077.5	1135.1	1209.4
Adjara AR	442.6	481.4	543.9	586.0	641.0	770.5	794.0	808.2
Guria	**286.3**	**293.8**	**299.7**	**350.7**	**391.8**	**515.4**	**493.3**	**547.1**
Imereti	359.5	399.5	461.3	501.2	522.4	590.2	617.6	667.1
Kakheti	**339.7**	**329.5**	**370.1**	**430.8**	**456.5**	**493.5**	**531.2**	**554.1**
Mtskheta-Mtianeti	**432.6**	**484.4**	**520.9**	**658.2**	**685.2**	**737.9**	**765.9**	**795.0**

Racha-Lechkhumi and Kvemo Svaneti	309.2	287.2	312.2	366.4	393.6	435.1	453.9	483.8
Samegrelo-Zemo Svaneti	415.6	420.1	484.7	542.1	560.1	596.5	629.9	681.8
Samtskhe-Javakheti	349.0	356.4	398.9	501.9	507.8	524.3	578.3	611.1
Kvemo Kartli	509.1	509.4	593.2	637.5	644.9	707.2	711.1	754.2
Shida Kartli	358.2	379.2	463.8	485.9	512.1	547.8	585.1	591.7

Majority of the economically active population is employed in agriculture, hunting, forestry and fishing (43%), followed by wholesale and retail trade, repair of motor vehicles and personal and household goods (10%), health and social work (9%), and industry (8%), among other economic activities. The country´s unemployment rate has declined from 15.1% in 2005 to 12.7% in 2018.

Georgia has a human development index (HDI) of 0.78, ranking 70th globally. Major strides have been made in reducing poverty, where the number of people living in poverty declined from 38.8% in 2007 to 21.9% in 2017. However, the number of people living in poverty and extreme poverty in Georgia is higher than in other countries in Europe and Central Asia. Also, nearly half of the poor population is considered as “vulnerable to falling into poverty”. Georgia has a Gini-coefficient of 36.5 in 2016, with inequality levels slightly lower than Turkey and Russia, and higher than Armenia and Azerbaijan.

People in rural areas are more likely to be affected by poverty than people living in urban areas in the country, with rural and urban poverty rates of 24.3% and 17.6%, respectively. Usually, this means that the dependence on natural resources is probably high. In 2012, the regions with the highest incidence of poverty were Kvemo Kartli and the northern mountainous areas of Shida Kartli, Mtsheka-Mtianeti, and Kakheti. Living conditions in these areas are difficult due to the harshness of the terrain and remoteness (World Bank 2015). The regions with the lowest poverty incidence are Tbilisi and Samtskhe-Javakheti.

In terms of income, rural households in Georgia earn the equivalent of 80% of the average salary earned by urban households. The following table provides the distribution of the average monthly household income by Region (if there is data available).

Table 5-3: Distribution of the average monthly household income by Region - 2018 (Geostat 2019)

Areas	Kakheti	Tbilisi	Shida Kartli	Kvemo Kartli	Adjara A.R.	Samegrelo-Zemo Svaneti	Imereti, Racha-Lechkhumi and Kvemo Svaneti	Other regions	Georgia
1. Income, total (2+3)	**981.6**	**1192.2**	**875.3**	**881.9**	**1138.3**	**883.6**	**893.1**	**840.2**	**1005.0**
2. Cash income and transfers	**866.4**	**1179.6**	**769.7**	**807.0**	**1063.2**	**768.8**	**783.2**	**743.9**	**932.8**
Wages	252.6	731.8	330.2	374.8	537.8	316.9	317.2	296.0	463.7
From self-employment	94.6	131.1	112.6	105.1	178.1	71.5	74.2	61.6	106.5
From selling agricultural production	224.4	0.9	79.6	59.5	29.1	68.4	51.0	93.0	57.4
Property income (leasing, interest on deposit etc.)	7.8	29.5	9.5	0.8	20.1	7.9	2.1	8.0	14.1
Pensions, scholarships, assistances	160.9	152.5	152.6	140.1	167.1	196.9	192.5	188.2	166.6
Remittances from abroad	39.0	27.2	20.8	62.4	43.4	37.1	59.3	43.7	40.2
Money received as gift	87.1	106.4	64.4	64.3	87.6	70.1	87.0	53.4	84.2
3. Non-cash income	**115.2**	**12.6**	**105.6**	**74.9**	**75.1**	**114.9**	**110.0**	**96.4**	**72.2**
4. Other cash inflows	**240.9**	**98.0**	**131.3**	**76.9**	**118.0**	**64.9**	**135.2**	**134.0**	**118.5**
Property disposal	3.7	8.4	4.4	2.3	3.8	5.5	5.0	1.5	5.2
Borrowing	237.1	89.6	126.8	74.7	114.2	59.4	130.2	132.5	113.3
5. Cash inflows, total (2+4)	**1107.3**	**1277.5**	**901.0**	**883.9**	**1181.2**	**833.6**	**918.4**	**877.8**	**1051.3**
6. Cash and non-cash inflows, total (3+5)	**1222.5**	**1290.2**	**1006.6**	**958.8**	**1256.3**	**948.5**	**1028.3**	**974.2**	**1123.5**

The gap between urban and rural poverty has remained relatively stable over the last decade. Rural economic growth rates are much lower compared to urban areas, especially in Kakheti, Mtshketa-Mtianeti and Shida Kartli. Reasons for lower production is limited access to markets, education, fragmentation of land and underdeveloped infrastructure. In terms of education, the

majority (78%) of the population with higher education is from urban areas, indicating a lower level of education in rural settlements.

Vulnerability

Rural households headed by women with children are particularly vulnerable to poverty. For the purposes of the project Vulnerability is defined as follows:

Households are considered vulnerable if they are:

- Registered as poor in the Government's local social services department;
- Women-headed households;
- Elder-headed households (≥70 years old) without any other household member bringing in income;
- Households headed by people with disabilities.

In addition, it is possible that Internally Displaced People (IDP) and cattle herders (transient population as seen in Khaheti) are considered vulnerable, if they are eligible for the social allowance benefits, in other words a Household (HH) might be IDP but might not necessarily be vulnerable, therefore IDP status does not guarantee a vulnerability status. It is also possible that cattle herders are considered vulnerable, even if they do not receive the social allowance due to their social status in the communities (e.g. children do not go to school and families have limited access to health care), this will need to be confirmed at the village level once the project starts. This is particularly relevant for Component 2 of the Project, since Vulnerable HH would be receiving the EE Stove for free, including briquettes.Table 5-4 provides the number of people receiving pensions and social package in Georgia. This information is available from Geostat, however there are inconsistencies between the data available from Geostat and the data supplied by the Regions.

Table 5-4: People Receiving Pensions/Social Package (Geostat 2019)

Region	2017	2018
Tbilisi	251,724	257,294
Adjara AR	69,902	71,088
Guria	31,803	32,058
Imereti	152,874	153,703
Kakheti	80,865	81,538
Mtskheta-Mtianeti	22,593	22,664
Racha-Lechkhumi and Kvemo Svaneti	11,931	11,917
Samegrelo-Zemo Svaneti	97,087	97,826
Samtskhe-Javakheti	35,700	35,907
Kvemo Kartli	82,344	84,364
Shida Kartli	61,290	61,654

GEORGIA – total	**898,113**	**910,013**

Ethnic Minorities

There are five regions with minority settlements in Georgia: Abkhazia, South Ossetia, Kvemo Kartli, Samtskhe-Javakheti and Kakheti. Some minority groups are live in settlements or are dispersed throughout the inner territories of the country. These groups are: ethnic Russians, Greeks, Kurds and/or Yezidi, Assyrians, Jews, Ukrainians, Armenians and Azerbaijanis. Georgia also has small populations of ethnic Roma and Meskhetians.

Internally Displaced People (IDP)

Most internally displaced peoples were displaced in the early 1990s as a result of conflict in Abkhazia and South Ossetia, while a smaller number were displaced during conflict with the Russian Federation over South Ossetia in August 2008. In 2014, there were 262,704 IDPs registered in Georgia. This number is based on results from a re-registration exercise conducted in 2013-2014 by the Ministry of Internally Displaced Persons from the Occupied Territories.

Children with one IDP parent are also entitled to the status. Each month about 400-500 new-borns receive the status, which causes an increase in the internally displaced peoples figure every year. It also includes IDP that were registered by the Government and who have returned home to Abkhazia, but it does not include people displaced within Abkhazia and South Ossetia. No official survey has been conducted there by the Georgian authorities as these regions are not under its control (UNDP).

IDPs receive a monthly allowance from the Government and some are still living in settlements. Some IDPs also continue receiving the monthly allowance although many have been fully integrated in the Georgian society, therefore having an IDP status in Georgia does not necessarily mean that a person is vulnerable.

5.1.2 Economy

More than half of Georgia's population is engaged in agriculture, which accounts for approximately 9.3% of GDP. There are regions where more than 70% of the work force works in agriculture, e.g. Guria, Samtskhe-Javakheti, and Mtskheta-Mtianeti. Approximately 77% of farming activities are predominantly small farms, smaller than one ha. The most popular crop in Georgia is corn. Sown area totalled 95.5 thousand ha in 2016 with Imereti and Kakheti featuring more than 45% of sown area and more than 53% of the crops. Kakheti is the main producer of wheat and barley, which are the second and third most popular crops. Yield per

ha is steady in the region but yield in other regions fluctuates from season to season, mostly on account of changing weather conditions and inappropriate agricultural practice.

Shida Kartli is considered the fruit basket of Georgia accounting for almost 38% of total fruit production in 2016, followed by Kakheti and Samegrelo-Zemo Svaneti. The latter is also the leading producer of various nuts and accounting for almost half of Georgia's crop.

Samegrelo-Zemo Svaneti, Imereti and Kvemo Kartli are the biggest cattle breeding regions of Georgia. The same three regions are leading dairy cow breeders. In recent years, there has been a decrease in dairy cow production which is affecting the production of milk. Wine production is another important activity, Kakheti producing approximately 70% of the national production (MoRDI 2018).

5.3 Environmental Profile

5.3.1 Climate

Weather patterns in the country are influenced by dry Caspian air masses from the east, and humid Black sea air masses from the west. In addition, the Greater Caucasus Range in Northern Georgia protects against cold air masses from the north.

The mean annual temperature in West Georgia is 14-15C^{o} and 11-13C^{o} in East Georgia; and mean annual precipitation is 1,338 mm – however it should be noted that there is substantial variation due to the diversity of climatic zones and conditions in the country with dry steppes with under 400 mm of precipitation and other humid areas with over 4,000 mm per year. Western Georgia has a humid-subtropical maritime climate. The region´s climate is characterized by a mild climate with average maximum temperatures of around 10-13C^{o} in winter and 20-26C^{o} in summer. It experiences the highest rainfall within the country, experiencing 1,000-2,500 mm of precipitation per year. Central and Eastern Georgia experience a more continental climate, where precipitation and humidity decline further East from the Black Sea. Average maximum temperatures in Eastern Georgia reach on average 25-31C^{o} in summer and averages of 5-8 C^{o} during the winter. Southeast Georgia is the driest area of the country, with average annual precipitation within the range of 500-800 mm per year.

Climate Trends

Similar to the global climate trends, the annual mean temperatures throughout Georgia have increased. According to the Third National Communication (TNC) submitted to the United Nations Climate Change, annual temperatures have increased over the last 50 years with the

maximum increase in East Georgia observed in Dedoplistskaro (0.70oC), Kakheti region and in West Georgia in Poti (0.60oC) between the periods of 1961-1985 and 1986-2010. The observations between these two periods indicate that the warming trend has been more intense in West Georgia, despite the average annual temperature being warmer in East Georgia. The variations in regional climate changes are due to physical-geographical features and landscape-climatic conditions. Additional observed climate trends also include increase in the number of hot days, especially in the lowlands.

Observations in precipitation also vary according to the regions: while there has been some increase in precipitation in the West (the mountain areas of Svaneti and Adjara ; between 5-14%), there has been a slight decrease in large parts of East Georgia.

Climatic Variables Forecast

The government of Georgia provided scenarios in the TNC for the periods of 2021-2050 and 2071-2100 using Regional Climate Model RegCM4. According to the model, overall in Georgia, a 0.8°–1.4°C increase in temperatures by 2050 has been forecasted and in the target regions temperature will increase between +1.10C and +3.50C in Kakheti, and +0.90C and +3.20C in Mtskheta-Mtianeti by the end of century. The increasing trend in temperature is expected to continue for both East and West Georgia. Precipitation trends are expected to become unpredictable and intense, with a slight increase by 2050, followed by a decrease in precipitation (see Table 5-5).

Table 5-5: Temperature and Precipitation Projections (UNDP Georgia 2014; TNC; USAID 2017; GEO et al. 2018

Observations/Projections	Kakheti	Mtskheta-Mtianeti	Western Georgia
Temperature observations	0.5^{0}C annual increase	0.5^{0}C annual increase	0.3^{0}C
Temperature projections 2050	+1.1^{0}C	+0.9^{0}C by 2050	+2.1^{0}C
Temperature projections 2100	+3.5^{0}C	+3.2^{0}C by 2100	+4.2^{0}C
Precipitation observations	-4% (at 5 stations) +5%(at 2 stations)	+1.5%	+14%
Precipitation projections 2050	±5% by 2050	+1.8%	n/a
Precipitation projections 2100	-10-20% by 2100[A]	-14.0%	n/a

Climate Related Hazards and Trends and Impacts on Forests

Georgia is prone to climate-related hazards and naturally occurring disasters, and is considered to have a high risk of river flooding, landslides, avalanches, extreme heat, wildfires, and urban flooding. The level of predisposition and the risk of natural disasters varies across regions with higher concentration in the mountains and forested regions. Such natural

disasters cause damages to ecosystems, livelihoods, infrastructure, agriculture, and other natural assets.

The Third National Communication to UNFCCC further notes that climate change climate-related-hazards and natural disasters have become more frequent and severe, such as extreme flooding, landslides, mudflows, and droughts, among others. In more degraded areas with lower vegetation cover, flooding and landslides could increase with climate change, based on the projected changes in temperature and precipitation.In the project´s target regions of Guria, Kakheti and Mtskheta-Mtianeti, there is a risk of both flooding and drought, in particular in the Region of Kakheti which is already experiencing desertification.

In regards to forest ecosystems, there is limited data available however an analysis undertaken by the WWF and supported by the German Ministry for Economic Cooperation, concluded that almost all forest types will suffer from severe summer drought, risks of fire and landslides on steep slopes towards the end of the century. Other impacts related to climate change on the Forests of Georgia include:

- Spread of plants pests and diseases.
- Altitudinal shift of boreal forests (specifically birch forest boundaries) to higher altitudes in Upper Svaneti due to more favorable conditions in the alpine zone.
- Changes of species composition.
- Impacts on forest ecosystem services such as soil protection and carbon storage functions, may be weakened if suitable adaptation strategies are not adapted.

The lack of more robust data presents a challenge to undertake a more thorough analysis of the extents of the risks and impacts on the Forests and further assessments are required both at the regional and district level.

5.3.2 Water resources

In terms of freshwater, there are over 26,000 streams in Georgia, 860 lakes and 734 glaciers in the country. Major rivers in Georgia include the Alazani River, Mtkvari, Rioni, Enguiri, Khrami, Tskhenistsqali, Lori and Qvirila rivers, among others. Rivers and streams located in Western Georgia primarily drain into the Black Sea, whereas rivers in the Eastern part of the country primarily drain into the Caspian Sea through neighbouring countries.

5.3.3 Soils

Various soil types are present due to the diverse bio-geophysical conditions in the country. There are 17 main soil types in Georgia. The most dominant soil types include mountain-meadow soils (Leptosols, covering 25% of the territory), brown forest soils (Cambisols Eutric,

covering 18% of the territory), and cinnamonic soils (Cambisols Cromic, covering 8% of the territory - primarily in Eastern Georgia).

Soil erosion is an identified threat in many regions of Georgia, particularly in semi-arid and semi-humid zones, such as Kakheti. An estimated 35% of agricultural land is considered degraded due to erosion processes, exacerbated by anthropogenic use. The following regions are considered as vulnerable to desertification within the National Action Program to Combat Desertification: Kakheti, Kvemo Kartli, and Shida Kartli. Anthropogenic activities, including removing vegetation cover (land and forest degradation), and over-grazing, among others, contribute to accelerating desertification.

5.3.4 Biodiversity

The Caucasus ecoregion is one of the world's most ecologically important temperate ecosystems and is where the major bio-geographical regions of Europe, Asia and the Middle East meet. Climatic variations support a wide range of habitats including mixed forests, high mountains, meadow grasslands and fresh water/wetland systems. These in turn support many unusual assemblages and species, and due to the varied bio-geophysical and climatic conditions present in the country, Georgia is considered an important biodiversity hotspot of global importance. It is considered one of World Wildlife Fund´s (WWF) 35 Priority Places (within the greater Black Sea Basin) and is within two of 36 biodiversity hotspots identified by Conservation International and the Critical Ecosystem Partnership Fund (Caucasus and Irano-Anatolian hotspots).

Much of the Georgian landscape is mountainous, with over 50% of the land at more than 1,000 meters above sea level. Around 40% of the country (over 28,000 km2) is covered in natural forests (broadleaf, coniferous and mixed) while 25% are hay meadows. Approximately 13% of the land is used for arable land or perennial crops.

Georgia is home to 4,130 species of vascular plants, and 758 species of chordates. Around 900 species (21%) of Georgia´s flora is considered endemic; 600 species are endemic to the Caucasus region, and 300 to Georgia. The high mountain areas are considered especially diverse with high levels of endemism. Over 2,000 species of Georgian flora have direct economic value and are utilized as timber, firewood, food (fruit, hazel nut, mushrooms), forage and animal food or used in medicine, painting and oil extraction.

The five plant families most diverse in species number in Georgia are:

Table 5-6: Most diverse plant families in Georgia (Fisher, Groger & Lobin 2018)

Family	Species in Georgia	Endemic	Endemic to Georgia	Endemic to Caucasia
Asteraceae	566	132	44	88
Poaceae	339	16	0	16
Fabaceae	317	79	34	45
Rosaceae	237	121	63	58
Brassicaceae	186	34	11	23

There are over 16,000 fauna species, of which over 750 are vertebrates. Georgia is also considered important for large carnivores, many of which are increasingly endangered. Georgia is also an important migratory flight path for many bird species.

In total 19 mammals, 3 birds, 15 reptiles and 3 amphibians are considered endemic to the Caucasus region, and one reptile (the Adjarian Lizard, Darevskia mixta) is considered endemic to Georgia.

139 animal species including 29 mammals, 35 birds, 11 reptiles, two amphibians, 14 fish and 56 wooded plant species were included on the national red list, which are threatened due to habitat destruction and over-exploitation. Approximately 44 vertebrate species are included on the IUCN Red List as either Critically Endangered (CR), Endangered (EN) or Vulnerable (VU). Conservation objectives have been further complicated by a lack of effective tools for data collection, storage and analysis (Georgian Biodiversity database http://www.biodiversity-georgia.net).

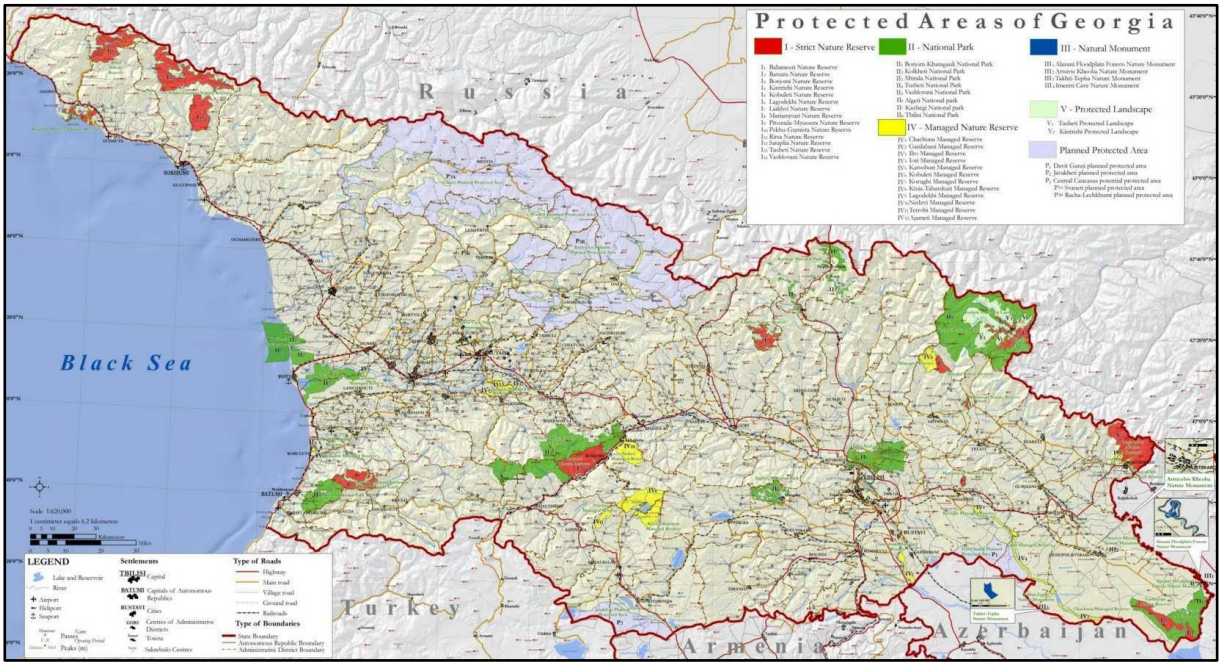
There are 16 invasive species recorded in Georgia, which are primarily located in semi-natural areas, these areas are under severe anthropogenic pressure. Due to lack of control of alien species, there are now many invasive alien species found in Georgia (e.g. *Crucian carp, Carassiusm carassius*, in freshwater lakes). Georgia's forests suffer from pest species and diseases that have been unintentionally introduced into the country. These include great spruce bark beetle, Chestnut blight, and others. No detailed studies have been conducted on the impacts of most alien species on local ecosystems and biodiversity. Therefore, it is unclear what should be done to mitigate those impacts, at the moment there is no clear strategy for dealing with alien species, which are already widespread in Georgia.

Georgia's biodiversity is under increasing pressure, especially from hunting, uncontrolled grazing, and habitat destruction for development, further exacerbated by economic pressures following the collapse of the Soviet Union.

5.3.5 Protected areas

Georgia is home to 88 protected areas (Figure 5-4), covering 596,155 ha in 2017 (8.5% of the national land area).

Figure 5-4: Map of Protected Areas in Georgia (APA)



State protected areas are managed by the Agency of Protected Areas of Georgia (www.apa.gov.ge) and only area one area is managed locally; by Akhmeta local-governing body in cooperation with APA. The protected areas in Georgia include:

- Strict nature reserves (IUCN Protected Area category I equivalent), with very limited public access and high level of protection. (14 SNRs total 140,000 ha).
- National Parks (IUCN category II equivalent) where some recreational or traditional natural resource use may be permitted (10 NPs; 350,000 ha).
- Managed Nature Reserves (IUCN IV-VI) formerly hunting refuges. Poorly protected Hunting and fishing and foraging may be permitted. No logging or drainage. (19 in total, 60,000 ha).
- National monuments (40 in total) small areas of rare and unique features. Limited use may be permitted.
- Protected Landscapes (2,370,700 ha) managed by Akhmeta local municipality seeking to support conservation objectives e.g. through ecotourism promotion.
- As of 2018, Georgia has also begun to designate areas under the “Emerald Network” approach to Protected Areas set up by the contracting parties to the Bern Convention (equivalent to Natura 2000 in Europe). This network is aimed at protecting those habitats and species listed under Appendices I and II of the Convention and to link Areas of Special Conservation Interest (ASCI). The ecological value of these sites has not yet been

determined and some sites have been designated as candidate Emerald Sites without any biodiversity surveys or tree inventories.

5.3.6 Habitats

Since 2018, Georgia has been aligning its traditional habitat classification system with that of the European Nature Information System (EUNIS). The broad EUNIS habitat units are:

- A Marine habitats,
- B Coastal habitats,
- C Inland surface waters,
- D Mires, bogs and fens,
- E Grasslands and lands dominated by forbs, mosses or lichens,
- F Heathland, scrub and tundra,
- G Woodland, forest and other wooded land,
- H Inland unvegetated or sparsely vegetated habitats,
- I Regularly or recently cultivated agricultural, horticultural and domestic habitats,
- J Constructed, industrial and other artificial habitats.

Of relevance to the project is the broad habitat G, which comprises the following sub-classifications:

- G1.12 Boreo-alpine riparian galleries
- G1.21 Riverine Fraxinus - Alnus woodland, wet at high but not at low water
- G1.3 Mediterranean riparian woodland
- G1.36 Ponto-Sarmatic mixed Populus riverine forests
- G1.37 Irano-Anatolian mixed riverine forests
- G1.44 Wet-ground woodland of the Black and Caspian Seas
- G1.6 Fagus woodland
- G1.8 Acidophilous Quercus-dominated woodland
- G1.A4 Ravine and slope woodland
- G1.A7 Mixed deciduous woodland of the Black and Caspian Seas
- G3.17 Balkano-Pontic Abies forests
- G3.1H Picea orientalis forests
- G3.4E Ponto-Caucasian Pinus sylvestris forests
- G3.9 Coniferous woodland dominated by Cupressaceae or Taxaceae (EUNIS 2017)

As part of both the Emerald Network and the new National Biodiversity Strategy and Action Plan – NBSAP), some 27 national priority habitats have been identified that are considered both sensitive and under threat (https://eunis.eea.europa.eu).

5.3.7 Forests

Georgia's forests are an important environmental, economic resource, provide habitat for biodiversity and provide an important regulating ecosystem services function such as

prevention of soil erosion and natural disasters, water recharge, climate stabilization and others. The forests in Georgia cover 2.8 million hectares, approximately 40% of the nation's total area. 1.8 million hectares are under the National Forestry Agency (NFA), 521,000 hectares under the Agency for Protected Areas, 153,000 hectares under the Forestry Department of the Autonomous Republic of Adjara. 369,000 hectares are in the Autonomous Republic of Abkhazia and out of Government control (Garforth, Nilsson, Torchinava 2016).

Forests are protected through the Forest Code of Georgia which regulates functions and use of forest, including management of water catchment basin, wood production and other functions. Private ownership of forest and commercial woodcutting is allowed, but only under license. The Forest Code also sets categories of protected forests and lists floristic species of the Red List.

The forests in Georgia are under threat from unsustainable logging, grazing and weak management systems. A large part of the country's forest assets is degraded. As a result, the number of forest-dependent flora and fauna has decreased.

The following problems have been identified; a) unsustainable forest management; b) illegal logging; c) overgrazing; d) fires; e) pests and diseases; f) poor hunting management; g) climate change; and h) legislative problems and forest infrastructure.

In addition, the forests have not been categorized since inventories of forest have not been conducted in the entire territory of Georgia for more than 15 years. Most of the forests have been categorized as natural forests. The Project will support the implementation of forest inventories.

The following table shows the different forest types, elevation and typical species in Georgia.

Table 5-7: Forest Types and Elevation (Fisher, Groger, Lobin 2018)

Forest Type [1]	Elevation	Typical Tree Species
Subalpine	2000 meters	*Fagus orientalis, Betula edwediewii, Acer trautvetteri, Picea orientalis, Abies nordmanniana, Sorbus aucuparia.*
Montane and partly Montane Fir and Spruce Forests	1400 – 1900 meters	*Abies nordmanniana, Fabus orientalis, Picea orientalis.*
Montane to altimontane pine forests	700 – 2,400 meters	*Pinus sylvestris var. hamata, Quercus petraea ssp iberia, Q. macranthera, Acer spp, Picea oreintalis, Betula pubescens var. litwinowii, Abies nordmanniana, Fagus orientalix, Fraxinus excelsior, Astragalus microcephalus.*

[1] These classifications have not yet been aligned with EUNIS. The inventory of the forests will provide additional data for forest classification using EUNIS.

Montane to altimontane oriental beech forests and hornbeau oriental beech forests	1,000 – 2,200 meters	*Fagus orientalis, Picea orientalis, Carpinus orientalis, Fraxinus orientalis.*
Colline to submontane hornbeam – Oak Forests		*Quercus petraea ssp. Iberica, Carpinus betulus, C. orientalis, Fagus orientalis, Castanea sativa.*
Hygrophilous Thermophytic mixed deciduous broad-leaved forests	1,000 – 1,400 meters	*Fagus orientalis, Castanea sativa, Carpinus orientalis, Tilia caucasica, Alnus barbata, Rhododendron ponticu, R. ungernii, R smirnowii, Prunus laurocerasus, Ilex colchica, Buxus sempervirens.*
Mediterranean pine forests		*Pinus pityusa, Carpinus orientalis, Cistus creticus, Rhododendron luteum, Ruscus aculeatus, R. colchicus.*
Open juniper woodland		*Quercus petraea ssp. Iberica, Juniperus communis ssp. oblonga.*
Alder carrs and swamp forests		*Alnus barbata, Fraxinus excelsior, Pterocarya pterocarpa.*

5.4 Environmental and Socio-Economic Baseline Situation in the Target Regions

Three target regions and eight municipalities have been selected as to implement the Project (refer to Figure 5-5). The criteria used to select the regions and municipalities are summarized in in the Feasibility Study Report (Annex 2 to the Funding Proposal).

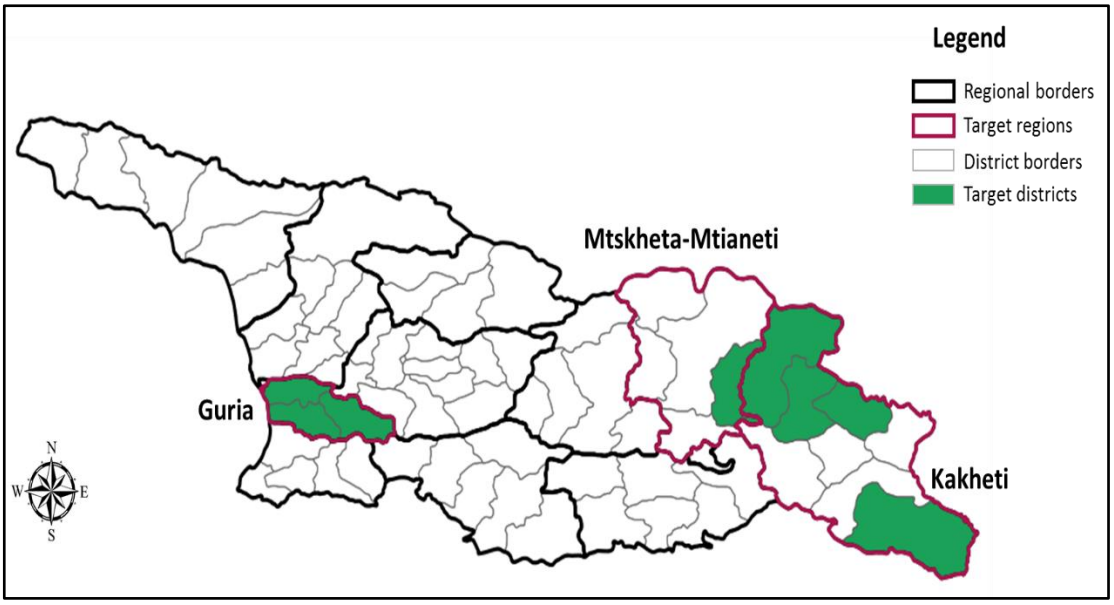


Figure 5-5: Map of target regions and districts

5.5 Kakheti Region

5.5.1 Socio-Economic Profile

Kakheti Region is located on the eastern side of Georgia, bordered by Russia on the North, Azerbaijan to the south and Mtskheta-Mtianeti and Qvemo-Kartli on the eastern side. The total area of the region is 11,310 km^2, or 17.5% of the entire territory of Georgia (Figure 5-6). Kakheti has a population of 312,500 people, representing 9% of the total population in Georgia. The region has eight Municipalities, nine cities and 276 villages, the regional capital is Telavi. The project will work with four of Kakheti´s eight Municipalities: Akhmeta, Dedoplitskaro, Kvareli, and Telavi. The four villages/towns visited to inform the stakeholder engagement report were Argokhi, Vardisubani, Dedoplitskaro, and Shilda.

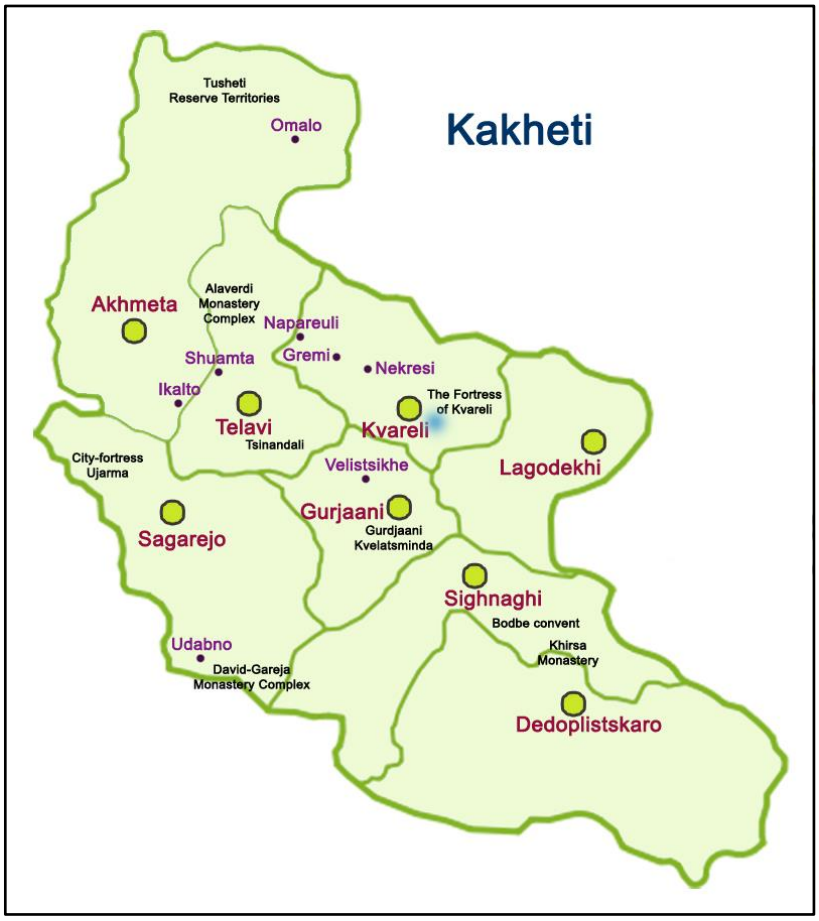


Figure 5-6: Map of Kakheti Region

The level of urbanization is low, 80% of the population in Kakheti live in the villages. The average size of villages is approximately 1,200 people. The population has decreased since 1989 by 7.9% and since 2002 by 0.2%, mainly due to the out-migration of people aged from 20 to 39. This trend is particularly noticeable in the municipalities of Akhmeta and

Dedoplistskaro. A large part of the employable workforce migrates to other cities of Georgia or abroad. In Kakheti, as well as in the rest of Georgia, there is also a trend of female migration. Kakheti ranks second after Imereti, along with Samegrelo-Zemo Svaneti, in the number of pensioners (Kakheti Regional Development Strategy 2013).

The employment rate in Kakheti is above the national average, as seen in Table 5-8 due to the number of people engaged in agriculture or self-employed.

Table 5-8: Employment Rate in Kakheti

Description	Kakheti	Georgia
Employment Rate	67.1%	56.8%
Activity Rate	71.8%	66.9%
Unemployment Rate	6.5%	15.01%

The discussions with Government officials during the consultation process confirmed that the employed population in Kakheti work in government-run infrastructure projects such as construction, rehabilitation, road construction and maintenance, installation and cleaning of irrigation and drainage systems, and other. Also, small businesses and agriculture.

Vulnerable People

According to the Kakheti Regional Development Strategy (Table 5-9), the region of Kakheti is ranked number three, after Tbilisi and Imereti in terms of total number of Households that receive social allowance (12,793 Households). In percentage terms compared to the total number of people in Georgia that receive the social allowance, it is also ranked number third after Racha-Lechkhumi and Kvemo Svaneti and Shida-Kartli, representing 18.8% of the total population in Georgia (Rural Development Strategy in Georgia, 2017).

Table 5-9: Number of Vulnerable Households in Kakheti – 2019 (Kakheti Regional Office)

Akhmeta	Telavi	Dedoplistskharo	Gurjaani	Kvareli	Lagodekhi	Sajarejo	Signagji
2,094	1,199	1,064	2,798	973	1,871	1,456	1,338

Internally Displaced Persons

According to the Regional office, the number of internally displaced people (IDP) is low in Kakheti compared to other regions. In Kakheti all registered IDPs receive assistance and benefits (Kakheti Regional Development Strategy 2013).

Health

In 2013 the government funded a comprehensive healthcare programme in Kakheti, this program included the provision of free primary and emergency care. 122 rural outpatient clinics

operate in Kakheti. Primary care facilities are in poor condition. Most of the facilities do not meet basic health care and hygienic conditions are precarious. In the primary care sector of Kakheti there is one doctor for 1,000 people, there is a lack of paramedic personnel (0.9 medical assistants per doctor). There are 198 primary care doctors and 209 medical assistants. Each municipality has hospitals, which have been renovated and equipped. The hospital bed/patient ratio in Kakheti is 95.4 per 100,000 people, the lowest in Georgia after Mtskheta-Mtianeti.

The main health issues in the region include; a) high level of self-treatment and self-medication in the population; b) prevalence of brucellosis and tuberculosis; c) cases of waterborne; d) addiction to alcohol and drugs is high, especially among young people; e) obesity; f) malignant tumour; g) prevalence of anaemia; h) endocrine nutritional and metabolic diseases; and i) thyroid problems due to a lack of iodine.

Education

There are 206 child day care centres, 192 schools (mostly public schools), two state vocational colleges and one state university. 18% of the population has a degree-level qualification (higher education), and 32% has a vocational qualification. The average ratio of teachers to children in childcare centres of Kakheti is 12/1, however this ratio is not distributed equally among municipalities (with the highest ratio in Gurjaani (21/1) and the lowest in Signaghi 10.48/1).

Although the public schools of Kakheti have a 7-8-star national ranking, 28% of schools are still in need of reconstruction, 18% of schools are fully renovated, and 53,5% schools of Kakheti are partially renovated. The best school infrastructure is found in Kvareli and the most precarious in Gurjaani and Lagodekhi. The infrastructure and training facilities of the two vocational colleges in the Kakheti region is satisfactory. According to the Regional Development Strategy the most popular and sought-after specialisations in Kakheti are: agronomist, foreign language specialist (translator), project, financial and marketing managers, physicians, civil engineers (roads, bridges and buildings), mechanical engineer, hospitality managers, pharmacist, pharmacologist, teachers of various subjects, and entomologist.

Economy

Agriculture is the main economic activity, other activities include general industry, trade, transport, communications, service sector (due to tourism) and construction. The recent growth

of construction has increased the production of local construction materials (bricks, tiles, building blocks, etc.). There are mining and processing industries in the region: mining and processing of slate and marble, mining of limestone in the municipalities of Telavi and processing of limestone in the municipality of Dedoplistskaro. The limestone is supplied to the Rustavi cement plant. However, this segment of industry faces some challenges such as the high cost of financing.

Tourism

Tourism is an important sector of the economy, the Region offers important historical sites, famous wine cellars, natural resources, and cultural and historical heritage. The development of tourism is largely dependent on the improvement of service sector in the region. There are a number of hotels and guesthouses and travel companies that operate in the Region. Development of Tourism has been frequently mentioned as an important activity for livelihoods during the discussions with the Municipalities and the Communities.

Agriculture

38% of Georgia's agricultural land is found in the Kakheti region. Dedoplistskaro, the largest municipality in Kakheti, has the largest area of agriculture land.

The most important products in Kakheti include; a) viticulture, it is estimated that approximately 65% of vineyards in Georgia are located in Kakheti; b) production of cereals, Kakheti has the highest production of wheat in Georgia; c) corn; and d) sunflower production, in particular in Dedoplistskaro and Signaghi.

Today, the largest share of sunflower is produced by households and the remaining 2-5% is produced by companies. According to the Municipality officials, a number of companies were producing sunflower seed oil in the recent past but failed due to debt and high interest rates from banks and many of these companies were forced to declare bankruptcy. However, they also mentioned there is a lot of potential to develop the sector further with a different financial model and minimize dependence on sunflower oil imports from Turkey and other countries. Other produce includes watermelons and vegetables, potatoes, peaches and other fruit.

Figure 5-7: Kakheti Vineyards

Some challenges in the agricultural sector include; non registration of farming land, old agricultural equipment, disputes over ownership between citizens or between citizens and the government, poor soil management, farmers not using sufficient organic fertilizers, weed and pest infestation affecting vineyards, grazing by livestock in farmland resulting in desertification, erosion due to wind and water especially in Sagarejo and Dedoplistskaro. The biggest threat of water erosion is floods from the Alazani River, impacting arable and pasture areas every year. Farming was an important sector for developmental improvement mentioned both by the Municipalities and Communities visited.

Livestock

Livestock has traditionally been an important component of the agricultural industry of Kakheti, both for milk production and by-products and meat. Large areas of pastures and grasslands, favourable agricultural and climatic conditions are major factors contributing to the development of this sector. Although Kakheti accounts for a small share of the total livestock population in the country, this sector has potential for development. The region's strength is its proximity to Tbilisi. Similar to agriculture, livestock was an important sector for development mentioned by the Municipalities and Communities, however, there were concerns due to high erosion in the region.

Challenges of livestock include uncontrolled cattle corridors, spread of diseases, poor hygienic conditions of slaughterhouses, unfavourable epizootic condition in the region and in the country, inefficient veterinary system, low nutritive value and high cost of fodder, lack of high-yield breeds, inefficient product quality control system, and big influence of monopolistic companies in the domestic meat market.

Beekeeping

Although beekeeping production in Kakheti is small compared to other regions in Georgia, there is potential for development due to its proximity to Tbilisi and favourable conditions due of forests. Using beekeeping to protect forests from illegal tree harvesting has been used successfully in many conservation projects in other countries.

5.5.2 Environmental Profile

About 11-12% of Georgia's forests are in the Kakheti region. Approximately 30% of Kakheti's territory is covered with forests. Around 98% of forests of the Kakheti region are mountain forests and 15% of forests are protected areas. 37% of Georgia's protected areas are in Kakheti. Figure 5-8 below illustrates the forest coverage area by Municipality, showing that Akhmeta Municipality has the largest forest coverage area and Signaghi the smallest.

Forests in Kakheti play a very important ecological and economic role: anti-erosion, climate regulation, water-conservation, creation of natural gene-pool and other functions. The region has the third largest forest area and 98% of the region's forests are mountain forests of high ecological and economic significance.

Forests are important natural resources providing the population with firewood, construction material, NTFP and game. As shown in section 7.11 of this report, forests provide important ecosystem services including anti-erosion, climate regulation, water-conservation, creation of natural gene-pool and other functions. 80% of the region's mountain forests grow on high (more than 25º) and steep rock slopes and therefore, have a greater ecological significance. 2% of the region's forests are flood plain forests.

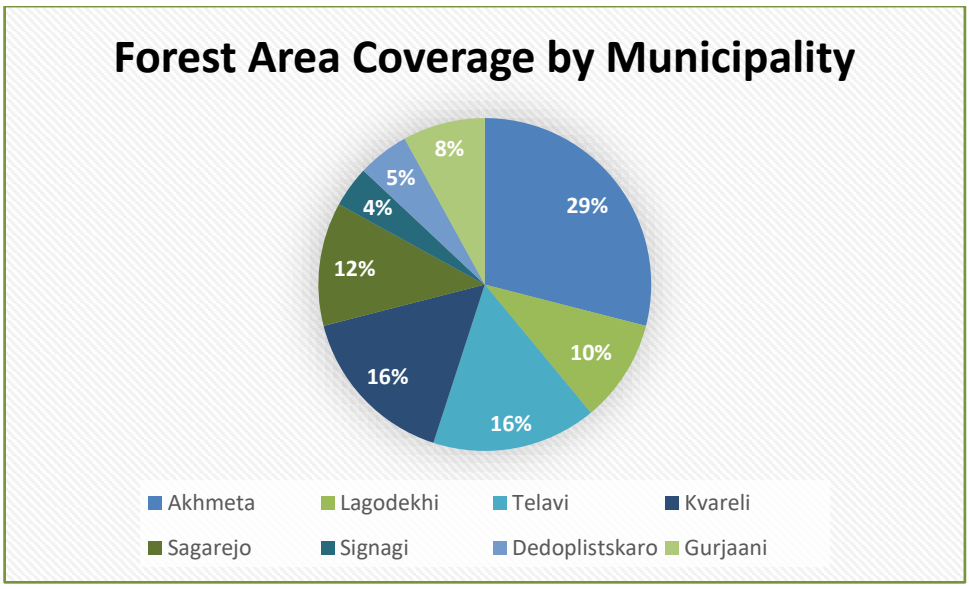


Figure 5-8: Forest Cover in Kakheti (Kakheti Regional Strategy 2013)

Natural hazards have increased significantly in the whole world, as well as in Georgia, due to various factors ranging from climate changes to unsustainable agricultural practices. It is a serious problem in the Kakheti region.

Agricultural losses from natural disasters are increasing every year due to extreme weather conditions such as drought in spring, rains during harvest, unpredictable hailstorms and strong winds. For example, losses caused by hail and strong wind in July 2012 were unprecedented and in April and May 2013, hail in the Telavi and Gurjaani municipalities caused a significant loss to farmers.

Energy Efficiency

Compared to other regions of Georgia, Kakheti is not rich in alternative and renewable energy resources and there is a need for more efficient energy sources to support ouseholds during the harsh winters and facilitate business opportunities.

Land use

A land use exercise was undertaken to understand the changes in land use patterns for two time periods; 1999 and 2018. Figure 5-9 and Figure 5-10 present the data in a pie chart and Figure 5-11 and Figure 5-12 present the data spatially. The purpose of undertaking this exercise was to review the trends rather than the absolute numbers, therefore the pie charts need to be examined with caution.

As expected, due to the worldwide trends of forest degradation and the unsustainable felling of trees for fuelwood and timber in Georgia, the data shows that the forest cover and water classes have decrease, open fields have increased (open fields are probably pasture areas, crop land, grassland and other, however the exact type of land use will need to be ground-truthed) and built infrastructure has increased by more than double.

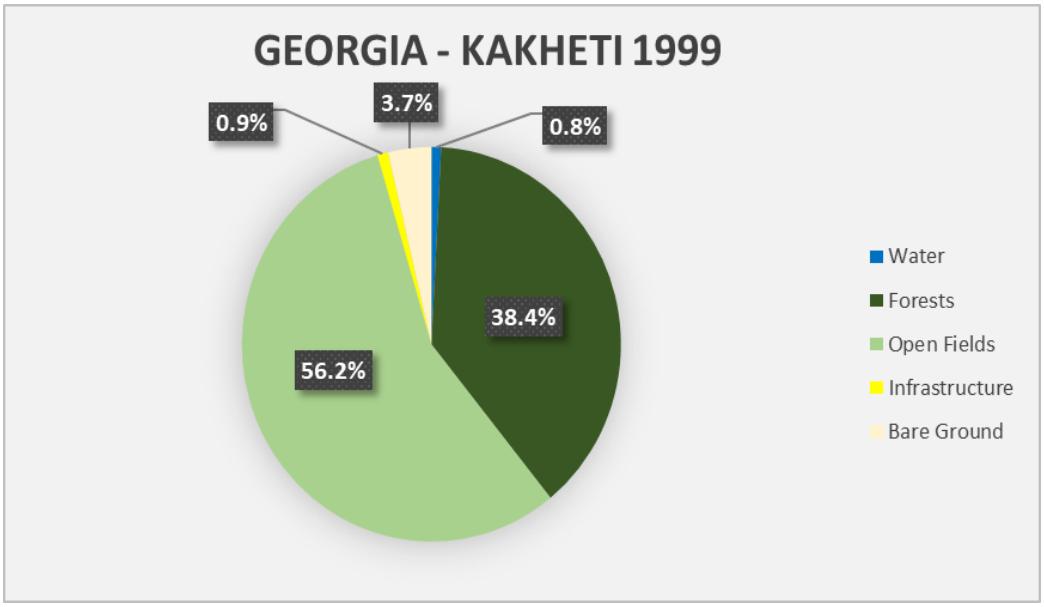


Figure 5-9: 1999 Kakheti Land Use

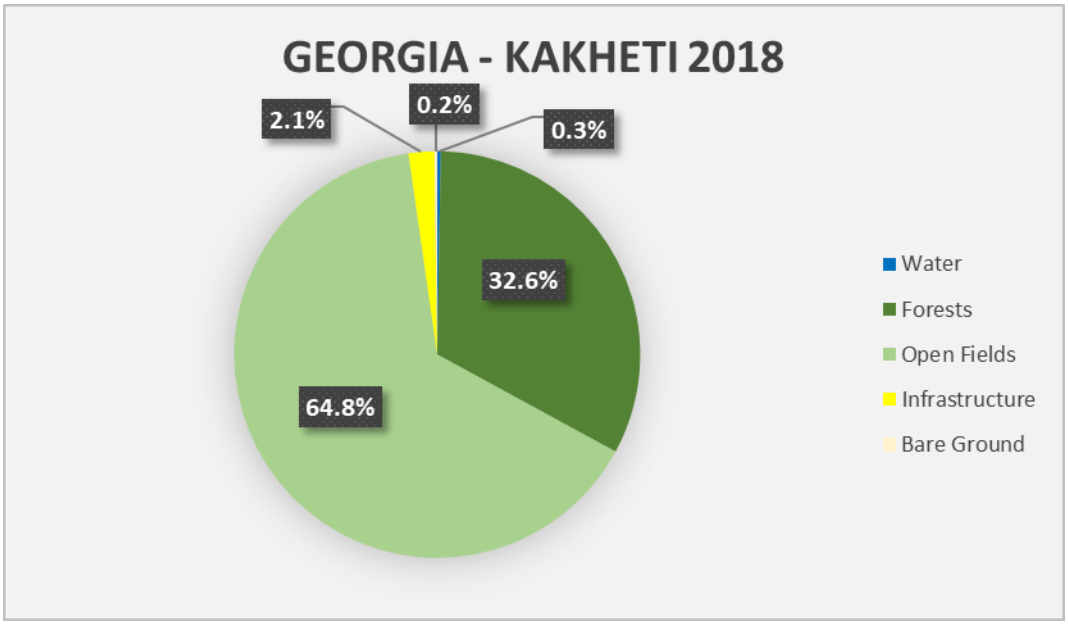


Figure 5-10: 2018 Kakheti Land Use

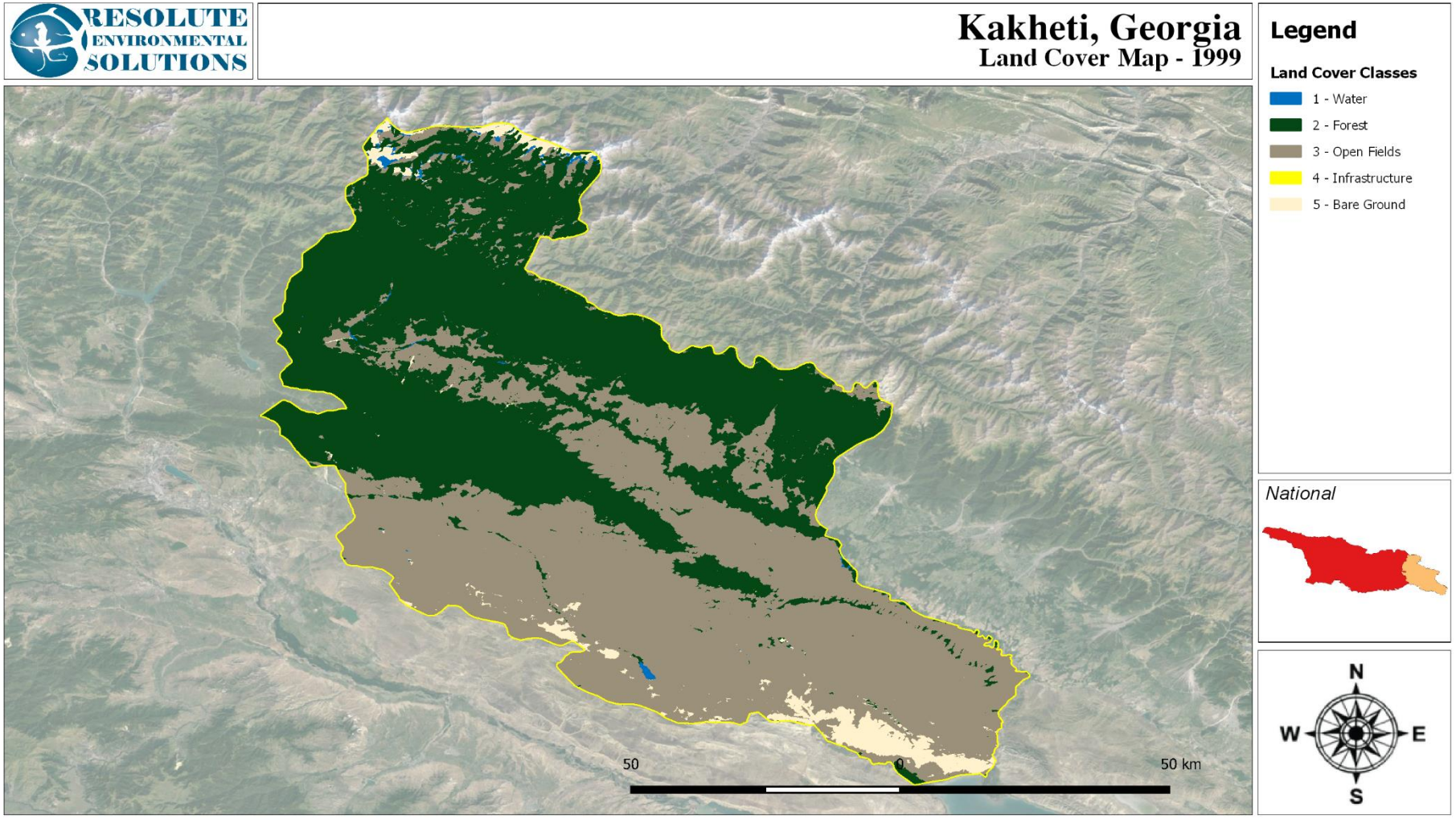


Figure 5-11: 1999 Land Cover Map for Kakheti

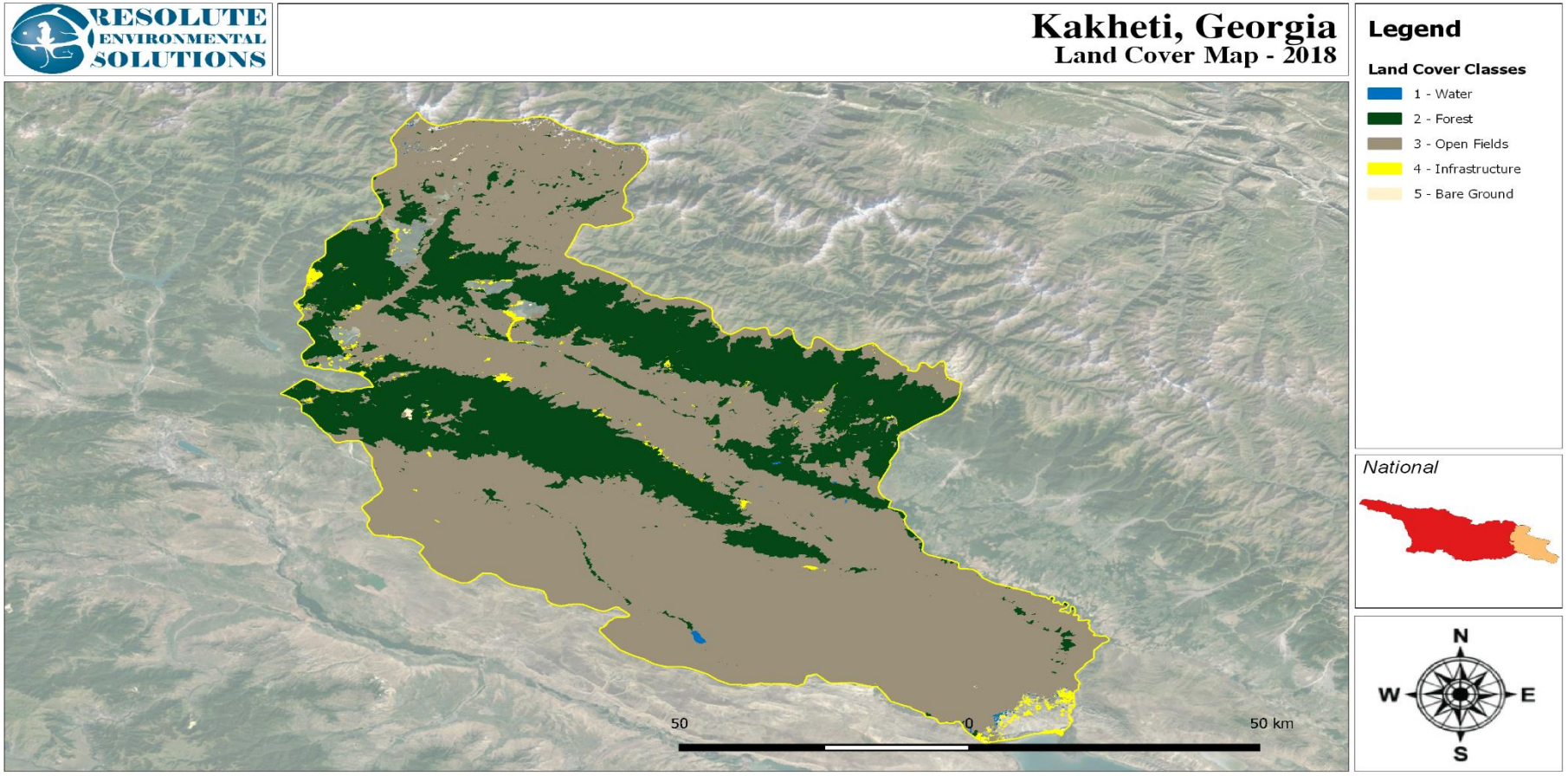


Figure 5-12: 2018 Land Cover Map for Kakheti

Kakheti Regional Development Strategy (2014-2022)

The 8-year regional development priorities for Kakheti are separated into the following key sectors; agriculture, economy, infrastructure, environmental protection, healthcare, education and social development of the region. Of relevance to the project is the priority given by the Region towards the protection of the forests.

1. Agriculture improvement and value added.
2. Bee-keeping. Increase honey production and increase exports.
3. Livestock and poultry breeding: Improve the quality and production
4. Development of non-agricultural potential by studying the resource base and providing incentives for entrepreneurs
5. Promotion of tourism by adding new destinations, developing infrastructure and improving qualifications
6. Increase the efficiency of water supply and waste management
7. Supply of natural gas to the population
8. Preservation of forests and biodiversity by means of inventory and protection of biodiversity
9. Improve the efficiency of protected areas management and increase their potential for tourism
10. Increase the efficiency of natural disaster management and prevention
11. Improve environmental management by raising environment awareness
12. Use renewable and alternative energy
13. Improvement of health care.
14. Improve the efficiency of education by introducing inclusive and informal education

5.6 Guria Region

5.6.1 Socio-Economic Profile

Guria is located in the westernmost part of Georgia. It is bordered by Samegrelo to the north-west, Imereti to the north, Smatskhe-Javakheti to the east, Adjara to the south and the Black Sea to the west. The region has an area of 2,033 km^2. Guria is divided into 3 municipalities (Ozurgeti, Lanchkhuti, and Chokhatauri) and 1 city; Ozurgeti, the Regional Capital (Figure 5-13). The project will be implemented in all of Guria's Municipalities: Ozurgeti, Lanchkhuti, and Chokhatauri. The three villages/towns visited to inform the stakeholder engagement report were Lesa, Zoti, and Mtispiri.

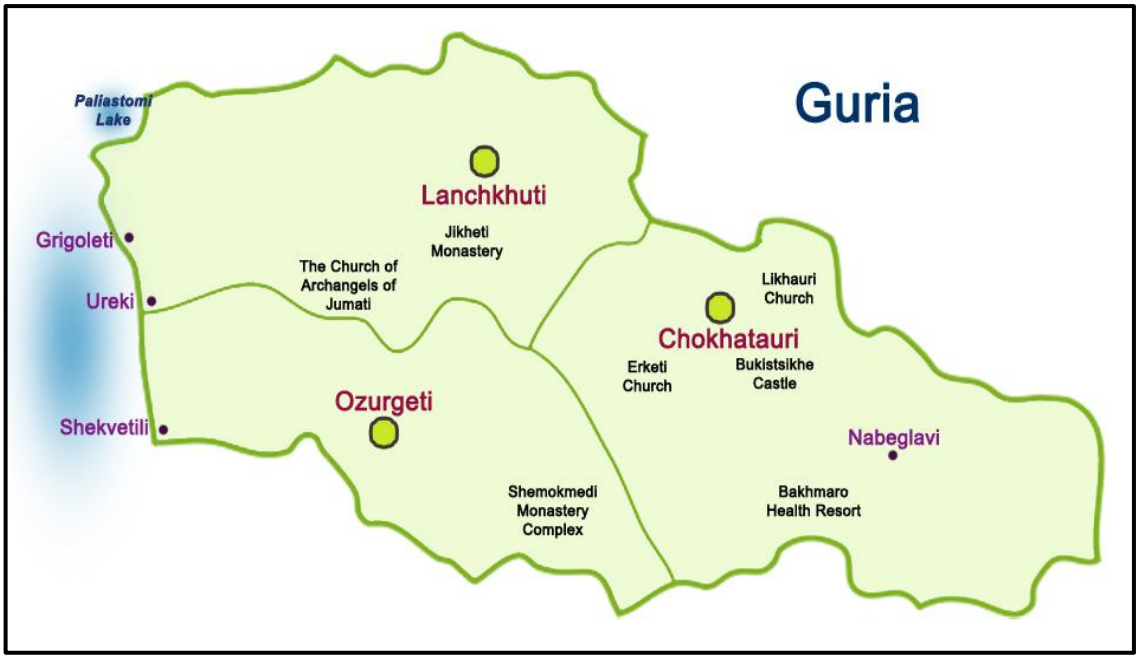


Figure 5-13: Guria Region

Guria has a population of 109,400 people (Geostat 2019), which represents approximately 3.1% of the total population of Georgia. 98% of the population is ethnic Georgian, 1% is ethnic Armenian and the remaining 1% is composed of Ossetians and Russians. Most of the population is Orthodox Christians (86%), followed by Islam.

According to the Regional Strategy, the monthly average cash and non-cash revenues in the region in 2011, was 554 gel per household. Guria is ahead of Kakheti, Kvemo Kartli and the Mtskheta-Mtianeti regions in terms of household income, however there are discrepancies between the data available through Geostat and the Regional Strategy. In 2011, the average annual number of people employed in the region was 5466 people (3,9% of the population) and the average monthly salary was 276.4 GEL.

Agriculture is the main economic activity of the region, there is also some tourism due in part to the proximity with Batumi and health resorts including the Black Sea health resort of Ureki, rich in magnetic sand. The main agricultural activities include the production of hazelnuts and corn, however, since 2015 a brown marmorated stink bug (*halyomorpha halys*) has been attacking the hazelnut tree (*Corylus*) and has destroyed harvests. The stink bug is harmful not only to hazelnuts, but to other crops as well, such as corn. The Georgian government created a strategic plan to fight against the bug. Hazelnut plantations were given a chemical treatment against the pests. In total, an area spanning 351 villages in the regions of Samegrelo, Guria

and Adjara, 53,000 hectares of land was treated, including local plots of land and corn fields. However, this initiative did not eradicate the bug and the problem persists today.

Water is also one of the main assets, Nabeghlavi; the mineral water famous in Georgia is based in Guria. Tea-production is also an important activity, but this activity has also decreased in recent years.

Figure 5-14: Nabeghlavi Mineral Water in Guria

Vulnerable Households

Of the total population in Georgia that receive social allowance, Guria is ranked number five. 14.7% of the Georgian population that receive the social allowance are from Guria (Rural Development Strategy in Georgia, 2017). Table 5-10 presents the numbers of households receiving government allowance provided by the Regional Government.

Table 5-10: Vulnerable HH, IDP & Eco Migrants in Guria – 2019 (Regional Office of Guria)

Sector	Lanchkhuti	Ozurgeti	Chokhatauri	Total HH for the Region
Socially vulnerable HH	1433	2203	1077	4713[2]
IDPs	148	180	92	420
Eco migrants	n/a	n/a	n/a	636

5.6.2 Environmental Profile

The region is rich in forest resources, approximately 48% of the total area of Guria is covered in forest. In 2012, according to the Regional Strategy approximately 7,900 ha of timber were harvested. There are 21 licensed sawmills in the region.

[2] 4,713 HH represents 17,813 people.

Among the major woodland species that make up the forest, beech forests dominate throughout the region (29,370 ha). A significant area is occupied with acacia (9,786 ha) chestnut trees (466 ha) and different types of coniferous trees (5520 ha) such as pine trees (166 ha). However, inventory of trees has not yet been completed in the region and these figures are likely to be inaccurate.

Forest protection

The forests in the Region provide important ecosystem services such as timber, fuelwood, soil protection, water regulation, and climate regulation. The forests are characterized by high rates of self-regeneration.

The Kolkheti National Park Area is located in the territory of Guria and Samegrelo. There are 194 species of birds and the park is located on a migratory route for birds. Similar to other regions in Georgia, planning and implementation of environmental programs and projects by representatives of international organizations have been traditionally carried by the central government. At the regional and municipal level, there is little environmental planning and limited participation by the population and private sector (Guria Regional Plan 2014-2021), although regional staff confirmed increasing participation by the local population in recent years.

Land use

A land use exercise was undertaken to understand the changes in land use patterns for two time periods; 1998 and 2018. Figure 5-15 and Figure 5-16 presents the data in a pie chart and Figure 5-17 and Figure 5-18 presents the data spatially. The purpose of undertaking this exercise was to review the trends rather than the absolute numbers, therefore the pie charts need to be examined with caution.

The data shows that in terms of total coverage, the forest area in Guria seems to have increased since 1998, this information was also validated during the discussions with the regional NFA representatives, who confirmed that the forest seemed to have improved in the region due to increased enforcement and supervision. However, according to the information from the feasibility study obtained from Global Forest Watch, the forest coverage has more or less stayed the same during approximately the same periods. Comparing the two maps from 1998 and 2018, the 2018 map shows more fragmentation in the forests. Water classes decreased considerably during the period. Open fields also decreased, probably due to decrease in agriculture and pasture areas (open fields are probably pasture areas, crop land,

grassland and other however the exact type of land use will need to be ground-truthed) and built infrastructure increased.

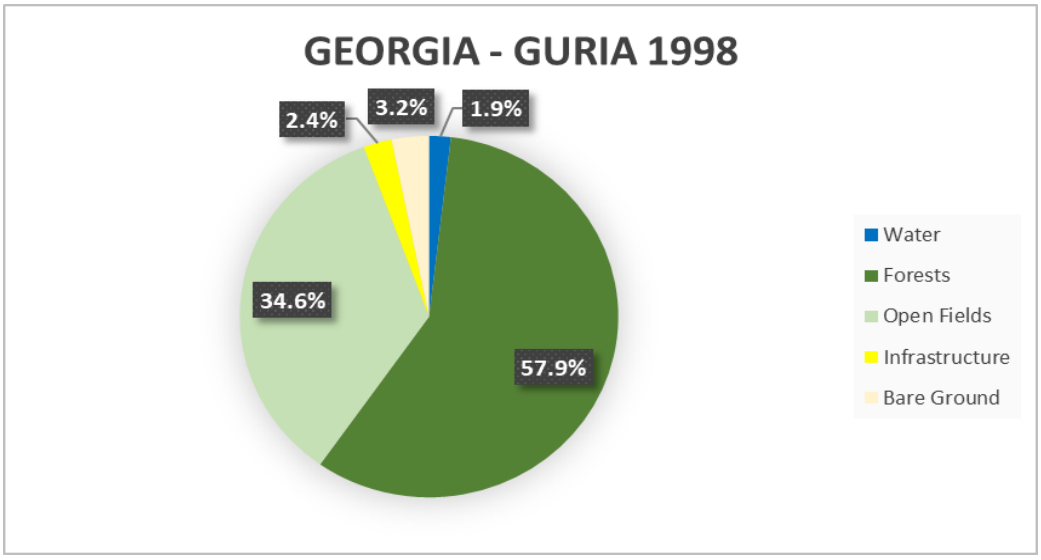


Figure 5-15: 1998 Guria Land Use

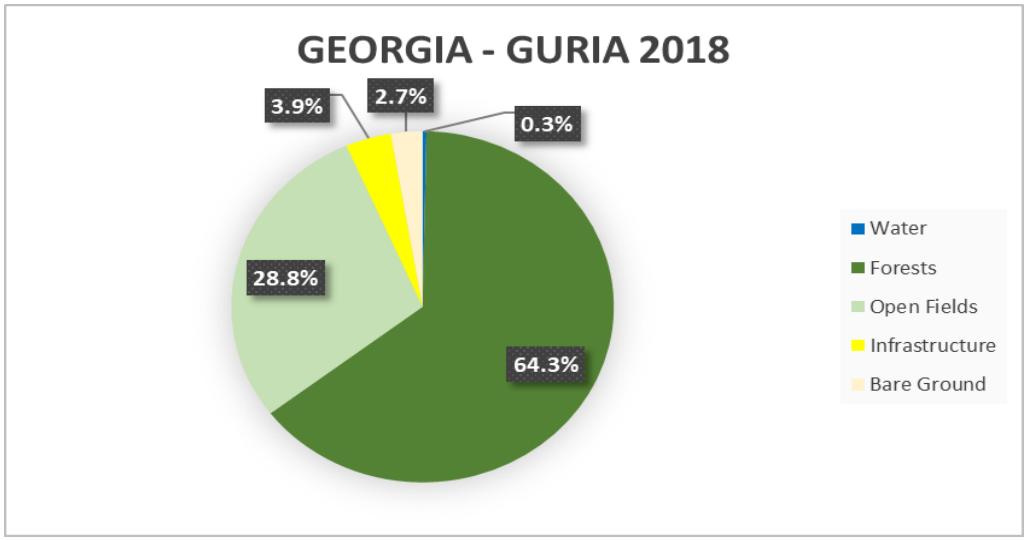


Figure 5-16: 2018 Guria Land Use

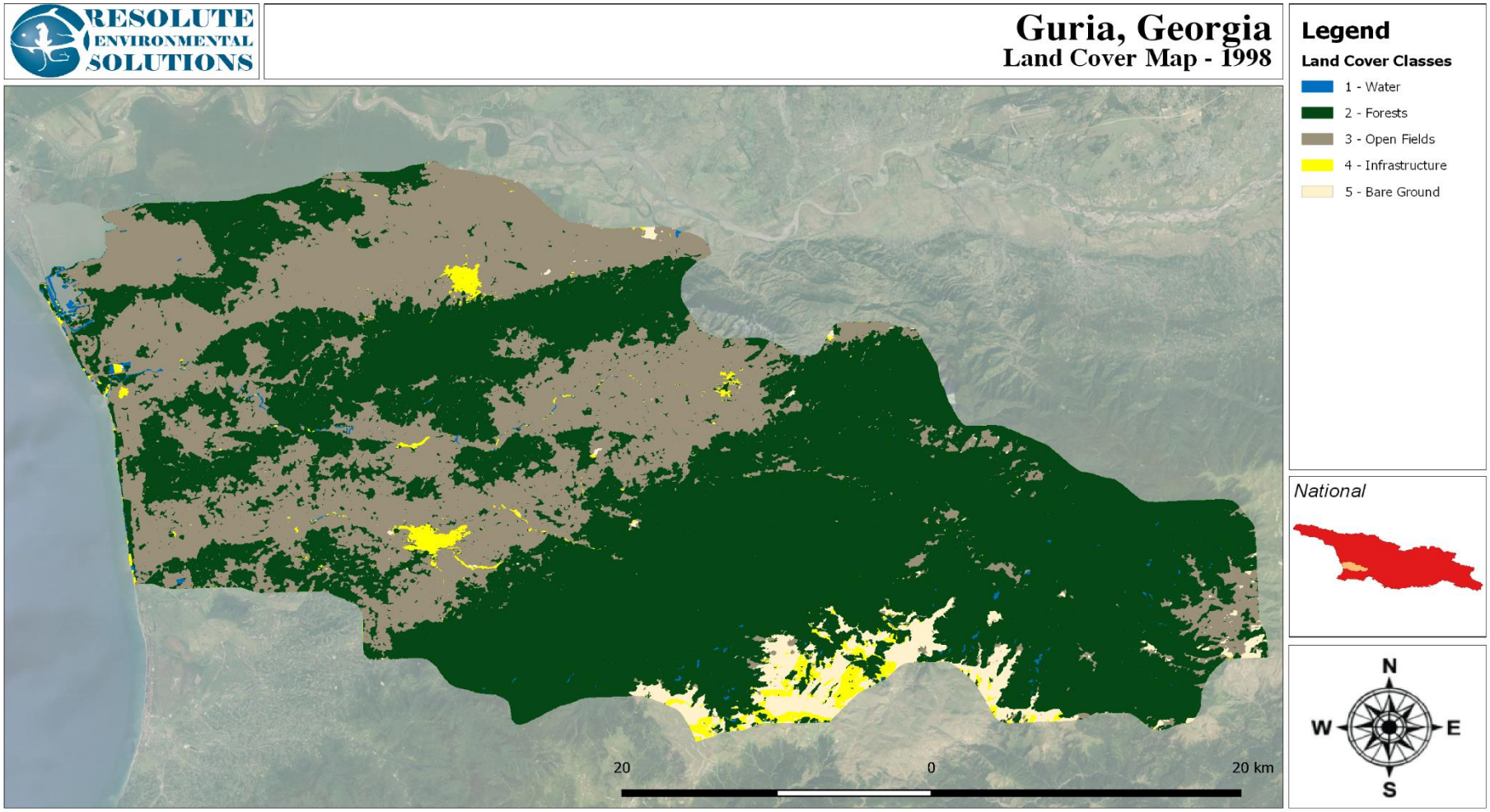


Figure 5-17: 1998 Land Cover Map for Guria

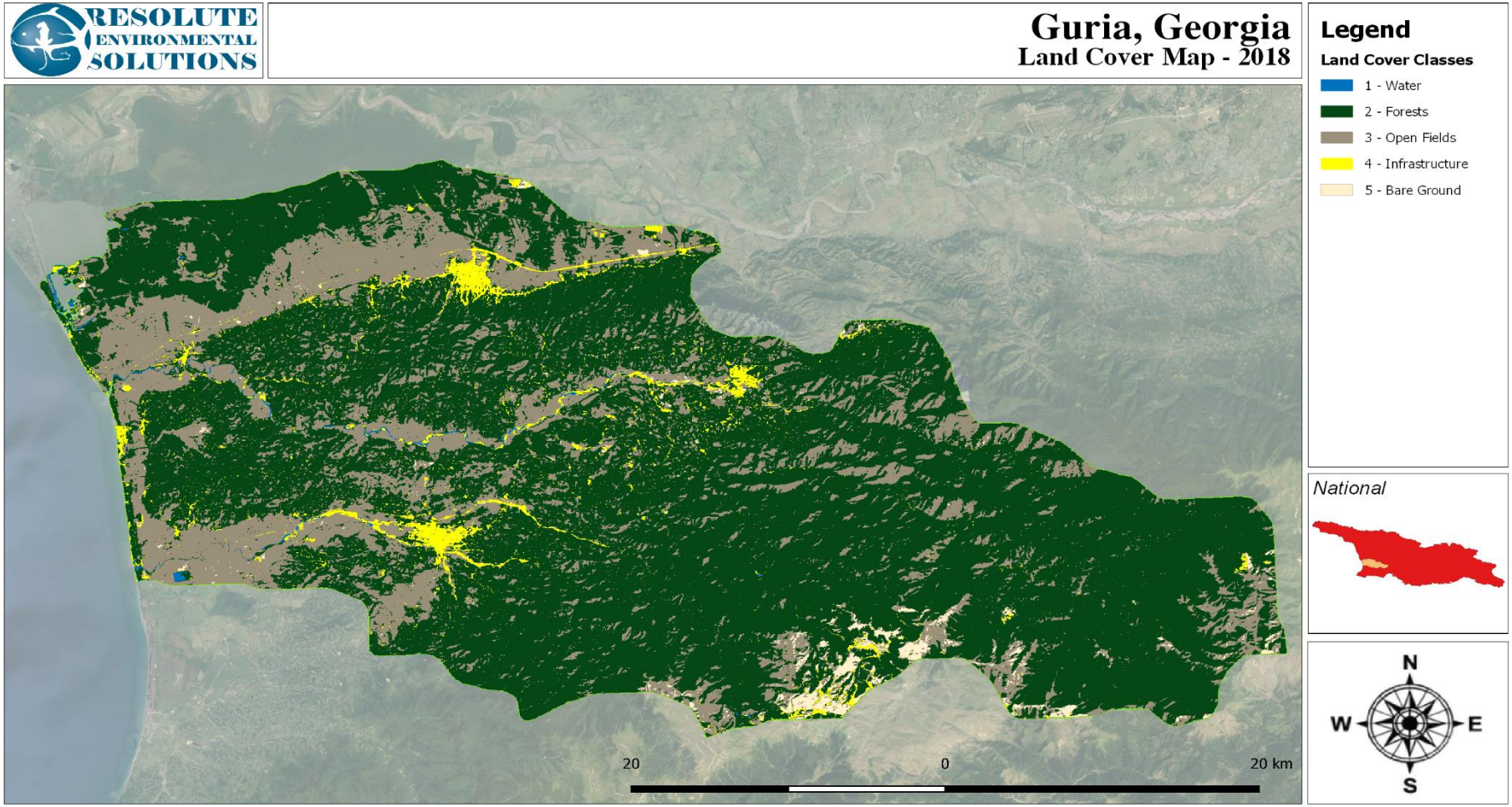


Figure 5-18: 2018 Land Cover Map for Guria

Guria Regional Development Strategy (2014-2022)

The 8-year regional development priorities for Guria include:

1. Development of local government's capacity
2. Effective management and use of natural resources and material assets
3. Development of basic infrastructure and construction
4. Promoting industry development
5. Development of SMEs
6. Development of tourism
7. Development of agriculture
8. Creation of the region's brand
9. Attracting Foreign Investments
10. Communal and other public services regulation
11. Establishment of an effective system of social security and health care
12. Development of education, science, culture and sports
13. Effective environmental protection activities
14. Media and civil sector development and gender inequality Decrease

5.7 Mtskheta-Mtianeti Region

5.7.1 Socio-Economic Profile

Figure 5-19: Mtskheta-Mtianeti

Mtskheta-Mtianeti is located in eastern Georgia, the Region is bordered by the Russian Federation in the north, Shita-Kartli Region in the west, Kvemo-Kartli and Tbilisi in the south and Kakheti in the east. The Region has an area of 6,786 km^2. The town of Mtskheta is the regional capital. Since 1992, the western part of the Region has been controlled by the breakaway Republic of South Ossetia.

The Region is made up of five Municipalities and the total population in the Region is 93,600 people (Geostat 2019). Table 5-11 provides the number of inhabitants by municipality. The project will be implemented in Tianeti Municipality. The ESIA consultants did not hold a meeting with the communities in this Municipality due to a suggestion made by the Local Authorities that it was not the right time to undertake this work due to concerns about creating expectations since a parallel initiative was being carried out by the Municipality at that same time as the Project site visit.

Table 5-11: Municipalities and Population in Mtskheta-Mtianeti

Municipality	Population	Town/Village	Population
Akhalgori	7,703	Akhalgori	2,500
Dusheti	25,659	Dusheti	6,167
Tianeti	9,468	Tianeti	2,479
Mtskheta	47.711	Mtskheta	7,940
Kazbegi	3,795	Stepantsinda	1,326

The main urban areas of the Region are Mtskheta and Dusheti, similar to Kakheti and Guria approximately 75% of the population live in the rural area.

The majority of the population are ethnic Georgians. Out-migration is a problem in the Region, residents moving from the harsh conditions of the mountainous areas to the urban environments. Potentially, this can have geo-political consequences due to the border with Russia and South Ossetia. There are 483 villages in the region. The villages are small and underpopulated, only one village has 5,000 residents, 50 villages have 10 or less residents and up to 60 villages have almost been abandoned. In Tianeti, there are 12 Trustees[3] and up to 70 villages. The Region is affected by landslides and avalanches with frequent blockades of the main highway and village roads in winter.

The main economic activities are cattle and sheep farming, dairy production and agriculture, in particular growing tubercles. Most of the farms are small family-owned. According to the Third National Project in Georgia, the main barriers to improving the productivity of agriculture in the Region, include:

- Grain production: lack of required machinery, agricultural practices, high-quality seeds, irrigation and other necessary inputs, average yields are very low.
- Potato production: the lack of a legal framework and a potato seed farm.
- Fruit growing: high prices of saplings, lack of appropriate machinery, lack of knowledge of good agricultural practices, and lack of local fruit purchase centres and small fruit processing plants.
- Livestock farming: lack of breeding farms, inadequate forages reserve and financial constraints. Introduction and breeding of highly profitable cattle varieties, including those adapted to the Alpine conditions, setting up small-scale dairy and meat processing plants and production of new, high value products are required.
- Livestock farming (small): lack of winter pastures. The infrastructure of sheep routes needs to be reconstructed and properly operated.
- Poultry farming: Commercial poultry farms located in Mtskheta municipality play an important part in supplying the capital population with eggs and chickens. There is a high

[3] Trustees represent the most decentralized members of the Georgian Administration; they are appointed by the Municipality. They are the Maor representative at the community level and are in charge of managing the local budget, infrastructure, socio-economic development and in some cases; resolving conflict.

demand for the so called “village eggs and chickens”. Due to the small size of poultry farms this demand is only minimally met.

- Bee keeping: Lack of proper labelling, packing and marketing. The abundance of Alpine and forest plants account for high quality of Georgian honey. The natural conditions allow for increase in honey production.
- Lack of Greenhouses: Greenhouses are important considering the lack of agricultural land in the region.
- Lack of commercialization: Besides low yields the region suffers from low commercialization of agricultural products. Individual producers cannot afford to pack, promote and market their products more efficiently.
    - Another very important economic activity is tourism, due to the cultural heritage, natural landscape, forests, mountains, in particular the Gaudauri Ski Resort recognized as an international destination for skiers and the Tbilisi National Park. Mtskheta Town is recognized as a UNESCO World Heritage Site, other important cultural heritage sites are located in Dusheti and Kazbegi and other towns.

The Region also has a major transport corridor due to the presence of the international highway connecting Armenia and Russia. Also, the North-South gas pipeline crosses through the Region (MDF 2016).

Vulnerable Households

In total, 6,215 Households in Mtskheta-Mtianeti receive social allowance (Table 5-12), Mtskheta-Mtianeti is ranked number four in terms of number of households that receive the social service allowance, this represents 17% of the total population in Georgia that receive the allowance (Rural Development Strategy in Georgia, 2017). Tianeti Municipality currently has 667 Households registered as vulnerable, i.e. they receive the social allowance from the Government. There are approximately 9,564 IDPs in the Region, most displaced after the 2008 Ossetia conflict. 15 IDPs are registered in Tianeti municipality (Tianeti Municipality 2019).

Table 5-12: Number of Vulnerable Households in Mtskheta-Mtianeti (Regional office)

Tianeti	Dusheti	Mtskheta	Kazbegi	Akhagori
667	2406	1520	320	n/a

5.7.2 Environmental Profile

Forest

About 39% of the territory of Mtskheta-Mtianeti region is covered with forests, representing 2,640 km^2. The majority of the forests are located on steep slopes and play an important role in soil protection, water preservation-regulation, sanitary-hygienic, recreational, wind protection and other regulatory ecosystem services such as recreation and tourism. Dusheti

and Tianeti municipalities have important forest resources and the Tbilisi National Park is located within Kazbegi municipality.

In recent years, the region's forests have experiences degradation, which have resulted in avalanches, landslides, and soil erosion. The Regional Government has made environmental protection one of their strategic priorities, including planning and development of quantitative and qualitative indicators of forests growth, biodiversity conservation, ecosystem services and economic potential, regulating grazing and effective use of community forest management.

In 2011, the volume of legal timber harvested in the forests was 61,884 m3 and in 2018 it decreased to 25,488 m3. The decline was not due to consumption reduction, but due to the changes of location of timber harvesting to mountainous areas, increasing the price of fuelwood and timber. This probably also means that to meet the fuelwood demands of the population, illegal harvesting has increased. Tianeti Forests experience high illegal forest harvesting. According to the Regional Office, this is due to high levels of poverty, which pushes people to cut the forest illegally due to lack of financial means to purchase alternative fuel (Mskheta-Mtianeti Regional Strategy 2014-2021).

Land use

A land use exercise was undertaken to understand the changes in land use patterns for two time periods; 1998 and 2018. Figure 5-20 and Figure 5-21 present the data in pie chart form and Figure 5-22 and Figure 5-23 present the data spatially. The purpose of undertaking this exercise was to review the trends rather than the absolute numbers, therefore the pie charts need to be examined with caution.

Similar to other regions, the data shows that in terms of forest area in Mtskheta, the total coverage decreased since 1998. Water class has remained approximately the same. Open fields increased, probably due to an increase in agricultural activities and pasture areas (open fields probably pasture areas, crop land, grassland and other, however the exact type of land use will need to be ground-truthed). Built infrastructure is the only class that increased for all the regions during the period studied.

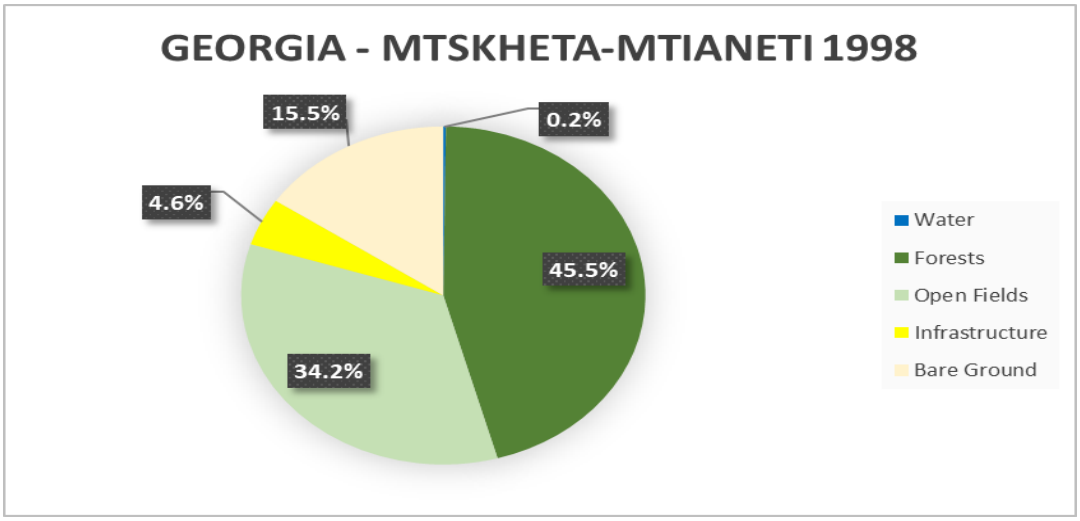


Figure 5-20: 1998 Mtskheta-Mtianeti Land Use

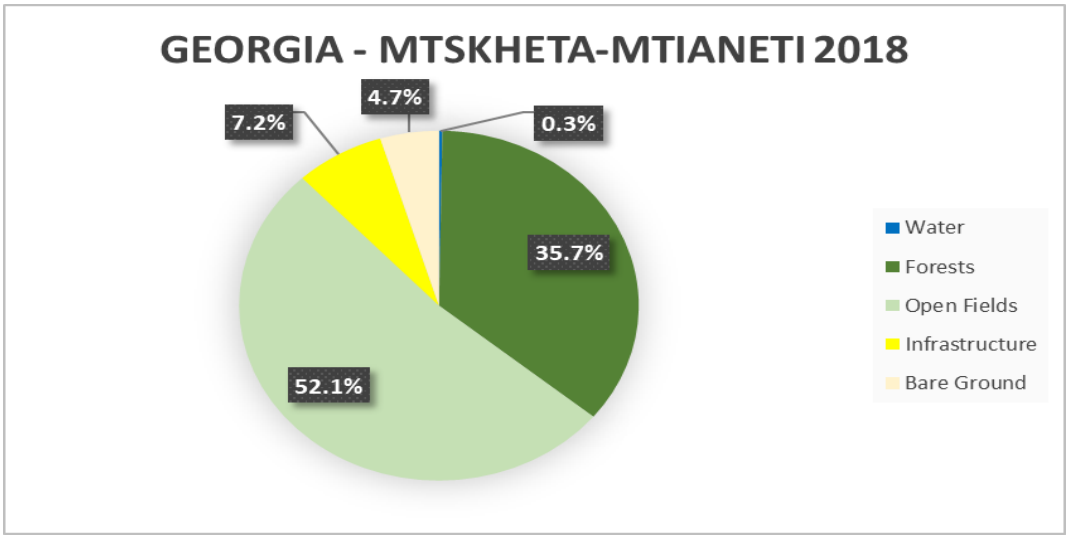


Figure 5-21: 2018 Mtskheta-Mtianeti Land Use

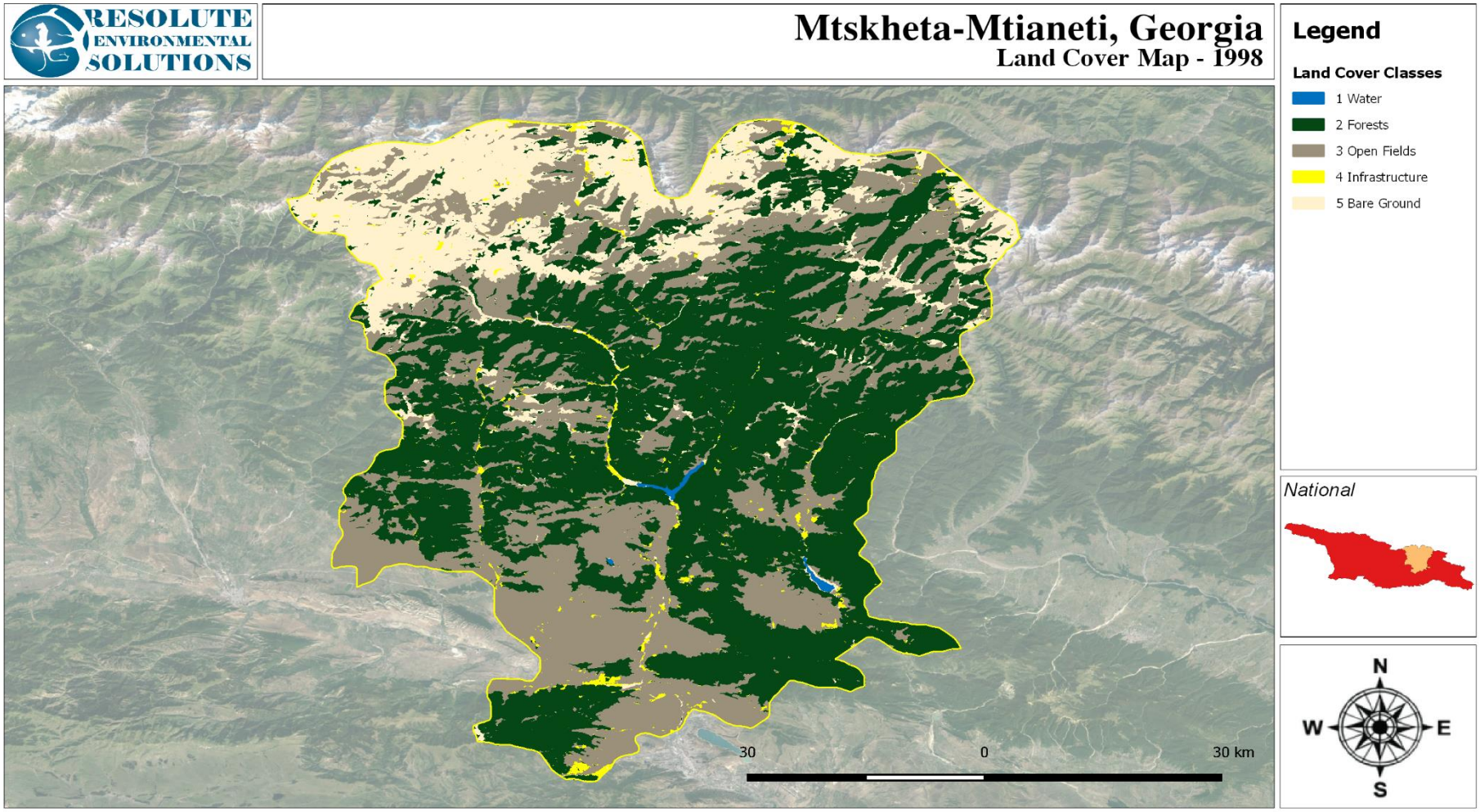


Figure 5-22: 1998 Land Cover Map for Mtskheta-Mtianeti

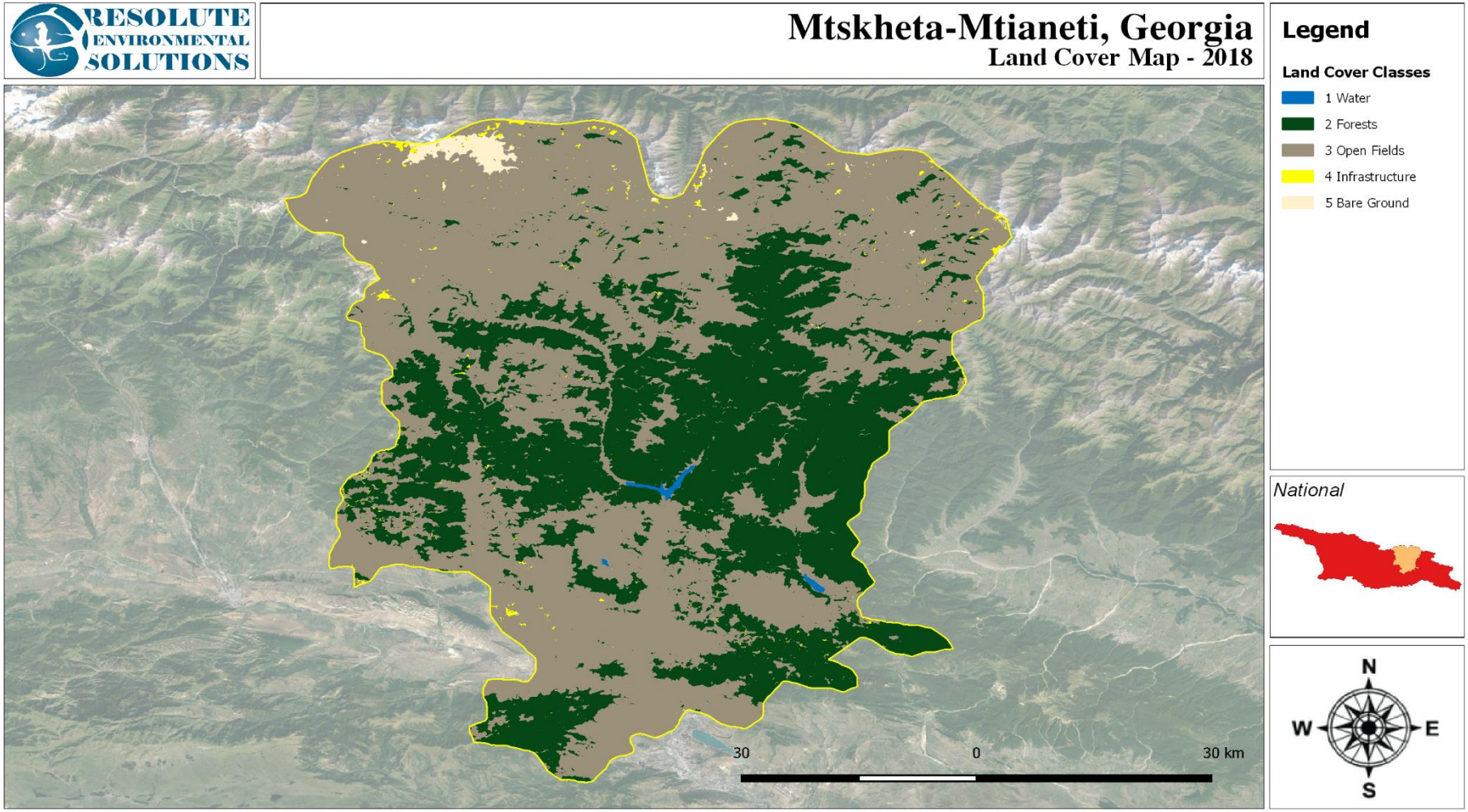


Figure 5-23: 2018 Land Cover Map for Mtskheta-Mtianeti

Mtskheta-Mtianeti Regional Development Strategy (2014-2022)

The 8-year regional development priorities for the Region include:

1. Environmental Protection, Maintaining sustainable Ecological Equilibrium;
2. Innovative (cluster) sustainable development of the region System development
3. Development of investment policy and export Oriented towards SME development
4. Agriculture Development
5. Sustainable development of tourism
6. Promote the development of innovative fields of economy and attract investments
7. Improved access to education, culture and sports activities
8. Improve access to services for health and social protection
9. Improvement of transport services
10. Development of social and utility infrastructure
11. Regional and Municipal Administration capacity building and enhancement

5.8 Barriers and Opportunities of the Three Concerned Regions

The barriers and opportunities of the three target regions; Kakheti, Guria and Mtskheta-Mtianeti are presented in Table 5-13 (Regional Development Programme of Georgia (2018-2021).

Table 5-13: Barriers and Opportunities of the 3 Target Regions

Region	Barriers	Opportunities
Kakheti	• High level of youth migration and aging of population • High level of self-employed among local population and unemployment among people with high education, lack of qualified labour force • Poor conditions of sewage system and poor condition of local roads, shortage of gas supply • Absence of spatial planning system • Amortized public transport • Low quality of tourist services • Land registration unregulated by legislation • Incomplete gas supply of villages and high mountainous municipalities	• Favourable geographical location (close to Tbilisi and Azerbaijani board) • Further modernisation of wine making (as a strategic export sector) • Further development and modernisation of agriculture and agro-processing sector • Rich cultural heritage for tourism development • Existing landing strip in Telavi airport • Forests resources • High potential for tourism development (agro, cultural, wine, adventure, eco and, recreation tourism), especially in Sighnaghi, Telavi, Kvareli, Sagarejo and Akhmeta (Tusheti area) municipalities • Existing high education facility (Telavi State University) as a base for development of innovations • Hydro- and solar energy potential
Guria	• High level of youth migration and aging of population • High level of unemployment, lack	• Close location to Poti and Batumi ports, Batumi and Kutaisi airports. • Supsa oil terminal

	of qualified work force • Undeveloped tourist infrastructure • Small acreage of arable lands and old agriculture machinery and technologies, undeveloped logistics • Amortised schools' infrastructure • Lack of professional education facilities • Amortised water supply system and low quality of water • Less developed spatial planning system and lack of spatial planning documents	• Potential for development of high mountain, seaside and medical tourism • Potential for water, wind, bio-mass and solar energy producing • Forest resources
Mtskheta-Mtianeti	• Less developed spatial planning system and lack of spatial planning documents • High level of unemployment and poverty, low qualification of work force • Inadequate quality of tourism infrastructure • Old agriculture machinery and technologies, absence of logistics • Unsatisfactory conditions of local importance roads • Lack of preschool and general education facilities	• Good condition of national and international roads • Close location to Tbilisi • Large acreage of pastures and forest • Water resources • Cultural, adventure, mountain tourism development potential • Hydro, wind, solar and biomass energy potential

6 PROJECT CATEGORY

The project has been screened against GIZ´s Environmental and Social Safeguard Policy, as well as the GCF Environmental and Social Safeguards and the IFC Performance Standards.

The Green Climate Fund (2018) requires that *"the scope and depth of the environmental and social assessment will be proportional to the level of risks and impacts and determined in the screening and by the specific requirements of the applicable environmental and social safeguards pursuant to the ESS standards of GCF and this policy. For Category A activities that are anticipated to have significant environmental and social impacts, a full and comprehensive ESIA and ESMP will be required. For Category B activities with limited impacts, a fit-for-purpose ESIA and an ESMP, with a more limited focus as may be appropriate, that describes the potential impacts, as well as appropriate mitigation, monitoring and reporting measures will be required. Category C activities should have no expected significant environmental and social impacts and therefore may not require any assessments, although a pre-assessment or screening should confirm that the activities are indeed in Category C".*

The GCF describes the categories as follows:

> **Category A** – Activities with potential significant adverse environmental and social risks and impacts that, individually or cumulatively, are diverse, irreversible, or unprecedented;
>
> **Category B** – Activities with potential mild adverse environmental and social risks and impacts that individually or cumulatively, are few, generally site-specific, largely reversible and readily addressed through mitigation measures; and
>
> **Category C** – Activities with minimal or no adverse environmental and social risks and/or impacts.

For GIZ, the risk category classification for the Project, using the individual safeguards, is provided below:

- **Environment Safeguard**: The project has limited civil works, which can be mitigated through the development and implementation of an Environmental, Social, Health and Safety Management System. The civil works and logging activities will result in impacts to flora and fauna, damage to vegetation and soil and there are risks related to the presence of Project workers and their conduct, erosion and others. All these risks and impacts are manageable and are not considered significant and thus have been rated mostly as low to medium and fall under the GIZ category B.
- **Climate Safeguard; Climate Change Mitigation**: According to the Climate Safeguard, projects that have the primary objective of climate change mitigation or adaptation to climate change, i.e. projects with the markers KLM-2 or KLA2, as is the case for this

Project do not require an assessment because it can be assumed that considerable potential for mitigation or adaption has already been included in the project planning and design. Therefore, the risk category for this safeguard has not been conducted under the ESIA process.

- **Climate Safeguard; Climate Change Adaptation:** As shown in the environmental baseline section (section 5.3.1) of this report, the forests in Georgia have experienced climate change related impacts. Due to limited data, the extent of the impacts cannot be assessed, however there are climate change risks for the project given that Georgia is prone to landslides, avalanches during the winter season, drought and flooding which could impact project workers, infrastructure and equipment and result in delays and or impediments in achieving the project's objectives. Through planning and implementing SFM in target regions, one of the adaptation co-benefits of the project will be assessing forests' vulnerability, and integrating the results into management plans, trainings, protocols and streamline the results into policy making. Operationally, for the project this could include constructing resilient forest roads and using climate resilient vegetation during the rehabilitation process. The risk under this safeguard is rated as category C.
- **Conflict and Context Sensitivity Safeguard:** Implementation of policy and related regulations can result in conflict between Project Staff, the NFA, the Department of Supervision, the MoEPA and the communities. Although not likely this conflict could escalate to physical violence if not managed properly from the onset. The Project has integrated a stakeholder engagement process in the design and planning to avoid and or minimize stakeholder conflict. In addition, the project will provide an in-depth capacity building program regarding communication and engagement with stakeholders and a program to manage conflict. The risk Category for this safeguard has been classified as B.
- **Human Rights Safeguard:** Risks related to the Human Rights Safeguard are rated from low to medium and concern mostly impacts related to the development and implementation of the SFMs and the application of the Forest Code and secondary legal acts. The Project will not require resettlement since the majority of the work will be conducted in forest land belonging to the Government where there are no settlements. Some land will be required to establish the Business Yard Centers, but these sites will be carefully selected so that resettlement is not triggered. A big scope of the ESMP is the implementation of the Stakeholder Engagement Plan, in particular regarding the development of the SFMs to ensure that the issues raised by the impacted people will be integrated in the individual SFMs. The risk category for the Human Rights Safeguard is rated as Category B.

The risk assessment for GIZ projects is based on an overall category on the single highest Environment and Social (EC) risk of any safeguard category and not by averaging risks. The definition of "ES risk" employed by GIZ is as follows: "Possible unintended negative impacts of a GIZ project on humans and objects of protection".

The Project was classified as “Category B” via the GCF Environment and Social Safeguards and the GIZ safeguard and gender pre-check system, as discussed above in terms of environmental and social impacts and risks. The results of this in-depth ESIA confirmed the results of the pre-check. The project is therefore classified as “Category B” based on the following considerations:

- The Project will have positive environmental and social impacts by increasing the resilience to climate change, improving the forest sustainability by protecting the forest and ecosystems and improving the overall management capacity of the Ministry of Environmental Protection and Agriculture, while in parallel establishing more energy efficient processes and equipment.
- The Project has been designed so that resettlement will not be triggered. There are two main civil works construction activities; a) construction of forest roads, skid trails and logging inside the forest on land that belongs to the National Forest Agency and where there are no inhabitants; and b) construction of Business Service Yards to store and sell timber. The locations of these sites have not been identified; however, they will be carefully selected so that involuntary resettlement will not be required.
- The project has limited civil works activities inside the forest, this consists of the construction of forest roads, skid trails and logging which will result in minor loss of natural habitat. The construction of forest roads and logging are required to manage the forest sustainably. Impacts of the forest road construction and logging are site-specific that will be minimized through mitigation measures.
- Overall, the potential impacts of the Project have been classified from low to moderate and can be addressed through mitigation, including meaningful consultation, community participation in decision-making, capacity building, implementation of livelihood programs for the impacted communities and a management system to address environmental and occupational, health and safety impacts during construction and operations.

7 ENVIRONMENTAL AND SOCIAL IMPACTS

The rating of the environmental and social impacts was conducted using the GIZ’s General Guidance Safeguards and Gender Management System. In the context of the GIZ safeguards, GIZ defines risks as:

- Possible unintended negative impacts of a GIZ project on humans and objects of protection; and
- For climate change adaptation, to external risks that arise from the Project’s context or environment (GIZ, October 2018).

The GIZ classifies risks into three risk categories in the areas of environment, climate, conflict and context sensitivity and human rights, as shown below:

Table 7-1: GIZ Risk Categorization Matrix (GIZ 2018)

Risk Category	A (High)	B (Medium)	C (Low)
Criteria	Potentially complex, serious, irreversible or unprecedented	Potentially rare or locally limited occurrence, largely reversible consequences, easy to manage	Slight or none identifiable

The assessment was undertaken using a combination of stakeholder views and analysis of primary and secondary data. This assessment does not seek to quantify the impacts but assess the level of risk based on the magnitude of impact and receiving environment.

This section of the report presents the anticipated positive impacts, the adverse social and environmental impacts and ratings, and an ecosystem services assessment. An exclusion list of the activities the project will not finance is available in Annex 2.

7.1 Anticipated Project Positive Impacts

The project will have positive environmental and social impacts by increasing the resilience to climate change, improving the forest sustainability by protecting the forest and ecosystems and improving the overall management capacity of the Ministry of Environmental Protection and Agriculture, while in parallel establishing more energy efficient processes and equipment. Overall the positive impacts include:

- Direct positive impact on climate action by increasing the amount of CO^2e sequestered in standing forest as well as potential to sequester additional carbon through increased growth of forest. In particular, the project will result in a reduction of 5.2 million tCO2eq through the implementation of ecosystem based SFM on over 250,000 ha.
- Improvements on the ecological processes of forests and ecosystem services.
- Reduce the acceleration of forest degradation and mismanagement of forests to sustainable use of forests.
- Improvements in the design of SFM plans leading to stakeholder buy-in and ownership and thus improving the overall conditions of forests in Georgia.
- The project has a strong focus on stakeholder engagement, this project can be the catalyst on how meaningful engagement needs to be conducted with communities and other stakeholders.
- Capacity building of the MoEPA, NFA and DES, including data management, processing and analysis and preparation and application of standard operating procedures.
- Improvement of information available to the general public.
- Energy efficient stoves and briquettes generate less smoke than the traditional stoves and fuelwood, improving the health benefits for the users.
- Formalization of illegal forest activities will lead to positive economic effects for NFA, the wood industry, and the national economy.

- Reduction of illegal activities will lead to ecological, economic and social benefits.
- Generation of direct, indirect and induced employment and procurement opportunities for goods and services at the local and regional level. Current estimates expect the creation of 867 jobs in the forestry sector during the project life cycle for restoration, tending, harvesting, transportation, road building and maintenance and supporting about 100 SMEs - each employing approximately 20 people – which will be needed to provide the market with forest technologies.
- Development of livelihood programmes for the local population.

7.2 Potential Adverse Environmental and Social Impacts

The environmental and social impacts of the project have been assessed following consultations with communities, NGOs, and local, regional and central Government and analysis of primary and secondary data.

This section is presented as follows; a) summary description of the physical source of impacts (section 7.2.1); b) overview, in table form, of the impacts and rating of impacts (section 7.2.2); and c) a review of the IFC Performance Standards objectives vis-à-vis the Project and the analysis of the impacts identified and rating justification (section 7.2.3).

7.2.1 Physical Source of Impacts

The Project will undertake the following civil works:

- Construction of 641 km of Forest Roads, including repair of existing roads.
- Maintenance of the Forest Roads, Skid trails and landing sites.
- Construction of approximately 1,924 km of skid trails to transport the timber from the logging areas to the landing sites using Reduced Impact Logging.
  - Construction of landing sites.
  - Presence of construction workers and heavy equipment (including chain saws for the loggers and bulldozers, excavators and rollers during construction and maintenance of roads). Construction of 14 Business Service Yards (BSY). The BSYs will contain at least 1 office for BSY staff and guard(s), drying and storage facilities (a shelter with a roof) and an area for simple timber site manipulation (Figure 7-1). Sale of fuelwood will take place at the yard.
  - Daily operations of the 14 BSYs.

– Transportation of logs from the logging sites to the BSYs.

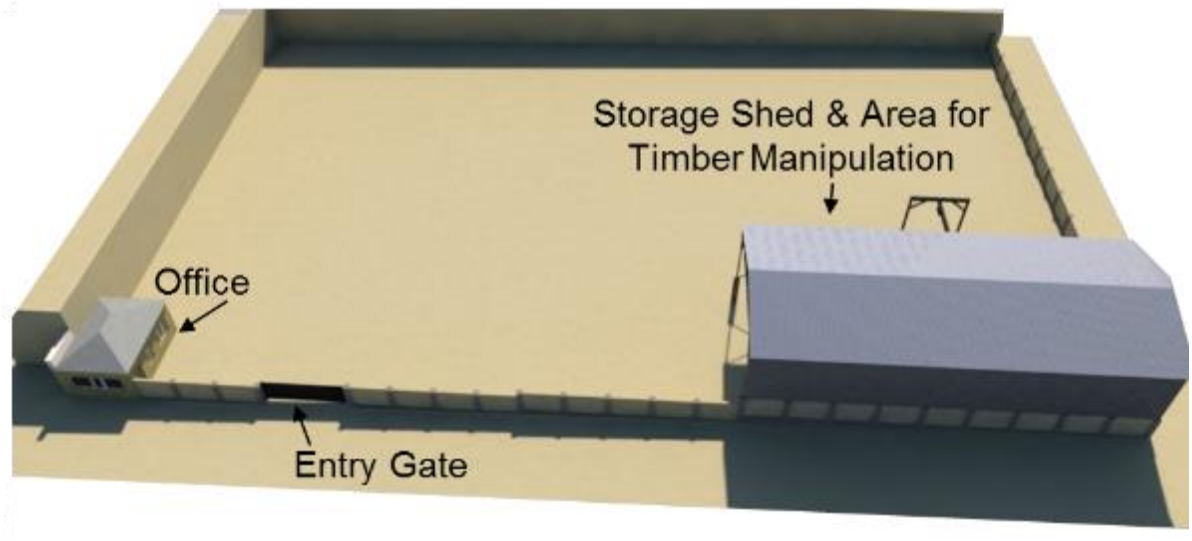


Figure 7-1: Potential BSY Layout (taken from Feasibility Study)

7.2.2 Overview of Environmental and Social Impacts and Rating

Table 7-2 presents the impacts by Project component and activity, Project phase, the impact rating (see Table 7-1) and corresponding GCF/IFC and GIZ Standards that are triggered. Activities that generate the same impact have not been repeated to avoid duplication.

Table 7-2: Environmental and Social Impact Rating

Project Components	Impact ID #	Potential Adverse Impacts	Project phase	Impact Rating (GIZ)	Applicable Standard	
					IFC/GCF	*GIZ*
Component 1 - Sustainable Forest Management						
Activity 1.1: Development and implementation of SFM Management Plans	1	Disruption of wildlife and flora during logging activities.	Operations	Medium	PS6	Environment and Climate Change Adaptation
	2	During logging and skidding activities, there are OHS Health risks for NFA, project staff, and contractors. In particular carrying out logging and skidding activities and traffic accidents.	Operations	Medium	PS2	Human Rights
	3	During construction of forest access roads, including river crossing and skid trails. Impacts on OHS of workers, generation of waste, noise and dust, spills, disruption of wildlife, vegetation and soil and impact on water.	Construction	Medium	PS2, PS3, PS6	Environment, Climate Change Adaptation, and Human Rights
	4	Risk of induced access due to Forest Access roads, impacting flora and fauna.	Operations	Low	PS6	Environment
	5	During operations logging activities, operations in the forest road and skid trails can result in sedimentation accumulation and erosion (some regions are more prone to erosion), impacts on water, generation of dust during operations, impacts on soil due to hazardous material spills and waste generation.	Operations	Low	PS3	Environment

Project Components	Impact ID #	Potential Adverse Impacts	Project phase	Impact Rating (GIZ)	Applicable Standard	
					IFC/GCF	*GIZ*
	6	The interdictions to cut timber for household consumption and the requirement to purchase fuelwood and timber from the BSYs, can increase household energy costs or prevent them from obtaining fuelwood/timber for cooking and heating. In particular vulnerable households and transient population (cattle herders as seen in Kakheti).	Operations	Medium	PS1	Human Rights
	7	Restriction of access to cultural sites or impact on cultural sites located inside the forest (none of the communities met used the forest for cultural purposes, however, there might be other communities in Georgia that use the forest to perform cultural activities/rites).	Construction and Operations	Low	PS8	Human Rights, Conflict and Context Sensitivity and Environment
	8	The New Forest Code allows in principle grazing of livestock and collection of fruit from trees, collection of plants, berries, mushrooms and other NTFP for non-commercial purposes. However, there will be restrictions which can result in socio-economic disturbance and community conflict.	Operations	Medium	PS1	Human Rights and Conflict and Context Sensitivity

Project Components	Impact ID #	Potential Adverse Impacts	Project phase	Impact Rating (GIZ)	Applicable Standard	
					IFC/GCF	*GIZ*
	9	Risks of natural hazards such as landslides, flooding and avalanches during road construction and maintenance, construction of skid trails and logging activities.	Construction and Operations	Medium for PS2 Low for PS4	PS2 and PS4	Human Rights, Conflict and Context Sensitivity, and Climate Change Adaptation
Activity 1.2: Strengthening of Forest Supervision	10	Conflict between communities and NFA/Supervision department due to interdictions to cut timber and issuing of penalties, which could escalate to physical violence.	Operations	Medium	PS1 and PS4	Human Rights and Conflict and Context Sensitivity
	11	Livelihood disturbance due to hunting restrictions and increase supervision.	Operations	Low	PS1	Human Rights
	12	Generation of waste within the forest by DES staff and/or contractors during patrolling activities.	Construction and Operations	Low	PS3	Environment
	13	Community health and safety: Traffic accidents due to increase mobile transportation equipment.	Construction and Operations	Low	PS4	Human Rights, Conflict and Context Sensitivity
Activity 1.3: Provision of sustainably produced fuelwood by NFA	14	Energy costs for the local population increases, this can affect all households in general and in particular vulnerable households due to the requirement to buy fuelwood from the BSYs (Impact addressed in #6).	Operations	Medium	PS1	Human Rights

Project Components	Impact ID #	Potential Adverse Impacts	Project phase	Impact Rating (GIZ)	Applicable Standard	
					IFC/GCF	*GIZ*
	15	Health and safety risks for NFA staff during the day to day management of the BSY	Operations	Low	PS2	Human Rights, Conflict and Context Sensitivity, and Environment
	16	Further degradation of forest due to combination of NFA establishment of Business Service Yards, communities continuing cutting forest illegally and lack of buy-in from communities.	Operations	Low	PS6	Environment and Climate Change Adaptation
	17	Income reduction for informal businesses (intermediaries) that sell fuelwood or timber.	Operations	Medium	PS1	Human Rights
	18	Minor nuisance impacts related to the construction of the 14 planned Business Service Yards, including OHS, dust, noise, and waste.	Construction	Low	PS2, PS3	Human Rights, Environment and Climate Change Mitigation
	19	Reduced availability of fuelwood for household consumption and disruption of access to fuel wood and timber due to phasing out of Social Cut Program and requirements to purchase from BSYs.	Operations	Medium	PS1	Human Rights

Project Components	Impact ID #	Potential Adverse Impacts	Project phase	Impact Rating (GIZ)	Applicable Standard	
					IFC/GCF	*GIZ*
Activity 1.4: Enhancement of enabling environment for the nation-wide implementation of ecosystem-based sustainable forest management (SFM)	20	This activity consists of supporting the MoEPA rolling out secondary provisions of the Forest Code, essential for ecosystem based SFM, the establishment of a Steering Committee and Working Groups and knowledge information. Impacts of this activity are related to community disturbance of the development and implementation of the secondary legal act on the commercial use of non-timber forest resources.	Operations	Cannot be rated at this time, given limited information on the secondary provisions.	PS1	Human Rights
Activity 1.5: Improvement of monitoring, and measurement, reporting and verification systems for the forest sector	21	This activity is essentially information management and reporting. As such, no adverse or negligible impacts are expected, and no mitigations are required.	Operations	Negligible.	n/a	n/a
Component 2: Market Development for Energy Efficiency (EE) and Alternative Fuels (AF)						
Activity 2.1: Establishing Technical Assistance and Investment	22	Current artisanal and informal suppliers of stoves might lose business due to introduction of EE stoves.	Operations	Low	PS1	Human Rights

Project Components	Impact ID #	Potential Adverse Impacts	Project phase	Impact Rating (GIZ)	Applicable Standard	
					IFC/GCF	*GIZ*
Support Facility for EE-AF supply chain development	23	Pollution generation, contamination of work sites, lack of proper waste management and overall non compliance with project standards by EE stove producers.	Operations	Low	PS3	Environment
Activity 2.2: Implementing consumer financing instruments for EE-AF solutions	24	Financial debt of households increase and pressure on HH finance.	Operations	Low	PS1	Human Rights
	25	The Project intends to support vulnerable households acquire the EE stoves and briquettes through different schemes (vouchers, grants, etc.). This support could lead to the cancellation of the Social Allowance checks provided by the Government to vulnerable households. This risk was downgraded from medium to low following meetings with the Ministry of Social Affairs in May.	Operations	Low	PS1	Human Rights
Activity 2.3: Creating consumer awareness and provision of advisory services for fuelwood users	26	Non-expected and no mitigations are required.	Operations	Negligible.	n/a	n/a

Project Components	Impact ID #	Potential Adverse Impacts	Project phase	Impact Rating (GIZ)	Applicable Standard	
					IFC/GCF	*GIZ*
Activity 2.4: Enabling policies and regulations	27	Impacts are not known at this phase.	Operations	Cannot be rated at this time, given limited information on policies and regulations.	TBD	TBD

7.2.3 Analysis of Impacts

This section of the report provides a review of the IFC Performance Standards objectives vis-à-vis the Project and the analysis of the impacts identified (Table 7-2), rating justification and a brief description of mitigations (refer to ESMP, Annex 6b to the Funding Proposal) for a full description of the proposed mitigations).

PS1: Assessment and Management of Environmental and Social Risks and Impacts

The following section describes the applicability of the objectives of PS1 for the Project.

- Objective 1: The impacts and risks of the project have been identified and are discussed in each of the applicable Performance Standards in this Report. An overview table of the impacts and ratings is presented in Table 7-2. The Environment and Social Management Plan is provided in Volume 2. In addition, an Ecosystem Services Assessment is provided in section 7.3.
- Objective 2: The impacts of the project are considered moderate to low. Mitigation measures have been proposed to keep residual impacts negligible as much as possible, as such there are no requirements for compensation or offsets. The Project has taken all measure to avoid and/or minimize impacts.
- Objective 3: A fit for purpose Environmental, Social, Health, and Safety Management System (ESHS-MS) is provided as part of the ESMP, this includes an Emergency Response Plan.
- Objective 4: A Grievance Mechanism Procedure has been developed and is available in the Stakeholder Engagement and Grievance Mechanism Report.
- Objective 5: A Stakeholder Management Plan is provided in the Stakeholder Engagement and Grievance Mechanism Report. In addition, project activities have been designed considering comments from stakeholders and includes capacity building of the Government on achieving meaningful consultation with stakeholders.

Impact Analysis Related to PS1

6	The interdictions to cut timber for household consumption and the requirement to purchase fuelwood and timber from the BSYs, can increase household energy costs or prevent them from obtaining fuelwood/timber for cooking and heating. In particular vulnerable households and transient population (cattle herders as seen in Kakheti).	Operations	Medium

- Communities and NGOs raised concerns that household income would increase due to the interdictions to cut fuelwood in the Forest Code. Currently, the communities either use the social ticketing system at low cost per m3 fuelwood, cut the wood illegally themselves for free or purchase the fuelwood from intermediaries at a market price (most of this fuelwood is cut illegally as well). Exact share of households using one of these options is unknown. The price of m3 fuelwood provided by intermediaries is,

according to information by NFA, similar to the future selling price of NFA of ca. 81 GEL/m3.

- This impact has been classified as medium since this activity will probably impact a large number of households using the social ticketing system or cut the fuelwood by themselves in the rural areas. Fuelwood for cooking and heating in winter is a key requirement to sustain the wellbeing of a household.
- Discussions are underway with the Government to establish a subsidy approach for vulnerable households to access fuelwood from the BSYs. The rest of the population will be required to purchase the fuelwood from the BSYs at the cost-covering NFA price of 81 Lari/m3. Given that probably a large share of households in rural areas illegally cut fuelwood or use the very affordable social ticketing system, it is likely that energy cost for the rural households will increase.

8	The New Forest Code allows in principle grazing of livestock and collection of fruit from trees, collection of plants, berries, mushrooms and other NTFP for non-commercial purposes. However, there will be restrictions which can result in socio-economic disturbance and community conflict.	Operations	Medium

- Livestock grazing in forest areas is a common practise by rural households and there is a strong dependence on the forest to feed livestock. This impact has been rated as medium since article 33 of the New Forest Code allows for livestock grazing but it will be controlled. The individual Forest Management Plan that NFA will develop as part of Component 1 will establish limits, targets and locations where grazing will be allowed.
- Livestock grazing is a contentious subject, communities rely on the forest to feed their cattle, however, it severely damages the forest, it destroys plant seedlings, compacts the soil which can result in erosion and thus declining the forest natural regeneration capability (Zeidler & Schachtschabel 2016), therefore a balancing between environmental and social impacts is required.
- Collection of berries, mushrooms, medicinal plants and other is NTFP is an activity performed by communities that live close to the forest, but they are not dependent on this activity as a main source of income. Vulnerable households seem to be more dependent on NTFP than other households. During the consultation process, it was evident that those communities that live further from the forest and are closer to the road are not dependent on NTFP. Article 35 of the New Forest Code provides provisions for extraction of NTFP, it does not forbid but it regulates extraction (Zeidler & Schachtschabel 2016)

10	Conflict between communities and NFA/Supervision department due to interdictions to cut timber and issuing of penalties, which could escalate to physical violence.	Operations	Medium

- During the consultation process, the NFA mentioned that the relationship was good with the communities since some of the NFA personnel are also members of the village or reside in the area. However, the communities expressed their concerns regarding the perceived restrictions in the Forest Code and increased penalties (during the survey it could not be confirmed whether penalties have increased in recent years).

Communities mentioned that increased supervision and penalties could lead to conflict between members of the communities and the Supervision Department.

- The impact has been rated as medium since there have already been cases in Georgia of communities blocking roads due to increased supervision of local sawmills by the Government.

11	Loss of livelihood due to hunting restrictions and increase supervision.	Operations	Low

- During the discussions with the communities in the public consultation process, rural communities confirmed they do not have a strong reliance on hunting for livelihoods, therefore this impact has been rated as low.

14	Energy costs for the local population increases, this can affect all households in general and in particular vulnerable households due to the requirement to buy fuelwood from the BSYs (Similar to impact #6).	Operations	Medium

- The impact is rated as a medium risk since it related only to the requirement to purchase fuelwood from the BSY, not the interdictions in the Forest Code.

17	Income reduction for informal businesses (intermediaries) that sell fuelwood or timber.	Operations	Medium

- There is no data available regarding the number of informal businesses that supply fuelwood and timber, these businesses are family run and generally consist of one or two people with a chain saw and a truck that supply fuelwood/timber. These businesses either use legally the tickets from individual households and/or cut the forest illegally. There are some regions, such as in Mtskheta-Mtianeti, that confirmed that it would be very difficult for someone in their region to establish this type of informal business due to government supervision and high penalties. Nevertheless, during the discussions with the communities, some people in other regions confirmed their existence and concerns.
- This impact has been rated as medium, since although income from this source is important, it generally is not the main source of income (however, this information could not be confirmed due to the reluctance, by the communities, to discuss this issue).

19	Reduced availability of fuelwood for household consumption and disruption of access to fuel wood and timber due to phasing out of Social Cut Program and requirements to purchase from BSYs.	Operations	Medium

- The consultations with the communities revealed that they are concerned about the phasing out of the Social-Cutting Program that provides a ticketing system allowing households to cut a certain number of trees for personal consumption.
- The potential impact is a potential disruption of access to fuelwood and timber. The new system that will be established by the Government will legalize the felling of trees and communities will be required to purchase fuelwood and/or timber directly from the 14 Business Service Yards (BSYs) that will be established throughout the 3 Regions concerned by the project.
- This impact has been rated as medium impact since communities will be dependent on the BSYs, delivery system and constant availability of fuelwood, which is essential to sustain a basic living condition.

- A higher rating has not been provided since the Project is aware of the potential impacts on vulnerable households, as such, the Government is exploring options which could include the provision of subsidies and transportation to the vulnerable households to minimize accessibility issues.

22	Current artisanal and informal suppliers of stoves might lose business due to introduction of EE stoves.	Operations	Medium

- The Project will introduce EE stoves that will have benefits for both the communities in terms of health and reduce fuel requirements. However, the current artisanal stove suppliers might be pushed out of the market gradually with the introduction of the EE stoves. It is estimated that approximately 50,000 conventional stoves are sold annually in the 3 concerned regions. Although, people might lose their main source of income, this impact has been rated as medium since the magnitude of people that will be affected by this is relatively small.

24	Financial debt of households increase and pressure on household finance.	Operations	Low

- The project will introduce Energy Efficient stoves that will reduce generation of smoke with significant health benefits and will reduce the consumption of fuelwood reducing greenhouse gas emissions and slow the continuous trend of deforestation. Approximately 70 to 80 percent of the rural population uses fuel wood for cooking and heating and is likely to be exposed to household air pollution levels on average 30 over the minimum level (World Bank 2015).
- The communities will be provided with the opportunity to purchase the EE stoves through a loan scheme at reduced interests. However, the stoves are significantly more expensive than the stoves available at the local market. Without a good understanding of the debt structures, there is a potential risk that communities might increase their debts and will be unable to reimburse the loans. This risk has been rated as low since there is no requirement to purchase the EE stoves, nor will the communities be forced to make this purchase, but rather it will be offered as a solution to reduce fuelwood consumption. In addition, in January 2019 the Government, through the Bank of Georgia introduced a new Law that restricts banks and micro-finance institutions to enter into loan agreements with households of a certain debt level.

25	The Project intends to support vulnerable households acquire the EE stoves and briquettes through different schemes (vouchers, grants, etc.). This support could lead to the cancellation of the Social Allowance checks provided by the Government to vulnerable households.	Operations	Low

- The Government has established a social allowance for vulnerable households. The vulnerability is based on the number of people living in a household, poverty status and ownership of assets. This status is verified regularly by Government officials. There have been some cases in Georgia, where the Social Allowance has been cancelled due to grants or training received from different projects or the purchase of higher value assets (such as better household appliances). In May, the GIZ held meetings with the Ministry of Social Affairs and this risk was downgraded from medium to low since the

Ministry has modified the vulnerability scoring system and new assets such as stoves required for basic living conditions will no longer be accounted for. Nevertheless, during implementation the project will be monitoring this.

Mitigations

- Mitigation measures are presented in Volume 2, however, it is important to emphasize in this section that one of the most important management measures is to ensure there is buy-in from the communities. This can be achieved by building the capacity of the MoEPA and NFA to achieve meaningful consultation with the communities and capacity building regarding environmental communication. Education and awareness raising of the communities, understanding their concerns, responding to their feedback, information exchange, building consensus, putting in place a shared-vision for natural resource management (for example the design and preparation of the SFM plans including developing the objectives of each individual SFM plan, identification of "no-go" areas and areas allowed for grazing in partnership with the communities that use the forests), are all important aspects of achieving buy-in from the communities.
- Involving the communities and giving them a voice will likely increase ownership of the processes and actions. Decisions that come out of public participation are likely to be more long-term oriented and sustainable since it reflects a diversity of opinion and information from the ground. Reaction on the decisions made by the communities will help build cooperation, relationship and trust. The key is to establish ownership, buy-in and trust.

PS2: Labour and Working Conditions

The Objectives of PS2 are:

- Objective 1: To promote the fair treatment, non-discrimination, and equal opportunity of workers.
- Objective 2: To establish, maintain, and improve the worker-management relationship.
- Objective 3: To protect workers, including vulnerable categories of workers such as children, migrant workers, workers engaged by third parties, and workers in the client' supply chain.
- Objective 4: To promote safe and health working conditions, and the health of workers.
- Objective 5: To avoid the use of forced labour.

The following section describes the applicability of the objectives of PS2 and the Project.

- Objective 1: Project partners and GIZ follow the Georgian labour regulation. All jobs that will be created by the project will be advertised encouraging women to apply, this includes contractors and sub-contractors. The project will develop a Human Resource (HR) Policy which will include, respect for the Georgian legal obligation regarding employees, guaranteeing fair treatment, equal opportunities without discrimination due to political affiliations, age, sex, race, ethnicity and sexual orientation. Including, treating the project workforce with respect and no tolerance for any form of sexual harassment, discrimination, bullying or violence.
- In addition, the HR policy will include adherence to the principles recognized by the Universal Declaration of Human rights, the Voluntary Principles of Security and Human

Rights, and the declaration of the International Labour Organization on Fundamental Principles and Rights and Work.

- Objective 2: Project partners and GIZ follow the Georgian labour regulation.
- Objective 3: Project partners and GIZ follow the Georgian labour regulation, spot checks will be undertaken by the project to ensure contractors and sub-contractors respect the Georgian labour code. A Human Resource Policy will be developed by the project.
- Objective 4: Impacts regarding health and safety include risks of accidents, in particular, the risk related to logging and transportation. As part of the ESHS-MS, the Project will develop procedures to promote and implement a safe working environment. This will include fit for purpose Protective Personal Equipment (PPE), safety training for loggers, in particular working in mountainous areas and logging, defensive driving, preparation of health and safety procedures, establishment of a system for reporting, documenting and managing accidents and incidents, including the establishment of monthly ESHS dashboards and reporting on a monthly basis to the Project Steering Committee and promoting a safety culture.
  - Direct and indirect employment will be generated by the project for the BSYs, logging, transportation of fuelwood and timber, and the production of EE stoves and briquettes. A lot of this work will be contracted out to different local, regional and national companies. It is probable that some of these companies might not have the health and safety procedures required by the Georgian Government and ensure the workers are conducting their activities in a safe manner. The project will include ESHS company criteria during the procurement bidding process and request bidding companies to specify the company's safety standards and records. Monitoring of compliance will be undertaken by the GIZ and NFA.
  - It is unlikely that specific housing will be required during civil works and logging. Loggers and workers will likely be from the communities, workers not from the communities will stay at the local guest houses.
- Objective 5: Project partners and GIZ follow the Georgian labour regulation. The Project will develop a Human Resource Policy which will include the condition of no forced labour.

Impact Analysis Related to PS2

2	During logging and skidding activities, there are OHS Health risks for NFA, project staff, and contractors. In particular carrying out logging and skidding activities and traffic accidents.	Operations and Construction	Medium

- Some logging activities will take place in remote and mountainous areas (although the Forest Code has slope logging restrictions). Occupational health and safety (OHS) risks related to felling trees using chain saws, transportation of the felled log to the skid trails and landing sites will be present during the entire operations phase. Motor Vehicle Collisions of heavy transportation vehicles and in particular project vehicles are also one of the main sources of accidents in forest works. The exact number of vehicles that NFA, DES and private sector companies will use is not known, however, the number of loggers and teams is relatively small and can be controlled and therefore the impact has been rated as medium.

- This impact rating and analysis also applies to the Occupational Health and Safety risks during the construction of the forest roads and the skid trails (impact #3) and to avoid repetition it has not been included in this discussion.

9	Risks of natural hazards such as landslides, flooding and avalanches during road construction and maintenance, construction of skid trails and logging activities.	Construction and Operations	Medium

- Natural hazards occur in Georgia frequently, this includes floods, landslides and avalanches. It is unlikely that the project will generate these types of hazards, since there is evidence that conservation of the forest ecosystems and reforestation activities play an important role in minimizing the vulnerability of communities to natural hazards (ÇElik HE 2008). However, given that these risks occur, in particular in mountainous regions, this impact has been rated as medium since it can impact the safety of NFA and private sector workers while they carry out forest activities, in particular for the loggers.

15	Health and safety risks for NFA and project staff during the day to day management of the BSY	Operations	Low

- The occupational health and safety risk of workers at the BSYs are minor, it includes slips and falls, incidents or accidents during the manipulation of equipment and timber and other minor incidents. This impact has been rated as low since it can easily be managed through the establishment of OHS systems and safety awareness.

18	Minor nuisance impacts related to the construction of the 14 planned Business Service Yards, including OHS, dust, noise, and waste.	Construction	Low

- 14 Business Service Yards (BSY) will be constructed in the three regions. The locations of the sites have not yet been identified, however there are construction impacts related to the occupational health and safety of workers during construction of the BSYs. These are mainly minor risks since it involves minor civil works that can easily be managed through the establishment of OHS systems and safety awareness; therefore, this risk has been rated as low.

Mitigations

The main mitigation for risks associated with occupational health and safety impacts is the establishment of a management system, which includes safety procedures, adequate Personal Protective Equipment (PPE), monitoring of contractors and staff and reporting of incidents.

PS3: Resource Efficiency and Pollution Prevention

The Objectives of PS3 are:

- Objective 1. To avoid or minimize adverse impacts on human health and the environment by avoiding or minimizing pollution from project activities.
- Objective 2. To promote more sustainable use of resources, including energy and water.
- Objective 3. To reduce project-related GHG emissions.

The following section describes the applicability of the objectives of PS3 and the Project.

- Objective 1: The impacts related to this objective include the potential pollution that will be generated by project workers, contractors and subcontractors. This includes solid waste generated from logging activities and the BSYs, risks of spills from equipment in the BSYs, logging, construction and operations of forest roads and skid trails in the forest, clearing of vegetation and impacts on soil related to the construction of forest roads and skid trails, and transportation vehicles, risk of fire, dust generation, noise, and waste water. The magnitude of the activities are minor, however to minimize impacts the project will put in place fit for purpose procedures. In addition, project staff and the MoEPA will monitor staff and contractors and ensure adequate practices are put in place.
- Objective 2: Use of natural resources will be minor, this will include use of water in the BSYs for personal consumption and operations. Tree felling is an integral component of the project, this will be done through the application of the new Forest Code and the development of the individual SFM plans which will establish criteria and targets/quotas to ensure sustainable management of the forest. The implementation of the project will have a positive impact on the forest since illegal logging practices will be minimized and a more controlled approach to logging will be implemented.
  - There will be minor infrastructure works for the project, this mainly consists of construction of some BSYs, construction and repair of forest roads and construction of skid trails. Prior to the start of any construction or clearing activity the Project will undertake a Rapid Environmental and Social Screening in the form of a checklist, therefore any environmental and social impact can be managed through good practice principles and monitoring by the Project.
- Objective 3: The project activities will not generate more than the IFC reporting requirement of 25,000 tonnes or more of CO_2 annually. The amount of CO_2 that the project will generate during the construction and operations of the Project has not been calculated, but one of the main objectives of the Project is to have a positive impact on GHG emissions since the degradation of the forest will be reduced and the carbon capture of forests in Georgia will increase.

Impact Analysis Related to PS3

3	During construction of forest access roads, including river crossing and skid trails. Impacts on OHS of workers, generation of waste, noise and dust, spills, disruption of wildlife, vegetation and soil and impact on water.	Construction	Medium

- The impacts related to PS3 are mostly during civil works and road maintenance. The risks include hazardous material spills such as oil or fuel from equipment and vehicle, generation of dust and noise during the construction period.
- The project will generate domestic and construction waste during the construction phase. The waste will be managed in accordance with the Georgian legislation and IFC requirements. In general, waste management infrastructure in Georgia is limited, in particular in rural areas. Landfills and waste water facilities in Georgia are managed through the municipalities. The project will use these facilities for solid waste generated by the project. Currently there are limited certified and authorized facilities available in the country for hazardous waste management. The only known suitable facility to manage hazardous chemicals is located at about 20-25km south-east of Tbilisi; Sanitary LTD, Rustavi city, Gamarjvebis highway N4. Sanitary LTD has licenses to collect, transport and treat both hazardous and non-hazardous waste. They have modern incinerator for hazardous waste, with proper internationally standard facilities to treat and store hazardous waste.
- Use of water for project activities is minor and involves mostly water for personal consumption, cleaning activities and possibly maintenance of equipment during the construction period.
- Risk that surface water, soil and vegetation might be impacted in the forest if there are hazardous material spills (such as fuel and oil) sedimentation accumulation from the forest road and skid trails construction due to inappropriate conduct from workers and staff.
- In addition, the project will impact soil which could result in erosion, in particular, in the Region of Kakheti which is prone to desertification and erosion problems. Impacts on soil also include the risk of hazardous materials spills.
- These risks have been rated as medium due to the limited scope of civil works, however, due to the remoteness of some of the locations, it can be difficult to monitor by the project team.
- The extent of the risks related to climate change adaption cannot be fully assessed due to limited data regarding forest vulnerabilities. Given that Georgia is prone to landslides, avalanches during the winter season, fires, drought and extreme flooding events and given that the climate change forecasts show a general overall warming in Georgia and unpredictable precipitation, the risk exists that there could be damage to
- project infrastructure and equipment and result in barriers to achieving the long-term project objectives of the Project.

5	During logging activities, operations in the forest road and skid trails can result in sedimentation accumulation and erosion (some regions are more prone to erosion), impacts on water, generation of dust during operations,	Operations	Low

	impacts on soil due to hazardous material spills and waste generation.		

- The conditions for impact #3 (e.g. impacts on water, soil and vegetation due to hazardous material spills) discussed above apply to impact #5 but to a lesser extent due to reduced civil works and staff and contractors on site, therefore this impact has been rated as low.
- The use of pesticides will be banned for maintenance of forest roads and skid trails, vegetation removal will be done mechanically.

12	Generation of waste within the forest by DES staff and/or contractors during patrolling activities.	Construction and Operations	Low

- Waste generated by staff carrying out patrolling activities consists mostly of domestic waste. This is a minor impact and has been rated as low since it is a controlled activity.

18	Minor nuisance impacts related to the construction of the 14 planned Business Service Yards, including OHS, dust, noise, and waste.	Construction	Low

- The OHS risks have been covered under section PS2 above. The BSYs will generate domestic and waste from logs. In addition to hazardous materials from the use of vehicles and equipment, however this is minor. There will be some nuisance impacts related to dust and noise. This impact has been rated as low due to the low magnitude.

23	Pollution generation, contamination of work sites, lack of proper waste management and overall non compliance with project standards by EE stove producers.	Operations	Low

- It is unlikely that the EE producers will have stringent internal standards regarding environmental and social performance. There will be some impacts regarding the generation of waste and waste management, possibly generation of hazardous materials, potential spills during the production of the EE stoves, dust and noise. This impact has been rated as low due to the low magnitude.

Mitigations

The Project will manage mitigations related to PS3 through contractor management and implementing a management system and training of the system that will include practices and procedures and capacity building, which will be aligned with international best practices. In addition, the project will provide capacity building to the producers of the EE stoves regarding waste minimization and waste management, using environmentally friendly products, minimizing noise and dust, containing spills, and ensuring workers are using appropriate PPE. The ESMP+G Specialist will monitor the suppliers and conduct occasional inspections of the working sites and working conditions. Monitoring of activities and personnel and contractors will be fundamental to ensure the project requirements and policies are respected.

- The climate change adaptation risk will be addressed through design of the SFMs in the target regions, one of the adaptation co-benefits of the project will be assessing forests' vulnerability, and integrating the results into management plans, trainings, protocols and to streamline the results into policy making. Operationally, for the project this could include constructing resilient forest roads and using climate resilient species during the rehabilitation process.

PS4: Community Health, Safety and Security

The Objectives of PS4 are:

- Objective 1: To anticipate and avoid adverse impacts on the health and safety of the Affected Community during the project life from both routine and non-routine circumstances.
- Objective 2: To ensure that the safeguarding of personnel and property is carried out in accordance with relevant human rights principles and in a manner that avoids or minimizes risks to the Affected Communities.

- Objective 1: The project will create some minor potential adverse impacts on the health, safety and security of the communities. This is mostly due to some increase in traffic from loggers, rangers, supervision staff and other project staff, which could result in traffic accidents or incidents.
- Objective 2: There is a risk that the project will generate some community conflict due to the phasing out of the social cutting program, enforcement of the Forest Code and SFM plans and increased supervision by the DES. Community conflict could result in personal damage to both the population and forest workers, supervision staff and damage to NFA and DES property.

Impact Analysis Related to PS4

9	Risks of natural hazards such as landslides, flooding and avalanches during road construction and maintenance, construction of skid trails and logging activities.	Construction and Operations	Low

- Natural hazards occur in Georgia, this includes floods, landslides and avalanches. It is unlikely that the project will generate these types of hazards, since there is evidence that conservation of the forest ecosystems and reforestation activities play an important role in minimizing the vulnerability of communities to natural hazards (ÇElik HE 2008), therefore this impact has been rated as low. The risk for communities is less than for workers since they are not in the forest, where natural hazards are more likely to occur.

10	Conflict between communities and NFA/Supervision department due to interdictions to cut timber and issuing of penalties, which could escalate to physical violence.	Operations	Medium

- The increased role of DES and the enforcement of the Forest Code regarding restrictions and issuing of penalties can lead to conflict between the communities and the MoEPA. This conflict can ultimately lead to physical violence which can impact the safety and security of the communities. There is precedence in Georgia where conflict has led to road blockades and physical violence. Given this precedence, the fact that communities mentioned that this could be a risk, and the repercussion to the reputation of the Project if this would happen, this impact has been rated as medium.

13	Community health and safety: Traffic accidents due to increase mobile transportation equipment.	Construction and Operations	Low

- The construction and operations of the Project will lead to increase traffic in the areas where the project will be implemented, this can lead to incidents and accidents impacting the safety of communities. Given that the number of teams are limited and activities are site specific, this impact has been rated as low.

Mitigations

A big component of the project is communication and engagement with the population, putting in place a grievance process and capacity building of the MoEPA on meaningful engagement, mediation and dispute resolution. There have been previous incidents in Georgia when the Government sent police/military forces to enforce illegal logging due to the occurrence of avalanches and landslides near Khaishi, which resulted in some conflict and road blockages. Physical enforcement and intimidation of communities rarely lead to any type of constructive dialogue. The first step to managing community conflict is dialogue. Physical enforcement should be the last resort if all other means of mediation and dispute resolution have failed. How the Government responds to potential community conflict will need to be closely monitored by the Project.

The Project will prepare a HR policy which will include adherence to the principles recognized by the Universal Declaration of Human rights, the Voluntary Principles of Security and Human Rights, and the declaration of the International Labour Organization on Fundamental Principles and Rights and Work.

PS5: Land Acquisition and Involuntary Resettlement

Not triggered. There is no need to acquire any land for the project, although there might be a need to acquire land for the construction of the Business Service Yards. The BSYs will be constructed on land belonging to the state in areas with no existing traditional land users. If no appropriate state land is found, voluntary agreements will be signed with landholders, if no voluntary agreement can be established the land will not be taken and alternative land to build the BSYs will be identified. The forest roads that will be constructed are all within state land inside the state forests.

PS6: Biodiversity, Conservation, & Sustainable Management of LNR

The Objectives of PS6 are:

- Objective 1: To protect and conserve biodiversity.
- Objective 2: To maintain the benefits of ecosystem services.
- Objective 3: To promote the sustainable management of living natural resources through the

adoption of practices that integrate conservation needs and development priorities.

- Objective 1: The project will have positive impacts on the environment through the creation of improved institutional mechanisms to manage the Forests in Georgia and aligning with the Georgian Government priorities and international conventions such as the Convention on Biological Diversity (CBD). The project should contribute towards the Aichi Target commitments made by the Government.
  - Felling of the trees will be undertaken using the Forest Code requirements, using a Reduced Impact Logging methodology and undertaking a Vegetation Assessment prior to logging. Any tree that has nests will be avoided.
- Objective 2: Section 7.11 of this report provides the assessment of the Ecosystem Services of the Forests.
- Objective 3: The main premise of the project is to promote the sustainable management of forests (natural resources). There are some potential impacts, which include the felling of trees to meet the fuelwood and timber requirements of Georgians and felling of trees to build access roads, but these are all part of the broader sustainability management of the forest and expected to produce sustainable results in the long term. Overall, the Project will contribute to the sustainable management of forests in Georgia.

Impact Analysis Related to PS6

1	Disruption of wildlife and flora during logging activities.	Operations	Medium

- Although logging activities will be conducted using Reduced Impact Logging (RIL), including avoiding trees that have conservation value, establishing targets and selective cutting there will be impacts on wildlife. This risk has been rated as medium since the activities are located inside natural habitats and there will be impacts on wildlife, in particular birds, limited range species and slow-moving species.

3	During construction of Forest Access roads, including river crossing and skid trails. Impacts on OHS of workers, generation of waste, noise and dust, spills, disruption of wildlife, vegetation and soil and impact on water.	Construction	Medium

- Similar to risk #1, there will be impacts on wildlife, vegetation and soil during clearing and construction of the forest roads and skid trails. This impact has been rated as medium.

4	Risk of induced access due to Forest Access roads, impacting flora and fauna.	Operations	Low

- Construction of forest roads has the risk of increasing access to living natural resources that were previously not accessible to the communities and opportunists. However, due to the enforcements and risk of penalties this risk has been rated as low.

16	Further degradation of forest due to combination of NFA establishment of Business Service Yards, communities continuing cutting forest illegally and lack of buy-in from communities.	Operations	Low

- There is a risk that a combination of the sustainable logging program that will be implemented by the project and continuation of illegal logging due to lack of buy-in will

further degrade the forest. This risk has been rated as low due to the design of the project that aims at controlling and restricting uncontrolled and illegal logging.

Mitigations

The project will develop procedures to minimize impacts on biodiversity. This will include conducting a clearing vegetation survey prior to logging to ensure there are no nests, interdictions of using the forest road with motor vehicles, except for NFA and DES and other mitigations discussed in Volume 1.

PS7: Indigenous Peoples

Not triggered for the project. A literature review of past Multilateral Development Banks (MDB) financed projects in Georgia showed that there are no projects that have ever triggered PS7 or equivalent standard from other MDBs in Georgia.

PS8: Cultural Heritage

The Objectives of PS8 are:

- Objective 1: To protect cultural heritage from the adverse impacts of project activities and support its preservation.
- Objective 2: To promote the equitable sharing of benefits from the use of cultural heritage.

- Objective 1: It is unlikely that the project will impact any cultural heritage, nevertheless the Project will prepare a Chance Find Procedure in case any cultural heritage is identified in the forests.
- Objective 2: See Objective 1.

Impact Analysis Related to PS8

7	Restriction of access to cultural sites or impact on cultural sites located inside the forest (none of the communities met used the forest for cultural purposes, however, there might be other communities in Georgia that use the forest to perform cultural activities/rites).	Construction and Operations	Low

- There is a risk that during logging or civic work activities the project team will find cultural sites. The communities consulted confirmed during the public consultation process that there are no cultural sites in the forest, therefore this impact has been rated as low.

Mitigations

A chance find procedure has been prepared as part of Volume 1 to manage this impact.

7.3 Ecosystem Services Assessment

The IFC defines ecosystem services as the “benefits that people, including businesses, derive from ecosystems. Ecosystem services are organized into four types: (i) provisioning services,

which are the products people obtain from ecosystems; (ii) regulating services, which are the benefits people obtain from the regulation of ecosystem processes; (iii) cultural services, which are the nonmaterial benefits people obtain from ecosystems; and (iv) supporting services, which are the natural processes that maintain the other services".

The four main ecosystem goods and services defined by the United Nations Millennium Ecosystem Assessment are presented in Table 7-3.

Table 7-3: The Four Categories of Ecosystem Services (Millennium Ecosystem Assessment 2005)

Categories	Description	Example
Provisional services	Provision of goods.	Water Food Raw materials
Regulating services	Ecological processes that contribute to economic production or cost savings.	Groundwater recharge Soil stability Water purification Carbon sequestration
Cultural services	Value that is derived from use or appreciation of biodiversity.	Spiritual Educational Recreational
Supporting services	Ecological processes that underlie or support the above three services.	Soil fertility Pollination Pest control

A preliminary desktop analysis and primary data collected during the stakeholder engagement process indicates there are 21 different services people derive from the forest ecosystem in Georgia as shown in Table 7-4.

Table 7-4: Community use of Ecosystem Services

Category	#	Ecosystem Service	Use
Provisional Services	1	Wildlife	Hunting
	2	Timber	Housing and furniture construction and commercial sawmills
	3	Fodder / grazing	Mostly cattle, but also sheep
	4	Fuel (wood)	Household and commercial (including informal businesses)
	5	Tree products	Wild fruit
	6	Plant products	Herbs, berries, mushrooms
	7	Aquatic fish	Fish (mostly brown trout)
Regulatory Services	8	Air pollution management	Control of dust
	9	Carbon storage	Carbon stored in trees, plants, soil etc
	10	Flood attenuation and regulation	The reduction of peak flows through a reduction in water velocity and volume
	11	Fire damage control	Control in the likelihood, intensity and / or extent of an unplanned fire
	12	Refuge or nursery	A space for animals (mammals, fish, birds) to breed and re-

			populate other areas (upstream, downstream or regionally)
	13	Water quality	Dilution of pollutants
	14	Water quality (nutrient assimilation)	Plants assimilation of nutrients e.g. nitrates from agriculture, and other.
	15	Soil stability	Erosion control, prevention of landslides and avalanches
Cultural Services	16	Cultural heritage	Prayer and other
	17	Medicinal	Medicinal plants (can include herbs, bulbs, roots, leaves or bark)
	18	Recreation	Picnic, tourism, camping
Supporting Services	19	Soil formation and fertility	Formation of soils and nutrient cycling.
	20	Biodiversity Conservation Objectives	IUCN objectives, CBD, Bern Convention
	21	Plant / animal pest control	Reduction of pest plants and animal populations and distribution

- There is a high level of dependence on terrestrial provisioning services, such as timber and fuelwood, which are critical for local households as a source of energy used for cooking and heating in the cold months and timber for construction. In addition, some informal businesses rely on both fuelwood and timber as a source of income.
- There is a high level of dependence on the forest for livestock grazing.
- There is a medium to low level of dependence on the forest for gathering berries, herbs, and mushrooms, both as a source of income and as food for the household.
- There is a medium level to low level of dependence on felled branches used as fuelwood and other household necessities.
- There is a small level of dependence on hunting largely because people in the area do not depend on hunting as their main source of livelihood.
- There is a small level of dependence on aquatic fish species, people in the areas visited do not depend on fishing as a main source of livelihood.

7.3.1 Summary of the Impacts and Mitigations of Ecosystem Services

The following table describes the impacts, ratings (using GIZ methodology) and mitigations for each of the 21 ecosystem services uses.

Table 7-5: Forest Ecosystem Services Impacts and Mitigations

#	Ecosystem Services	Significance of Impact	Mitigation Measure
1	Wildlife	Negligible	
2	Timber	Medium	• Develop Community Conservation projects with partners. • Awareness raising regarding natural resource management. • Support SME programs and efficient use of wood. • Generate employment through project (Business Services Yards, logging, guides, etc.). • Project to support formalizing informal companies. • SFM plans to be developed in consultation with communities.
3	Fodder / grazing	Medium	• SFM plans to be developed in consultation with communities. • SFM to identify no-go areas, if required and communicate with communities. Identify and communicate time and location constraints for grazing. • Develop Community projects for livelihood improvement, which can include water provision, veterinary support, feed, fencing, and other.
4	Fuel (wood)	Medium	• Awareness raising regarding natural resource management. • EE stoves and briquettes. • Support SME programs and efficient use of wood. • Generate employment through project (Business Services Yards, logging, guides, etc.). • SFM plans to be developed in consultation with communities. • Livelihood Support Program
5	Tree products	Medium	• Awareness raising regarding natural resource management. • Support SME/community programs to improve livelihoods (such as ENPARD EU project) • Generate employment through project (Business Services Yards, logging, guides, etc.).

			• SFM plans to be developed in consultation with communities.
6	Plant products	Medium	• Awareness raising regarding natural resource management. • Support SME/community programs to improve livelihoods (such as ENPARD EU project) • Generate employment through project (Business Services Yards, logging, guides, etc.). • SFM plans to be developed in consultation with communities.
7	Aquatic Fish	Negligible	
8	Air pollution management	Positive impact	
9	Carbon storage	Positive impact	
10	Flood attenuation and regulation	Positive impact	
11	Fire damage control	Positive impact	
12	Refuge or nursery	Positive impact	
13	Water quality	Positive impact	
14	Water quality (nutrient assimilation)	Positive impact	
15	Soil stability	Positive impact	
16	Cultural heritage	Low	• SFM plans to include inventory of locations within forests that people use for cultural heritage. • Development of a Cultural Heritage Chance Find Procedure. • Awareness raising regarding natural resource management. • Allow free passage for people to access cultural sites (if any).
17	Medicinal	Medium	• Awareness raising regarding natural resource management. • Support SME/community programs to improve livelihoods (such as ENPARD EU project) • Generate employment through project (Business Services Yards, logging, guides, etc.). • SFM plans to be developed in consultation with communities.
18	Recreation	Medium	• Awareness raising regarding natural resource management. • SFM to identify no-go areas for recreation.

			• Some options include: Provide eco-friendly waste bins, installation of eco-friendly signage (e.g name of trees, plans, uses, etc.), equipping areas for camping (but restrict numbers of visitors depending on objective of individual SFM plans), constructing eco-friendly tracks for visitors. • Schools to organize environmental school trips to forest.
19	Soil formation and fertility	Positive impact	
20	Biodiversity Conservation Objectives	Positive impact	
21	Plant / animal pest control	Positive impact	

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