Scaling-up Multi-Hazard Early Warning System and the Use of Climate Information in Georgia

Environmental and Social Assessment Report

CONTENTS

EXECUTIVE SUMMARY

This Environmental and Social Assessment Report (ESAR) has been prepared in support of a project proposal entitled "*Scaling-up Multi-Hazard Early Warning System and the Use of Climate Information in Georgia*" (the project) by the Government of Georgia to the Green Climate Fund (GCF). As this project is supported by the United Nations Development Programme (UNDP) in its role as a GCF Accredited Entity, the project has been screened against the UNDP's Social and Environmental Standards Procedure and deemed a Moderate Risk (World Bank/International Finance Corporation Category B) project. As such, an ESAR has been prepared for the project. Chapter Eight (8) of the ESAR provides the Environmental and Social Management Plan (ESMP) for the project.

The Ministry of Environment Protection and Agriculture of Georgia (MoEPA) as the National Designated Authority and Implementing Agency will lead the project, and the Ministry of Regional Development and Infrastructure (MRDI) through its subordinate Road Department will be responsible party for implementing activity - 3.3. Structural Flood Protection Measures. The MoEPA and MRDI will be supported by a Project Management Unit (PMU) for the implementation of the project and compliance with this ESAR and ESMP.

The project will target 1,700,000 direct and 3,700,000 indirect people across east and west Georgia that highly vulnerable to climate change induced extreme events. The project will improve the resilience of communities through the expansion of a comprehensive multi-hazard early warning system (MHEWS) that will provide information and capacity building to reduce the impacts of extreme events; improved information dissemination; training and significant gender based activities. This would allow communities to manage flood threats and by reducing vulnerability of communities, people and their assets.

The project has the potential to cause moderate environmental and social impacts. These include impacts to water quality through sediment movement during mechanical restoration and river bank improvement. This is likely to have a beneficial noise and air quality may also be impacted during these works. Appropriate actions are proposed to deal with these issues. Minor impacts include increased waste and the potential need to access land for project interventions.

The project does not require any land acquisition and/or resettlement. It may be necessary to utilise areas of land adjacent to where the structural interventions will be undertaken so as to access water courses (e.g. Khodasheniskhevi and Milari, etc.). The land is currently under agricultural production. Where access is required, the land will be returned in the same condition if not better that it was prior to any access. Access to this land will only be undertaken through voluntary agreements with landholders. Where a voluntary agreement cannot be established, the land will not be used.

There are no indigenous peoples and/or ethnic minorities and/or internally displaced peoples known to inhabit the specific areas of the interventions. However, prior to undertaking any intervention, additional stakeholder engagement will be conducted to ensure that local population is fully consulted to ensure the project will not impact on them and/or their cultures/traditions. If any people are found to be located within the area, the project will comply with the UNDP Social and Environment Standard and the project will develop a Social Inclusion Plan as contained as an annexure to the ESAR.

The project has developed a Grievance Redress Mechanism to deal with any complaints and issues that may arise as a result of the project. This Grievance Redress Mechanism complies with Georgian and UNDP Safeguard procedures.

Appropriate and relevant avoidance and mitigation options have been proposed in the ESAR, which if put in place, will significantly reduce the potential impacts of the project to an acceptable level. Moreover, the project will have significant environmental and social benefits that will be achieved more generally. This includes an Erosion, Drainage and Sediment Control Plan, Social Inclusion Planning Framework and Livelihood Restoration Plan.

Budgeting for environmental interventions and the application of mitigation measures to enhance positive impacts for the project is an investment in the future as it will reduce the environmental and social liability at local, state and national levels. The end result of this budget will be that there will be reduced river sedimentation and erosion; stronger and improved resilience to the impacts of climate change, healthy

ecosystems, more knowledgeable communities and overall improvement in the quality of life of the population as an investment in the future of the people of Georgia, which if implemented as per the project proposal, will be repaid may times over through reduced long-term operation and maintenance costs of implementing the project.

1 INTRODUCTION

1. This Environmental and Social Assessment Report (ESAR) has been prepared in support of a project proposal for "Scaling-up Multi-Hazard Early Warning System and the Use of Climate Information in Georgia" by the Government of Georgia to the Green Climate Fund (GCF). As this project is supported by UNDP in its role as a GCF Accredited Entity, the project has been screened against UNDP's Social and Environmental Standards Procedure and deemed a Moderate Risk (World Bank/International Finance Corporation Category B) project. As such, an ESAR has been prepared for the project. Chapter Eight (8) of the ESAR provides the Environmental and Social Management Plan for the project.

1.1 BACKGROUND

2. Georgia is a transcontinental country located along dividing lines of Asia and Europe in the South Caucasus region, between the Black sea to the west, the Greater Caucasus Mountains to the north, and the Lesser Caucasus mountains to the south. The Likhi range splits the country into two almost equal parts - East and West Georgia.

3. Georgia has diverse and complex terrain: its northern parts are characterised by high mountains, and the central and southern parts – by middle to lower mountains, covered with alpine and sub-alpine meadows and forests. Western Georgia's landscapes range from lowland plains, marsh-forests, swamps and temperate rainforests to eternal snows and glaciers, while the eastern and south-eastern and southern parts of the country contain floodplain valleys and forests, light (savannah type) forests, steppes and semi-deserts.

4. According to Georgia's 2nd and 3rd National Communications and other studies, under climate change the frequency, intensity and geographical spread of extreme hydro-meteorological hazards will increase, and may result in significant impacts on key sectors including agriculture. Georgia's INDC estimates economic losses from climate-induced hazards without adaptation measures for the period 2021-2030 will be $US 10-12 billion, while adaptation measures will cost $1.5-2 billion USD. Actual damages from hydro-meteorological hazards over the last 21-years totalled $2.8 billion ($1.2 Billion USD), and resulted in 152 deaths (22 people died in the Tbilisi flash flood of 2015), with floods, landslides and mudflows comprising 60% of these damages and losses and 67% of loss of life.

5. To date, hydro-meteorological hazard risk management has relied on limited and expensive hard structural protection measures; emergency response with limited reliance on forecasts and early warning of the population; post event compensation and relocation of victims, resulting in eco-migrants; and post event recovery and risk reduction. This project will significant improve the quality of information and the impacts on people, their assets and the environment.

1.2 DESCRIPTION OF THE PROJECT

6. In order to adapt to climate change, Georgia needs to adopt a proactive integrated climate risk management (CRM) approach centred around risk reduction, prevention, and preparedness through the establishment of a multi-hazard early warning system and an enhanced use of climate information in planning and decision-making. The project will address the main barriers to the establishment of a multi-hazard early warning system (MHEWS) and all other aspects of a priority climate risk management required to support an effective MHEWS.

7. The project will improve the level of protection of land and communities in selected areas in Eastern (Kakheti; and Shida Kartli) and Western (Imereti; Samegrelo_Zemo Svaneti; and Ajara Autonomous Republic) Georgia (a total of 13 sites across the five locations) from mudflow and flooding risks. Figure 1 shows the locations of the States in Georgia.

Figure 1 Map of Georgia

1.2.1 Summary of Activities

8. The project will be undertaken through three outputs:

   a. expanded climate-induced natural hazard observation network and modelling capacities secure reliable information on climate-induced hazards, vulnerability and risks;

   b. multi-hazard early warning system and new climate information products supported with effective national regulations, coordination mechanism and institutional capacities;

   c. improved community resilience through the implementation of the MHEWS and priority risk reduction measures.

9. Under Output One, the project will deliver the following:

   a. Expanding the hydro-meteorological observation network and modelling capacities to secure reliable information on climate-induced hazards, vulnerability and risks. This will include the installation of twelve meteorological stations, 73 meteorological posts, 44 hydrological posts, ten snow measurement stations, 20 inclinometers; 2 radars; 2 drones and additional corpus; matrice 600 pro for flight control and thermal camera; geo-positioning equipment/GPS; Visual Computing Appliance (VCA) for processing aerial photos; upper air sounding equipment (x2); 15 agrometeorological stations, 8 mobile discharge meters, 1 super computer for strengthening early warning system; telecommunication system equipment.

   b. floodplain zoning based on hazard and risk maps for all (eleven) major basins in Georgia and hazard and risk maps for key climate-induced hazards (floods, landslides, mudflows, avalanches, hailstorms and droughts), using the most appropriate modern technologies and methods and aligned with international and regional standards

c. Introducing and implementing methods and tools for the systematic gender-sensitive socio-economic vulnerability assessment for decision making for prioritisation of resilience investments

d. expanding the hydro-meteorological and agro-meteorological monitoring network, and supporting the establishment of a centralised multi-hazard disaster risk information and knowledge system, consisting of national e-Library, databases, information systems and knowledge portal; and

e. the development of local-level detailed hazard mapping and risk and vulnerability assessment.

10. Under Output Two, the project will deliver the following:

a. Undertaking institutional and legal frameworks and institutional capacity building for the MHEWS, and for the enhanced use of climate information. This will include improving the coordination and communication protocols for early warning; developing and/or strengthening policy, regulatory framework and technical guidance for MHEWS and climate risk management; institutional strengthening, coordination, communication and enhanced use of climate information to establish and strengthen resilience. The project will assist the government in developing and adopting relevant technical regulations. Trainings for staff also will be carried out;

b. Developing and implementing of the MHEWS covering all Georgia, building on the Rioni Basin prototype and on the expanded hydrometric network. This will include upgrading flood forecasting and expanding meteorological and hydrological forecasting capacities. Further, the project will then integrate the new data into the forecasting platform. This will allow the project to expand the hydrological and hydraulic models within the forecasting platform to cover all of Georgia. The work will also allow for drought, landslide, avalanche, wind, and hailstorm forecasting along with other physical parameters. The activity will also provide for an improvement of general forecasting;

c. enhancing access and the use of weather and climate information and agrometeorological information services by farmers and agricultural enterprises. This will include capacity building and training for MoEPA, including specific training on the use of climate information and climate change adaptation for the Scientific Research Centre of Agriculture, National Food Agency and for the municipal Information and Consultations Centres as well as the training of National Environmental Agency. The activity will also include integrating climate risk and adaptation priorities into the agriculture sector plans, investments and budget frameworks, including the investment appraisal skills, economic valuation of climate change impacts, based on sector model, trade off analysis and cost-benefit assessments for a range of plausible adaptation options in agriculture. The activity will support the development of guidance documents, methodologies and technical regulations; climate mapping and agrometeorological advisory; the development of basin-level multi-hazard risk management plans; Municipal-level climate-induced multi-hazard response and preparedness plans.

11. Under Output Three, the project will deliver the following:

a. Implementation community-based early warning schemes and community-based climate risk management. This will include supporting 100 communities about relatively high risk, short lead time of the extreme events, potential technical constraints for the central system to effectively service the community (e.g. due to remote location or connection problems). For this activity the project will work with smaller and more vulnerable communities/settlements with the population of up to 6,000-7,000 people. With respect to the community-based climate risk management, local communities (particularly women and vulnerable groups) will be trained to implement and maintain non-structural intervention measures necessary to reduce various climate-induced risks. Gender differentiated indicators will be used to monitor the projects performance in achieving the right gender balance;

b. Raising public awareness and capacity building programme at all levels to effectively deliver climate risk information and training to communities and local first-responders. This will be undertaken under a number of undertaking capacity building of EIEC to develop their curriculum of training to include of the elements for CRM, DRR, CCA and EWS related to all hazards for which they will

deliver training under the project and on a long-term basis; and capacity building at all levels of Government and within the community; and

c. Implementing priority risk reduction interventions that would significantly reduce the risks the impacts of the MHEWS will operate. This will include targeting 13 sites for structural measures that will significant reduce the impacts of flooding. The sites are selected based on a report called "*Upscaling of Rioni Flood Damages to all Georgian Flood Plains and an overview of the Impacts on Population, Property and Agriculture within Georgia from Other Hydro meteorological hazards*" developed under the previously implemented Rioni project. The types of flood protection structures to be erected include embankments with rock boulder; wire mesh mat lining; concrete regulation wall; wire mash gabion wall; climate proofing water regulation facility; canal widening and lining; and riverbed and channel cleaning. The activity will mitigate the deleterious effects of mudslides and to provide flood mitigation. The current problem has resulted in the significant loss of agricultural, arable and other land from erosion. Figure 2 shows the location of the 13 proposed river works.

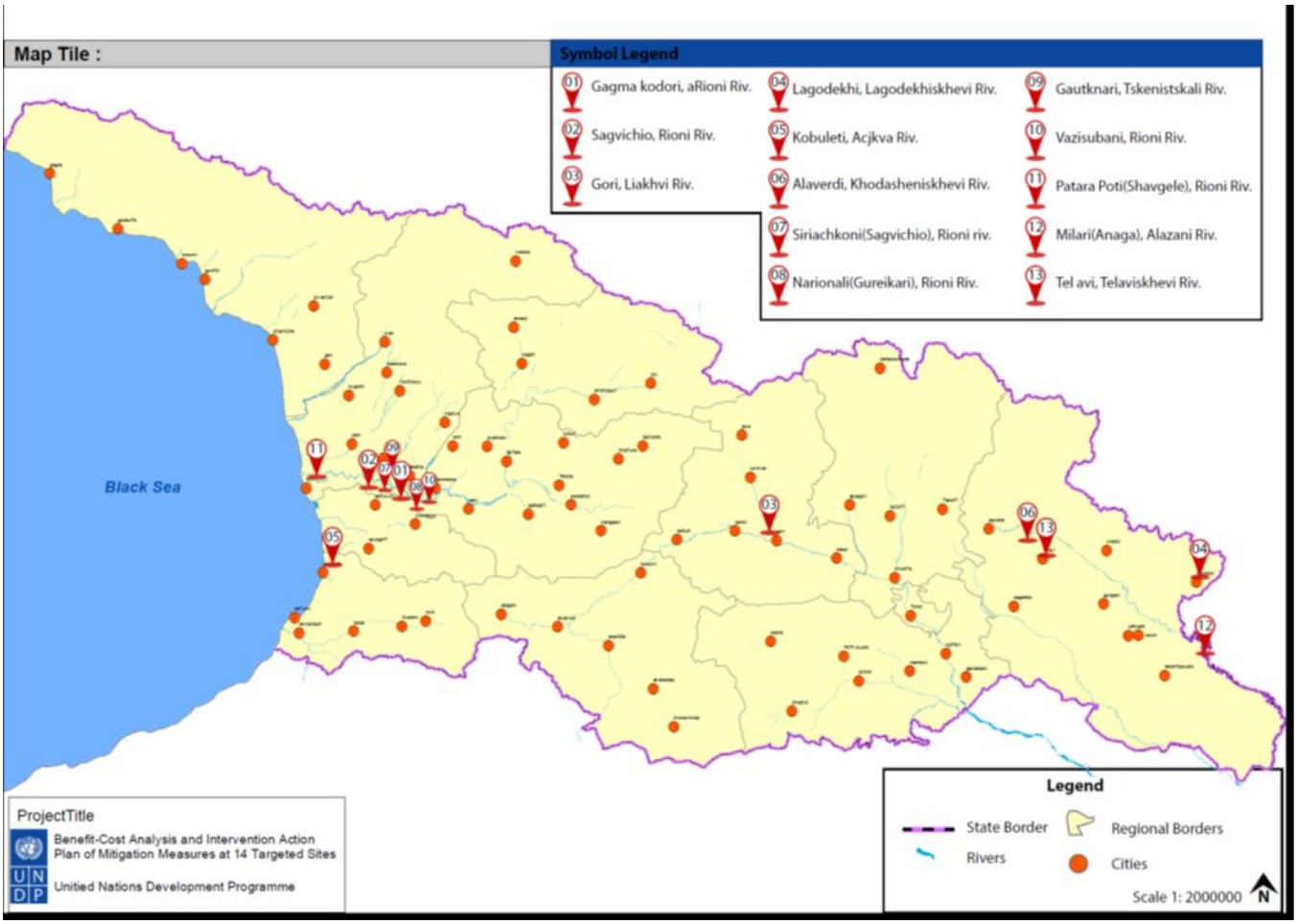
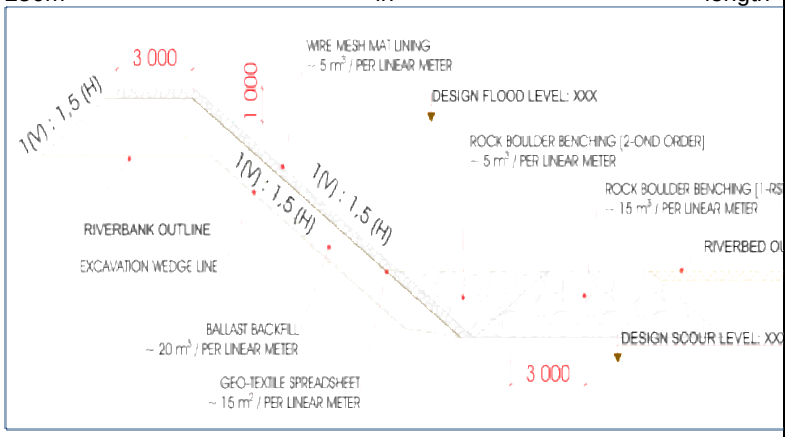
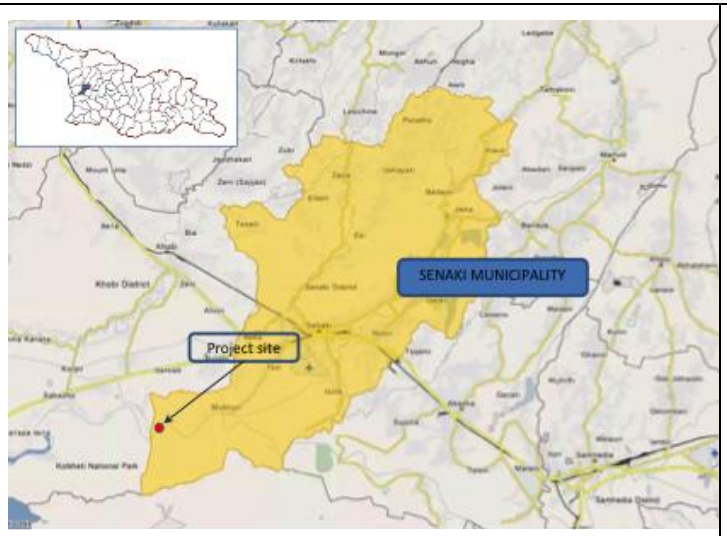
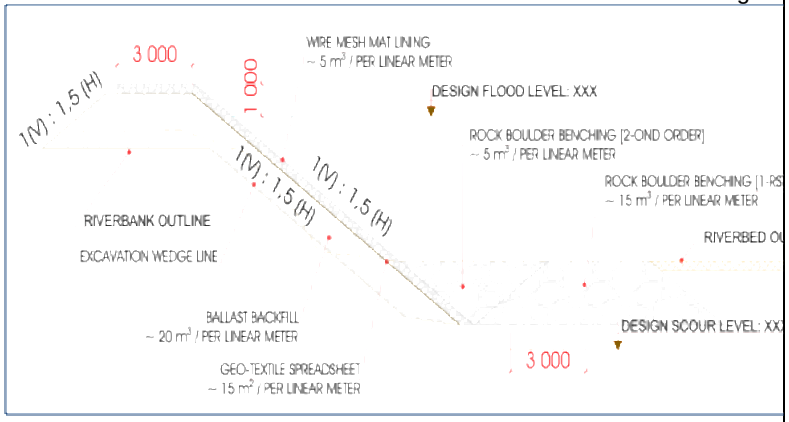
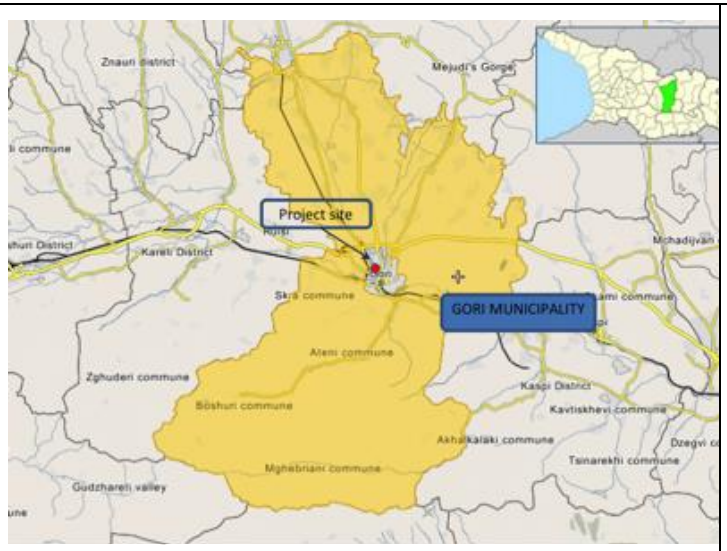
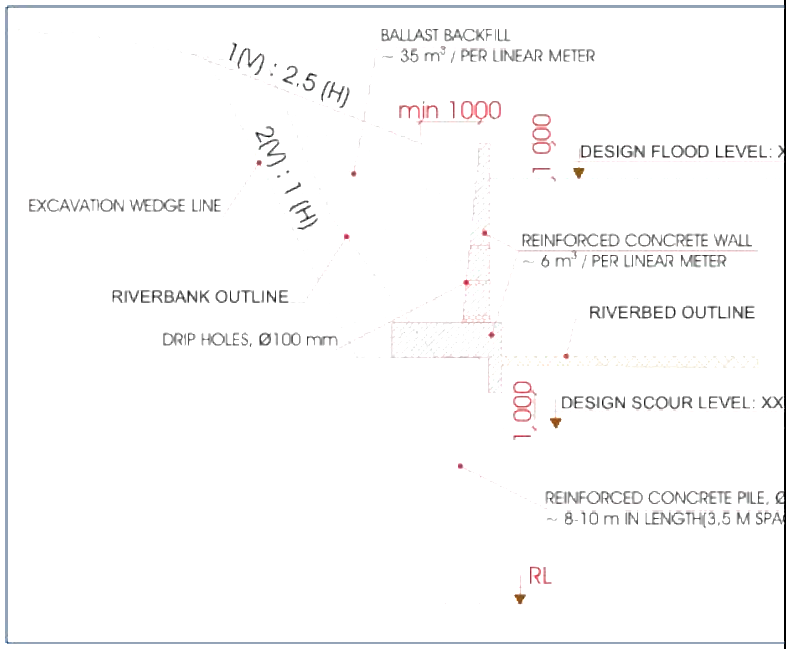


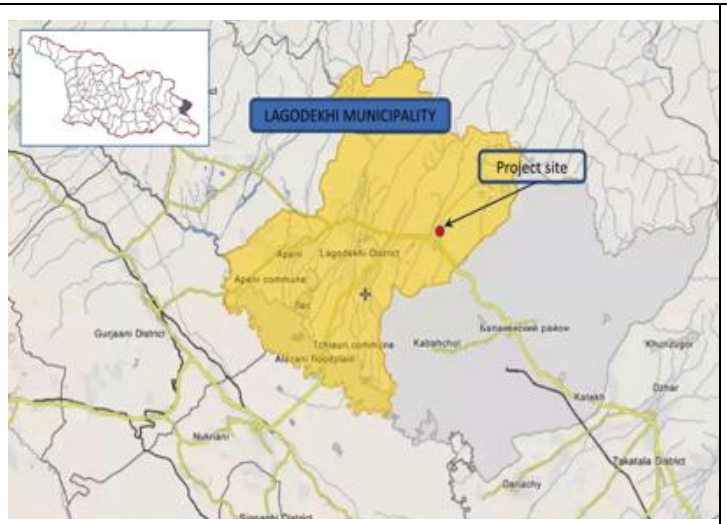
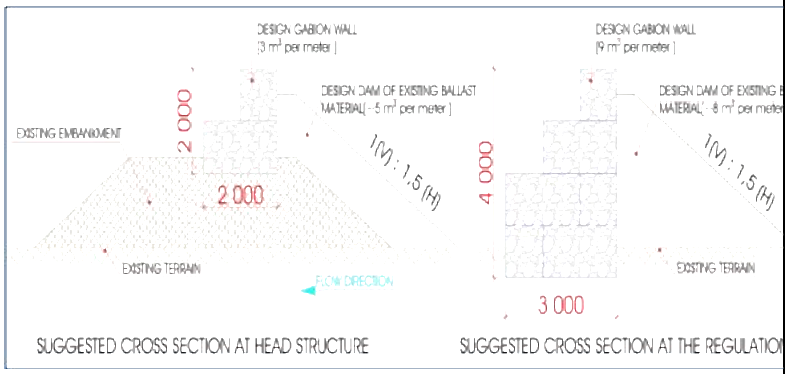
Figure 2 Thirteen locations of proposed river works

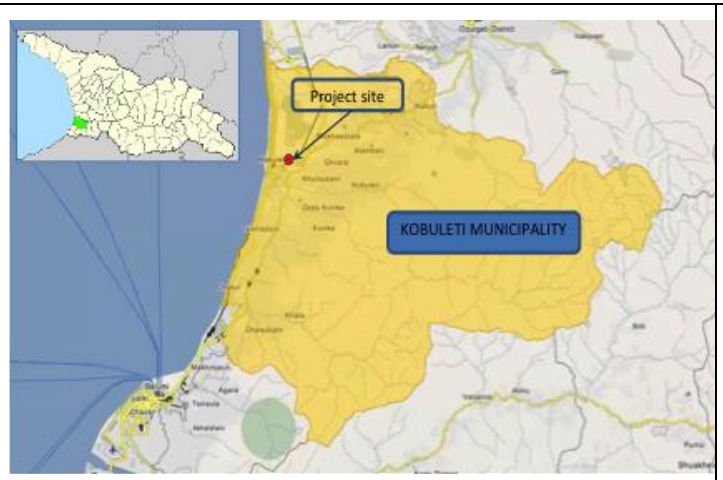
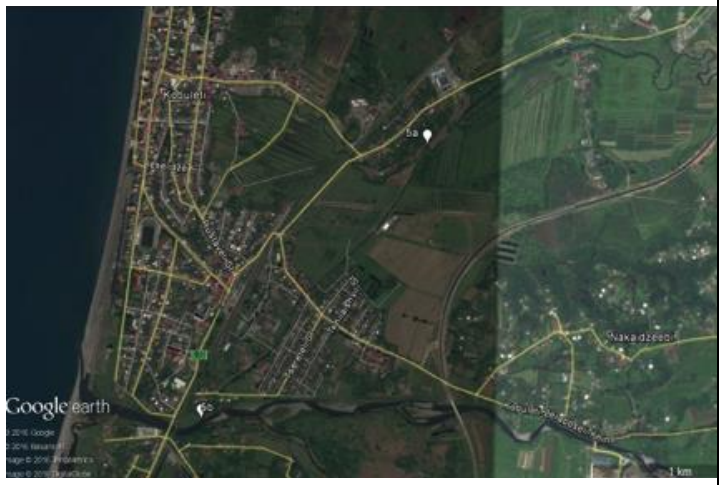
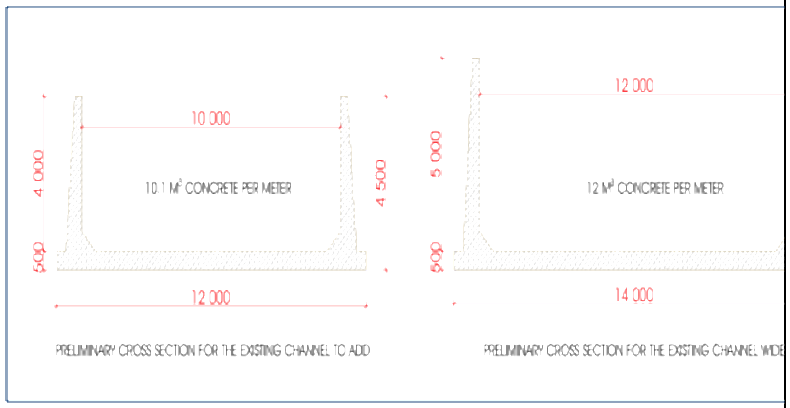
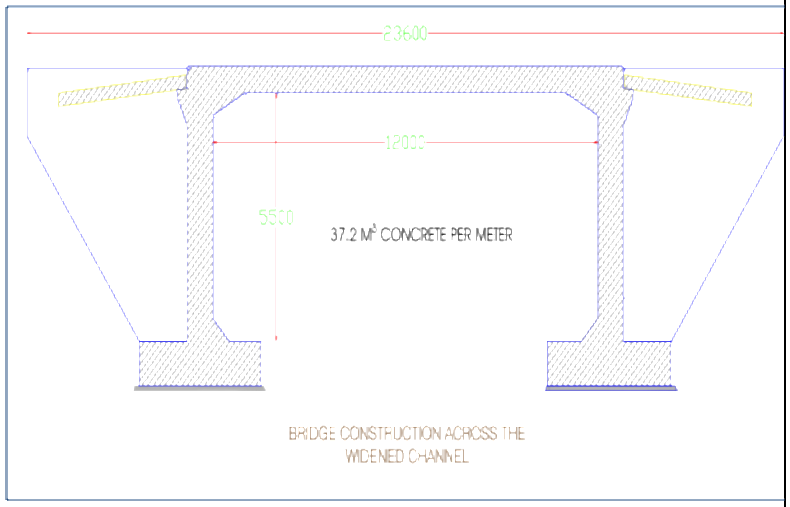
Table 1 Thirteen Intervention Sites

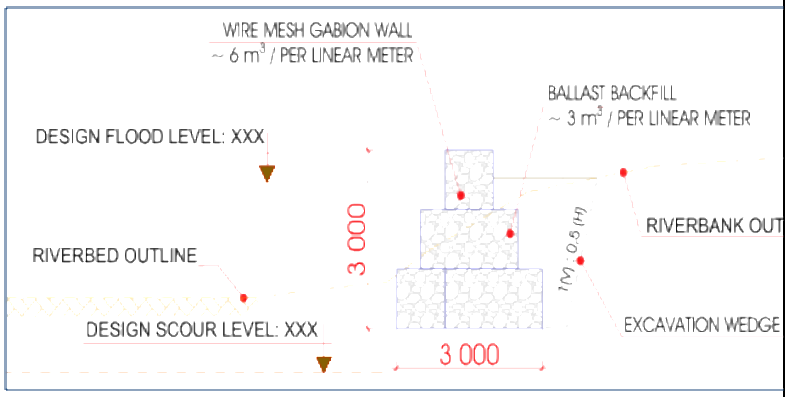
Priority rank	Site name and location	Problem statement	Site map	Planned measure with cross-sections of suggested structure (conceptual design)
1	Gaghma Kodori site, next to vil. Gaghma Kodori on the left bank of the river, Abasha Municipality, Samegrelo-Zemo Svaneti, Enguri River Basin, West Georgia	Bank erosion - scouring, collapse; flood risk to population, properties and agricultural population	 	Embankment with rock boulder benching with wire mesh mat lining, 250m in length 

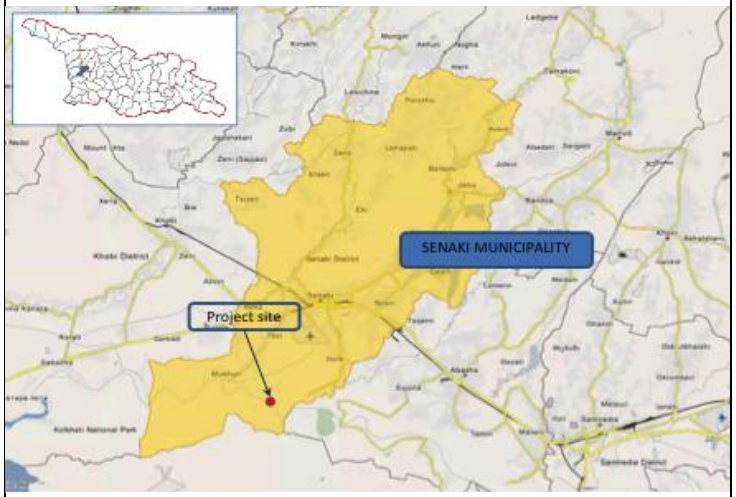
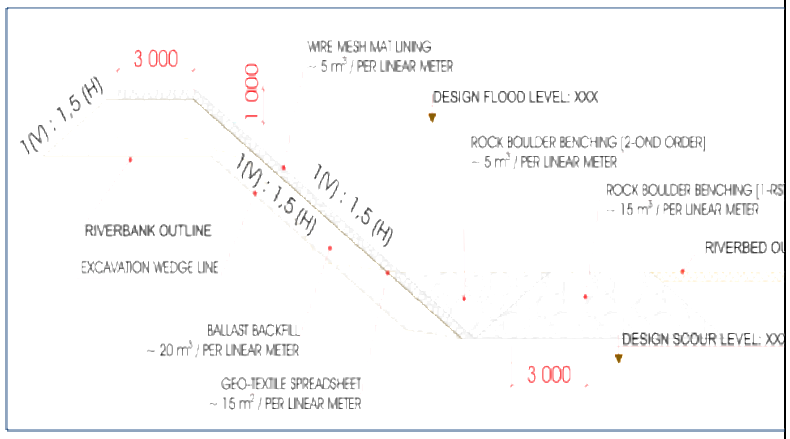
2.	Rioni river, right bank – v. Sagvichio, Zemo Chaladidi community	Strong side erosion; loss of fertile land; range of dikes that have been arranged to protect the area from flooding during high water seasons is washed away and degraded; risk of flooding settlements, properties and agricultural lands	 	Embankment with rock boulder benching with wire mesh mat lining, 600m in length 

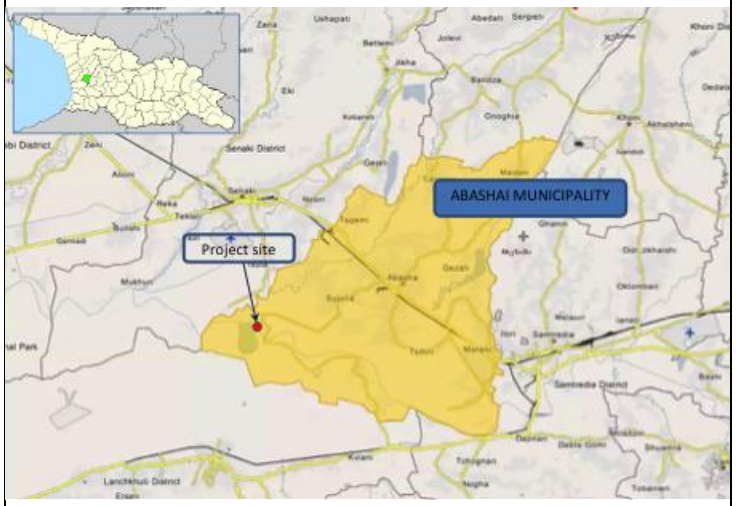
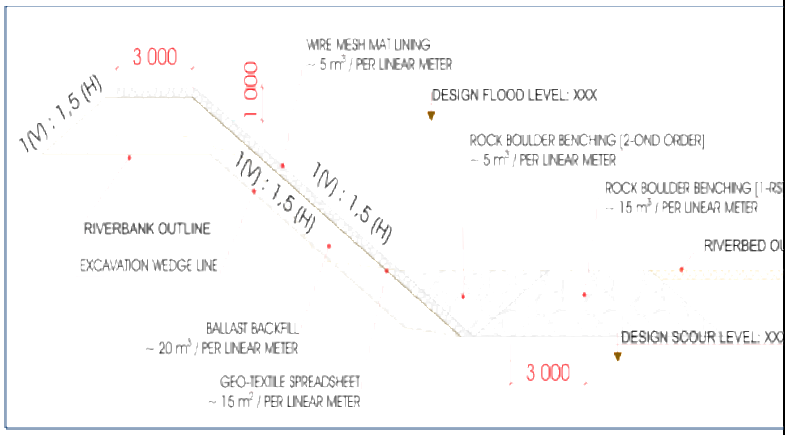
3.	Liakhvi river, left bank – Gori city, Tsmindatskali district of the city, Shida Kartli, Kura River Basin, East Georgia	Side erosion, washing away of the upper terrace in the section from the highway up to the Mejuda confluence; presence of decayed dam - around 800 meters of concrete wall destroyed and washed away by the stream, Remaining part of another 800-meter long wall – undermined; risk of flooding Tsmindatskali area of the city	 	Construction of concrete regulation wall on drilled shafts 200 m 

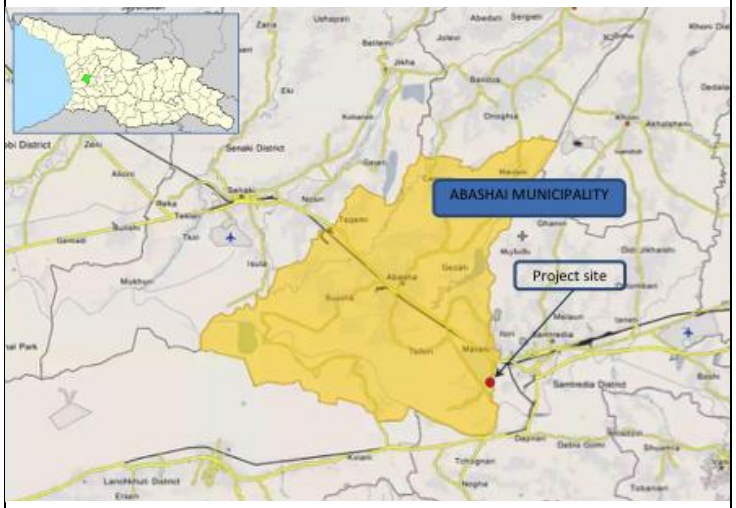
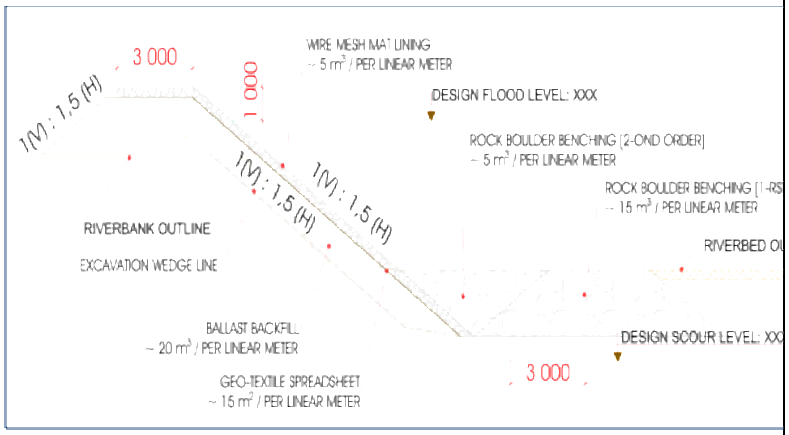
4.	Lagodekhiskhevi river, right bank – Lagodekhi city, Lagodekhi municipality, Kakheti Region, Alazani River Basin, East Georgia	River bed filled up with weakly worked cobbles-cobble-boulders; strong flash floods a risk of flooding population and flooding poses serious problems for population and properties; damaged/silted concrete wall on the right bank of the river; unregulated water intake at the derivation (branching) point	 	Construction of 300-m long wire mash gabion wall in two lines one line - at the flow regulation device and another line - on top of the embankment at the head structure 

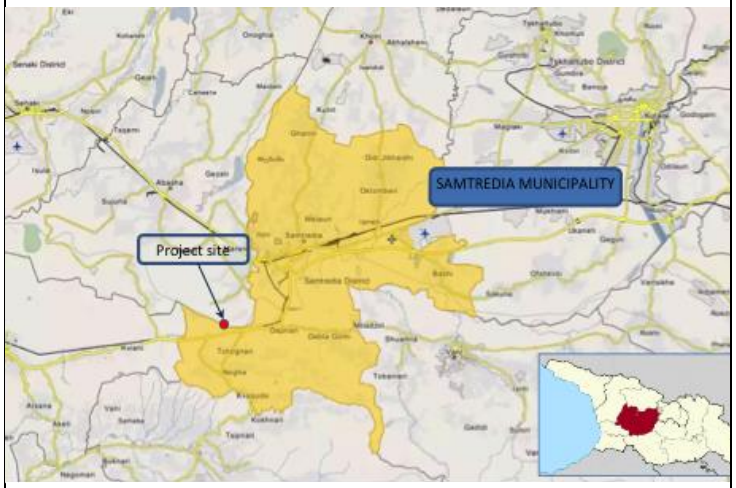
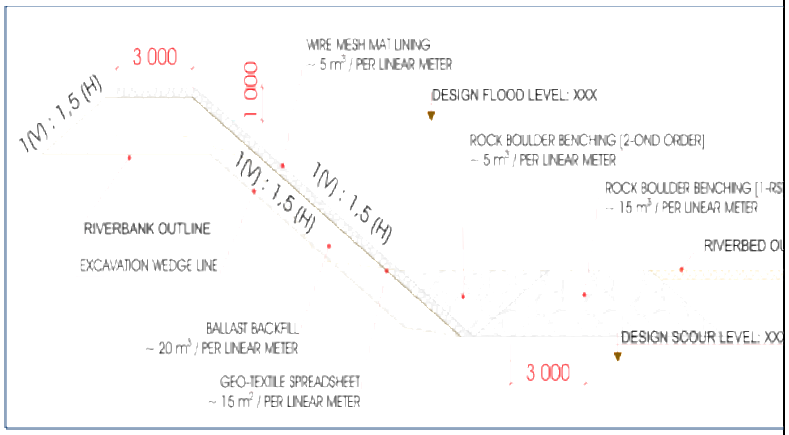
5.	Achkva river – Kobuleti city, Kubuleti municipality, Ajara Autonomous Republic, Chorokhi-Ajaristskali river basin, West Georgia	Insufficient capacity of the river canal; decay of the canal; decay of water regulation facility; high flood risk to residential areas	 	Reconstruction of the water regulation facility, canal widening, lining and construction of new bridges  

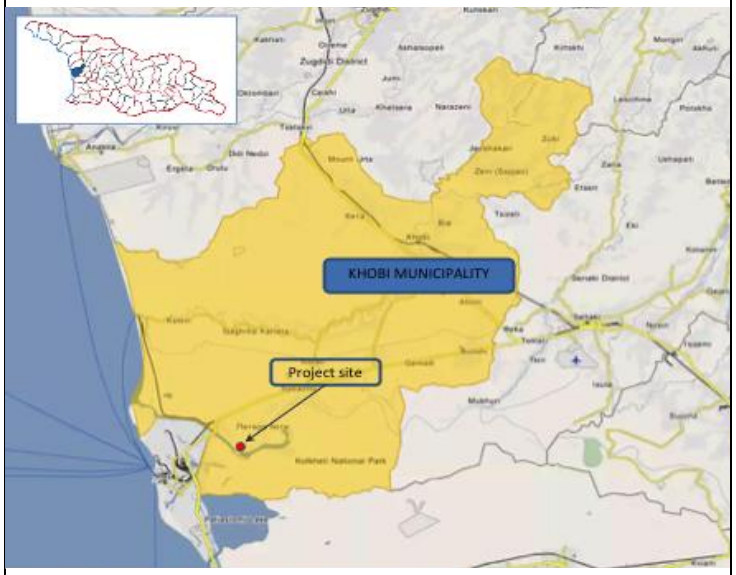
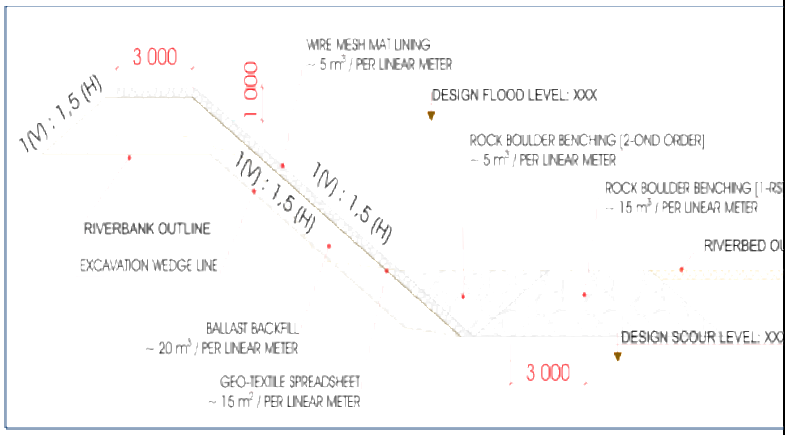
6.	Khodashnis khevi river, left bank, near to villages Ojio and Khorkheli, Akhmeta municipality, Kakheti Region, Alazani river basin, East Georgia	Filling of river bed with sediment; filling of a diversion canal with sediment, lateral erosion of river banks, risk of flooding of monastery area, communities and agricultural lands	 	Riverbed cleaning (5,300m), channel cleaning (3,000m), construction of wire mesh gabion wall with length 2,800m 

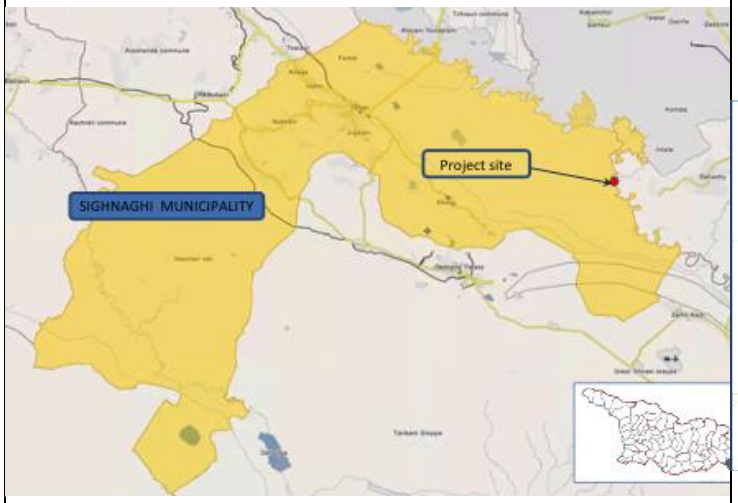
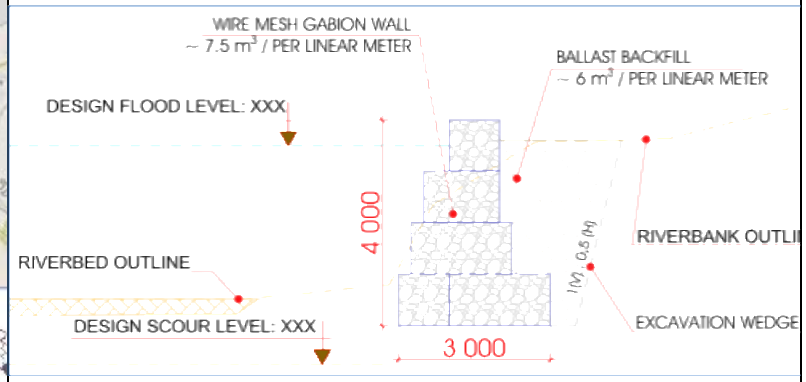
7.	Rioni river, right bank, v. Siriachkoni, Senaki municipality, Samegrelo-Zemo Svaneti region, West Georgia	Lateral erosion of river banks, decay of existing protection structures, away), loss of pastures and arable lands	 	Arrangement of wire mesh with lining along 500m long section on the right bank of the Rioni River 

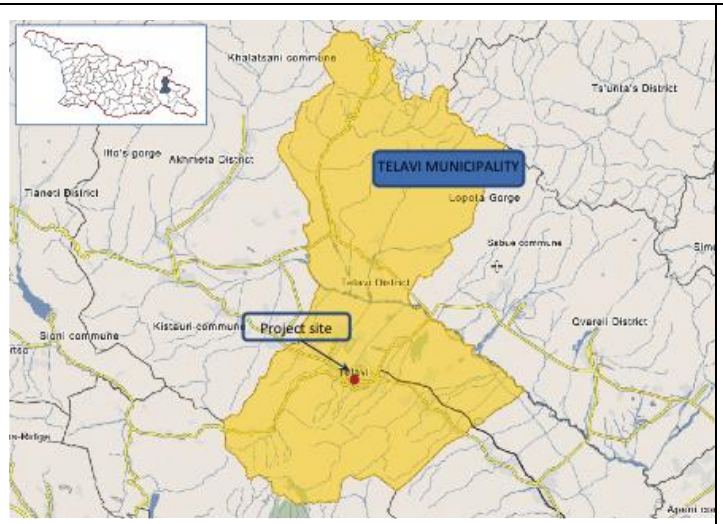
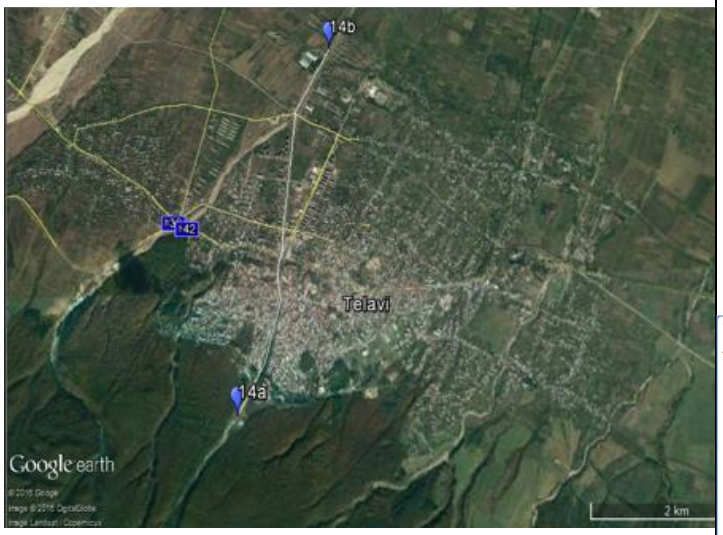
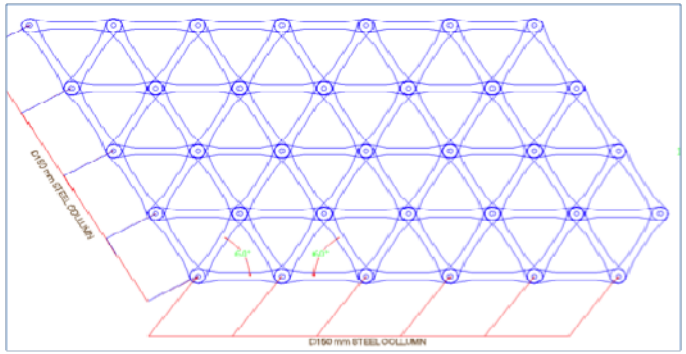
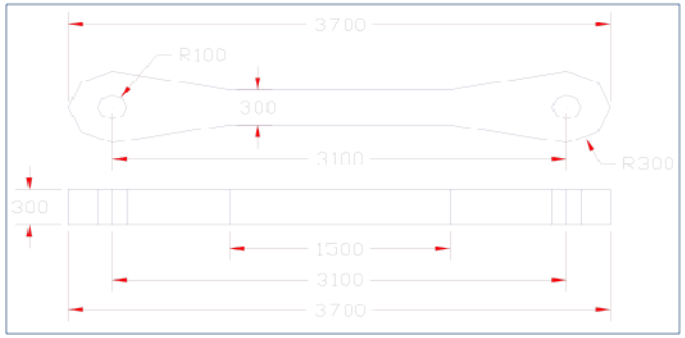
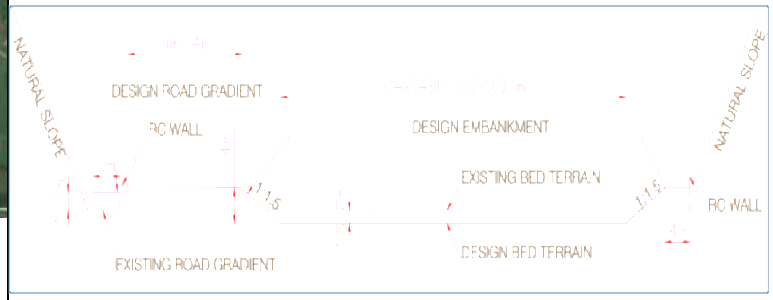
8.	Rioni river, left bank – Narionali (Guleikari), Project site is located on the left bank of the Rioni river, near the bridge (Abasha-Gaghma Kodori-Guleiskiri-Japana road), within the boundaries of Abasha municipality.	Islands and peninsulas near the right bank of the river trigger erosion processes on the left bank. The bank retreat puts the flood protection earthen dikes at risk. There is a risk of embankments wash-out and accordingly, the risk of flooding the populated area.	 	Embankment with wire mesh 550m mat lining 

9.	Tskhenis-tskali river, left bank, Gautskinari, Abasha municipality, Samegrelo-Zemo Svaneti region, Rioni River Basin, West Georgia	At the downstream, the river Tskhenistskali has generated a two-way upper grove terraces. The river washes the banks, resulting in the loss of agricultural lands and threatens houses and home-steads in the area. In some sections of the riverbed alluvial material accumulates.	 	Embankment with wire mesh 500m mat linining 

10.	Rioni left bank, Vazisubani, Samtredia municipality	Bank erosion, degraded/washed away flood protection structures	 	Embankment with wire mesh 350 m mat linining 

11	Rioni river, left bank – Patara Poti (Shavgele), Khobi municipality, Samegrelo-Zemo Svaneti, Rioni River Basin, West Georgia	The riverbed and floodplain of Rioni is built of alluvial sediments – various fractions of sand, silty clays and clayey. The section of the bank in this area is located in the strong meandering zone of the Rioni riverbed. Flood protection structure available in the area is eroded. During high water in the river strong risk of flooding occurs.	 	Embankment with wire mesh mat lining with length 2000 m. 

12.	Alazani river, right bank, Milari, Signaghi municipality, Kakheti Region, Alazani River Basin, East Georgia	River bank erosion/ collapse There is a certain risk that the stream may tear up the meander, straighten the riverbed leaving forested land on the left bank side, i.e. on Azerbaijan side of the border. Few agricultural lands are also under risk of flooding	 	Construction of wire mesh gabion wall along the 400m section in so called Milari area of the Alazani along the border with Azerbaijan 

13	Telavistskali, Telavi city, Kakheti region, Alazani River Basin, East Georgia. The canal starts from the south-west of the University area (in about 300m from the latter) and crosses the city from south-west to north-east direction. Part of it runs through the central (historic) part of the city. Buildings adjacent to the canal are residential or commercial facilities	Decayed mudflow revetment structure and need for its clean-up	 	  Clean up (removal of debris) of 3 accumulation zones of the mudflow retaining structures totalling around 800 meters in length is planned Typical layout of the mudflow retaining structure to be cleaned-up 

1.3 PROJECT ALTERNATIVES

12. As part of the project development, a range of alternatives were considered.

1.3.1 Do Nothing Alternative

13. Floodplain and hillslope agroforestry systems were designed for the Rioni basin and have then been slightly modified for alternative sites. Without undertaking the activities, it would not be possible to maintain productive agriculture while increasing environmental stability. Without undertaking these interventions, the environment would continue to be degraded as a result of the impacts of climate change.

14. Without undertaking the river works activities, significant flooding and loss of life and assets would continue to occur.

15. The GCF project will support the commitment of the Georgian government to avoid losses of lives and to reduce economic and infrastructure losses caused by climate-induced hydro meteorological disasters. The project will achieve this by nation-wide scaling-up of the Multi-Hazard Early Warning System (MHEWS), developing capacities for climate information services, enabling and embedding the use of climate risk information in sector planning and decision-making, and reduction of exposure of the most vulnerable communities to climate-induced hazards through community-based risk reduction measures. Without undertaking these interventions, the country would not be able to reduce the potential for loss of life.

1.3.2 Alternative Locations

16. The proposed activities could be undertaken in a number of different locations. However the proposed locations, particularly the river works interventions have been identified by the Government of Georgia as those sites that provide the greatest economic, environmental, and social benefit. Alternative sites would not provide

2 LEGAL AND INSTITUTIONAL FRAMEWORK FOR ENVIRONMENTAL AND SOCIAL MATTERS

2.1 LEGISLATION, POLICIES AND REGULATIONS

17. Georgian environmental and social law is being harmonised and in some aspects, is quite close to European Union environmental law, based on sustainable development principles. It was developed considering responses to environmental challenges, faced by Georgia, as well as the principles of sustainable development.

2.1.1 Constitution of Georgia

18. The *Constitution of Georgia* lays down the legal framework that guarantees public access to information. The Constitution forms a vital component of the overall public consultation process with regards to environmental conditions; though, it does not directly address environmental issues.

19. Article 37 of the Constitution states that "*any person has the right to live in a healthy environment, use natural and cultural resources*". Further, all people are obliged to care for natural and cultural environment". Under Part 5 of Article 37, "*an individual has the right to obtain full, unbiased and timely information regarding his working and living environment*". According to the Constitution, the Georgian Government must secure the rational use of natural resources and protection of the environment. Article 41, part 1 of the Constitution states that Georgian citizens have access to information available in state institutions concerning their personal matters, as well they have access to official documents provided they do not contain confidential information of state, professional or commercial importance.

20. The Constitution of Georgia also recognises the equal rights of every citizen regardless of race, colour, language, sex, religion, ethnic origin or nationality. Any violation of the equality of citizens is punishable under the Georgian law.

2.1.2 Civil Code of Georgia

21. The *Civil Code of Georgia* regulates private civil relations, determines rights of ownership, family and neighbouring tenements and establishes inheritance rules. Ownership right enables the proprietor to freely manage or alienate owned assets. Paragraph 183 of the Code states, "*that purchasing of real estate shall be confirmed by a written agreement and ownership right of the buyer is registered in the public register*".

22. The Civil Code gives the proprietor right to alienate assets with right to build, usufruct or servitude. The Code defines rules for neighbouring tenements. According to paragraph 180, if a land parcel has not access to public roads and power, gas and water supply networks, the proprietor has right to request a neighbour to use his/her parcel to provide such communications and for this pays one-time compensation. The Code also defines other rights of neighbouring tenements regarding bordering facilities, plants, fences and disturbances.

2.1.3 The Law of Georgia on Environmental Protection

23. The *Law of Georgia on Environmental Protection* regulates the use of nature in all Georgia's territory including its territorial waters, airspace, continental shelf and special economic zone. The Law establishes general principles and standards of environmental protection and the use of natural resources in Georgia. Its main objectives are to ensure the rational use of natural resources by creating an optimal balance of ecological, economic and social interests of the public; to protect the original landscapes, ecosystems, flora and fauna of Georgia, and to create an environmentally safe habitat for the population.

24. The Law requires Georgian citizens to observe the environmental legislation of Georgia, to protect their natural and cultural habitat and to promptly inform relevant state agencies on existing or potential natural accidents or ecological calamities. State authorities and physical and legal persons are further

required to observe the principles and standards of environmental protection stipulated by the Law in the process of planning and implementing their activities.

25. The *Law of Georgia on Environmental Protection* provides the following principles of the environmental protection: risk reduction, "the polluter pays," bio-diversity preservation, wastes minimisation, recycling, restitution, environmental impact assessment, the accessibility of information, etc. The Law also provides the following standards of environmental protection: qualitative standards of the environment's status, admissible limits of environmental pollution by the emission of hazardous substances and microorganisms, admissible limits of chemical substances' use in the environment, and ecological requirements to products as examples. The Law further deals with education and scientific research in the scope of environment, environmental management aspects, economic levers, licensing; considers different aspects on protection of ecosystems, protected areas, issues of global and regional management, protection of ozone layer, biodiversity, protection of Black Sea and international cooperation aspects. Among other powers in the field of environmental protection the MoEPA is charged with responsibility to organise the monitoring of environmental pollution.

26. The Law represents a basis for other environmental legislation; therefore, it must be complied with during implementation of the subprojects

2.1.4 The Law of Georgia on Water

27. The *Law of Georgia on Water* defines the main principles of water policy, such as the protection and rational use of water, with regard to the demands of the present and the future. Chapter II makes provisions on the responsibilities related to water management on national, Autonomous Republic and local governance levels including implementation of works for the recovery of bodies of water damaged by natural disasters. Article 14 states that water protection actions must be planned in accordance with the principles of sustainable development. The Law requires water protection to be integrated in the following actions: local land-use plans; resettlement and development plans; infrastructural projects; sectorial plans; management plans of protected areas; and natural resource management plans. Consistent with the legislation, water within the territory of Georgia is in the state ownership and can be provided only for consumption. Any actions directly or indirectly violating the state ownership rights for water are prohibited.

28. The MoEPA is authorised to carry out the state control and management over water protection and use. Within their respective competence, the Ministry of Labour, Health and Social Affairs, state and local bodies of land management and local self-government authorities are also authorised to regulate the use and protection of water. The Law provides that the MoEPA and its local subdivisions must maintain the state water registers, in which information concerning water and water examination results, including, but not limited to, quantitative and qualitative attributes of water, must be registered.

29. Severe criminal, civil and administrative sanctions and penalties may apply if provisions of the present Law are violated.

30. The planned projects are implemented in the riparian area, close to the river, therefore provisions of the Law must be considered during design and construction.

2.1.5 The Law of Georgia on Protection of Atmospheric Air

31. The *Law of Georgia on Protection of Atmospheric Air* provides for the regulation and management of atmospheric air protection from adverse anthropogenic impacts that may negatively affect both the environment and human health, including air pollution with toxic substances, radiation, microorganisms or biologically-active microbes; the negative effect of noise, vibration and electromagnetic waves. The Law does not regulate the legal framework for protection of air indoors.

32. In order to minimise negative effects on the environment and human health, the Law establishes admissible limits and standards of pollution. The Law establishes threshold limit values of concentration of harmful substances in ambient air as prescribed by European Union legislation. For the purposes of the Law, the values, types and listings of the limit values of concentration of harmful substances in ambient air are established according to *2008/50/EC Directive on the Ambient Air Quality and Cleaner Air for Europe* (21 May 2008) of the *Council of the European Union and*

2004/107/EC Directive on Arsenic, Cadmium, Mercury, Nickel and Polycyclic Aromatic Hydrocarbons in Ambient Air (15 December 2004). The Law states that the values, types and listings of the limit values of concentrations of harmful substances in ambient air shall be determined under a Joint Order of the Ministry of Labour, Health and Social Affairs and the MoEPA on the *Approval of the Values, Types and Listings of the Limit Values of Concentrations of Harmful Substances in Ambient Air* in accordance with the *2008/50/EC* and *2004/107/EC Directives of the Council of the European Union*.

33. The Law provides for the division of Georgia into extremely polluted, highly polluted, polluted and non-polluted regions. The Law stipulates that the level of air pollution should be determined pursuant to a pollution index. The Law also provides the need for establishment of limits of air pollution with toxic substances emitted from fixed, movable and disperse sources. It contemplates the establishment of a monitoring system over the quality of air and the necessity of air protection planning by local state authorities, pursuant to the requirements of the *Laws on Environmental Protection*.

34. The *Air Protection Law* authorises the MoEPA to carry out state air pollution control. The Law authorises the Ministry of Labour, Health and Social Affairs and its subdivisions to carry out the air pollution control from fixed sources within their respective competence. The Law provides a list of environmental laws and regulations that should be adopted and a timetable for their adoption.

35. Project activities will likely include exhaust emissions, dust and noise impacts to ambient air quality. As such, when implementing the project, it will be necessary to consider ambient air pollution protection requirements as required by the Law.

2.1.6 The Law of Georgia on Natural Resources

36. The *Law of Georgia on Natural Resources* requires any entity developing or impacting on subsoil resources in Georgia to implement all activities related to subsoil operations by observing environmental safety norms. Companies are further required to observe regulations for the protection of the subsoil, air, land, water, forests, protected areas and parks, buildings and structures of historic and/or cultural value, as well as all other buildings, from any negative effects of subsoil use. Subsoil operations that may cause damage to the environment or become the cause of a threat to the life or health of the population are prohibited.

37. The Law sets requirements:

    a. to ensure the rational use of mineral resources;

    b. to ensure the complete and comprehensive study of subsoil in order to correctly administer subsoil protection measures;

    c. to protect mineral deposits from flooding, deluge, pollution, fire or other factors that may affect the quality of mineral resources;

    d. to prevent the harmful effects of natural gas and other substances' storage and/or burial in the subsoil;

    e. to prevent the accumulation of industrial and/or household wastes in the vicinity of water storage structures; and

    f. to ensure the reliable forecasting and assessment of the potential impact of subsoil operations upon the environment and to carry out the necessary measures to protect the environment and population, etc.

38. The MoEPA is authorised to issue licenses (exploration, abstraction) and to conduct the control, monitoring and compliance with licence conditions. Criminal, civil and administrative sanctions and penalties may apply to a developer where they are found to be liable for the violation of the *Subsoil Law*. The Law will apply to the subprojects where the contractor(s) operates their own quarry/ies.

2.1.7 Law of Georgia on Soil Protection

39. The *Law of Georgia on Soil Protection* aims at ensuring the preservation, integrity and fertility of soil. The Law defines obligations and responsibility of land users and the State regarding the provision of soil protection conditions and ecologically safe production. The Law sets the maximum permissible concentrations of hazardous matter in soil. The Law restricts the use of fertile soil for non-agricultural purposes; execution of any activity without striping and preservation of top soil; open quarry processing without subsequent recultivation of the site; terracing without preliminary survey of the area and approved design; overgrazing; wood cutting; damage of soil protection facilities; any activity deteriorating soil quality (e.g. unauthorised chemicals/fertilisers, etc). The Law defines status of soil, describes their use, and sets out the types of licenses and rights and obligations of the users. The Law establishes responsibilities to preserve lands from contamination and ensures conformity of agricultural activities with relevant legal requirements.

40. Implementation of the project could result in the risk of damage/deterioration of the quality (pollution) of soil during the equipment/vehicles movement and earth works. As such, 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 recultivation (Resolution of the Government of Georgia, #415, 31 December 2013).

2.1.8 Law of Georgia on Wildlife

41. The *Law of Georgia on Wildlife* is based on the Constitution of Georgia along with the international agreements and treaties has ratified along with domestic laws including the *Law on the Environmental Protection*; the *Law on System of Protected Areas* and other legislative acts and statutes in the field of wildlife protection, habitats and use of wildlife.

42. The main goal of the Law is to ensure the:

    a. protection and restoration of wildlife and their habitats,;

    b. the preservation and sustainability of species diversity and genetic resources;

    c. creation of conditions for sustainable development, taking into account the interests of present and future generation;

    d. legal ensuring of wildlife protection (including in-situ and ex-situ conservation, translocation and reproduction of wildlife); and

    e. State-based provision for the use of wildlife objects.

43. Article 10 mandates that relevant government entities will undertake the restoration of the natural habitat of wildlife, impacted as a result of natural disasters, epidemics and other causes.

44. The Law regulates the main legal relationships between the State and physical and legal persons in the field of the protection of wildlife and use of its objects. With respect to the protection, reproduction and use of wildlife, the Law refers to matters such as constantly or temporarily, the conditions of natural freedom, semi-freedom or artificially created environments on land, in soil, water, atmosphere, territorial waters, continental shelf and special economic zone. The Law also regulates with corresponding legislation, the interaction of the protection, reproduction and use of wildlife and the relationship with agricultural, domestic and other animals, which have economic, scientific, cultural, educational, aesthetic and other purpose

45. Liability for violation of the Law including the protection and care of domestic and other animals and use of those objects of wildlife is established by corresponding Georgian legislation.

2.1.9 Law of Georgia on System of Protected Areas

46. The *Law of Georgia on System of Protected Areas* sets categories of protected areas (including national park, state reserves, managed reserves) and defines activities that are allowed to take place inside these areas. Activities can be permitted based on the consideration of the purpose of the area;

the requirements set out in legislation and individual regulations, relevant management plans of the protected areas, and any international agreements and conventions signed by Georgia.

47. The Law provides restrictions over the use of natural resources in national parks and other protected areas. In general, activities are prohibited in protected territories; however it is necessary to consider what damage or modify natural ecosystems; and whether the activities will destroy natural resources due to use or other purposes. The Law also regulates the seizure, damage and/or disturbance of protected natural ecosystems and species; pollutions of protected areas and the introduction of alien and exotic species. The Law also establishes regulation with respect to the carrying out any other activities that might be restricted by the management plan of the protected area.

48. Article 1(e) defines the goals for the protection of territories located in erosion, mudflow, (flash) flooding, avalanche and landslide risk zones. Article 20 refers to the management of disaster risks within the protected areas through temporary regulation for disaster and emergency management.

49. The Law to be considered for those subprojects that are located near protected areas or are accessible from the roads running close to the protected areas.

2.1.10 The Forest Code of Georgia

50. *The Forest Code of Georgia* regulates the functions and use of forest, including the protection, management of water catchment basin, wood production, etc. The Law allows for private ownership of forest and commercial woodcutting. According to the Law, Forest Department of Georgia does not execute commercial woodcutting itself; however the Forest Department controls and manages these operations through the granting of licences to private enterprises.

51. The Forest Department is responsibility over sanitary woodcutting and forest management. According to the Code, the MoEPA has delegated to the Department, the authority to issue woodcutting licenses. The Forest Code sets categories protected forests, including those regulating soil and catchment basins, riparian and sub-alpine forest zones, floral species of the Red List, etc. The Forest Code is a framework law and requires execution of detailed regulations.

52. The forest code must be considered for the subprojects implemented near the boundaries of the forest fund of Georgia.

2.1.11 Waste Code

53. The purpose of *Waste Code* is to establish a legal framework for waste management and to implement measures that will facilitate waste prevention. The Code includes a framework to increase the re-use of waste as well as environmentally safe treatment of waste (which includes recycling and separation of secondary raw materials, energy recovery from waste and safe disposal of waste). The Code defines hierarchy, principles and general requirements, along with competences and general obligations in the field of waste management. Compliance with provisions of the Law is obligatory for all natural and legal persons.

2.1.12 Law of Georgia on Licenses and Permits

54. The *Law of Georgia on Licenses and Permits* regulates organised activities and/or actions concerning unlimited circle of persons, is characterised with increased hazard to human life or health, especially where it involves important state or public interests, and/or is connected to consumption of the state resources. The Law deals with spheres regulated by licenses and permits, defines full list of licenses and permits, and sets rules for granting, amending and abolishing licenses and permits. According to the Law, the state regulates an activity/action with a license or permit only when this activity/action is directly associated with increased hazard risks for human life or health, or they incorporate the state and public interests. The State regulates an activity/action with a license or permit only when the licensing/permit issuing can really reduce the mentioned hazards or they incorporate the state and public interests.

55. Under the Law, a license and/or permit issued by a foreign country under an international agreement or law can be recognised and have the status, similar to that granted to a license or permit issued based on Georgian legislation. The Law defines new principles for the license issuance. These are:

    a. "One-window" principle – a new concept adopted by the Law, which obliges a licensing authority to ensure approval of additional licensing conditions by other authorities;

    b. "Silence gives consent" – a licensing administrative body is obliged to make a decision in due period of time after an application is submitted. Otherwise, if the decision is not announced by the end of this period, a license is deemed issued; and

    c. "Umbrella principle" – a holder of the general license is not obliged to apply for specialised licenses.

56. The Law will apply to the subprojects where the contractor(s) operates their own quarry/ies.

2.1.13 Law on Regulation and Engineering Protection of Sea and River Coasts of Georgia

57. The *Law on Regulation and Engineering Protection of Sea and River Coasts of Georgia* establishes the terms for complex and rational use of the sea and river coastal zone of Georgia. The Law was enacted to ensure the sustainability of the coastal zone, as well as establishes the State's control over and liabilities for actions entailing erosive and abrasive processes.

58. The Law applies to the subprojects as the main activities are implemented in the coastal areas.

2.1.14 Law on Public Health

59. The Law on Public Health aims at:

    a. facilitating health and healthy life style; ensuring an environment safe for human health; promoting reproduction health protection; and

    b. promoting reproduction health protection; preventing spreading of contagious or non-contagious diseases.

60. The Law defines rights and responsibilities of population and legal persons regarding public health care. To guarantee the safe environment the Ministry of Labour, Health and Social Affairs sets the qualitative standards for air, water, soil, noise, vibration, electromagnetic fields, which include permissible concentrations and exposure standards. Adherence to the standards is obligatory. As defined in the Law, ensuring environmental health means surveillance over compliance with sanitary and hygiene rules and standards of safety at workplace, in daily life, at leisure, of food, education and radiation and chemical safety, and sanitary-epidemiological rules; issues of state sanitary and hygiene and sanitary-quarantine border control.

61. The sub projects sites must comply with requirements of the Law, including sanitary and hygiene rules at the worksites must be observed.

2.1.15 Law of Georgia on Compensation of Land Substitute Costs and Damages due to Allocating Agricultural Land for Non-Agricultural Purposes

62. The purpose of Law of Georgia on Compensation of Land Substitute Costs and Damages due to Allocating Agricultural Land for Non-Agricultural Purposes is to determine any compensation amounts for agricultural land when allocating, using and/or disposing agricultural land for non-agricultural purposes according to the municipalities and recreation areas of Georgia. The Law establishes the terms and conditions for payment/s and for changing the designated purpose of agricultural land. It also provides for the determination of compensation issues regarding the damage caused to landowners or land users by temporary use of land plot, restriction of his/her rights, or deterioration of land quality.

63. In case of any damage to the land during implementation of the project, the provisions of the Law must be taken into account.

2.1.16 Law of Georgia on Ownership to Agricultural Land

64. The *Law of Georgia on Ownership to Agricultural Land* aims at rationalise land use, improvement of agrarian structures and the prevention of land fragmentation. The Law provides definitions for agricultural land; sets rules for the purchasing and alienation of agricultural land, and the role of the State to regulate relevant relationships.

65. The Law gives the ownership right to agricultural land to the State, citizen of Georgia, household (*Komli*) and legal person registered in accordance with the legislation of Georgia. According to Articles 6 and 8, the acquisition of agricultural land is allowed on the basis of ordinary rules and general restrictions. Ordinary rule considers land alienation without any permits and other limitations, and general restrictions consider land alienation only on the basis of the consent of co-owner of shared property. If not covered by the given law, Civil Code of Georgia regulates land-related (ownership) relations and rights.

2.1.17 Law of Georgia on Entitlement of Ownership Rights to Lands Possessed (Employed) by Physical and Legal Persons of Private Law

66. The *Law of Georgia on Entitlement of Ownership Rights to Lands Possessed (Employed) by Physical and Legal Persons of Private Law* regulates the utilisation of State-owned lands and facilitates to development of land market via entitlement of legal ownership or utilization rights of physical and legal persons of private law, as well as other legal organised entities and squatters.

2.1.18 Law of Georgia on Rules for Expropriation of Ownership for Necessary Public Needs

67. The *Law of Georgia on Rules for Expropriation of Ownership for Necessary Public Needs* defines terms, rules and procedures for expropriation of assets for necessary public needs. Expropriation for essential public needs requires the Presidential decree and the court decision. Decision of the court shall give detailed description of acquired property and the compensation owed to the land owner.

68. Article 2.2 sets out what might be included with respect to activities that may necessitate the need for acquisition of land for public needs and includes the following construction/installation activities:

    a. Roads and highways;
    b. Railways;
    c. oil, gas and oil product pipelines;
    d. Power transmission and distribution lines;
    e. Water supply, sewage and storm water drainage systems;
    f. Telephone lines;
    g. Premises and objects of public needs;
    h. Works required for national defence; and
    i. Mining and reserve development,

69. After the issuance of the Presidential decree, a person seeking for expropriator's right must announces in the central and local printed media about the project, its scope, area coverage and brief description of potentially acquired property. All the owners also shall be informed about the dates of application to the court and action proceeding.

70. An expropriator is able to obtain property in agreement with the owner. Prior to negotiation, the expropriator evaluates the property and determines estimated compensation sum or other property according to fair market price (Articles 6.1). Agricultural lands shall be evaluated together with the price of or any crops that could be yielded by the owner throughout the current agricultural year.

2.1.19 European Flood Directive (2007)

71. The European Flood Directive (2007) requires member countries to have policies, plans and programs to manage and coordinate flood risks. After joining the EU Association Agreement, to respond to this request Georgia is reviewing its water and flood management laws including:

    a. The *Law on Protecting the Population and Territory from Natural and Man-made Emergency Situations* which creates the main legal basis for disaster management in Georgia distributing the roles and responsibilities of various ministries during emergencies; and

    b. The *Civil Safety Law* which predominantly addresses civil protection, defining functions and competencies of various state entities with preparedness, response, prevention of emergency situations and early recovery action as a part of the immediate response stage.

2.1.20 Civil Integration and Tolerance Council

72. In August 2005 the Georgian government established the Civil Integration and Tolerance Council. Its main function was to study the issue of tolerance towards ethnic minorities and their level of their participation to society. The council defined six main priority areas for the development of policies, and consequently created six working groups inside the council: Rule of Law; Education; Culture; Social and Regional Integration of Society; Media; and Civic Participation.

73. The Tolerance Centre under the Public Defender has been functioning and actively working on development of the culture of tolerance and equal environment in Georgia. The Council makes an important contribution to the protection of the rights of religious and ethnic minorities. In this regard, it creates promoting conditions for a multilateral dialogue between the majority and minority groups, carries out educational activities, detects cases of religious and ethnic discrimination and xenophobia, and studies the existing trends and systemic problems in this field.

74. One of the main activities of the Centre is to coordinate the Public Defender's Councils of Religions and Ethnic Minorities, which represent a space where religious and ethnic minorities have the opportunity to discuss and work on important issues. The Council of Ethnic Minorities currently unites about 100 organisations working on minority issues, while the Council of Religions combines more than 30 religious associations. Today the Councils represent the biggest minority consultative forums.

The Tolerance Centre, together with the Council of Ethnic Minorities, monitors the National Integration Strategy and Action Plan each year and thus contributes to the engagement of national minorities in the process of integration.

2.2 Environmental Impact Assessment in Georgia

75. The *Law of Georgia on Environmental Impact Permit* provides a complete list of activities subject to obligatory ecological examination. The Law sets legal basis for issuance of environmental permit, implementation of ecological examination, public consultations and involvement in the processes.

76. In this Law, an Environmental Impact Permit is defined as an authorisation for implementation of the planned development. According to the Law, an Environmental Impact Permit can only be issued by the MoEPA after examination of applicant’s documents.

77. Georgian legislation does not require any type of environmental review, approval, or permitting for the subprojects; however according to the national regulatory system the following must occur:

    a. The works contractor must be licensed (copies of extraction licenses (if applicable), permits for operating concrete plants (if applicable), and waste disposal permits must be provided by contractor prior to commencement of works);

    b. The construction materials must be obtained from the licensed producer(s). Contractor may use their own material if it is, for example, already running a quarry/ies (e.g. owns a relevant licence for extraction). In the case where the contractor does not have operate their own quarry/ies, but decides to open their own quarry rather than purchase material from other entity, a licence for

extraction of inert material must be obtained from the MoEPA. The same principle applies to concrete, the contractor must purchase the concrete from licenced producer(s) or the contractor may already have own concrete batching plant. With consideration of the scale of the planned construction, the third option, this being starting their own concrete batching plant is less likely as in this case, an environmental impact permit would be required and this would set out the w maximum allowable limits of air emission; and

c. authorisation for disposal of construction waste (if any) must be obtained.

2.3 Multilateral Agreements and Biodiversity Protocols

78. The Government of Georgia is a signatory to a number of international and regional agreements and conventions, which are related to the environment. They include:

Natural environment	
1994	Rio Convention on Biological Diversity, 1992
1994	Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), 1973
1997	Ramsar Convention on Wetlands of International Importance Especially as Wildfowl Habitat, 1971
2000	Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention) (CMS), 1983
2008	Convention on the Conservation of European Wildlife and Natural Habitats (Bern)
2010	European Landscape Convention
Climate	
1994	UN Framework Convention on Climate Change (UNFCCC), 1994
1996	Montreal Protocol on Substances that Deplete the Ozone Layer, 1987 (and its London, Copenhagen, Montreal and Beijing Amendments) 2000. 2011
1996	Vienna Convention for the Protection of the Ozone Layer, 1985
1999	Kyoto Protocol to UNFCCC, 1997
1999	International Convention to Combat Desertification, 1994
1999	Geneva Convention on Long-Range Transboundary Air Pollution
Cultural heritage	
Notification for succession	Paris Convention Concerning the Protection of the World Cultural and Natural Heritage, 1992

2011	Council of Europe Framework Convention on the Value of Cultural Heritage for Society, 2005
1997	European Cultural Convention, 1954
2000	Convention for the Protection of the Architectural Heritage of Europe, 1985
2000	European Convention on the Protection of the Archaeological Heritage, 1982
Public participation and information accessibility	
2000	Aarhus Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters, 1998
Human Rights	
1991	Universal Declaration of Human Rights
1994	International Covenant on Civil and Political Rights
1994	International Covenant on Economic, Social and Cultural Rights
1997	European Cultural Convention
1999	European Convention for the Protection of Human Rights and Fundamental Freedoms
1999	International Convention on the Elimination of All Forms of Racial Discrimination
1999	Convention for The Protection of Human Rights and Fundamental Freedoms
2004	European Charter of Local Self-Government
2005	Framework Convention for the Protection of National Minorities
2006	European Outline Convention on Trans-frontier Co-operation between Territorial Communities or Authorities
Labour issues	
1993	International Convention Concerning discrimination in respect of Employment and Occupation
1993	Employment Policy Convention
1996	Geneva Convention concerning Minimum Age for Admission to Employment
1996	Equal Remuneration Convention

1996	Abolition of Forced Labour Convention
1997	ILO Social Policy (Basic Aims and Standards) Convention
1997	Forced Labour Convention
1997	Freedom of Association and Protection of the Right to Organise Convention
1997	Social Policy (Basic Aims and Standards) Convention
1999	Employment Service Convention
2003	Labour Relations (Public Service) Convention

79. In addition to conventions listed above, the following EU directives should be taken into account:

    a. Habitats Directive [Directive 92/43/EEC (ref. Art. 6 of the Directive)];

    b. Bird Directive [Directive 2009/147/EC on the conservation of wild birds];

    c. EU Water Framework Directive [Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for the Community action in the field of water policy];

    d. EU Waste Framework Directive [Directive 2008/98/EC on waste].

3 DESCRIPTION OF EXISTING ENVIRONMENT

80. This section identifies the existing environmental and social baseline conditions of the project intervention sites.

3.1 TOPOGRAPHY, GEOLOGY AND SOILS

3.1.1 Topography

81. Georgia lies mostly in the Caucasus Mountains, and its northern boundary is partly defined by the Greater Caucasus range. The Lesser Caucasus range, which runs parallel to the Turkish and Armenian borders and the Surami, and Imereti Ranges, which connect the Greater Caucasus and the Lesser Caucasus, which create natural barriers that are partly responsible for cultural and linguistic differences among regions.

82. Because of their elevation and a poorly developed transportation infrastructure, many mountain villages are virtually isolated from the outside world during the winter.

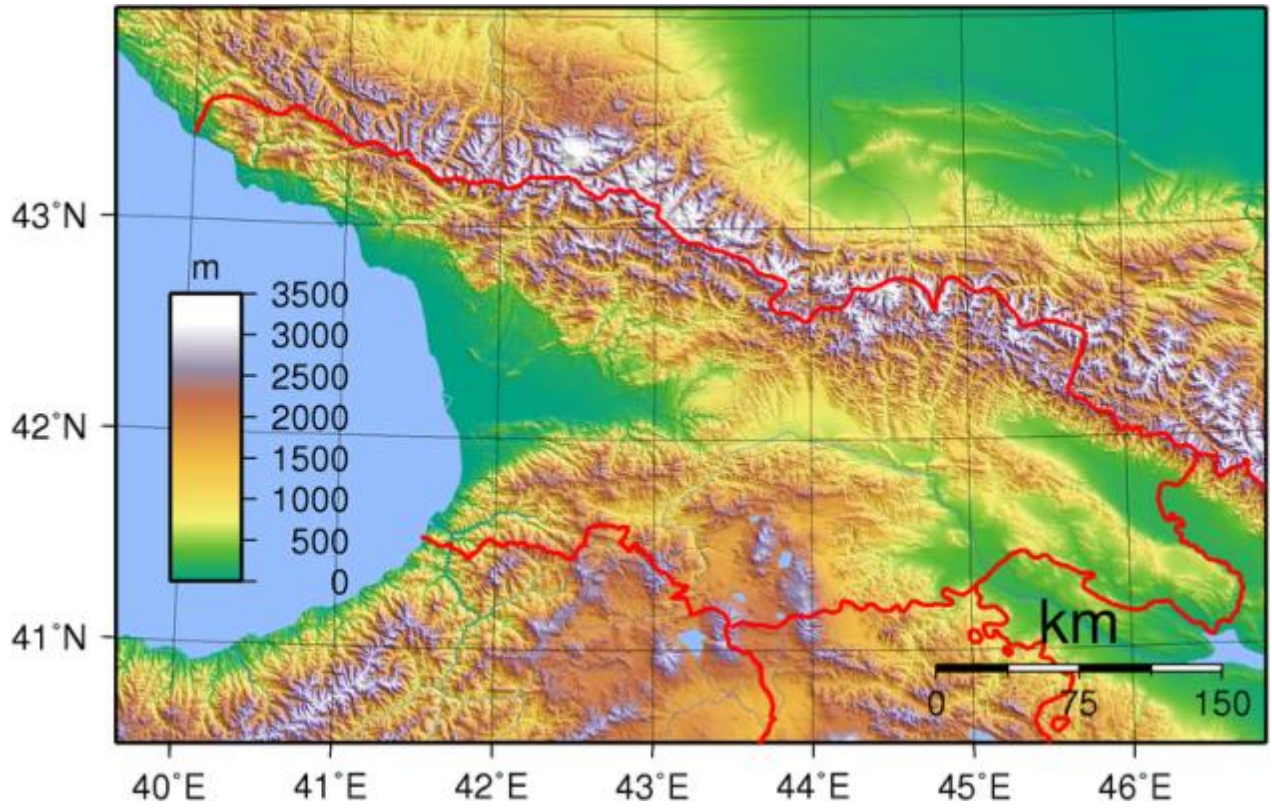


Figure 3 Geology and Altitude of Georgia

3.1.2 Geology

83. Geologically, Georgia is very different based on location. The Alazani Valley is a very peculiar tectonic unit of Georgia. This is a zone of intense immersion continental geosyncline accumulating sediments. Formation of geosyncline has begun since Pliocene. The evolution of the Alazani-Agrichai depression began in the Upper Pliocene. The Caucasus foothill was built up by folded Upper Jurassic and Cretaceous sediments. The Gombori range is built up by Mesozoic and Cenozoic suits, and is divided into two different complexes from tectonic and lithological point of view. Older complex combines formations of diverse composition (clays, sandstones, limestones), while younger complex is represented Neogene (Sarmatian-Kimmerian) molasses series. The series is called Alazani Series.

Accumulative plain of Alazani, which is located between two geomorphological elements, is built up by Quaternary alluvial, proluvial and proluvial-dealluvial cobbles, sandstone and clay.

84. Geotectonically the region belongs to the Kazbegi – Lagodekhi zone of the Great Caucasus thrust-fold system. The area is built of lower and middle Jurassic clay slates. South to Lagodekhi alluvial-proluvial sediments (pebble, sandstone and loam matrix, and loam with pebble inclusions) of undissected Quaternary system are found. The river has generated a two-way floodplain and upper floodplain terraces. Morphological zoning indicated that the area belongs to relative subsidence subzone of medium and high mountain terrain of Caucasus ridge (developed on Jurassic sediments).

85. According to the data of the Ministry of Agriculture, 8,677 hectares are affected by wind and water erosion in the Kareli municipality, and 14,157 in the Gori municipality. 450 hectares in Kareli and 233 hectares in Gori have saline soil. Both slopes of the Kvernaki mountain ridge have average rates of erosion due to excessive grazing by sheep. Soil erosion can be observed in certain areas. There are changes in the forest borders in the Ateni Gorge. The desertification process has intensified in Shida Kartli where wind erosion has intensified for the past 20 years due to the high temperatures caused by the destruction of windbreaks and lack of precipitation

86. Within the Ajara Autonomous Region, the Eocene volcanic rocks have shaped geological structure over time with the Quaternary dealluvial and alluvial sediments in the river gorges. Volcanic rocks are withered. Poor physico-mechnical properties of the rocks and morphology of the terrain create favourable conditions for the development of natural geological processes. Gravity processes are mostly developed on steep (25^0) slopes. This area exhibits Colchic lowland landscapes and foothill landscapes with Colchic low-mountain and middle-mountain landscapes; Caucasian middle-mountain, sub-alpine and alpine landscapes. Soil types include which will be discussed below include soddy peat soil, soddy soil, brown forest soil, red soil, clay soil, alluvial meadow soil, and sand.

3.1.3 Soils

87. According to the geomorphological zoning, the territory of Narionali belongs to the Transcaucasian intermountain area, to the Abasha block of the West Molassic subsidence zone. The territory is built with Quaternary alluvial and marine sediments, with marshlands at places. Soil is mainly alluvial-carbonate. Along the Rioni wetland soils are registered. Vegetation is Colchic. Soil types present in the region include: chernozem soils, brown and dark brown soils, grey-brown soils, alluvial soils and salted soils.

88. Millions of cubic meters of humus layer are washed away annually due to soil erosion, which, through the rivers from the mountains, is brought to the Black Sea. The scales of erosion increase every year. Hundreds of hectares of agricultural land lose their main function, thus creating more problems to the population who already suffer from land scarcity. Soil cover is also affected by landslides that have become very active in the last period. Nowadays, landslides are caused by both natural and anthropogenic factors.

    Soil pollution is also a serious problem for Ajara. It is caused by natural and anthropogenic factors. One of the main factors for soil pollution is acid precipitation. Emissions from the transport sector pollute not only the air, but also the soil. The soil is also polluted by the utilization of fertilisers and herbicides. Figure 4 provides a map of soil types across Georgia.

Figure 4 Soils of Georgia

89. Soil erosion is an issue for Georgia. Soil erosion depends on several parameters such as type of soil, slope, vegetation, the nature of topography and rainfall intensity. The main issue re soil erosion is based on land use.

90. The loss of soil stability and soil erosion can takes place due to the removal of vegetation cover, and numerous construction activities. It can cause the loss of soil fertility and induce slope instability. Land preparation for the project could result in blockage or alteration of natural flow paths causing changes in the drainage patterns in the area. Effective and efficient mitigation measures can not only reduce, but could improve the conditions over the existing conditions.

91. Land degradation (salinisation, bogging) is mainly conditioned by climatic and topographic peculiarities, geo-dynamic processes, uncontrolled forest cutting, unsustainable agriculture management practices (over-grazing, intensive cultivation, plough of slopes), extraction of minerals through open pit mining as well as bank erosion caused by extraction of sand and gravel from river beds, banks and terraces. Hydro-meteorological threats are becoming more frequent and intensive over time as a result of climate change. Changes in river hydrology, hydraulics contribute to acceleration of riverbank erosion, landslides, mudflows, and floods leading to loss of land and damage of properties. Other issues include sedimentation; water shortage; deforestation; risk of surface and ground water pollution; uncontrolled flooding and mudflows.

3.2 Seismic Activity

92. Georgia lies between the two mountain chains of the Greater Caucasus in the north and the Lesser Caucasus in the south. These two sets of mountains have both resulted from the continuing effects of the collision between the Arabian Plate and the Eurasian Plate. The Greater Caucasus consists of a southward-directed fold and thrust belt that has been active since the Oligocene.

93. The main seismotectonic feature is the junction between the Arabian and Eurasian plates. The analysis of the historical and instrumental seismological shows, that this is the region of moderate seismicity. The strong earthquakes with magnitude up to 7 and macrosiesmic intensity 9 (MSK scale) occurred in that area. Caucasus is characterised with so-called moderate seismicity. Reoccurrence period for strong events are in the order of 1000 years.

94. Racha lies close to the southern margin of this thrust belt and the earthquake is interpreted to be caused by rupture of the active thrust front. The Racha earthquake occurred in the province of Racha, Georgia, on 29 April 1991. Centred on the districts of Oni and Ambrolauri on the southern foothills of the Greater Caucasus mountains, The Racha earthquake killed 270, left approximately 100,000 homeless and caused severe damage including destroying 46,000 houses, and several medieval monuments. The Racha earthquake had a magnitude of 7.0 and was the most powerful earthquake recorded in the Caucasus.

95. Figure 5 shows the location of seismic activity in the Caucasus.

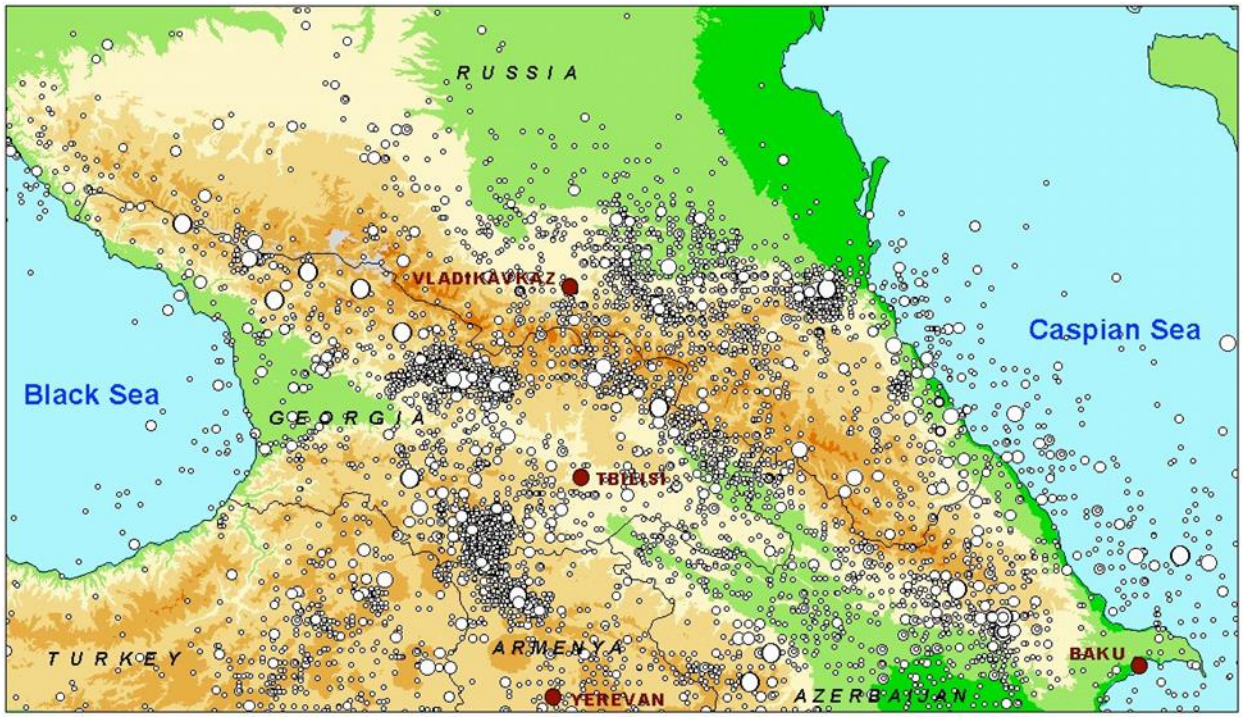


Figure 5 Seismic Activity in the Caucasus

3.3 Climate

96. The climate of Georgia is continental temperate. In the plains of East Georgia, the average annual temperature is between 11^{0}C -13^{0}C. The average temperature in January in the plains range from 2.3^{0}C to 3^{0}C, in mountain, at about 2000m above sea level, – 5^{0}C, -7^{0}C in the high mountain; and at 4000m and above, it reaches -16^{0}C.

97. Average temperature in July, this being the summer months is 22^{0}C to 25^{0}C, in the mountain areas, the temperature reaches between 12^{0}C and 15^{0}C; and in the high mountain, the July temperature are

approximate -4^{0}C. During the last 25 years, under the impact of climate change, average annual temperature in East Georgia increased by 0.4^{0}C to 0.5^{0}C.

98. Annual average precipitation is approximately 400-600 mm. Precipitation level on the left and the right bank of the Alazani River is 800-1000mm and 600-700mm respectively. Rainfall on Gorbori ridge area is reaches 810mm/annum. The lowest level of precipitation (200-300mm) is registered in Eldari Plateau.

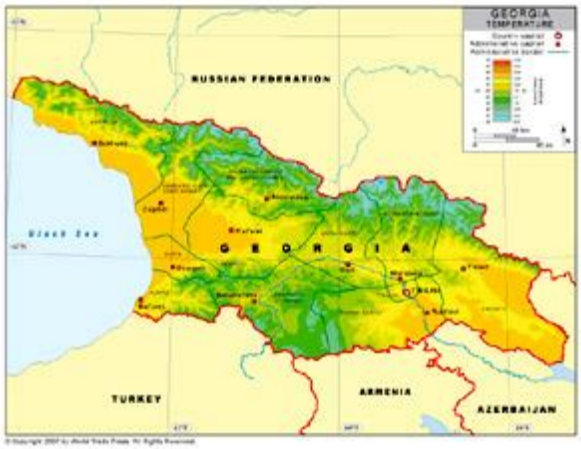


Figure 6 Temperature across Georgia

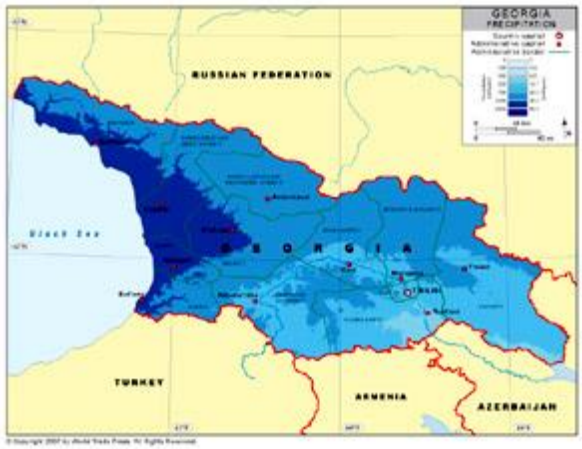


Figure 7 Rainfall across Georgia

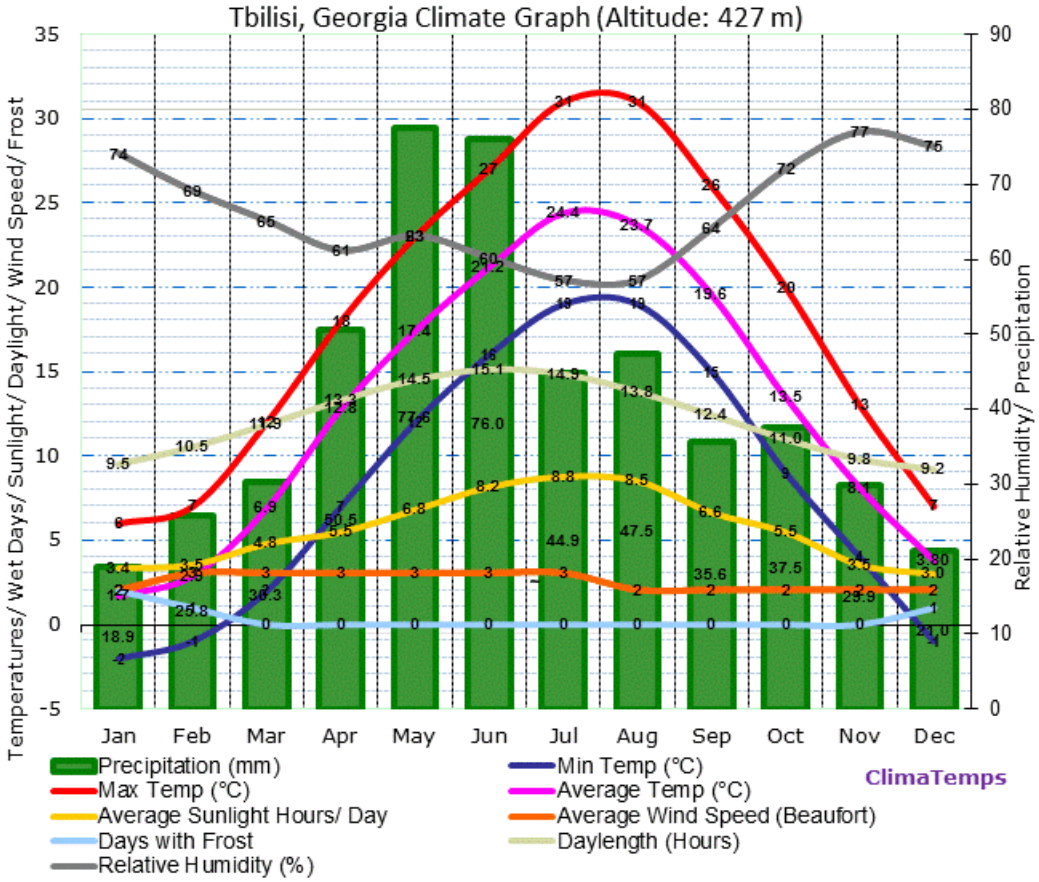


Figure 8 Climate Graph for Tbilisi

3.4 Air Quality

99. The major source of air pollution in Georgia is from vehicle emissions (carbon monoxide (CO), nitrogen oxides (NOx), sulphur dioxide (SO_2), hydrocarbons (volatile organic compounds and methane), soot, benzoapyrene and carbon dioxide (CO_2), lead).

100. No air quality data has been collect for the preparation of the ESAR. However, due to the limited urban development and heavy industry, air quality is considered to be relatively good.

3.5 Ambient Noise

101. No noise data has been collected for the preparation of the ESAR. However, due to the limited urban development and heavy industry, environmental noise is considered to be relatively low.

3.6 Surface Water and Hydrology

102. Georgia water resources are one of the major national riches. Georgia is the 87th in the world by the amount of renewable fresh water resources. Georgia's total fresh water resources today are 100km^3 and are accumulated in rivers, lakes, glaciers, ponds, water reservoirs and ground waters.

103. The hydrographical network of Georgia (99.4%) consist of small (<25 km) and very small (<10 km) rivers. In total, Georgia has 26,060 rivers. The rivers belong to two main basins which are divided by the Likhi mountain ridge. About 18,109 rivers belong to the Black Sea Basin; while 7,951 rivers flow towards the Caspian Sea. Among these rivers hydrologically are studied 555 from the Black Sea basin and 528 from the Caspian Sea basin.

104. The rivers of Georgia are characterised by strong highland water flow elements. The zone of the west part of the Caucasus Ridge and the slopes of the Ajara Mountains facing the Black Sea are characterised by full flowing rivers during peak events. The average annual flow here is 3500 mm, while on the Lori river's plateau in Kvemo Kartly there are dry ravines where water flows only after thawing of snow or pouring rains

105. The main surface water bodies in the east are the Alazani and Iori Rivers and their tributaries. The Alazani River, the second largest river in Eastern Georgia, is formed at the junction of two mountain rivers, which flow from the southern slopes of the Main Caucasus Mountain Range. The Alazani River has its origin on the Southern slope of the Caucasus ridge at the altitude of 2,750m. The total length of the river is 391km (104km in Georgia, 282 km as a common border between Georgia and Azerbaijan and 5km in Azerbaijan). The river crosses an inter-mountainous depression, streams along the Georgian-Azerbaijan border and flows into the Mingachevir reservoir in Azerbaijan. In Georgia, the river system is made up of 1,803 smaller rivers with an overall length of 6,851km (1,701 rivers with a length <10km). The total area of the Alazani river basin is 11,455km^2, of them 6,700km^2 (58.5%) is in Georgia. The river width ranges from 10-12m to 60-80m. The river has a maximum depth of 5.5-6 m, with a velocity up to 1.5-2.5 m/sec.

106. The main sources feeding the river include ground waters (40%), rain waters (31%); and snow (29%). Spring floods caused by melting of seasonal snows and rainfalls usually starts in March in the upper reaches, and end of February in the lower reaches of the river. Typically, the maximum is achieved in May-June which is when issues occur. The floods are caused by rainfalls (from the beginning or middle of April) and melting snow. The floods occur from May until the end of July. At this time, usually two to three short rain peaks events occur. The rainy days in summer/autumn reoccur typically two to six times per season with the duration of two to 20 days. The flows are especially intensive and prolonged in the lower reaches of the river where the water level often reach the maximum of spring floods, and often surpasses them in extreme events driven by climate change.

107. The summer low water level is unstable, while in winter the low water level is stable. The daily range of level fluctuations in winter does not exceed 0.2m, and in some winters, the same water level persists during 25-30 days.

108. The river is used for irrigation and power generation. There are 23 irrigation channels on Alazani and its tributaries, including three main channels with one large pumping station and five irrigation reservoirs. The hydropower plants are Khadori hydropower project (installed capacity 24 MW), Khadori 2 (1.5MW), Alazani hydropower project (installed capacity 6MW) are operating at the main canal of Lower Alazani; Alazani 2 (6MW), Samkuristskali

109. In western Georgia, the Rioni River is the largest river. It is 327km long and the river basin area has an area of 23,400km^2. The Rioni rises in Pasi Mountain at 2,960m above sea level and flows into the Black Sea near Poti Town. The average annual discharge of the Rioni is 27.3m^3/sec near Glola; 134 m^3/sec near Kutaisi; and 406m^3/sec near Sakochakidze. The maximum discharge of the Rioni is 345m3/sec near Glola; 1,440m3/sec near Kutaisi and over 3,000 m^3/sec near Sakochakidze. The minimum annual discharge is 16m^3/sec near Glola; 22m^3/sec near Kutaisi, and 34m^3/sec near Sakochakidze.

110. The Rioni flow varies by seasons with 38.8% in spring, 28.5% in summer, 18.2% in autumn and 14.3% in winter. The river flow is formed by several feeding sources including groundwater (34.7%); rain (32.5%), snow (28.2%) and glacier water (4.6%).

111. The Rioni moves 12.9km^3 of water and a large amount of sediment runoff into the Black Sea annually. The annual average amount of sediment runoff increases from the river head to the mouth. On average, approximate 96,000 tonnes is moved near Ghebi; 2.2 million tonnes near Khidikari; 4.9 million tonnes near Namokhvani and 6.9 million tonnes near Sakochakidze.

112. The Tskhenistskali River takes its rise on the southern slope of Svaneti Caucasus and west of Pasismta Peak and at 2,710m above sea level. It flows into the Rioni River on the right near Sajavakho Village. The length of the Tskhenistskali River is 176km. The basin area is 2,120km^2. The river is fed by snow, rain, glacier and underground water. Floods occur in spring and summer (70% of the annual discharge). The water level is low in winter (10%) and there are flash floods in autumn (20%).

113. Both the Rioni and Tskhenistskali (Rioni tributary) rivers are fed with glaciers, snow, rain and ground waters. The Rioni water regime is characterised by spring flood and year-round freshets. A relatively stable low-water period is registered in winter. Tskhenistskali water regime is characterised by spring and summer floods and clear winter low-water period. 70-75% of the annual flow flows in spring and summer, 18-20% flows in autumn and 8-10% flows in winter. Both river streams are used for power generation and irrigation.

114. The major river basins of Georgia are shown in Figure 9.

Figure 9 Rivers of Georgia

115. A 2007-2009 National Report on the State of the Environment of Georgia show that concentrations of ammonia in all surface water bodies (presumably with exception of upper reaches of the rivers originating in high mountains) in Georgia exceed the standards established for protection of human health, while concentrations of nitrite ions exceed acceptable standards for waters to support fish life. It should be noted that due to the rapid flow in Georgian rivers, oxygen concentration is quite high in all rivers monitored and comply with the requirements for supporting even the most sensitive fish species. This may be the reason why fish kills caused by water pollution have never been observed in Georgia. Other sources of pollution are illegal landfills which are often located at river banks. These dumpsites cause contamination of water with liquid products from the degradation of wastes (leachate) and litter washed off from the surface. The leachate contains high levels of nutrients and heavy metals, and, depending on the type of wastes disposed of at the landfill may contain significant quantities of other hazardous compounds. Figure 10 shows the level of pollution in the main rivers of Georgia.

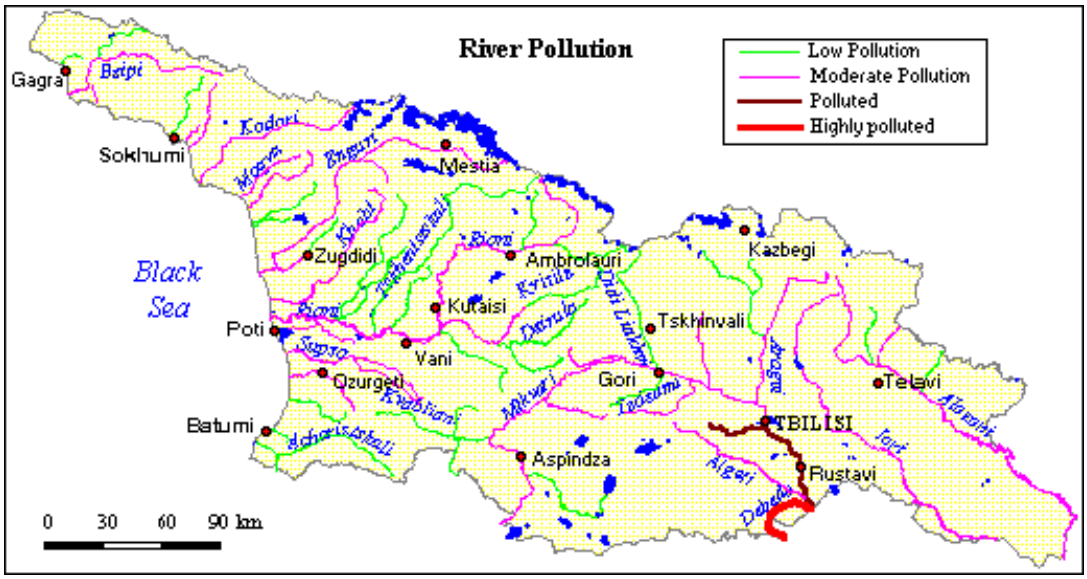


Figure 10 River Pollution Levels in Georgia

116. Figure 11 contains photos of the sites for the river works interventions.











Figure 11 Photos of Project Intervention Sites

3.7 GROUNDWATER

117. Groundwater is an important water source in Georgia. It is important for industry; agriculture and as a water supply for populated area.

118. The most important area of groundwater in Georgia is the Alazani Artesian Basin. Groundwater of Alazani-Agrichai aquifers is vitally important for Azerbaijan and Georgia. The Basin takes its name from the Alazani River, which flows in the eastern part of Georgia in a northwest-southeast direction. It is the main tributary of the largest river of Georgia, the Kura.

119. The Alazani-Agrichai artesian basin is a transboundary aquifer resources shared by Georgia and Azerbaijan. Total potential resource of the basin is 39.3 m^3/sec, including 20,4m^3/sec in Georgia and 18,9m^3/sec in Azerbaijan. The aquifer is built of Paleogene and Quaternary sediments. The aquifer has in excess of twelve horizons and complexes. The hydrogeological zoning indicated that there are fractured and fractured/karstic aquifers. The Alazani Valley with absolute elevation 550m (Akhmeta) and 190m (Agrichai confluence) is built of Meso-Cainosoic sediments forming the Alazani cyncline. Within the boundaries of the plateaux multiple cones of sandy-gravel sediments with miscellaneous transmissibility are observed. The groundwater of the basin is of high quality, excluding waters at the Georgian borders, which are mineralised to 1.5-2.7 g/l. In total, mineral composition of groundwater varies between 0.1- 1.0 g/l.

120. Project specific groundwater studies have not been undertaken; however it is unlikely that the project will impact on groundwater conditions.

3.8 TERRESTRIAL FLORA AND FAUNA

3.8.1 Background

121. Georgia has a high diversity of flora and fauna. The variety of ecosystems allows for the richness of the flora and fauna of Georgia. The forests cover 40% (2.75 million hectares) of the whole territory. Of this, 5% is virgin forests, and 40% of it retains the original structure. Up to 5,000 species of angiospermous and gymnospermous, about 8,300 species of sporoparous plants are found in Georgia. Approximately 380 species of the plants are endemic to Georgia, and around 1,000 are endemic to the Caucasus.

122. Georgia can be split into two main bio-geographic regions: the Colchic and Caucasian districts, forest landscapes with plenty of autochthonous animals and plants, and others related to middle and eastern European species; and the Caucasian upland region (Smaller Caucasus) and the Mtkvari district, with species related in some places to Anatolia and the Middle East, and in others to the arid and semi-arid Turanian region, beyond the Caspian. Mixed zone. The southern slopes of the High Caucasus in eastern Georgia are spread between these two main regions.

123. The Caucasus district lies in the north at 2,000m and higher. The areas contains some of the most diverse and distinctive temperate coniferous and deciduous forests in Eurasia, ranging with altitude from sub-alpine beech woods, dark coniferous forests and crook-stem woods to sub-alpine, alpine and subnival plant communities and, above these are dominated by snow.

124. The plateaus of the Caucasian upland region (Smaller Caucasus) are largely treeless grasslands, sub-alpine meadows or mountain steppes, as well as forest and semi-arid steppes. The Mtkvari district covers much of Kartli and Kakheti, and is largely arid and semi-arid steppe, with xerophytic Turanian (Armeno-Iranian) species predominating, and forested only along the banks of the Mtkvari.

125. The mixed zones, at the borders of these main zones, are the most biologically rich regions of Georgia. There are three main mixed zones, these being the northern slopes of Trialeti Ridge, from the northwest side of Tbilisi to Borjomi Gorge, mostly relatively dry deciduous mountain forests. In this area, the fauna and flora are mostly Caucasian, with some Turanian and Colchic elements, and no great diversity. The second and third areas ate the forests of eastern Georgia, which are similar to the Trialeti forests but with more Turanian elements; and the Borjomi Gorge. The canyons of the Borjomi Gorge are the division between the humid west and the arid east, and Mediterranean and Turanian fauna.

126. Endemic species comprise about 9% of Georgia's flora. The highest proportion are observed in mountainous areas, which are likely as a result of island biogeography, these being islands as a result of sea level increase about 15 million years ago, in the Miocene epoch. The surrounding areas have dried out and are biologically different. The humid subtropical forests of the mountains are relatively unchanged, and many species have close associations with species in Anatolia and Europe.

127. Remnants natural forests are preserved in Alazani valley. Floodplain forests were widely distributed on both banks of Alazani and the nearest terraces of its tributaries. The Alazani floodplain forests are characterised with diverse composition. Birch stands (floodplain poplar *Populus canascens*, Lombardy poplar *P. nigra*, Caucasian wingnut *Pterocaria pterocarpa*, alder *Alnus barbata*, willow *Salix excelsa* stands are mainly developed on the first terrace of the river. In some areas mixed forest are observed, vegetation represented by floodplain poplar, Lombardy poplar, willow, Caucasian wingnut, alder, and floodplain elm *Ulmus suberosa*) Forests on the elevated areas (second terrace) remote from the riverbed are represented with oak forests floodplain oak *Quercus longipes*. Undergrowth is well developed. The understory mainly has polydominant composition (hawthorn *Crataegus kyrtostyla*, European privet *Ligustrum vulgare*, Black Sea dogwood *Thelycrania australis*, sea-buckthorn *Hippophae rhhamnoides*, and dogrose *Rosa canina*. Lianas greenbrier *Smilax excelsa*, old man's beard *Clematis vitalba, C. orientalis* hop *Humulus lupulus*, silkvine *Periploca graeca*, wild grape *Vitis*

sylvestris, common and Pastuchov's ivy *Hederaa caucasigena, H. pastuchowii*, swallow wort *Cycanchum scandens* are abundant, especially in thinned areas of the forest and forest edges Shrubbery is mainly established in the south-eastern part of Alazani plain. Hemi-xerophylous shrubbery is mainly developed on elevated areas and represented with secondary Christ's thorn *Paiurus spina-christi* and forb shrubbery. At some areas of floodplain forest edges (where ground waters are close) tamarisk *Tamarix ramosissima* shrubs occur. Steppes are also present in the south-eastern part of Alazani plain. Beard grass *Botriochloa ischaemum* and Christ's thorn-beard grass (*aliurus spina-christi, Botriochloa ischaemum* complex communities are fairly widespread, especially on elevated areas.

128. There are around 110 species of mammals, 390 species of birds, 48 species of reptiles, 11 species of amphibians and 160 of fish in Georgia. Twenty-one species of mammals, 33 birds, and ten reptiles and amphibians are listed as rare, threatened or endangered including the goitered or Persian gazelle *Gazella subgutturossa* and Caucasian leopard *Panthera pardus Ciscaucasia* which are thought to be extinct in Georgia, though still found in Azerbaijan.

129. Large mammals, such as red deer, bear, wolf, boar, lynx, jackal, ibex, chamois, wild goats and wild sheep are found predominantly in the High Caucasus. However, populations of many species have been halved in recent years, largely due to increased poaching.

130. Of the 390 recorded bird species that belong to the Georgian avifauna, more than 220 of these species regularly breed in Georgia, and others appear in the country during migrations or in wintertime. Up to 15-20% of birds spend their winters in Georgia, particularly on the open landscape of Eastern Georgia (mainly in semi-desert landscapes of the Iori Upland). The south-eastern part of the area under consideration (municipalities of Lagodekhi, Tsnori and Dedoplistskaro) is of importance for number of wintering bird species and for some local breeding bird populations, with nesting areas in mountains. The most important wintering areas are situated in lower and pre-mountain parts of the flood-plains of the large rivers of Caspian Sea Basin (Mtkvari, Alazani, Khrami, Iori and their inflows), semi-deserts of Iori Upland, at lowlands, hills and belt of low mountains, around large non-freezing lakes.

131. The fly-ways of migratory birds' on the territory of Georgia are linked with the Black Sea coast line, valleys of the large rivers (Rioni, Mtkvari and with their tributaries), mountain ranges, mainly within the Greater Caucasus Chain and its spurs, and at lesser extent within the Surami ridge and ranges of the Lesser Caucasus. So-called "migratory bottle-necks" are situated on the passes in mountains (especially passes of the Great Caucasus) and in valleys of large rivers, these being Mtkvari, Rioni, Tergi, Alazani, and the valleys of some of their tributaries. The most important bottle-neck is located in south-western part of Kolkheti Lowland on the coastal lowlands of Ajara.

132. Large are of forest clearing are now substituted with cultivated plants. The Alazani depression is famous for agricultural lands for crops, vineyards and livestock. Riparian forests in the Alazani Valley are convenient wintering places for migrant waterfowl and the riparian degradation itself causes the decrease in the amount of waterfowl migrations. Riparian flora itself is quite unique with its endemic composition of flora and breeding places for various species like raptors, owls, etc. The Alazani River is rich with aquatic fauna of endemic species.

3.8.2 Protected Areas

133. Landscape is better protected within the boundaries of protected areas. The majority of Georgia's protected areas are located in Kakheti region (Figure 12). These include:

1. Ilto Managed Reserve
2. Batsara State Nature Reserve
3. Tusheti State Nature Reserve
4. Tusheti protected Landscape
5. Tusheti Nature Reserve
6. Tusheti National Park

7. Babaneuri State Nature Reserve
8. Mariamjvari State Nature Reserve
9. Khorugi Managed Reserve
10. Iori Managed Reserve
11. Chacuna Managed Reserve
12. Takhti Tepha Nature Monument
13. Vashlovani Nature Reserve
14. Vashlovani Natural Park
15. Alasnis chala Natural Monument
16. Artsivis kheoba Natural Monument
17. Lagodekhi Managed Reserve
18. Lagodekhi Nature Reserve

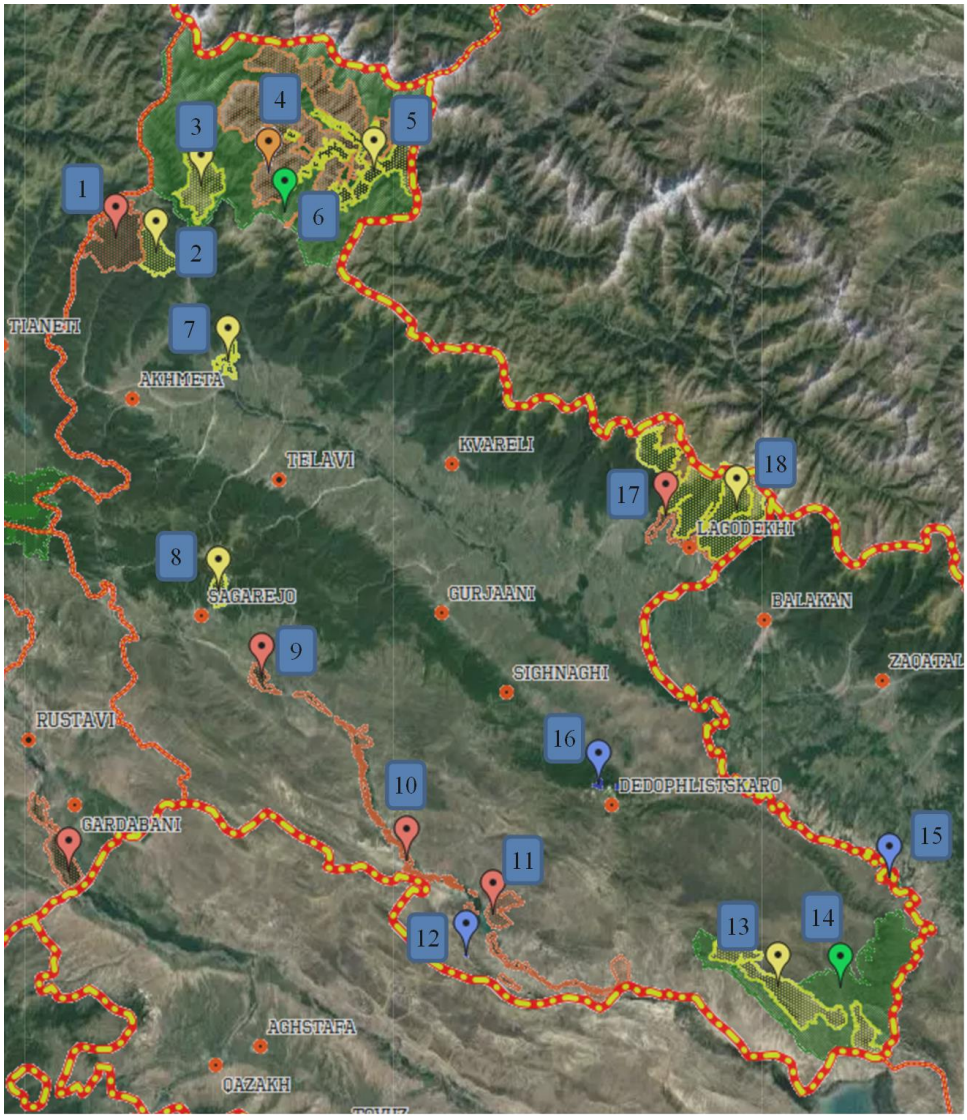


Figure 12 Protected Areas in Kakheti

3.9 Aquatic Flora and Fauna

134. Wetland ecosystems of both the Kolkheti lowlands and the Javakheti plateau are important habitats for migratory birds with up to 300 species of birds have been registered in the Kolkheti protected territories and adjacent areas. The territory is a significant habitat for endangered species included in the Red List of Georgia (*Pelecanus onocrotalus, Pelecanus crispus, Ciconia ciconia, Coconia nigra, Anser erythropus, tadorna ferriginea, Marmaronetta angustirostris, Oxyura leucocephala*, *Haliaeetus albicilla, Buteo rufinus rufinus, Aquila heliaca*, *Aquila clanga, Falco cherrug (IUCN), Falco vespertinus, Falco naumanni, Aegolius funereus, Tyto alba, Grus grus*. A further 91 species have been registered at Javakheti lakes, many of them included on both the Georgian and IUCN Red Lists.

135. More than 80 species of freshwater fish are present in Georgia. River/lake trout (*Salmo fario*), included in the Red List of Georgia, is an important species of mountain rivers. Anadromous fish species, mainly sturgeons and salmon, enter the rivers of Western Georgia form the Black Sea to spawn. The species are included in the Red List of Georgia. Unfortunately, there have been no surveys to assess the health of Georgia's ichthyofauna, which includes some endemics, since 1991 with the exception of the sturgeon and the Black Sea salmon. The conservation status of the majority of species is, then, unknown. Equally, specific information on the numbers of endemic species as well as general population structures, distributions and threats, are scarce and specific conservation needs remain unidentified.

136. There have been no inventorying or ecological assessments of the country's freshwater systems or wetlands. Many freshwater and wetland ecosystems remain completely unprotected and are prone to anthropogenic modification through a variety of unregulated economic activities that adversely affect water levels. As a result, their structure is disrupted and their ecological value diminished.

3.10 Land Use

137. The predominant land use in proximity to the forestry and river works interventions is agricultural land. Current land use across Georgia is shown in Figure 13.

138. Agricultural land in Kakheti in eastern Georgia equates to 229,000 hectares (ha), this being 38% of all of Georgia's agricultural land. Approximately 30% of Kakheti is covered with native forests (12% of Georgia's forest area), 98% of the which are mountain forests of very high ecological and economic significance. Of the agricultural land, approximately 87,700 ha is used for annual crop cultivation. Kakheti is the leading region for the production of grapes, cereals and livestock. The region has a long history of cereal production and is the leading grain-producing region with a large area of land under wheat. Among autumn crops, barley is the second most important cereal crop used primarily for animal feed. According to Statistical Publication Agriculture of Georgia (2016), agricultural land used for perennial crops is allocated as follows: 35,400 ha for wheat cultivation; 8,300 ha for barley, 22,700 ha of corn; 3,600 ha of vegetables, 2,500 ha of melons; (Kakheti is the leading producer of melon) and 1,100 ha of beans. Lagodekhi, Kvareli and Gurjaani municipalities are hazelnut (peanut) producing areas. The major producers of vegetables are Lagodekhi, Gurjaani and Sighnaghi municipalities. Gurjaani specialises in the production of peaches. Persimmons, plums, apples and other varieties of fruit are grown in Lagodekhi.

139. Cattle production is an important part of Kakheti's livestock sector. Milk production is one of the most important sources of livelihood for the Kakheti population. In addition to cows and small stock of buffalo, sheep are typical for mountain regions. Livestock production is traditionally pursued in Akhmeta, Dedoplistskaro and Sagarejo where large winter and summer pastures are available. Poultry is mostly raised in households.

140. The Kakheti region is also known for mining and processing of limestone, marble and slate. Oil and gas production takes place in Sagarejo and Dedoplistskaro districts.

141. Shida Kartli's agricultural lands is relatively smaller than in the other regions, it is still considered to be one of the most important agricultural regions of Georgia. 66,237 ha are used for agricultural purposes (95.4% of total lands), of which 74% are arable lands, 21% are perennial plantations and 5% - grasslands/pastures.

142. Shida Kartli is a fruit-growing region of Georgia ranking first in a variety of fruit produced. The region has always been famous for apple production. Other fruits cultivated in the region include: pear, plums, cherry and peach. Another priority area in Shida Kartli is the production of cereals - wheat and barley. The region traditionally is one of large vegetable producers after Kvemo Kartli and Kakheti. It produces the following vegetables: potatoes, beetroot, cabbage, carrots, onions, garlic, asparagus, pepper, aubergine, etc. Suitable agricultural and climatic conditions and favourable soil, including a large area of irrigable lands, create a great potential for the development of this sector of agriculture.

143. The Ajara Autonomous Republic is located in southwest Georgia. The area borders Guria to the north; Turkey to the south; the Arsiani range which borders with Samtskhe-Javakheti in the east, and the Black Sea in the west. The Ajara Autonomous Republic is largely mountainous with the exception of a narrow coastal strip area. Mountains represent about 80% of Ajara Autonomous Republic, foothills about 15% and lowland only 5% of the Ajara Autonomous Republic. Two east-west ranges, the Ajara-Imereti in the north and the Shavsheti in the south, rise from the Black Sea coastal lowlands to more than 2,800m. The Adjaristskali River valley lies between the ranges. The valley is closed at the eastern end by the Arsiani range. The narrow coastal strip along the Black Sea in Ajara AR represents the Kakhaberi lowland, which comprises the extreme south-west part of the Kolkheti Lowland. The coastal zone includes the low-lying areas and mountain slopes of up to 100-200m altitude. In the east part, the hilly terrain elevation is 200-1,000m above mean sea level, the highest zone (1,000-2,000m) is represented by Meskhetian, Arsiani and Shavshveti mountains. The highest mountains such as Kentchaula, Sakhornia, Khino, do not have a permanent snow shield; however on the Goderdzi pass (2,015m) and on the surrounding hills, the snow remains for 7-8 months. However, when the snow melts, issues occur with severe flooding.

144. The total area of Ajara Autonomous Republic is 2900km^2, including agricultural land that makes up 72,862 ha. Over 60% of the area is forest covered, most of which are temperate rain forests. Approximately 15% of the Ajara Autonomous Region is protected (Kobuleti Protected Areas, Kintrishi Protected Areas, Mtirala National Park and Machakhela National Park).

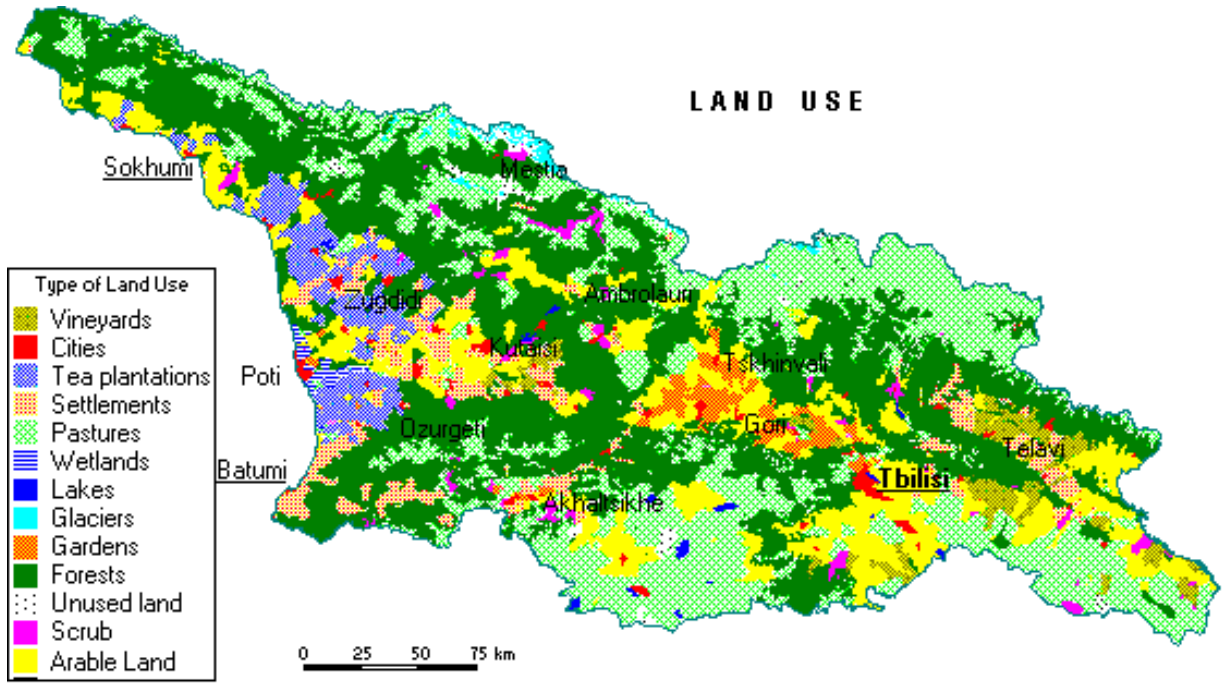


Figure 13 Land Use is Georgia

3.11 Land Ownership and Customary Tenure

145. All of the project activities will be undertaken on Government of Georgia land including the river works and installation of the early warning system. Forestry activities will be undertaken predominantly on Government land.

3.12 Population

A census of Georgia was conducted in November 2014. Data from the census indicated that the population of Georgia totalled 3,713,804 persons, or 15% (657,731 persons) less compared to the previous census data (4,371,535 persons). According to the results of the 2014 Census, the urban population was 2,122,623 persons, and the rural population was 1,591,181 persons. The decrease was much more pronounced in the rural population standing at 23.7%, whereas the urban population shrank by 7.1%. The urban/rural pattern of the population changed significantly compared to the previous censuses: the share of urban population in the total population increased by 4.9 percentage points and equalled 57.2 %. Figure 14 shows census data over time.

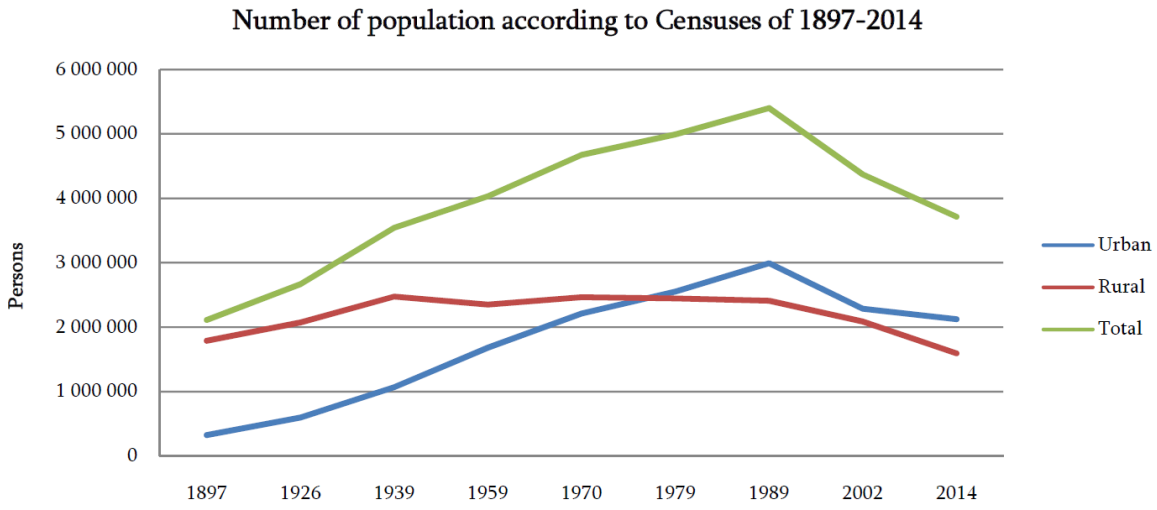


Figure 14 Census Data for Georgia over time

146. Kakheti in eastern Georgia; borders with Russia in the north and Azerbaijan to the east and south. Kakheti has an area of 12,200km^2, this being 17.5% of Georgia. Kakheti has eight administrative entities: Akhmeta, Gurjaani, Dedoplistskaro, Telavi, Lagodekhi, Sagarejo, Sighnaghi, Kvareli municipalities, with Telavi being the administrative centre. There are 285 settlements including nine towns (Akhmeta, Gurjaani, Dedoplistskaro, Telavi, Lagodekhi, Sagarejo, Sighnaghi, Kvareli, Tsnori) and 276 villages. The region is the largest by area in Georgia and contains 25% of the population (approximately 318,400 people). Population differ by municipality. Approximately 79% of Kakheti's population lives in villages. The largest population is located in Gurjaani; followed by Sagarejo and Lagodekhi. The population of Kakheti as a whole is decreasing, partly due to out-migration due to a lack of employment opportunities. Unemployment in the region was estimated as 6% (2015 census data), and approximately 66% of population are self-employed. A large part of employable workforce migrates to other cities of Georgia or abroad. The main source of income is agriculture; with 25% of cash income related to selling of agricultural products. Approximate 18% of income for the region is social security based assistance. In 2015, Kakheti ranks third after Imereti and Samegrelo-Zemo Svaneti, in the number of persons receiving pension and social payments.

147. Shida Kartli **(**57,00km^2) is locates between the Greater and Lesser Caucasian mountain ranges in eastern Georgia. The region borders with Mtskheta-Mtianeti to the east, Kvemo Kartli in the south-east, Samtskhe-Javakheti in the south-west and Racha-Lechkhumi/Kvemo-Svaneti in the north-west. The region shares its northern border with Russia.

148. The Shida Kartli region includes nine administrative-territorial entities: one city this being Tskhinvali and eight municipalities (Gori; Kaspi; Kareli; Khashuri; Tigvi; Eredvi; Kurta and Javi). Four municipalities are located in the territory controlled by the Georgian Government, with 372 settlements out of which four are cities (Gori, Kaspi, Kareli, Khashuri), two are townships (Surami, Agara) and 366 are villages.

149. The population of Shida Kartli is approximately 263,800 with nearly half being residents of the Gori municipality. The remaining population is distributed among three municipalities: 20% in Khashuri and 17% each in Kartli and Kaspi. Shida Kartli is primarily a rural region where the level of urbanisation is <40% which is typically an indicator of non-industrial, developing regions. Annual migration flows do not exceed 0.5% of the region's population. The exception is more than 10,000 migrants registered in 2010 (3.5 % of the region's population) most of whom (>6,000) were internally displaced peoples (IDPs) from Tskhivali (South Ossetia) as a result of the Georgia-Russian war in 2008.

150. Imereti borders Caucasus Ridge from the north and Meskheti ridge -from the south with Likhi Ridge from the east, Tskhenistskali River from the west. Imereti covers an area of 6,518.8 km^2 (19.4% of the total area of Georgia). The administrative division the region includes Chiatura, Tkibuli, Tskaltubo, Baghdadi, Vani, Zestaphoni, Terjola, Samtredia, Sachkhere, Kharagauli and Khoni municipalities and self-government town of Kutaisi. There are twelve administrative districts, ten towns (Kutaisi, Vani, Tskaltubo, Vani, Tkibuli, Tskaltubo, Chiatura, Baghdati, Zestaphoni, Terjola, Samtredia, Sachkhere and Khoni); three boroughs (Shorapani, Kulashi and Kharagauli) and 529 villages.

151. The region ranks third by size after Samegrelo-Zemo Svaneti and Mtskheta-Mtianeti and first, by population among the regions of Georgia. Population of the region as of January 2016 was 532,900. The population is decreasing by 23.4%, particularly in the rural population that has reduced by 23.8%, while urban population decrease was 6.3% only.

152. Samegrelo_Zemo Svaneti is located in the central north-west part of Georgia. It borders with Russian Federation (Karachai-Cherkezia, Kabardo-Balkaria) in the north, Imereti and Racha Lechkhumi-Kvemo Svaneti from the north-east and east; Guria from the south the Black Sea from the west and Abkhazeti from the north-west, Samegrelo_Zemo Svaneti covers an area of 7,400 km^2 (10.8% of the area of Georgia), and has a population around 8.9% of Georgia's total population.

153. According to Administrative division the region includes eight municipalities (Abasha, Zugdidi, Martvili, Mestia, Senaki, Chkhoritsku, Tsalenjikha, Khobi) and one self-government town, this being Poti. There are 497 residential areas; eight (8) towns; two boroughs and 487 villages. There are higher numbers of the population living in rural areas compared to the urban zones. Population in Samegrelo-Zemo Svaneti in 2002-2014 period decreased by 29%. Reduction in rural population as in other regions of Georgia was found to be higher.

154. Approximately 96% of Zemo-Svaneti is located above 1000m above mean sea level; with 65.8% above 2000m above mean sea level. There are 136 settlements in Mestia municipality and eleven settlements of Martvili municipality are located above 1000m above mean sea level. In July 2015, the Parliament of Georgia passed the Law on Development of High-mountain Areas. The law covers the settlements 1,500m above mean sea level. The law repealed the law on "*Socio-Economic and Cultural Development of High Mountainous Areas*" that had been in force since 1999 and provides more benefits to high mountain areas in Georgia.

155. The administrative centre of the Ajara autonomous is Batumi. Ajara has a total of five municipalities (Khulo, Shuakhevi, Kedi, Khelvachauri, Kobuleti) seven boroughs, and 333 villages. The population differ by municipality; 55% of the population lives in town, whereas rural dwellers account for the remaining 45%.

3.13 GENDER

156. According to the results of the 2014 Census, males constitute 47.7% of the population of Georgia and female equal 52.3%. In urban settlements male constitute 46.2% and female - 53.8%. In rural settlements the shares of male and female in the total population equalled 49.8% and 50.2%, respectively.

157. The percentage share of persons aged 0-14 in the total population decreased by 2.4 percentage points compared to the 2002 Census data and equalled 18.6%. The share of persons aged 15-64 increased by 0.8 percentage points. Further, the share of persons aged 65 and older in a total population increased by 1.6 percentage points.

158. Based on the results of 2014 General Population Census the structure of the population of Georgia by the age and sex is shown in Table 2.

Age	Both sexes	Male	Female
Total	**3 713,8**	**1 772,9**	**1 940,9**
0-4	255,1	132,7	122,4
5-9	230,0	121,2	108,8
10-14	206,2	109,5	96,7
15-19	226,0	118,9	107,1
20-24	266,1	135,3	130,8
25-29	278,7	139,9	138,7
30-34	262,1	129,9	132,1
35-39	248,5	121,9	126,6
40-44	243,3	118,3	125,0
45-49	239,4	114,0	125,4
50-54	271,4	126,7	144,7
55-59	245,4	111,6	133,8
60-64	211,4	92,4	119,0
65-69	155,7	64,9	90,8
70-74	123,6	48,5	75,1
75-79	135,8	49,9	85,9
80-84	71,7	25,1	46,6
85-89	34,5	10,2	24,3
90-94	7,5	1,6	5,9
95-99	1,2	0,2	1,0
100+	0,3	0,0	0,3

Table 2 Age and Sex Composition of Population (Thousand persons) in Georgia 2014

3.14 EMPLOYMENT, LABOUR AND WORKING CONDITIONS

159. No specific data is available for employment numbers in the project areas. Notwithstanding, the activities will predominantly be undertaken in agricultural areas.

3.15 Ethnic Minorities and Internally Displaced Peoples

160. There are five (5) regions of overall thirteen (13) with minority compact settlements in Georgia: Abkhazia, South Ossetia, Kvemo Kartli, Samtskhe-Javakheti and Kakheti. All of these five regions are transfrontier regions of Georgia bordering the regions or administrative divisions populated by the identical compact settlements of ethnic minorities. Some of minority groups are having compact settlements or are dispersed on the inner territories of the country. These groups are: ethnic Russians, Greeks, Kurds and/or Yezidi, Assyrians, Jews, Ukrainians, Armenians and Azerbaijanis.

161. According to the November 2014 census in Georgia, ethnic minorities make up 13.2% of the Georgian population. Azeris and Armenians are the two largest minority groups. Azeris account for 6.3% of the total population and constitute a significant group in the region of Kvemo Kartli which borders Armenia and Azerbaijan to the south. The Armenian minority accounts for 6% of the total population and is a significant group in the region Samstkhe Javakheti bordering Turkey and Armenia in the south. Other smaller ethnic communities include Russians, Ossetians, Yezidis, Ukrainians, Chechens, Greeks and Assyrians. Both Azeri and Armenians tend to live in specific parts of the country, which historically have been less developed than the cities occupied by Georgians. Further, Georgia has small populations of ethnic Roma and Meskhetians. Table 3 shows the diversity of ethnic communities from the 2014 Census.

Ethnic minorities	Total	Percentage Distribution
Total Population	**3 713,8**	**100,0**
Georgians	3 224,6	86,8
Azeris	233,0	6,3
Armenians	168,1	4,5
Russians	26,5	0,7
Ossetians	14,4	0,4
Yazidis	12,2	0,3
Ukrainian	6,0	0,2
Kists	5,7	0,2
Greeks	5,5	0,1
Assyrians	2,4	0,1
Other	14,3	0,4
Refusal	0,6	0,0
Nationality not specified	0,5	0,0

Table 3 Ethnic minority Populations (Thousand persons) in Georgia 2014

3.15.1 Azeri

162. Azeris form Georgia's largest minority, being the only minority group to have increased its proportional share of the population since 1989. In real terms, however, population numbers have slightly fallen. Azeris are compactly settled in the south-east region of Kvemo Kartli, bordering on Azerbaijan. Azeris in Georgia are overwhelmingly rural. There are sizeable communities of Azeris living in the capital Tbilisi, the city of Rustavi and in the Lagodekhi region of Kakheti.

163. Like other minority groups, Azeris in Georgia expressed fears regarding Georgian moves towards independence after 1989. A number of Azeri associations were formed in Georgia in the early 1990s, notably the Geyret popular movement, formed in the town of Marneuli. Cordial relations between

Georgian and Azerbaijani heads-of-state (as well as generally positive relations between Georgians and Azeris at the everyday level) and the background context of Azeri–Armenian conflict imposed significant constraints to potential for Azeri mobilization in Georgia.

164. Until reforms on local governance passed in 2006, Azeris were also Azeris remain under-represented in local administrative bodies in areas where they form a numerical majority, and, apart from a negligible number of symbolic posts, have no influence in government. The problem was especially acute for the Azeris in Kvemo Kartli, where Georgians held all the important positions. Like the Armenians in Javakheti the only point of access to the political life of the republic for Azeris was through local clan structures co-opted into the Georgian state.

165. Azeris have one of the lowest levels of proficiency in Georgian of any minority group in Georgia (15% in 2002), and have in recent years relied on Azeri teaching materials imported from Azerbaijan. However, in 2006 local broadcasting of mainstream Georgian news media in Azeri began; the Ministry of Education has also implemented programmes with the Organisation for Security and Co-operation in Europe assistance for the creation of Georgian language primers for Azeri-speakers.

3.15.2 Abkhazia

166. Abkhazia historically formed one of many principalities with a history of feudal semi-independence from the Georgian kingdoms. Linguistic evidence suggests that Abkhaz and Kartvelian languages have been in close contact for at least two millennia, although Georgian nationalist ideology portrays the Abkhaz as more recent newcomers to the region since the seventeenth century. The Russian Empire annexed Abkhazia in 1864, precipitating a massive emigration of the region's Muslim population to the Ottoman Empire, a movement known as the Muhajirstvo.

167. Georgian moves towards independence exacerbated Abkhazian fears, leading to the outbreak of clashes between local populations in Abkhazia in 1989. Abkhazia declared independence from Georgia after the collapse of the Soviet Union in 1991, which encountered resistance from the Georgian side. President Gamsakhurdia of Georgia negotiated a short-lived power-sharing agreement with the Abkhaz in 1991, which was violated due to the clashes between Georgian and Abkhaz military groups in August 1992; the war resulted in forced displacement of ethnic Georgian from the territory of Abkhazi to other regions of 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.

168. There are few ethnic Abkhazians in Georgia outside of Abkhazia. According to the 2009 census the population of this ethnic minority was approximately 3,500 people.

3.15.3 Ajara

169. Ajara is geographic and political-administrative region of Georgia, located in the country's southwestern corner along the coast of the Black Sea. Adjara is home to the Adjarians, a regional subgroup of Georgians and who speak a local dialect known as 'Adjarian dialect'. The written language is Georgian. The influence of Ottoman rule during 17-19 centuries resulted in converting majority of local population into Islam though maintained national identity, language, traditions. Thus, the Georgian population of Adjara had been generally known as "Muslim Georgians" until the 1926 Soviet census. Ajarians have not been counted as a separate ethnicity in Georgian demography since the 1930s, nor have they mobilized for identification as a separate group. Adherence to Islam today is largely confined to mountainous areas in the region According to the 2014 Georgian national census, 70% were Orthodox Christians, and 30% Muslim.

170. Ajaria historically formed a borderland between the Russian and Ottoman empires, subject to cultural and political influences from both. Islamised during the region's period under Ottoman domination, Ajaria's population was incorporated into the Russian Empire in 1878.

171. Ajaria is one of the more prosperous regions of Georgia, benefiting from control of the border with Turkey and having avoided violent conflict in the 1990s. Under Aslan Abashidze, however, Ajaria acquired a reputation for authoritarian rule and human rights abuses. Abashidze's regime was one of the first casualties of the 2003 Rose Revolution, and he was forced to leave Ajaria for Russia in May

2004 following six months of confrontation with the new administration in Tbilisi. Ethnic or religious issues played no role in this confrontation.

3.15.4 South Ossetia

172. Approximately 70,000 Ossetians lived in the autonomous region of South Ossetia in 1989, with a further 100,000 elsewhere in Georgia before the outbreak of the conflict. According to the Georgian Census of 2002, 38,000 Ossetians remained in undisputed Georgian territory, accounting for 0.9 per cent of Georgia's population. A further 300,000 Ossetians live in the Republic of North Ossetia – Alania (a subject of the Russian Federation).

173. Many Georgian residents of the autonomous region fled as a result of the 1989 conflict, but an estimated 20,000 remained in villages typically intermingled with Ossetian villages. There has been significant intermarriage between Ossetians and Georgians, but statistics are unavailable. There is no reliable data for the total population of South Ossetia, although prior to the August 2008 war between the Georgian army and Russian forces, it was thought to be in the region of 70,000. Many ethnic Georgians fled or were driven from South Ossetia during and after the conflict, but the extent and duration of their displacement remain difficult to determine.

174. In the conflict zone of Tskhinvali, ethnic Ossetian villages were interspersed with ethnic Georgian villages, as well as those of mixed ethnicity, and there was some intermarriage between Ossetians and Georgians. Prior to the outbreak of conflict in August 2008, Russia assiduously distributed passports to Ossetians in the territory.

175. Figure 3 shows the location of the three autonomous regions. No project activities will be undertaken in Abkhazia and South Ossetia. Some activities will be undertaken in Ajara and accordingly, special attention will be paid with respect to the project activities in this area of Georgia.

3.16 Internally Displaced Peoples

176. There are significant numbers of internally displaced peoples in Georgia as a result of past conflicts. The Government of Georgia reported in December 2014 that it had registered 262,704 people as internally displaced peoples. 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, Accommodation and Refugees. The figure is a slight increase from the initial figure released after the re-registration exercise for two reasons. First, some internally displaced peoples failed to participate in the re-registration process in 2013 and consequently had their status terminated. They are now gradually approaching the Ministry in order to re-register and have their statuses restored. Secondly, children with one internally displaced parent are entitled to the status. Each month about 400-500 newborns receive the status, which causes an increase in the internally displaced peoples figure.

177. 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.

178. The number of internally displaced peoples registered by the Government includes people who have returned home to Abkhazia, but 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.

179. The Internal Displaced Monitoring Centre current suggested that there are an estimated 232,700 internally displaced peoples in Georgia in December 2014.

Figure 15 Autonomous and Disputed Areas of Georgia

3.17 Archaeological and Cultural Heritage

180. Georgia is rich in cultural heritage sites. The concentration of historical sites in Kakheti including famous wine cellars, natural resources, cultural and historical heritage is high. The natural biodiversity, protected areas and cultural heritage sites provide opportunity for recreational, adventure, eco- and agricultural tourism in all municipalities.

181. Within Kakheti region, in particular Dedoplistskaro, Sighnaghi and Sagarejo regions, are vulnerable to climate change and desertification. Desertification processes are activated by unsustainable use of land resources (improper irrigation and cultivation, overgrazing, deforestation) and climatic factors. Areas prone to desertification include Shiraki, Eldari, Iveri, Taribana, Naomari, Ole, Jeiran-Choli valleys, mountain ranges and plateaus dividing them and the most part of Kakheti range hill-side. In recent decades as a result of more frequent droughts, the region has already lost hundreds, thousands of hectares of fertile land. Based on contemporary climate warming projections, increase of temperature and decrease of precipitation is expected. This will lead to an increase in evaporation and reduction of river flow. Under such conditions desertification trend will persists.

182. Likewise, the Imereti region is rich in cultural heritage and history. A number of trade roads, including the Silk Road, crossed this area, supporting the development of culture and trade. Archaeological excavations carried out in the region revealed presence of human being in Imereti during the lower Palaeolithic period. Worth to mention are Vani, which was known to exist as early as the 8th century BC. There are numerous castles, churches, monasteries, museums. The region is rich in antique, earlier and later Christian period's historical-cultural monuments. 450 historical-cultural monuments are registered in the area.

183. In the west, Ajara Autonomous Regions is also an area that high cultural and historical history. One of the important trading routes was led through Kobuleti, which was a small cultural centre in Late Antique Age. In the territory of Kobuleti the Christianity was introduced by St. Andrew the Apostle in the first century. Cultural heritage sites include: Gonio castle (XVII), Akho catle (late medieval), Dnadalo, Makhuntseti, Tskmorisi, Tsoniari, Varjinauli, Phurtio, Khabelashvili, Kokoleti, Tskhemlari, Makho, Okruashvili bridges, Petra castle (VI century), St.John church in Sarpi, Skhalta church (XIII), Kvirike jame, Khikhadziri castle, Beghleti jame, Didachara jame.

4 ENVIRONMENTAL AND SOCIAL RISK ASSESSMENT

4.1 ASSUMPTIONS UNDERPINNING THE DEVELOPMENT OF THE ENVIRONMENTAL AND SOCIAL ASSESSMENT REPORT

184. The following assumptions have been made in the preparation of this ESAR:

a. none of the interventions will require the displacement of people and/or the need for land acquisition;

b. none of the interventions will be conducted in protected areas or sensitive locations;

c. all material removed from the works will be remediated as required to ensure limited impact on the surrounding environment;

d. all material removed from the works for example, the river restoration works will be made available (beneficial reuse) for the use in agricultural systems or other activities following any necessary remediation;

e. none of the interventions will be in proximity to any archaeological and/or culturally sensitive location;

f. hydrological studies where necessary will be conducted prior to the final design to ensure stability and efficiency of the bank protection structures;

g. appropriate erosion and sediment control will be undertaken during all stages of the projects; and

h. there will be no release of pollution and/or chemicals as a result of the projects.

4.2 UNDP SOCIAL AND ENVIRONMENTAL SCREENING POLICY REQUIREMENTS

185. As this project is supported by UNDP in its role as a GCF Accredited Entity, the project has been screened against UNDP's Social and Environmental Standards Procedure. The Social and Environmental Screening Template was prepared and the project deemed to be a moderate risk (Category B) project. Discussions on the impact assessment are provided in the Social and Environmental Screening Template, which provided the rationale for the project being classified as a moderate risk. This ESAR provides further discussion below.

4.3 IMPACT ASSESSMENT METHODOLOGY

186. An impact risk assessment was undertaken using the UNDP Social and Environmental Screening Procedure to assess the probability (expected, highly likely, moderately likely, not likely) and the impact of the risk (critical, severe, moderate, minor, negligible). From this, a significance value was attributed to the potential impact (negligible, low, medium, high and extreme).

Score	Rating
5	Expected
4	Highly Likely
3	Moderately likely
2	Not Likely
1	Slight

Table 4 Rating of Probability of Risk

Score	Rating	Definition
5	Critical	Significant adverse impacts on human populations and/or environment. Adverse impacts high in magnitude and/or spatial extent (e.g. large geographic area, large number of people, transboundary impacts, cumulative impacts) and duration (e.g. long-term, permanent and/or irreversible); areas impacted include areas of high value and sensitivity (e.g. valuable ecosystems, critical habitats); adverse impacts to rights, lands, resources and territories of local population; involve significant displacement or resettlement; generates significant quantities of greenhouse gas emissions; impacts may give rise to significant social conflict
4	Severe	Adverse impacts on people and/or environment of medium to large magnitude, spatial extent and duration more limited than critical (e.g. predictable, mostly temporary, reversible). The potential risk impacts of projects that may affect the human rights, lands, natural resources, territories, and traditional livelihoods of local population are to be considered at a minimum potentially severe.
3	Moderate	Impacts of low magnitude, limited in scale (site-specific) and duration (temporary), can be avoided, managed and/or mitigated with relatively uncomplicated accepted measures
2	Minor	Very limited impacts in terms of magnitude (e.g. small affected area, very low number of people affected) and duration (short), may be easily avoided, managed, mitigated
1	Negligible	Negligible or no adverse impacts on communities, individuals, and/or environment

Table 5 Rating of Impact of Risk

Impact						
	5					
	4					
	3					
	2					
	1					
		1	2	3	4	5
		Probability				
Green = Low, Yellow = Moderate, Red = High						

Table 6 UNDP Risk matrix

187. The following section provides an overview of the likely potential impacts, both direct and indirect as well as highlighting the beneficial impacts from the project. If the avoidance and mitigation measures

as highlighted below and within the ESMP are followed (see Section 8), then the project is unlikely to have a significant impact on the environment and social fabric of the project areas.

4.4 Direct Impacts

188. The activities will be undertaken in locations that are disturbed both natural and anthropogenic. The environmental and social impacts envisaged for the project are predominantly temporary in nature and are associated with construction activities for the river works, and access to land for both river works and forestry activities. It is currently proposed that all early warning system components will be constructed on Government land.

189. The most significant environmental and social impacts are likely to be attributed to the implementation of the priority risk reduction interventions at the thirteen (13) sites as contained within Section 1.2.1 and Figure 2 (Probability: 5; Impact: 3 and therefore a Risk Level: Medium). All other activities are considered to be low risk level.

190. This activity will require channel/river bank works and potential road closures to access the rivers. It will involve the removal of sediment from these environments. This might also require the relocation of services.

191. There are a number of potential impacts associated with the works including but not limited to the potential erosion and sediment movement during rainfall events and as a result of dust, all of which could have impacts on water quality, noise impacts from the use of trucks and excavators, the potential leakage of chemicals and oils, and other potential impacts. The construction activities could also result in changes to people's ability to move within the region. There is also the potential for the construction activities to generate sediment that may increase silt load through overland flow to other environments.

192. The vast majority of construction works involve the building of the river infrastructure. It is anticipated that some of the material to be used for the construction of the river works will where possible, be pre-fabricated and brought in from other locations in Georgia. The proper handling of this material, and where possible, recycling and reuse of any local materials should be considered.

193. The proposed river works are unlikely to impact on important ecosystems and/or habitats. The rivers have been significantly impacted by climate induced events in the past and the activities will reduce the damage caused by future events. Much of the vegetation in this area are grasses and/or agricultural crops.

194. All construction and operation activities have the potential to cause noise nuisance. Vibration disturbance to nearby residents and sensitive habitats is likely to be caused through the use of vibrating equipment. Blasting is not required to be undertaken as part of this project. The use of machinery or introduction of noise generating facilities could have an adverse effect on the environment and residents if not appropriately managed. The detail, typical equipment sound power levels, provides advice on project supervision and gives guidance noise reduction. Potential noise sources during construction may include:

    a. heavy construction machinery;

    b. power tools and compressors;

    c. delivery vehicles;

195. Heavy machinery and haul trucks can generate high noise levels within and along the project area and route. All machinery and vehicles used will be restricted to 7am to 5pm.

196. Air quality is unlikely to be affected due to the limited exhaust emissions from construction vehicles and machinery such as plant for excavating foundations, concrete mixers, water tankers, small cranes, dumpers, forklift for the block work and fugitive emissions from aggregates, dust from exposed soils and stock piles.

197. The project is very unlikely to result in any significant risk to water pollution from oil, grease and fuel spills, and other materials from vehicles working on site. Construction vehicles could affect water

quality by accidents from vehicles carrying hazardous substances (chemicals and fuel). Oil and grease from engine leaks can pollute surface water. While it is unlikely that there will be an impact as a result of a chemical, fuel and oil spill, these lubricants need to be handled with caution and importantly, where possible, should not be brought on site. In the case of a spill, every effort must be made that it does enter the coastal environment.

198. The project has the potential generate quantities of waste, although the quantities are unlikely to cause an environmental impact as it is anticipated some of the construction materials will be prefabricated although there may be waste from sections of the building that are built on site.

199. There is the potential for impacts to people's land as a result of the need to utilise the land for access to the river works. This could result in the loss of livelihood and damage to the land. The project has developed a Livelihood Restoration Plan which should be followed. Further, access should not be undertaken with a fully signed voluntary agreement allowing access.

200. Likewise with the forestry activities, there is the potential for impacts to people's land as a result of the need to utilise the land for forestry activities. This could result in the loss of livelihood and damage to the land. The project has developed a Livelihood Restoration Plan which should be followed. Further, access should not be undertaken with a fully signed voluntary agreement allowing access.

201. With respect to the installation of equipment, the main impacts associated with this activity are the installation of equipment to collect data and then the dissemination of that information in real time as needed. As such, the activity is unlikely to have any significant impact although there is the potential, albeit small to impact the environment or land during the installation of loggers.

202. The project will not create temporary and/or permanent habitats for mosquito breeding and/or any other pests.

4.5 Indirect Impacts

203. There are unlikely to be any real indirect impacts associated with the project if general care and maintenance are considered. Primarily, the project will require the importation of materials and equipment to the intervention sites. Special attention should be considered in the movement of this material including the organisation of the deliveries to reduce the number of transportation movements required and moreover to reduce material remaining on site for extended periods. All material should be moved away from the rivers as soon as possible to remove the potential impacts should a storm or disaster event occur.

204. There are unlikely to be any adverse impacts on hydropower projects as a result of the projects. By contrast, it is likely that the interventions will have beneficial impacts by reducing the amount of sediment that would impact on any reservoirs.

4.6 Cumulative Impacts

205. The proposed river interventions will be undertaken in four basins, with nine being undertaken in the Rioni Basin. There is the potential for limited cumulative impacts, these being impacts on sediment movement during the construction activities. These impacts will be limited temporally. Conversely, the activities will significantly reduce on-going cumulative impacts by reducing the loss of sediment and bank erosion during large flooding events.

206. With respect to the forestry activities, there is the potential for cumulative impacts through the loss of usable land. However, the impacts is considered to both very small spatial scale and temporal in nature. Landholders will gain long term benefits from the restoration activities.

4.7 Transboundary Impacts

207. Given the locations of the interventions, there is unlikely to be any transboundary impacts.

4.8 Potential Benefits

The project has very significant direct beneficial impacts to 1,700,000 people. The activities will significantly reduce the impact of flooding on people and their assets. The construction and expansion of the early warning system is likely to save lives in the short to long term.

5 AVOIDANCE AND MITIGATION MEASURES

208. There are a range of options to avoid and/or mitigate the environmental and social impacts associated with the proposed interventions. The ESMP contained in Chapter Eight (8) of the ESAR sets out appropriate and comprehensive mitigation measures for the potential impacts of the activity in the channels of the rivers and forestry activities. With compliance with the ESMP, the project is unlikely to have any significant impacts/risks.

209. The most appropriate mitigation measure is to ensure project activities to do not occur during periods of rainfall which could significantly increase sediment discharges and erosion. All works should comply with the EDSCP. Further, prior to any works, sediments should be tested for contamination. Where any sediment is found to contain any contaminants, work should stop and appropriate remediation should be undertaken to reduce the release of these contaminants etc into the environment. Any additional sediment should be made available to the community, including but not limited to agricultural activities. All areas should be revegetated as soon as possible to reduce erosion and sediment loss.

210. Prior to any activity being carried out, the project should ensure equitable participation of men and women in all project activities. Further, the project should ensure it undertakes an assessment of sex-disaggregated data and the gender analysis as well as investigating ethnic minorities and/or internally displaced peoples. Further, the project should ensure women's participation in identifying best practices in agro-productive activities and stimulate non-traditional occupations through the work programme. This should also include undertaking an assessment of the involvement of women within agricultural systems, prior to planning measures. Compliance with the Social Inclusion Planning Framework and Livelihood Restoration Plan will ensure impacts are mitigated.

211. Any access requirements to any land should be undertaken in full compliance with a voluntary land access agreement that should be signed before any activities on private land are undertaken.

6 STAKEHOLDER ENGAGEMENT AND PUBLIC PARTICIPATION

6.1 PUBLIC CONSULTATION AND ENVIRONMENTAL AND SOCIAL DISCLOSURE

212. The ESAR includes public consultation as part of the stakeholder engagement plan. The project was discussed with a wide range of stakeholders including relevant government departments, industry groups, NGOs, and individual community members and approved by the Government of Georgia. Extensive on-ground consultation has been undertaken during the design of the project (as well as during the earlier projects that this project is aiming to upscale) and it is expected that consultation with any affected communities will continue. It is anticipated that based on the communities' needs, the projects will be fully accepted.

213. The UNDP, MRDI and MoEPA will develop and release updates on the project on a regular basis to provide interested stakeholders with information on project status. Updates may be via a range of media eg print, radio, social media or formal reports. A publicised telephone number will be maintained throughout the project to serve as a point of contact for enquiries, concern, complaints and/or grievances. All enquiries, concern, complaints and/or grievances will be recorded on a register and the appropriate manager will be informed. All material must be published in English and Georgian as appropriate.

214. Where there is a community issue raised, the following information will be recorded:

    a. time, date and nature of enquiry, concern, complaints and/or grievances;

    b. type of communication (e.g. telephone, letter, personal contact);

    c. name, contact address and contact number;

    d. response and investigation undertaken as a result of the enquiry, concern, complaints and/or grievances; and

    e. actions taken and name of the person taking action.

215. Some enquiries, concern, complaints and/or grievances may require an extended period to address. The complainant(s) will be kept informed of progress towards rectifying the concern. All enquiries, concerns, complaints and/or grievances will be investigated and a response given to the complainant in a timely manner. A grievance redress mechanism has been included in the ESAR and ESMP to address any complaints that may not be able to be resolved quickly.

216. The nominated PMU/contractor staff will be responsible for undertaking a review of all enquiries, concern, complaints and/or grievances and ensuring progress toward resolution of each matter.

217. Details of stakeholder engagement undertaken as part of the preparation of the ESAR are included in Annexure One.

7 FINDINGS AND RECOMMENDATIONS

218. This ESAR has been prepared in support of a project proposal entitled “Scaling-up Multi-Hazard Early Warning System and the Use of Climate Information in Georgia” (the project) by the Government of Georgia to the Green Climate Fund (GCF). As this project is supported by the United Nations Development Programme (UNDP) in its role as a GCF Accredited Entity, the project has been screened against the UNDP’s Social and Environmental Standards Procedure and deemed a Moderate Risk (World Bank/International Finance Corporation Category B) project. As such, an ESAR has been prepared for the project. Chapter Eight (8) of the ESAR provides the ESMP for the project.

219. The MoEPA as the National Designated Authority and Implementing Agency will lead the project, and the Road Department under MRDI will be responsible party for implementing activity - 3.3. Structural Flood Protection Measures. The MoEPA and MRDI will be supported by PMU for the implementation of the project and compliance with this ESAR and ESMP.

220. The project will target 1,700,000 direct and 3,700,000 indirect people across east and west Georgia that highly vulnerable to climate change induced extreme events. The project will improve the resilience of communities through the expansion of a comprehensive MHEWS that will provide information and capacity building to reduce the impacts of extreme events; improved information dissemination; training and significant gender based activities. This would allow communities to manage flood threats and by reducing vulnerability of communities, people and their assets.

221. The project has the potential to cause moderate environmental and social impacts. These include impacts to water quality through sediment movement during mechanical restoration and river bank improvement. This is likely to have a beneficial noise and air quality may also be impacted during these works. Appropriate actions are proposed to deal with these issues. Minor impacts include increased waste and the potential need to access land for project interventions.

222. The project does not require any land acquisition and/or resettlement. It may be necessary to utilise areas of land adjacent to where the structural interventions will be undertaken so as to access water courses (e.g. Khodasheniskhevi and Milari, etc.). The land is currently under agricultural production. Where access is required, the land will be returned in the same condition if not better that it was prior to any access. Access to this land will only be undertaken through voluntary agreements with landholders. Where a voluntary agreement cannot be established, the land will not be used.

223. There are no indigenous peoples and/or ethnic groups and/or internally displaced peoples known to inhabit the specific areas of the interventions. However, prior to undertaking any intervention, additional stakeholder engagement will be conducted to ensure that local population is fully consulted to ensure the project will not impact on them and/or their cultures/traditions. If any people are found to be located within the area, the project will comply with the UNDP Social and Environment Standard and the project will develop a Social Inclusion Plan as contained as an annexure to the ESAR.

224. The project has developed a Grievance Redress Mechanism to deal with any complaints and issues that may arise as a result of the project. This Grievance Redress Mechanism complies with Georgian and UNDP Safeguard procedures.

225. Appropriate and relevant avoidance and mitigation options have been proposed in the ESAR, which if put in place, will significantly reduce the potential impacts of the project to an acceptable level. Moreover, the project will have significant environmental and social benefits that will be achieved more generally. This includes an Erosion, Drainage and Sediment Control Plan, Social Inclusion Planning Framework and Livelihood Restoration Plan.

226. Budgeting for environmental interventions and the application of mitigation measures to enhance positive impacts for the project is an investment in the future as it will reduce the environmental and social liability at local, state and national levels. The end result of this budget will be that there will be reduced river sedimentation and erosion; stronger and improved resilience to the impacts of climate change, healthy ecosystems, more knowledgeable communities and overall improvement in the quality of life of the population as an investment in the future of the people of Georgia, which if implemented

as per the project proposal, will be repaid may times over through reduced long-term operation and maintenance costs of implementing the project.

8 ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

228. This section identifies the key environmental and social indicators identified for the project and outlines respective management objectives, potential impacts, control activities and the environmental performance criteria against which these indicators will be judged (i.e. audited).

229. This section further addresses the need for monitoring and reporting of environmental performance with the aim of communicating the success and failures of control procedures, distinguish issues that require rectification and identify measures that will allow continuous improvement in the processes by which the projects are managed.

8.1 OVERVIEW AND OBJECTIVES OF THE ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

230. An ESMP is a management tool used to assist in minimising the impact to the environment and socially; and establish a set of environmental and social objectives. To ensure the environmental and social objectives of the projects are met, the ESMP will be used by the project implementers to structure and control the environmental and social management safeguards that are required to avoid or mitigate adverse effects on the environment and communities.

231. The environmental and social objectives of the projects are to:

a. improve the water supply in the targeted areas and introduce water conservation measures;

b. provide an early warning system that ensures adequate measures are undertaken prior to any event/s to ensure adequate planning measures can be undertaken in the short to medium term;

c. encourage good management practices through planning, commitment and continuous improvement of environmental and social practices and the impacts of climate change;

d. minimise or prevent the pollution of land, air and water pollution;

e. protect native flora, fauna and important ecosystems;

f. ensure gender equality and inclusion across all facets of the project;

g. comply with applicable Georgian laws, regulations and standards for the protection of the environment;

h. adopt the best practicable means available to prevent or minimise environmental and social impacts;

i. describe monitoring procedures required to identify impacts on the environment; and

j. provide an overview of the obligations of the Government of Georgia and UNDP staff and contractors in regard to environmental obligations.

232. The ESMP will be updated from time to time by the implementing Project Management Unit (PMU)/contractor in consultation with the UNDP staff, MRDI Road Department and MoEPA to incorporate changes in the detailed design phase of the projects.

8.2 OVERVIEW OF INSTITUTIONAL ARRANGEMENTS FOR THE ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

233. The ESMP will be assessed for each sub-project by the Government of Georgia and UNDP prior to any works being undertaken. The ESMP identifies potential risks to the environment and social matters from the projects and outlines strategies for managing those risks and minimising undesirable environmental and social impacts. Further, the ESMP provides a Grievance Redress Mechanism for those that may be impacted by the projects that do not consider their views have been heard.

234. The MRDI and MoEPA will be responsible for the supervision of the ESMP. The UNDP with gain the endorsement of the MRDI and MoEPA and will ensure the ESMP is adequate and followed. The PMU will ensure timely remedial actions are taken by the contractor where necessary.

8.2.1 Administration

235. The Ministry of Regional Development and Infrastructure (MRDI) through its Road Department and MoEPA will be responsible for the revision or updates of this document during the course of work. It is the responsibility of the person to whom the document is issued to ensure it is updated.

236. The site supervisor will be responsible for daily environmental inspections of the construction site. The Road Department of MRDI and MoEPA will cross check these inspections by undertaking monthly audits.

237. The contractor will maintain and keep all administrative and environmental records which would include a log of complaints together with records of any measures taken to mitigate the cause of the complaints.

238. The contractor will be responsible for the day to day compliance of the ESMP.

239. The Road Department under MRDI will be responsible party for the implementation and compliance with the ESMP via the collaborating partners and contractors. The ESMP will be part of any tender documentation. General clauses related to environmental and social issues are contained within Annexure Six of the ESAR.

240. The Supervising Engineer/Project Manager will supervise the contractor, while the Road Department of MRDI and MoEPA will be responsible for environment and social issues.

8.3 Project Delivery and Administration

8.3.1 Project Delivery

241. The Project Board is comprised of Implementing Partner and Responsible Parties. The Implementing Partner for this project is MoEPA and Road Department of MRDI will be responsible party for a particular activity - 3.3. Structural flood protection measures. The MoEPA is accountable to UNDP for managing the project, including the monitoring and evaluation of project interventions, achieving project outcomes, and for the effective use of UNDP resources.

8.3.2 National Project Management Unit

242. The PMU will be established under the MoEPA. The PMU will include the key roles identified in the organisation chart, in particular the Project Manager.

243. The Project Manager will run the project on a day-to-day basis on behalf of MoEPA within the constraints laid down by the Project Board. The Project Manager's function will end when the final project terminal evaluation report and other documentation required by the GCF and UNDP, has been completed and submitted to UNDP. The Project Manager is responsible for day-to-day management and decision-making for the project. The Project Manager's prime responsibility is to ensure that the project produces the results specified in the project document, to the required standard of quality and within the specified constraints of time and cost.

8.3.3 Project Assurance

244. The 'project assurance' function of UNDP is to support the Project Board by carrying out objective and independent project oversight and monitoring functions. This role ensures appropriate project management milestones are managed and completed. Project assurance has to be independent of the Project Manager; therefore, the Project Board cannot delegate any of its assurance responsibilities to the Project Manager. Furthermore, as the Senior Supplier, UNDP provides quality assurance for the project; ensures adherence to the NIM guidelines and ensures compliance with GCF and UNDP policies and procedures.

245. A UNDP Programme Office typically holds the Project Assurance role on behalf of UNDP.

8.3.4 Administration of Environmental and Social Management Plan

246. MoEPA as the implementing agency, and Road Department under the MRDI as responsible party for implementing activity 3.3. Will be responsible for the implementation with the ESMP via the delivery organisations.

247. The ESMPF will be part of any tender documentation. The MRDI and MoEPA will be responsible for the revision or updates of this document during the course of work. It is the responsibility of the person to whom the document is issued to ensure it is the most up to date version.

248. The UNDP, MRDI and MoEPA are accountable for the provision of specialist advice on environmental and social issues to the delivery organisations (eg contractors and/or NGOs) and for environmental and social monitoring and reporting. The MRDI and MoEPA or its delegates will assess the environmental and social performance of the delivery organisations (eg contractors) in charge of delivering each component throughout the project and ensure compliance with the ESMP. During operations the delivery organisations will be accountable for implementation of the ESMP. Personnel working on the projects have accountability for preventing or minimising environmental and social impacts.

249. The Field Officer will be responsible for daily environmental inspections of the project/construction site. The Road Department under MRDI and MoEPA or its delegates will cross check these inspections by undertaking monthly audits.

250. The delivery organisation eg contractor will maintain and keep all administrative and environmental records, which would include a log of complaints together with records of any measures taken to mitigate the cause of the complaints.

251. The delivery organisation will be responsible for the day to day compliance of the ESMP.

8.3.5 Environmental procedures, site and activity-specific work plans/instructions

252. Environmental procedures provide a written method describing how the management objectives for a particular environmental element are to be obtained. They contain the necessary detail to be site or activity-specific and are required to be followed for all construction works. Site and activity-specific work plans and instructions are to be issued and will follow the previously successful work undertaking similar projects by the UNDP, MRDI and MoEPA.

8.3.6 Environmental incident reporting

253. Any incidents, including non-conformances to the procedures of the ESMP are to be recorded using an Incident Record and the details entered into a register. For any incident that causes or has the potential to cause material or serious environmental harm, the camp officer shall notify the Project Manager as soon as possible. The delivery organisation/contractor must cease work until remediation has been completed as per the approval of Road Department under MRDI and MoEPA.

8.3.7 Daily and weekly environmental inspection checklists

254. A daily environmental checklist is to be completed at each work site by the relevant camp officer and maintained within a register. A weekly environmental checklist is to be completed and will include reference to any issues identified in the daily checklists completed by the field officers. The completed checklist is to be forwarded to Road Department under MRDI and MoEPA for review and follow-up if any issues are identified.

8.3.8 Corrective Actions

255. Any non-conformances to the ESMP are to be noted in weekly environmental inspections and logged into the register. Depending on the severity of the non- conformance, the camp officer may specify a corrective action on the weekly site inspection report. The progress of all corrective actions will be tracked using the register. Any non-conformances and the issue of corrective actions are to be advised to MRDI and MoEPA.

8.3.9 Review and auditing

256. The ESMP and its procedures are to be reviewed at least every two months by UNDP staff and Road Department under MRDI and MoEPA. The objective of the review is to update the document to reflect knowledge gained during the course of project delivery/construction and to reflect new knowledge and changed community standards (values).

257. The ESMP will be reviewed and amendments made if:

a. There are relevant changes to environmental conditions or generally accepted environmental practices; or

b. New or previously unidentified environmental risks are identified; or

c. Information from the project monitoring and surveillance methods indicate that current control measures require amendment to be effective; or

d. There are changes to environmental legislation that are relevant to the project; or

e. There is a request made by a relevant regulatory authority; or

f. Any changes are to be developed and implemented in consultation with UNDP Staff, MRDI and MoEPA. When an update is made, all site personnel are to be made aware of the revision as soon as possible eg through a tool box meeting or written notification.

8.4 TRAINING

258. Delivery organisations have the responsibility for ensuring systems are in place so that relevant employees, contractors and other workers are aware of the environmental and social requirements for construction, including the ESMP.

259. All project personnel will attend an induction that covers health, safety, environment and cultural requirements.

260. All workers engaged in any activity with the potential to cause serious environmental harm (e.g. handling of hazardous materials) will receive task specific environmental training.

8.5 COMPLAINTS REGISTER AND GRIEVANCE REDRESS MECHANISM

261. During the construction and implementation phases of any project, a person or group of people can be adversely affected, directly or indirectly due to the project activities. The grievances that may arise can be related to social issues such as eligibility criteria and entitlements, disruption of services, temporary or permanent loss of livelihoods and other social and cultural issues. Grievances may also be related to environmental issues such as excessive dust generation, damages to infrastructure due to construction related vibrations or transportation of raw material, noise, traffic congestions, decrease in quality or quantity of private/ public surface/ ground water resources during irrigation rehabilitation, damage to home gardens and agricultural lands etc.

262. Should such a situation arise, there must be a mechanism through which affected parties can resolve such issues in a cordial manner with the project personnel in an efficient, unbiased, transparent, timely and cost-effective manner. To achieve this objective, a grievance redress mechanism has been included in ESAR and ESMP for this project.

263. The project allows those that have a complaint or that feel aggrieved by the project to be able to communicate their concern, complaints and/or grievances through an appropriate process. The Complaints Register and Grievance Redress Mechanism set out in this ESAR and ESMP are to be used as part of the project and will provide an accessible, rapid, fair and effective response to concerned stakeholders, especially any vulnerable group who often lack access to formal legal regimes.

264. While recognising that many complaints may be resolved immediately, the Complaints Register and Grievance Redress Mechanism set out in this ESAR and ESMP encourages mutually acceptable resolution of issues as they arise. The Complaints Register and Grievance Redress Mechanism set out in this ESAR and ESMP has been designed to:

a. be a legitimate process that allows for trust to be built between stakeholder groups and assures stakeholders that their concerns will be assessed in a fair and transparent manner;

b. allow simple and streamlined access to the Complaints Register and Grievance Redress Mechanism for all stakeholders and provide adequate assistance for those that may have faced barriers in the past to be able to raise their concerns;

c. provide clear and known procedures for each stage of the Grievance Redress Mechanism process, and provides clarity on the types of outcomes available to individuals and groups;

d. ensure equitable treatment to all concerned and aggrieved individuals and groups through a consistent, formal approach that, is fair, informed and respectful to a concern, complaints and/or grievances;

e. to provide a transparent approach, by keeping any aggrieved individual/group informed of the progress of their complaint, the information that was used when assessing their complaint and information about the mechanisms that will be used to address it; and

f. enable continuous learning and improvements to the Grievance Redress Mechanism. Through continued assessment, the learnings may reduce potential complaints and grievances.

265. Eligibility criteria for the Grievance Redress Mechanism include:

a. Perceived negative economic, social or environmental impact on an individual and/or group, or concern about the potential to cause an impact;

b. clearly specified kind of impact that has occurred or has the potential to occur; and explanation of how the project caused or may cause such impact; and

c. individual and/or group filing of a complaint and/or grievance is impacted, or at risk of being impacted; or the individual and/or group filing a complaint and/or grievance demonstrates that it has authority from an individual and or group that have been or may potentially be impacted on to represent their interest.

266. Local communities and other interested stakeholders may raise a grievance/complaint at all times to the MRDI and MoEPA. Affected local communities should be informed about the ESAR and ESMP provisions, including its grievance mechanism and how to make a complaint.

8.5.1 Complaints Register

267. Where there is a community issue raised, the following information will be recorded:

268. A complaints register will be established as part of the project to record any concerns raised by the community during construction. Any complaint will be advised to the UNDP, MRDI and MoEPA within 24 hours of receiving the complaint. The complaint will be screened. Following the screening, complaints regarding corrupt practices will be referred to the UNDP for commentary and/or advice along with the MRDI and MoEPA.

269. Wherever possible, the project team will seek to resolve the complaint as soon as possible, and thus avoid escalation of issues. However, where a complaint cannot be readily resolved, then it must be escalated.

270. A summary list of complaints received and their disposition must be published in a report produced every six months.

8.5.2 Grievance Redress Mechanism

271. The Grievance Redress Mechanism has been designed to be problem-solving mechanism with voluntary good-faith efforts. The Grievance Redress Mechanism is not a substitute for the legal process. The Grievance Redress Mechanism will as far as practicable, try to resolve complaints and/or grievances on terms that are mutually acceptable to all parties. When making a complaint and/or grievance, all parties must act at all times, in good faith and should not attempt to delay and or hinder any mutually acceptable resolution.

272. In order to ensure smooth implementation of the Project and timely and effectively addressing of problems that may be encountered during implementation, a robust Grievance Redress Mechanism, which will enable to the Project Authorities to address the grievances of the stakeholders of the Project has been established.

273. All complaints and/or grievances regarding social and environmental issues can be received either orally (to the field staff), by phone, in complaints box or in writing to the UNDP, Road Department under MRDI and MoEPA or the Construction Contractor. A key part of the grievance redress mechanism is the requirement for the MRDI and MoEPA/PMU and construction contractor to maintain a register of complaints and/or grievances received at the respective project site offices. All complainants shall be treated respectfully, politely and with sensitivity. Every possible effort should be made by the MRDI and MoEPA/PMU and construction contractor to resolve the issues referred to in the complaint and/or grievance within their purview. However, there may be certain problems that are more complex and cannot be solved through project-level mechanisms. Such grievances will be referred to the Grievance Redress Committee. It would be responsibility of the MRDI and MoEPA to solve these issues through a sound / robust process.

274. The Grievance Redress Mechanism has been designed to ensure that an individual and/or group are not financially impacted by the process of making a complaint and/or grievance. The Grievance Redress Mechanism will cover any reasonable costs in engaging a suitably qualified person to assist in the preparation of a legitimate complaint and/or grievance. Where a complaint and/or grievance is seen to be ineligible, the Grievance Redress Mechanism will not cover these costs.

275. Information about the Grievance Redress Mechanism and how to make a complaint and/or grievance must be placed at prominent places for the information of the key stakeholders.

276. The Safeguards officer in the PMU will be designated as the key officer in charge of the Grievance Redress Mechanism. The Terms of Reference for these positions (as amended from time to time) will have the following key responsibilities:

    a. coordinate formation of Grievance Redress Committees before the commencement of constructions to resolve issues;

    b. act as the focal point at the PMU on Grievance Redress issues and facilitate the resolution of issues within the PMU;

    c. create awareness of the Grievance Redress Mechanism amongst all the stakeholders through public awareness campaigns;

    d. assist in redress of all grievances by coordinating with the concerned parties;

    e. maintain information on grievances and redress;

    f. monitor the activities of Road Department under MRDI and MoEPA on grievances issues; and

    g. prepare the progress for monthly/quarterly reports.

277. A two tier Grievance Redress Mechanism structure has been developed to address all complaints and/or grievances in the project. The first trier redress mechanism involves the receipt of a complaint and/or grievance at the local and basin level. The stakeholders are informed of various points of making a complaint and/or grievance (if any) and the PMU collect the complaints and/or grievances from these points on a regular basis and record them. This is followed by coordinating with the concerned people to redress the grievances. The Safeguards Officer of the PMU will coordinate the

activities at the respective District level to address the grievances and would act as the focal point in this regard. The Community Development Officer of the Local Authority or in the absence of the Community Development Officer, any officer given the responsibility of this would coordinate with the Safeguards and Gender Manager of the PMU, MRDI and MoEPA in redressing the grievances. The designated officer of the Local Authorities is provided with sufficient training in the procedure of redress to continue such systems in future.

278. The grievance can be made orally (to the field staff), by phone, in complaints box or in writing to the UNDP, MRDI and MoEPA or the Construction Contractor. Complainants may specifically contact the Safeguards Officer and request confidentiality if they have concerns about retaliation. In cases where confidentiality is requested (i.e. not revealing the complainant's identity to UNDP, MRDI and MoEPA and/or the Construction Contractor). In these cases, the Safeguards Officer will review the complaint and/or grievance, discuss it with the complainant, and determine how best to engage project executing entities while preserving confidentiality for the complainant.

279. As soon as a complaint and/or grievance is received, the Safeguards Officer would issue an acknowledgement. The Community Development Officer receiving the complaint and/or grievance should try to obtain relevant basic information regarding the grievance and the complainant and will immediately inform the Safeguards Officer in the PMU.

280. The PMU will maintain a Complaint / Grievance Redress register at the Sub District Level. Keeping records collected from relevant bodies is the responsibility of PMU.

281. After registering the complaint and/or grievance, the Safeguards Officer will study the complaint and/or grievance made in detail and forward the complaint and/or grievance to the concerned officer with specific dates for replying and redressing the same. The Safeguards Officer will hold meetings with the affected persons / complainant and then attempt to find a solution to the complaint and/or grievance received. If necessary, meetings will be held with the concerned affected persons / complainant and the concerned officer to find a solution to the problem and develop plans to redress the grievance. The deliberations of the meetings and decisions taken are recorded. All meetings in connection with the Grievance Redress Mechanism, including the meetings of the Grievance Redress Committee, must be recorded. The Safeguards Officer for the Grievances Redress Mechanism will be actively involved in all activities.

282. A Community Project Implementation Committee would be formed to oversee the first tier of the Grievance Redress Mechanism. The Community Project Implementation Committee would include:

    a. Chair of the Local Government;

    a. Local Community Representative;

    b. A representative of the local woman's association;

    c. A representative of the local youth association;

    d. Local representative of the implementing and executing entity; and

    e. Safeguards Officer PMU.

283. The resolution at the first tier will be normally be completed within 15 working days and the complaint and/or grievance will be notified of the proposed response through a disclosure form. The resolution process should comply with the requirements of the Grievance Redress Mechanism in that it should, as far as practicable, be informal with all parties acting in good faith. Further, the Grievance Redress Mechanism should, as far as practicable, achieve mutually acceptable outcomes for all parties.

284. Should the grievance be not resolved within this period to the satisfaction of the complainant, the grievance will be referred to the next level of Grievance Redress Mechanism. If the social safeguard and gender officer feels that adequate solutions can be established within the next five working days, the officer can decide on retaining the issue at the first level by informing the complainant accordingly. However, if the complainant requests for an immediate transfer to the next level, the matter must be referred to the next tier. In any case, where the issue is not addressed within 20 working days, the matter is referred to the next level.

285. Any grievance related to corruption or any unethical practice should be referred immediately to the Georgian Office of the Attorney General and the Office of Audit and Investigation within the UNDP in New York.

286. The Grievance Redress Committee formed at every sub-district level would address the grievance in the second tier. A Grievance Redress Committee will be constituted for every sub-district by the circulars issued by the Basin Authority, who would also be the Chairman of the Committee.

287. The Safeguard Officer from the PMU will coordinate with the respective Commissioner of Local Government in getting these Committees constituted for each Province and get the necessary circulars issued in this regard so that they can be convened whenever required.

288. The Terms of Reference for the Grievance Redress Committee are:

    a. providing support to the affected persons in solving their problems;

    b. prioritise grievances and resolve them at the earliest;

    c. provide information to the PMU, MRDI and MoEPA on serious cases at the earliest opportunity;

    d. Coordinate with the aggrieved person/group and obtain proper and timely information on the solution worked out for his/her grievance; and

    e. study the normally occurring grievances and advise PMU, National and District Steering Committee on remedial actions to avoid further occurrences.

289. The Grievance Redress Committee will hold the necessary meetings with the aggrieved party/complainant and the concerned officer and attempt to find a solution acceptable at all levels. The Grievance Redress Committee would record the minutes of the meeting.

290. Grievance Redress Committee will communicate proposed responses to the complainant formally. If the proposed response satisfies the complainant, the response will be implemented and the complaint and/or grievance closed. In cases where a proposed response is unsatisfactory to the complainant, the Grievance Redress Committee may choose to revise the proposed response to meet the complainant's remaining concerns, or to indicate to the complainant that no other response appears feasible to the Grievance Redress Committee. The complainant may decide to take a legal or any other recourse if s/he is not satisfied with the resolutions due to the deliberations of the three tiers of the grievance redress mechanism.

291. In addition to the project-level and national grievance redress mechanisms, complainants have the option to access UNDP's Accountability Mechanism, with both compliance and grievance functions. The Social and Environmental Compliance Unit investigates allegations that UNDP's Standards, screening procedure or other UNDP social and environmental commitments are not being implemented adequately, and that harm may result to people or the environment. The Social and Environmental Compliance Unit is housed in the Office of Audit and Investigations, and managed by a Lead Compliance Officer. A compliance review is available to any community or individual with concerns about the impacts of a UNDP programme or project. The Social and Environmental Compliance Unit is mandated to independently and impartially investigate valid requests from locally impacted people, and to report its findings and recommendations publicly.

292. The Stakeholder Response Mechanism offers locally affected people an opportunity to work with other stakeholders to resolve concerns, complaints and/or grievances about the social and environmental impacts of a UNDP project. Stakeholder Response Mechanism is intended to supplement the proactive stakeholder engagement that is required of UNDP and its Implementing Partners throughout the project cycle. Communities and individuals may request a Stakeholder Response Mechanism process when they have used standard channels for project management and quality assurance, and are not satisfied with the response (in this case the project level grievance redress mechanism). When a valid Stakeholder Response Mechanism request is submitted, UNDP focal points at country, regional and headquarters levels will work with concerned stakeholders and Implementing Partners to address and resolve the concerns. Visit www.undp.org/secu-srm for more details. The relevant form is attached at the end of the ESAR and ESMP.

8.6 Stakeholder Engagement and Public Participation

293. The ESMP include public consultation as part of the stakeholder engagement plan. The project was discussed with a wide range of stakeholders including relevant government departments, industry groups, NGOs, and individual community members and approved by the Government of Georgia. Extensive on-ground consultation has been undertaken during the design of the project (as well as during the earlier projects that this project is aiming to upscale) and it is expected that consultation with any affected communities will continue. It is anticipated that based on the communities' needs, the projects will be fully accepted.

294. The UNDP, MRDI and MoEPA will develop and release updates on the project on a regular basis to provide interested stakeholders with information on project status. Updates may be via a range of media eg print, radio, social media or formal reports. A publicised telephone number will be maintained throughout the project to serve as a point of contact for enquiries, concern, complaints and/or grievances. All enquiries, concern, complaints and/or grievances will be recorded on a register and the appropriate manager will be informed. All material must be published in English and Georgian as appropriate.

295. Where there is a community issue raised, the following information will be recorded:

    a. time, date and nature of enquiry, concern, complaints and/or grievances;

    b. type of communication (e.g. telephone, letter, personal contact);

    c. name, contact address and contact number;

    d. response and investigation undertaken as a result of the enquiry, concern, complaints and/or grievances; and

    e. actions taken and name of the person taking action.

296. Some enquiries, concern, complaints and/or grievances may require an extended period to address. The complainant(s) will be kept informed of progress towards rectifying the concern. All enquiries, concerns, complaints and/or grievances will be investigated and a response given to the complainant in a timely manner. A grievance redress mechanism has been included in the ESMF to address any complaints that may not be able to be resolved quickly.

297. Nominated PMU/contractor staff will be responsible for undertaking a review of all enquiries, concern, complaints and/or grievances and ensuring progress toward resolution of each matter.

8.7 Key Environmental and Social Indicators

298. The ESMP identifies the key environmental and social indicators identified for the project and outlines respective management objectives, potential impacts, control activities and the environmental and social performance criteria against which these indicators will be judged (eg audited).

299. This section addresses the need for monitoring and reporting of environmental and social performance with the aim of communicating the success and failures of control procedures, distinguish issues that require rectification and identify measures that will allow continuous improvement in the processes by which the projects are managed.

8.8 Topography, Geology and Soils - Erosion, Drainage and Sediment Control

8.8.1 Performance Criteria

300. Activities that have the potential to cause erosion should be undertaken with the likely weather conditions in mind. The following performance criteria are set for the projects:

a. no build-up of sediment in the aquatic environments and/or surface and/or groundwater as a result of construction and operation activities;

b. no degradation of water quality on or off site of all projects;

c. all water exiting the project site and/or into groundwater systems is to have passed through best practice erosion, drainage and sediment controls; and

d. effective implementation of site-specific EDSCP.

301. By following the management measures set out in the ESAR and ESMP, construction and operation activities of the projects will not have a significant impact as a result of sedimentation across the broader area.

8.8.2 Monitoring

302. A standardised sediment control monitoring program has been developed for the projects (Table 7). The program is subject to review and update at least every two months from the date of issue. The camp officer will be required to:

a. conduct site inspections on a weekly basis or after rainfall events exceeding 20mm in a 24 hour period;

b. develop a site-specific checklist to document non-conformances to this ESMP or any applicable EDSCPs; and

c. communicate the results of inspections and/or water quality testing and ensure that any issues associated with control failures are rapidly rectified and processes are put in place to ensure that similar failures are not repeated.

8.8.3 Reporting

303. All sediment and erosion control monitoring results and/or incidents will be tabulated and reported as outlined in the ESMP. The MRDI and MoEPA must be notified immediately in the event of any suspected instances of material or serious environmental harm, or if a determined level with respect to erosion and sediment control is exceeded.

Table 7 Erosion, Drainage and Sediment Control Measures

Issue	Control activity (and source)	Action timing	Responsibility	Monitoring & reporting
E1: Loss of soil material and sedimentation to the surface and/or groundwater systems from site due to earthwork activities	E1.1: Develop and implement an EDSCP for any surface works, embankments and excavation work, water crossings and stormwater pathways.	Construction phase	All Personnel	Maintain records
	E1.2: Ensure that erosion and sediment control devices are installed, inspected and maintained as required.	Construction phase	All Personnel	Maintain records
	E1.3: Schedule/stage works to minimise cleared areas and exposed soils at all times.	Pre and during construction	Camp officer	Maintain records
	E1.4: Incorporate the design and location of temporary and permanent EDSC measures for all exposed areas and drainage lines. These shall be implemented prior to pre-construction activities and shall remain onsite during work	Pre and during construction	Camp officer	Maintain records
	E1.5: Schedule/stage proposed works to ensure that major vegetation disturbance and earthworks are carried out during periods of lower rainfall and wind speeds.	Pre and during construction	Camp officer	Maintain records
	E1.6: Strip and stockpile topsoil for use during revegetation and/or place removed soils back on to agricultural lands.	Pre and during construction	Camp officer	Maintain records
	E1.7: Schedule/stage works to minimise the duration of stockpiling topsoil material. Vegetate stockpiles if storage required for long periods.	During construction	All Personnel	Maintain records
	E1.8: Locate stockpile areas away from drainage pathways, waterways and sensitive locations.	Pre and during construction	Camp officer	Maintain records

Issue	Control activity (and source)	Action timing	Responsibility	Monitoring & reporting
E1: Loss of soil material and sedimentation to the surface and/or groundwater systems from site due to earthwork activities	E1.9: Design stormwater management measures to reduce flow velocities and avoid concentrating runoff.	Pre and during construction	Camp officer	Maintain records
	E1.10: Include check dams in drainage lines where necessary to reduce flow velocities and provide some filtration of sediment. Regularly inspect and maintain check dams.	Pre and during construction	Camp officer	Maintain records
	E1.11: Mulching shall be used as a form of erosion and sediment control and where used on any slopes (dependent on site selection), include extra sediment fencing during high rainfall.	During construction	All Personnel	Maintain records
	E1.12: Bunding shall be used either within watercourses or around sensitive/dangerous goods as necessary.	During construction	All Personnel	Maintain records
	E1.13: Grassed buffer strips shall be incorporated where necessary during construction to reduce water velocity.	During construction	Camp officer	Maintain records
	E1.14: Silt fences or similar structures to be installed to protect from increased sediment loads.	During construction	Contractors	Maintain records
	E1.15: Excess sediment in all erosion and sediment control structures (eg. sediment basins, check dams) shall be removed when necessary to allow for adequate holding capacity.	During construction	Contractors	Maintain records

Issue	Control activity (and source)	Action timing	Responsibility	Monitoring & reporting
E2: Soil Contamination	E2.1: If contamination is uncovered or suspected (outside of the project footprints), undertake a Stage 1 preliminary site contamination investigation. The contractor should cease work if previously unidentified contamination is encountered and activate management procedures and obtain advice/permits/approval (as required).	Construction phase	All Personnel	Daily and maintain records
	E2.2: Adherence to best practice for the removal and disposal of contaminated soil/ material from site (if required), including contaminated soil within the project footprints.	Construction phase	All Personnel	Daily and maintain records
	E2.3: Drainage control measures to ensure runoff does not contact contaminated areas (including contaminated material within the project footprints) and is directed/diverted to stable areas for release.	Construction phase	All Personnel	Daily and maintain records
	E2.4: Avoid importing fill that may result in site contamination and lacks accompanying certification/documentation. Where fill is not available through on site cut, it must be tested in accordance with geotechnical specifications.	Construction phase	All Personnel	Daily and maintain records
E3: Disposal of excess soil/silt	E3.4: Silt removed from dams/canals/weirs during rehabilitation / maintenance is to be beneficially reused eg composted, returned to farm land, brick making etc. Silt should be tested to confirm suitability for proposed use	Construction and operation phases	MRDI Road Department, and MoEPA	Maintain records

8.9 AIR QUALITY

8.9.1 Performance Criteria

304. The following performance criteria are set for the construction of the projects:

a. release of dust/particle matter must not cause an environmental nuisance;

b. undertake measures at all times to assist in minimising the air quality impacts associated with construction and operation activities; and

c. corrective action to respond to complaints and/or grievances is to occur within 48 hours.

8.9.2 Monitoring

305. A standardised air monitoring program has been developed for the projects (Table 8). The program is subject to review and update at least every two months from the date of issue. Importantly:

a. the requirement for dust suppression will be visually observed by site personnel daily and by MRDI, MoEPA and UNDP staff when undertaking routine site inspections; and

b. Vehicles and machinery emissions – visual monitoring and measured when deemed excessive.

8.9.3 Reporting

306. All air quality monitoring results and/or incidents will be tabulated and reported as outlined in the ESMP. The MRDI and MoEPA must be notified immediately in the event of any suspected instances of material or serious environmental harm, or if a determined level with respect to air quality is exceeded.

Table 8 Air Quality Management Measures

Issue	Control activity (and source)	Action timing	Responsibility	Monitoring & reporting
A.1 Increase in dust levels at sensitive receptors	A1.1: Implement effective dust management measures in all areas during design, construction and operation.	Pre and during construction	All Personnel	Daily and maintain records
	A1.2: Restrict speeds on roads and access tracks.	During construction	Camp officer	Daily and maintain records
	A1.3: Manage dust/particulate matter generating activities to ensure that emissions do not cause an environmental nuisance at any sensitive locations	During construction	Camp officer	Daily and maintain records
	A1.4: Construction activities should minimise risks associated with climatic events (check forecasts).	During construction	Camp officer	Daily and maintain records
	A1.5: Implement scheduling/staging of proposed works to ensure major vegetation disturbance and earthworks are minimised.	Entire construction	Contractor	Daily and maintain records
	A1.6: Locate material stockpile areas as far as practicable from sensitive receptors. Cover if appropriate.	During construction	Camp officer	Daily and maintain records
	A1.7: Source sufficient water of a suitable quality for dust suppression activities complying with any water restrictions.	During construction	Camp officer	Daily and maintain records
	A1.8: Schedule revegetation activities to ensure optimum survival of vegetation species.	During construction	Camp officer	Maintain records
	A1.9: Rubbish receptacles should be covered and located as far as practicable from sensitive locations	During construction	Camp officer	Maintain records

Issue	Control activity (and source)	Action timing	Responsibility	Monitoring & reporting
A2. Increase in vehicle / machinery emissions	A2.1 Ensure vehicles/machines are switched off when not in use.	During construction	Camp officer	Daily and maintain records
	A2.2 Ensure only vehicles required to undertake works are operated onsite.	During construction	Camp officer	Daily and maintain records
	A2.3 Ensure all construction vehicles, plant and machinery are maintained and operated in accordance with design standards and specifications.	During construction	Camp officer	Daily and maintain records
	A2.4 Develop and implement an induction program for all site personnel, which includes as a minimum an outline of the minimum requirements for environmental management relating to the site.	Pre and during construction	Contractor	Daily and maintain records
	A2.5 Locate construction vehicle/plant/equipment storage areas as far as practicable from sensitive locations.	During construction	Camp officer	Daily and maintain records
	A2.6 Direct exhaust emissions of mobile plant away from the ground.	During construction	Camp officer	Daily and maintain records

8.10 NOISE AND VIBRATION

8.10.1 Performance Criteria

307. The following performance criteria are set for the construction of the projects:

a. noise from construction and operational activities must not cause an environmental nuisance at any noise sensitive place;

b. undertake measures at all times to assist in minimising the noise associated with construction activities;

c. no damage to off-site property caused by vibration from construction and operation activities; and

d. corrective action to respond to complaints and/or grievances is to occur within 48 hours.

8.10.2 Monitoring

308. A standardised noise monitoring program has been developed for the projects (Table 9). The program is subject to review and update at least every two months from the date of issue. Importantly, the site supervisor will:

a. ensure equipment and machinery is regularly maintained and appropriately operated; and

b. carry out potentially noisy construction activities during ‘daytime’ hours only.

8.10.3 Reporting

309. All noise monitoring results and/or incidents will be tabulated and reported as outlined in the ESMP. The MRDI and MoEPA must be notified immediately in the event of any suspected instances of material or serious environmental harm, or if a determined level with respect to noise is exceeded

Table 9 Noise and Vibration Management Measures

Issue	Control activity (and source)	Action timing	Responsibility	Monitoring & reporting
N1: Increased noise levels	N1.1: Select plant and equipment and specific design work practices to ensure that noise emissions are minimised during construction and operation including all pumping equipment.	All phases	Contractor	Maintain records
	N1.2: Specific noise reduction devices such as silencers and mufflers shall be installed as appropriate to site plant and equipment.	Pre and during construction	Contractor	Maintain records
	N1.3 Minimise the need for and limit the emissions as far as practicable if noise generating construction works are to be carried out outside of the hours: 7am-5.30pm	Construction phase	All Personnel	Daily and maintain records
	N1.4: Consultation with nearby residents in advance of construction activities particularly if noise generating construction activities are to be carried out outside of 'daytime' hours: 7am-5.30pm.	Construction phase	All Personnel	Daily and maintain records
	N1.5 The use of substitution control strategies shall be implemented, whereby excessive noise generating equipment items onsite are replaced with other alternatives.	Construction phase	All Personnel	Daily and maintain records
	N1.6 Provide temporary construction noise barriers in the form of solid hoardings where there may be an impact on specific residents.	Construction phase	Camp officer	Daily and maintain records
	N1.7 All incidents complaints and non-compliances related to noise shall be reported in accordance with the site incident reporting procedures and summarised in the register.	Construction phase	Camp officer	Maintain records

Issue	Control activity (and source)	Action timing	Responsibility	Monitoring & reporting
N1: Increased noise levels	N1.8 The contractor should conduct employee and operator training to improve awareness of the need to minimise excessive noise in work practices through implementation of measures.	Pre and during construction	Contractor	Maintain records
N2. Vibration due to construction	N2.1: Identify properties, structures and habitat locations that will be sensitive to vibration impacts resulting from construction and operation of the project.	Pre and during construction	Contractor	Maintain records
	N2.2: Design to give due regard to temporary and permanent mitigation measures for noise and vibration from construction and operational vibration impacts.	Pre-construction	Contractor	Maintain records
	N2.3: All incidents, complaints and non-compliances related to vibration shall be reported in accordance with the site incident reporting procedures and summarised in the register.	Construction phase	Camp officer	Maintain records
	N2.4: During construction, standard measure shall be taken to locate and protect underground services from construction and operational vibration impacts.	Construction phase	Camp officer	Maintain records

8.11 SURFACE WATER

8.11.1 . Performance Criteria

310. The following performance criteria are set for the construction of the projects:

a. no significant decrease in water quality as a result of construction and operational activities;

b. water quality shall conform to any approval conditions stipulated by UNDP, MRDI, MoEPA and/or other government departments, or in the absence of such conditions follow a 'no worsening' methodology;

c. no off site impact will occur; and

d. effective implementation of site-specific EDSCPs.

8.11.2 Monitoring

311. Having water of a quality that is fit for purpose is important. Water quality can affect plant growth, livestock health, soil quality, farm equipment and domestic use. The quality of a water source is also variable depending upon weather and external inputs.

312. Evaporation increases the concentrations of salts while a flush of water dilutes salts but may increase sediment and fertilisers, and manure or nutrient runoff. Monitoring should be done regularly and more frequently in summer or in periods of prolonged moisture stress.

313. Table 10 outlines the monitoring required.

8.11.3 Reporting

314. All water quality monitoring results and/or incidents will be tabulated and reported as outlined in the ESMP. The MRDI and MoEPA must be notified immediately in the event of any suspected instances of material or serious environmental harm, or if a determined level with respect to water quality is exceeded.

Table 10 Water Quality Management Measures

Issue	Control activity (and source)	Action timing	Responsibility	Monitoring & reporting
W1: Elevated suspended solids and other contaminants in surface water systems.	W1.1: Develop and implement a site specific Erosion, Drainage and Sediment Control Plan (EDSCP) to address drainage control, sediment and erosion controls and stockpiling of materials including soil during construction of all components of the projects. EDSCP measures to be inspected regularly to ensure all devices are functioning effectively.	Pre Earthworks	Camp officer	Initial set up and then as required with reporting to MRDI, MoEPA and UNDP
	W1.2: Designated areas for storage of fuels, oils, chemicals or other hazardous liquids should have compacted impermeable bases and be surrounded by a bund to contain any spillage. Refuelling to be undertaken in areas away from water systems.	Entire construction and operation phase	All Personnel	Weekly with reporting to MRDI, MoEPA and UNDP
	W1.3: Conduct regular surface and groundwater quality monitoring in location where the groundwater is likely to be impacted including assessing the changes to groundwater quality.	Entire construction and operation phase	Camp officer	Weekly and as required with reporting to MRDI, MoEPA and UNDP
	W1.4: Schedule works in stages to ensure that disturbed areas are revegetated and stabilised progressively and as soon as practicable after completion of works.	Avoid undertaking bulk earthworks during wet season	Camp officer MRDI and MoEPA	Maintain records
	W1.5: Construction materials will not be stockpiled in proximity to aquatic environment that may allow for release into the environment. Construction equipment will be removed from in proximity to the aquatic environment at the end of each working day or if heavy rainfall is predicted	Entire construction and operation phase	Camp officer	Maintain daily records

8.12 GROUNDWATER

8.12.1 Performance Criteria

315. . The following performance criteria are set for the project:

a. no significant decrease in the quality and quantity of groundwater as a result of construction and operational activities in proximity to the projects;

b. effective implementation of site-specific EDSCPs and other measures to protect groundwater.

316. By following the management measures set out in the ESMP the project will not have a significant impact on water quality across the broader area.

8.12.2 Monitoring

317. Refer to Table 11 for the monitoring requirements for groundwater.

318. During the project groundwater quality should be assessed initially and then at least every two months. Initial assessment should cover a wide range of parameters (eg depth to water, pH, DO, conductivity, nitrates, phosphates, faecal coliforms, heavy metals, turbidity, hydrocarbons) to provide a baseline and to confirm suitability for intended use. Subsequent monitoring parameters will be determined on need.

319. Ongoing monitoring should form part of the operation of the boreholes.

8.12.3 Reporting

320. All water quality monitoring results and/or incidents will be tabulated and reported as outlined in the ESMP. The MRDI and MoEPA must be notified immediately in the event of any suspected instances of material or serious environmental harm, or if a determined level with respect to water quality is exceeded.

Table 11 Groundwater management measures

Issue	Control activity (and source)	Action timing	Responsibility	Monitoring & reporting
GW 1: Increase of gross pollutants, hydrocarbons, metals and other chemical pollutants into the groundwater environment.	GW1.1: Conduct regular surface and groundwater quality monitoring in location where the groundwater is likely to be impacted, including assessing the changes to groundwater quality.	Construction and operation phase	Camp officer	Weekly and as required with reporting to MRDI, MoEPA and UNDP
	GW1.2: Prevent contaminated surface water from entering aquifers via boreholes and wells - protect from runoff and flooding and keep surrounds clean.	All phases	All Personnel	Weekly
	GW1.3: Designated areas for storage of fuels, oils, chemicals or other hazardous liquids should have compacted impermeable bases and be surrounded by a bund to contain any spillage. Refuelling to be undertaken in areas away from water systems.	Entire construction and operation phase	All Personnel	Weekly with reporting to MRDI, MoEPA and UNDP
	GW1.4: Check all vehicles, equipment and material storage areas daily for possible fuel, oil and chemical leaks. Undertake refuelling at designated places away from water systems.	All phases	All Personnel	Daily and maintain records
	GW 1.5: Minimise the use of herbicides, pesticides and other chemicals and use only biodegradable herbicides that have minimal impact on water quality and fauna. Use only as per directions	All phases	All Personnel	Weekly reporting to MRDI, MoEPA and UNDP

8.13 Terrestrial, and Aquatic Flora and Fauna

8.13.1 Performance Criteria

321. The following performance criteria are set for the construction of the projects:

a. no clearance of vegetation outside of the designated clearing boundaries;

b. no death to native fauna as a result of clearing activities;

c. no deleterious impacts on aquatic environments and terrestrial habitats;

d. no introduction of new weed species as a result of construction activities; and

e. no increase in existing weed proliferation within or outside of any project footprint as a result of construction activities.

8.13.2 Monitoring

322. A flora and fauna monitoring program will be implemented (Table 12).

323. Weed monitoring will be undertaken and appropriate action taken in the event of alien or noxious species being identified.

324. The delivery organisation will when undertaking works, compile a weekly report to MRDI and MoEPA outlining:

a. any non-conformances to this ESMP;

b. the areas that have been rehabilitated during the preceding week; and

c. details of the corrective action undertaken.

8.13.3 Reporting

325. All flora and fauna monitoring results and/or incidents will be tabulated and reported as outlined in the ESMP. The MRDI and MoEPA must be notified in the event of any suspected instances of death to native fauna and where vegetation if detrimentally impacted

Table 12 Flora and Fauna Management Measures

Issue	Control Activity (and Source)	Action Timing	Responsibility	Monitoring and Reporting
FF1. Habitat loss and disturbance of fauna	FF1.1 Limit vegetation clearing and minimise habitat disturbance through adequate protection and management of retained vegetation.	During construction	Camp officer	Daily and maintain records
	FF1.2: Minimise noise levels and lighting intrusion throughout construction and operation in the vicinity of any sensitive locations.	During construction	Camp officer	Daily and maintain records
	FF1.3: Ensure that all site personnel are made aware of sensitive fauna/habitat areas and the requirements for the protection of these areas.	During construction	Contractor	Daily and maintain records
	FF1.4 Minimise disturbance to on-site fauna and recover and rescue any injured or orphaned fauna during construction and operation.	During construction	Contractor	Daily and maintain records, report
	FF1.5 Where necessary and practicable, relocate native fauna to the closest river where works are being undertaken	During construction	Contractor	Daily and maintain records, report
	FF1.6 Where earthworks are undertaken, rehabilitate the site with local provenance vegetation that provides habitat for fauna	During and post construction	Contractor	Daily and maintain records, report
FF2. Introduced flora and weed species	FF2.1: Implement an ESCP to reduce the spread of weeds through erosion and sediment entering any waterways and therefore spreading.	Pre and during construction	Contractor	Maintain records
	FF2.2: Revegetate disturbed areas using native and locally endemic species that have high habitat value.	During construction	Camp officer	As required and maintain records
	FF2.3: Minimise disturbance to mature remnant vegetation, particularly canopy trees.	During construction	Camp officer	Daily and maintain records
	FF2.4: Seed is to be weed free	Operation	Camp Officer	Maintain records

Issue	Control Activity (and Source)	Action Timing	Responsibility	Monitoring and Reporting
FF2. Introduced flora and weed species	FF2.5: Small trees and shrubs shall be removed in preference to large trees.	During construction	Site Supervisor	Daily and maintain records
	FF2.6: Environmental weeds and noxious weeds within the project footprints shall be controlled.	During and post construction	Camp officer	Weekly and maintain records

8.14 Land Ownership and Customary Tenure

8.14.1 Performance Criteria

326. The following performance criteria are set for the project:

a. no resettlement will occur as a result of the project

b. where there is the need for access to land for any project activity, the land will be returned in the same condition as it was prior to any access;

c. in the case of forestry interventions, all land needs will ensure beneficial use by existing land holders;

d. forestry activities will only be undertaken following the signing of a voluntary agreement;

e. in the case of the need to access land for the purposes of undertaking river works, access will only be undertaken through voluntary agreements with landholders. Where a voluntary agreement cannot be established, the land will not be used;

f. ensure full compliance with the UNDP Social and Environmental Standards Guidance Note for Standard Five (5) on Displacement and Resettlement;

g. complaint and grievance mechanisms are put in place and proactively managed; and

h. long-term social benefits are achieved.

327. Local stakeholders and community members have a key role to play in the implementation and monitoring of the project.

328. Consultation with stakeholders will continue. This will help ensure that stakeholders continue to be aware of the project, its progress and any changes in the project. It will also assist in identifying any issues as they arise.

329. The MRDI and MoEPA will be responsible for advisory support and extensions services to local beneficiaries along with being responsible for distributing material inputs and providing technical training and backstopping in the implementation of programme activities.

8.14.2 Reporting

330. Records of all consultations are to be kept and reported on monthly basis.

331. The MRDI and MoEPA must be notified in the event of any individual or community complaint or dissatisfaction and ensure the Grievance Redress Mechanism is complied with.

Table 13 Land Ownership Measures

Issue	Control activity (and source)	Action timing	Responsibility	Monitoring & reporting
LO1: Ensure no impact on Land Ownership	LO 1.1: Carry out community consultation on the purpose and benefits of making changes to land use	Pre-construction	MRDI Road Department and MoEPA	Maintain records
	LO 1.1: Ensure all access is undertaken consistent with signed voluntary agreements	Pre-construction	MRDI Road Department and MoEPA	Maintain records
	LO 1.3: Ensure full compliance with the UNDP Social and Environmental Standards Guidance Note for Standard Five (5) on Displacement and Resettlement	Entire construction and operation phase	MRDI Road Department and MoEPA	Maintain records
	LO 1.4: Ensure compliance with the Grievance Redress Mechanism process	Entire construction and operation phase	MRDI Road Department and MoEPA	Maintain records

8.15 GENDER

8.15.1 Performance Criteria

332. The following performance criteria are set for the project:

a. ensure the project has gender equality and women empowerment within all activities;

b. ensure the project does not have any gender-based discrimination and/or inequalities;

c. where practicable, preference should be given to women for any employment;

d. complaint and grievance mechanisms are put in place and proactively managed; and

e. long-term social benefits are achieved.

333. Local stakeholders and community members have a key role to play in the implementation and monitoring of the project.

334. Consultation with stakeholders will continue. This will help ensure that stakeholders continue to be aware of the project, its progress and any changes in the project. It will also assist in identifying any issues as they arise.

335. UNDP will be responsible for advisory support and extensions services to local beneficiaries along with being responsible for distributing material inputs and providing technical training and backstopping in the implementation of programme activities.

8.15.2 Reporting

336. Records of all consultations are to be kept and reported on monthly basis.

337. The UNDP must be notified in the event of any individual or community complaint or dissatisfaction and ensure the Grievance Redress Mechanism is complied with.

Table 14 Gender Measures

Issue	Control activity (and source)	Action timing	Responsibility	Monitoring & reporting
GE1: Gender Equality and Women Empowerment	SM 1.1: Ensure the project has gender equality and women empowerment within all activities	Entire construction and operation phase	MRDI Road Department and MoEPA	Maintain records
	SM 1.2: Ensure the project does not have any gender-based discrimination and/or inequalities	Entire construction and operation phase	MRDI Road Department and MoEPA	Maintain records
	SM 1.3: Where practicable, preference should be given to women for any employment	Entire construction and operation phase	MRDI Road Department and MoEPA	Maintain records

8.16 Employment, Labour and Working Conditions

338. The project has been designed with the assistance of stakeholders and aims to provide benefits to the broader community who will be involved in the construction of project interventions. Notwithstanding, as with any project that involves construction, some dissatisfaction can occur and conflicts may arise where individuals are unable to be provided employment. It is important that potential areas of tension are recognised early and appropriate actions taken to avoid or minimise conflict.

8.16.1 Performance Criteria

339. The following performance criteria are set for the project:

a. ensure compliance with Georgian labour and occupational health and safety laws, with obligations under international law, and consistency with the principles and standards embodied in the International Labor Organisation fundamental conventions, including freedom of association, elimination of discrimination in employment and occupation, elimination of forced or compulsory labour, and

b. ensure no forms of child labour;

c. where possible, local residents will be employed first for all construction activities;

d. all employees and contractors will be paid equally;

e. where practicable, preference should be given to women for any employment;

f. ensure workers' health and safety is protected and overall well-being benefits derived from the project;

g. ensure workers are trained in occupational health and safety;

h. ensure workers are provided appropriate personal protective equipment suitable for their duties; and

i. complaint and grievance mechanisms are put in place and proactively managed.

340. Local stakeholders and community members have a key role to play in the implementation and monitoring of the project and therefore preference should be given to them with respect to employment.

341. MRDI and MoEPA will be responsible for advisory support and extensions services to local beneficiaries along with being responsible for distributing material inputs and providing technical training and backstopping in the implementation of programme activities.

8.16.2 Reporting

342. Records of all consultations are to be kept and reported on monthly basis.

343. The MRDI and MoEPA should keep records on local employment and pay conditions;

344. The MRDI and MoEPA must be notified in the event of any individual or community complaint or dissatisfaction and ensure the Grievance Redress Mechanism is complied with.

Table 15 Employment, Labour and Working Conditions Measures

Issue	Control activity (and source)	Action timing	Responsibility	Monitoring & reporting
WC1: Employment, Labour and Working Conditions	WC 1.1: Ensure compliance with Georgian labour and occupational health and safety laws,	Entire construction and operation phase	MRDI Road Department and MoEPA	Maintain records
	WC 1.2: Employ local residents and women first where practicable	Entire construction and operation phase	MRDI Road Department and MoEPA	Maintain records
	WC 1.3: Ensure workers' health and safety is protected and overall well-being benefits derived from the project	Entire construction and operation phase	MRDI Road Department and MoEPA	Maintain records
	WC 1.43: Ensure workers are trained in occupational health and safety	Entire construction and operation phase	MRDI Road Department and MoEPA	Maintain records
	WC 1.5: Ensure workers are provided appropriate personal protective equipment suitable for their duties	Entire construction and operation phase	MRDI Road Department and MoEPA	Maintain records

8.17 Ethnic Minorities and Internally Displaced Peoples

8.17.1 Performance Criteria

345. The following performance criteria are set for the project:

a. the community, particularly has been consulted and project elements have been designed with their informed consultation and participation throughout the project;

b. the community, particularly ethnic minorities and internally displaced peoples have been

c. ensure full compliance with the Social Inclusion Planning Framework;

d. ensure full compliance with the UNDP Social and Environmental Standards Guidance Note for Standard Six (6);

e. ensure no ethnic minorities and/or internally displaced people are discriminated against;

f. ensure appropriate measures are in place to safeguard integrity of uncontacted and voluntarily isolated local communities;

g. all stakeholders are appropriately represented;

h. avoid adverse impacts to local community during construction and operations and where not possible, minimise, restore or compensate for these impacts;

i. cultural and traditional heritage is not adversely impacted;

j. community health and safety is protected and overall well-being benefits derived from the project;

k. complaint and grievance mechanisms are put in place and proactively managed; and

l. long-term social benefits are achieved.

346. Local stakeholders and community members have a key role to play in the implementation and monitoring of the project. The project will ensure that consultations continually take place with ethnic minorities and internally displaced peoples to ensure full protections.

347. Consultation with stakeholders will continue. This will help ensure that stakeholders continue to be aware of the project, its progress and any changes in the project. It will also assist in identifying any issues as they arise.

348. The MRDI and MoEPA will be responsible for advisory support and extensions services to local beneficiaries along with being responsible for distributing material inputs and providing technical training and backstopping in the implementation of programme activities.

8.17.2 Reporting

349. Records of all consultations are to be kept and reported on monthly basis.

350. The MRDI and MoEPA must be notified in the event of any individual or community complaint or dissatisfaction and ensure the Grievance Redress Mechanism is complied with.

Table 16 Ethnic Minorities and Internally Displaced Peoples Measures

Issue	Control activity (and source)	Action timing	Responsibility	Monitoring & reporting
EP1: Full protection and inclusion of any Ethnic Minorities and Internally Displaced Peoples	EP 1.1: Carry out specific community consultation with ethnic minorities and internally displaced peoples	Pre-construction	MRDI Road Department and MoEPA	Maintain records
	EP 1.2: Ensure full compliance with the UNDP Social and Environmental Standards Guidance Note for Standard Six (6)	Entire construction and operation phase	MRDI Road Department and MoEPA	Maintain records
	EP 1.3: Ensure compliance with the Grievance Redress Mechanism process	Entire construction and operation phase	MRDI Road Department and MoEPA	Maintain records
	EP 1.4: Ensure Social Inclusion Planning Framework	Entire construction and operation phase	MRDI Road Department and MoEPA	Maintain records
	EP 1.5 Ensure no ethnic minorities and/or internally displaced people are discriminated against	Entire construction and operation phase	MRDI Road Department and MoEPA	Maintain records

8.18 Archaeological and Cultural Heritage

351. The following performance criteria are set for cultural heritage issues related to the project:

a. There will be no impact on any important Archaeological and/or Cultural Heritage sites;

b. Manage any specific sites of important Archaeological and/or Cultural significance (significant sites);

c. Where there is a mix of modern development and traditional areas within villages use community engagement to confirm options of enabling future development as nominated by the participants and protecting culturally significant traditional areas;

d. Work with the village communities to differentiate between traditional village areas of cultural significance (uses and physical form) within each of the village boundary areas during the construction phase of the project; and

e. Monitoring.

352. Local stakeholders and community members have a key role to play in the implementation and monitoring of the project.

353. Consultation with stakeholders will continue. This will help ensure that stakeholders continue to be aware of the project, its progress and any changes in the project. It will also assist in identifying any issues as they arise.

354. MRDI and MoEPA will be responsible for advisory support and extensions services to local beneficiaries along with being responsible for distributing material inputs and providing technical training and backstopping in the implementation of programme activities.

8.18.1 Reporting

355. Records of all consultations are to be kept and reported on monthly basis.

Table 17: Archaeological and Cultural Heritage

Issue	Control activity (and source)	Action timing	Responsibility	Monitoring & reporting
CH1: Damage or disturbance to significant important Archaeologicaland/or Cultural Heritage during the earth disturbances and land clearing activities	CH1.1: Should any important Archaeological and/or Cultural Heritage sites, immediately cease work within the area that the site has been observed and consult with the relevant Museum/traditional owner groups, UNDP, MRDI, MoEPA and archaeologist available for implementation during construction.	Pre and during construction	Contractor	Daily, maintain records and immediately notify UNDP, MRDI and MoEPA of any find

8.19 Waste Management

8.19.1 Background

356. MoEPA as the implementing agency and MRDI Road Department as responsible party for implementing activity 3.3.advocate good waste management practice. The preferred waste management hierarchy and principles for achieving good waste management is as follows:

    a. waste avoidance(avoid using unnecessary material on the projects);

    b. waste re-use (re-use material and reduce disposing);

    c. waste recycling (recycle material such as cans, bottles, etc.); and

    d. waste disposal (all petruscible and/or contaminated waste to be dumped at approved landfills).

357. The key waste streams generated during construction are likely to include residual sediment and construction wastes such as:

    a. the excavation wastes unsuitable for reuse during earthworks;

    b. wastes from construction and drilling equipment maintenance. Various heavy vehicles and construction equipment will be utilised for the duration of the construction and drilling phase. Liquid hazardous wastes from cleaning, repairing and maintenance of this equipment may be generated. Likewise leakage or spillage of fuels/oils within the site needs to be managed and disposed of appropriately;

    c. non-hazardous liquid wastes will be generated through the use of workers' facilities such as toilets; and

    d. general wastes including scrap materials and biodegradable wastes.

358. Key waste streams generated during operations are likely to include:

    a. excavated sediment (primarily sand and rubble, which can be used for concrete or spread on suitable areas);

    b. wastes from construction equipment maintenance. Various heavy vehicles and construction equipment will be utilised for the duration of the project. Liquid hazardous wastes from cleaning, repairing and maintenance of this equipment may be generated. Likewise leakage or spillage of fuels/oils within the site needs to be managed and disposed of appropriately;

    c. non-hazardous liquid wastes will be generated through the use of workers' facilities such as toilets; and

    d. used oil and machinery parts.

359. Workers involved in construction and operational activities should be familiar with methods minimising the impacts of clearing vegetation to minimise the footprint to that essential for the works and rehabilitate disturbed areas. By doing these activities, the projects should minimise the impact of waste generated by the project.

8.19.2 Performance Criteria

360. The following performance criteria are set for the construction of the projects:

    a. waste generation is minimised through the implementation of the waste hierarchy (avoidance, reduce, reuse, recycle);

    b. no litter will be observed within the project area or surrounds as a result of activities by site personnel;

    c. no complaints received regarding waste generation and management;

d. any waste from on-site portable sanitary facilities will be sent off site for disposal by a waste licensed contractor; and

e. waste oils will be collected and disposed or recycled off-site, local oil companies or shipped for recycling.

8.19.3 Monitoring

361. A waste management monitoring program has been developed for the projects (Table 18). The program is subject to review and update at least every two months from the date of issue.

8.19.4 Reporting

The MRDI Road Department as responsible party for implementing activity 3.3 and MoEPA as implementing agency must be notified immediately in the event of any suspected instances of material or serious environmental harm, or if a determined level with respect to waste is exceeded.

Table 18 Waste Management Measures

Issue	Control activity (and source)	Action timing	Responsibility	Monitoring & reporting
WT1: Production of wastes and excessive use of resources	WT1.1: Preference shall be given to materials that can be used to construct the project that would reduce the direct and indirect waste generated.	Pre and during construction	Contractor	Maintain records
	WT1.2: Daily waste practices shall be carried out unless these are delegated to the activities of external waste management bodies.	During construction	Camp officer	Daily and maintain records
	WT1.3: The use of construction materials shall be optimised and where possible a recycling policy adopted.	During construction	Camp officer	Weekly and maintain records
	WT1.4: Separate waste streams shall be maintained at all times i.e. general domestic waste, construction and contaminated waste. Specific areas on site shall be designated for the temporary management of the various waste streams.	During construction	Camp officer	Weekly and maintain records
	WT1.5: Any contaminated waste shall be disposed of at an approved facility.	During construction	Camp officer	Weekly and maintain records
	WT1.6: Recyclable waste (including oil and some construction waste) shall be collected separately and disposed of correctly.	During construction	Camp officer	Weekly and maintain records
	WT1.7: Waste sites shall be sufficiently covered to ensure that wildlife does not have access.	During construction	Camp officer	Daily
	WT1.8: Disposal of waste shall be carried out in accordance with the Government of Georgian requirements.	During construction	Camp officer	Weekly and maintain records
	WT1.9: Fuel and lubricant leakages from vehicles and plant shall be immediately rectified.	During construction	Camp officer	Daily and maintain records

Issue	Control activity (and source)	Action timing	Responsibility	Monitoring & reporting
WT1: Production of wastes and excessive use of resources	WT1.10: Major maintenance and repairs shall be carried out off-site whenever practicable.	During construction	Camp officer	Weekly and maintain records
	WT1.11: Where possible, fuel and chemical storage and handling shall be undertaken at central fuel and chemical storage facilities, such as petrol stations.	During Construction	Camp officer	Daily and maintain records
	WT1.12: On-site storage of fuel and chemicals shall be kept to a minimum.	During Construction	Contractor	Daily, maintain records and report any incidents
	WT1.13: Any waste oils and lubricants are to be collected and transported to recyclers or designated disposal sites as soon as possible.	During Construction	Camp officer	Daily and maintain records
	WT1.14: Any dangerous goods stored on site shall be stored in accordance with Georgian regulations.	During Construction	Contractor	Daily and maintain records

8.20 Emergency Management Measures

362. In the event of actions occurring, which may result in serious health, safety and environmental (catastrophic) damage, emergency response or contingency actions will be implemented as soon as possible to limit the extent of environmental damage.

363. The delivery organisation will need to incorporate emergency responses into the project complying with the requirements under the Occupational, Health and Safety Policy of the delivery organisation and the relevant Georgian legislation.

8.20.1 Performance Criteria

364. The following performance criteria are set for the construction of the projects:

a. no incident of fire outbreak;

b. no failure of water retaining structures;

c. no major chemical or fuel spills;

d. no preventable industrial or work related accidents;

e. provide an immediate and effective response to incidents that represent a risk to public health, safety or the environment; and

f. minimise environmental harm due to unforeseen incidents.

8.20.2 Monitoring

365. An emergency response monitoring program has been developed for the projects (Table 19). The program is subject to review and update at least every two months from the date of issue. Importantly, visual inspections will be conducted by camp officer daily with reporting to MRDI Road Department, MoEPA and UNDP staff on a weekly basis (minimum) noting any non-conformances to this ESMP.

8.20.3 Reporting

366. The MRDI, MoEPA and UNDP staff must be notified immediately in the event of any emergency, including fire or health related matter including those that have resulted in serious environmental harm.

Table 19 Emergency Management Measures

Issue	Control activity (and source)	Action timing	Responsibility	Monitoring & reporting
EM1. Fire and Emergency management and prevention strategies implemented	EM1.1: Flammable and combustible liquids bunding/storage areas to be designed in accordance with appropriate international standards	Pre and during construction	Contractor	Daily and maintain records
	EM1.2: Fire extinguishers are to be available on site	During construction	Contractor	Daily and maintain records
	EM1.3: No open fires are permitted within the project area	During construction	Camp officer	Daily and maintain records
	E1.4: Communication equipment and emergency protocols to be established prior to commencement of construction activities.	During construction	Camp officer	Daily and maintain records
	EM1.5: Train all staff in emergency preparedness and response (cover health and safety at the work site). Coordinate with NDMO.	During construction	Camp officer	Daily and maintain records
	EM1.6: Check and replenish First Aid Kits	During construction	Camp officer	Daily and maintain records
	EM1.7: Use of Personal Protection Equipment	During construction	All Personnel	Daily and maintain records

8.21 BUDGET

367. A budget has been prepared for the implementation of the ESMP as follows:

Item	Cost
ESMP Updating and Auditing	$10,000
General ESMP Expenses	$20,000
Aquatic Monitoring (42 sites (three per river) - two assessments/year over five years)	$86,000
Water Quality Monitoring (monitoring to be undertaken over five years)	$90,000
Water Quality Sample Laboratory Analysis (monitoring to be undertaken over five years)	$60,000
Sediment Sample Field Testing (monitoring to be undertaken over five years)	$60,000
Sediment Sample Laboratory Analysis (monitoring to be undertaken over five years)	$60,000
Erosion, Drainage and Sediment Control (includes silt curtains etc)	$90,000
Stakeholder Engagement Workshop	$40,000
Grievance Redress Mechanism	$20,000
Total	**$536,000**

Annexure One: Community Consultation and Stakeholder Engagement Information

Stakeholder consultation process

During the preparatory phase of the project: **Scaling-up Multi-Hazard Early Warning System and the Use of Climate Information in Georgia** consultations were conducted with all relevant national authorities, local governments, where priority structural measures will be implemented and donors working in climate adaptation and DRR areas, on project architecture, budget, stakeholders' on-going activities and their potential roles in the project. The MoENRP as GCF DNA was coordinating the process. Since the merger of the MoENRP and MoA in January 2017, consultations on the project have been conducted with the new Ministry of Environment protection and Agriculture (MoEPA), the EE/IP of the project. More specifically, larger group and vis-a-vis meetings were organized and e-mail communications established with representatives of following stakeholders:

1. Ministry of Environment Protection and Agriculture
   a. *Minister*
2. Ministry of Environment and Natural Resources Protection:
   a. *First Deputy Minister/NDA*
   b. *Head of the Integrated Management Department*
   c. *Heads and representatives of Climate Change and Water Resources Management Divisions of the Integrated Management Department*
   d. *Head and representatives of International Relations and Policy Department*
   e. *Head of the National Environmental Agency and representative of hydromet and geology departments*
   f. *Head and representatives of the Environmental Information and Education Centre (EIEC)*
3. Crisis Management Centre (CMA), State Security and Crisis Management Council (SSCMC)
   a. *Director of the CMA*
   b. *Senior Advisor to the Director of the CMA*
4. Ministry of Internal Affairs of Georgia:
   a. *Deputy Minister*
   b. *Head of the NATO Integration Division, International Relations Department;*
   c. *Head of Bilateral and Multilateral Cooperation Unit, International Relations Department;*
   d. *Representatives of Emergency Management Department EMA*
5. Ministry of Agriculture:
   a. *Deputy Minister*
   b. *Deputy Heads and Representatives of National Food Agency (NFA)*
   c. *Deputy Head of Agriculture Scientific-Research Centre*
   d. *Deputy Head of the Agricultural Cooperatives Development Agency (ACDA)*
   e. *Representatives of Amelioration and Land Management Department*
   f. *Head of the International Relations Department*
   g. *Head of the Policy Analysis Department*
   h. *Representative of the Regional Coordination Department*
   i. *Head of the Public Relations Department*
6. Ministry of Energy:
   a. *Head of the Energy Department*
   b. *Head of the Division for Energy Efficiency and Alternative Sources*
7. Ministry of Regional Development and Infrastructure:
   a. *First Deputy Minister*
   b. *Acting Head of the Division for Relations with Infrastructure Development Partners, Department for Infrastructure Policy and Relations with Development Partners*
   c. *Deputy Head and representatives of Road Department*

   d. *Head of the Department for Relations with Regions and Local Self-governing Agencies*
8. Tbilisi City Hall:
   a. *Vice-Mayor of Tbilisi*
   b. *Head of Department of International Relations*
   c. *Representative of the Department of Environment and Green Spaces/landscaping*
9. Georgian Co-investment Fund:
   a. *Chief Executive Officer*
   b. *Managing Director (Finance, Risk and Investor Relations)*
   c. *Operational Risk Manager, Risk Analysis Department*
   d. *Managing Director (FMCG and Logistics)*
   e. *Senior Associate (Energy & Infrastructure)*
10. MAGTICOM:
   a. *Chief Information Officer*
   b. *Director for Institutional Marketing Department*
11. Municipal governments of 10 target municipalities where structural measures have to be implemented
12. UNDP Country Office Management
   a. Resident Representative;
   b. Deputy Resident Representative;
   c. Head of Programme Unit / Assistant Resident Representative;
   d. Operations Manager

13. Manager of AF/UNDP Rioni Flood Risk Management Project
14. FAO Project Manager
15. SDC representatives – Director, Head of Programme, DRR Officer
16. Representatives of European Union Water Initiative Plus for the Eastern Partnership (EUWI+)

In addition to national-wide consultation on project architecture, budget, management arrangement and stakeholders' roles in the project, consultations on the potential environmental and social impact and communities' general attitudes towards planned structural measures were held with local government target community representatives from 7 through 12 December, 2017. Overall attitude of target communities towards planned projects was very positive and employment opportunity was underlined as one of the major positive impacts of projects.

Below is given the detailed table 1 of stakeholder consultation, held during project preparatory phase with indication of names, titles, institutions and contacts of stakeholders consulted, date/venue of communications, means of communications and issues discussed/results achieved. Tables 2 and 3 contain a list of stakeholders consulted on environmental and social impacts of planned structural measures.

Table 1. Stakeholder consultations on project architecture and co-funding commitments

	Name of stakeholder/group of stakeholders met	Title	Institution	Contact	Date and Venue	Type of communications	Brief summary of issues discussed/resulted achieved
1.	Levan Davitashvili	Minister of Environment Protection and Agriculture	MoEPA		29 January 2018	Vis-à-vis meeting with UNDP Management (UNDP RR/UN RC in Georgia)	Meeting at MoEPA was aimed at discussing implication of the merging of the two ministries (MoENRP and MoA) on the GCF proposal and future cooperation on the project with MoEPA. The Minister confirmed that MoEPA will be the project Implementing Partner/Executing Entity. The Minister emphasized importance of this project for Georgia. He reconfirmed validity of all commitments to the project made earlier by MoENRP and MoA. MoEPA takes over all the financial and O&M commitments to the projects outlined in the official letters from MoENRP and MoA.
2.	Teimuraz Murghulia	Former First Deputy Minister of Environment and GCF DNA, current Deputy Minister of Education and Science	MoENNRP	teimuraz.murgulia@mes.gov.ge	12 October, 2016, MoENRP	Vis-à-vis meeting	- status of the GCF project development discussed; - focus of the proposal and main project components discussed; - scope of the risk reduction component (structural flood protection measures) discussed; - NDA's support for the finalization of the project package including facilitation of consultations with the national institutional stakeholders secured.
					4 November, 2016, MoENRP	Vis-à-vis meeting	- status of the GCF project development reviewed; - outcomes from the UNDP regional advisor's mission and stakeholder consultations discussed; -initial outcomes of the CBA analysis for structural measures and related investment priorities discussed and agreed upon; -continued NDA support to the project reconfirmed.
3.	Tamar Bagratia	Head of the Agency	NEA, MoNERP	E-mail: t.bagratia@nea.gov.ge Tel: +995 591 100 090	13 October, 2016, NEA	Vis-à-vis meeting	- NEA's equipment needs for the observation network and EWS discussed and reconfirmed; - provision of NEA's justification on radars, drones and agrometeorological monitoring equipment by 24 October agreed upon
4.	Tengiz Gogotishvili		MDF	e-mail: tgogotishvili@mdf.org.ge	13 October, 2016, MDF	Vis-à-vis meeting	- opportunities for cooperation with the Fund discussed and following potential areas of cooperation identified:

							i) MDF could be incorporating risk management and risk assessment requirements for its projects based on the GCF project's risk assessments/zoning thus promoting risk-informed investment culture with the client municipalities. ii) MDF could include risk-informed investment planning module in their capacity building and training programme for municipalities. MDF consultants could be engaged for the finalization of the GCF feasibility study (component on structural protection measures with municipalities: SEMP, O&M plan). iii) MDF could be potentially considered as a responsible partner or operator for the structural risk reduction measures work in the GCF project.
5.	Natia Natsvlishvili	ARR	UNDP CO	Natia.natsvlishvili@undp.org	14 October, 201, UNDP CO	Group meeting	- GCF project development process and requirements discussed; - remaining gaps in the feasibility study and related human and financial requirement to finalize the study discussed; - potential sources of funding for the project development discussed and needed level of efforts discussed and agreed upon; - Next steps discussed.
6.	Nino Antadze	Energy and Environment Team Leader	UNDP CO	Nino.antadze@undp.org			
7.	Ivane Tsiklauri	Project Manager	UNDP/AF Rioni Flood	Project Ivane.tsiklauri@undp.org			
8.	Maia Ochigava	Head of the Water Resources Management Service	MoENRP	caucasusgreen.area@yahoo.com	2 November, 2016, MoENRP	Group meetings	- project components discussed; - on-going initiatives of the MoENRP and other government entities discussed, including EUWI+ EU support for implementation of flood directive, etc. - areas of cooperation identified to be as follows: flood management and, DRR capacity development, including development of legal-regulatory basis; - next steps for project preparation discussed.
9.	Marina Makarova	Deputy Head of the Water Resources Management Service		Marina.makarova@moe.gov.ge			
10.	Beso Datishvili	Head of the DRR Service		bdatishvili@gmail.com			
11.	Tea levidze	Head of the International Relations Division of the Department for International Relations and Policy		E-mail: t.levidze@moe.gov.ge Tel: +995 599 505 311			
12.	Gizo Chelidze	Head of the Policy Division of the Department of		Tel: +995 322 727223			

		International Relations and Policy					
13.	Maia Tskvaradze	Head of the XXXX Division of the Climate Change Service		m.tskhvaradze@moe.gov.ge; el: 591276777	2 November, 2016, MoENRP	Group meetings	
					November, 2016-May, 2017	Phone conversations, e-mail communications	- Phone calls and e-mails exchanged on meetings with various stakeholders and co-funding letters
14.	Ana Tarkashvili	Chief Specialist of Environmental Innovation Projects Service	LEPL Environmental Information and Education Center (SEEC) Ministry of Environment and Natural Resources Protection of Georgia (EIEC)	E-mail: anatarkashvili@gmail.com; Tel: +995 599 99 95 49	2 November, 2016, MoENRP	Vis-à-vis meeting	- The issue of EIEC's engagement in the project as a responsible party for awareness raising education activities discussed; - EIEC's current capacities and ongoing activities were discussed; - potential co-funding commitments by EIEC were discussed.
15.	Ia Papiashvili	Director	EIEC	iapapiashvili@gmail.com/ Ia.Papiashvili@eiec.gov.ge; tel: (+995 32) 2 11 20 23	2 November, 2016, EIEC	Vis-à-vis meeting	- The issue of EIEC's engagement in the project as a responsible party for awareness raising education activities discussed; - EIEC's current capacities and ongoing activities were discussed; - potential co-funding commitments by EIEC were discussed; - follow-up actions discussed and 11 February, 2016 set as a deadline for submission by EIEC of the outline for public awareness activities as well as background information on the Centre of the project
16.	Shota Gvinianidze	Managing Director	MACTICOM, mobile operator	shota.gvinianidze@magticom.ge	3 November, MAGTICOM office	group meeting	- MAGTI's business and capacities to provide services for MHEWS discussed; - potential services to be provided discussed and agreed upon to be as follows: (a) sim cards for automated monitoring stations/transmission of data to NEA; (b) sms warnings to population – disaster warnings and/or climate/agromet. advisories (will need to work on geographic filters, technically possible)
17.	Nikoloz Davitashvili	Director of Institutional Market Department		Nikoloz.davitashvili@magticom.ge; tel: +995 595 15 13 13			

							- Possible tariffs and CSR component of the services discussed; - Letter of interest/support from MAGTI's side discussed.
18.	David Sharikadze	Head of the Energy Department, Ministry of Energy	Ministry of Energy	d.sharikadze@energy.gov.ge; tel: (+995 32) 235-78-23	3 November, 2016, Ministry of Energy	Group meeting	The discussion focused on how the GCF project outputs (risk maps, risk assessments, better hydro-meteorological and geological monitoring data) could be of use for the energy infrastructure investments, including hydro power projects. Benefits of the climate/disaster risk information and MHEWS are well understood by the Ministry counterparts; the Ministry fully supports the project; will share plans for HPP construction to identify potential synergies.
19.	Margalita Arabidze	Head of the Division for Energy Efficiency and Alternative Sources		m.arabidze@energy.gov.ge; tel: (+995 32) 235-78-27			
20.	Lasha Abashidze	Vice Mayor	Tbilisi City Hall	Email: l.abashidze@tbilisi.gov.ge	3 November, 2016, Tbilisi City Hall	Group meeting	- on-going activities of the Tbilisi City Hall discussed including 100 Cities Resilience Project, under which the resilience plan for the city of Tbilisi would be developed specialists; - cooperation and synergy opportunity for the GCF project (output 2 on municipal risk management planning) were discussed to be as follows: a) expanded hdyrometeorological monitoring, forecasting and modeling for smaller river basins located in Tbilisi; b) Development of SOPs, communications protocols for DRM, c) Development of multi-hazard response plan; d) Development of feasibility studies for some of the priority structural measures included under Tbilisi PDNA; - Provision of support/co-funding letter from the Tbilisi City Hall discussed and agreed upon.
21.	Ana Ardalean	Head of the International Relations Department	Tbilisi City Hall	a.ardelean@tbilisi.gov.ge; tel: Tel: +995 322 37 86 14; Cell: +995 595 16 01 01			
					25 November, 2016, Tbilisi City Hall	Vis-à-vis meeting	- details of project activities/sub-activities related to the city of Tbilisi discussed; - agreement reached to include following activities in the project: i) purchase of monitoring equipment for smaller rivers under the NEA's management; ii) conduct multihazard assessments and mapping for smaller watershed of Tbilisi; iii) develop hydraulic and hydrological models for smaller rivers of Tbilisi; iv) Institutionalization of resilience efforts within the Mayor's

							office/support to setting resilience unit after the resilience plan is developed (end of 2017) by supporting the Mayor's office with development of optimum institutional model/organogram for resilience unit, developing its charter/scope of work, standard operational procedures, job descriptions for resilience unit staff, recruitment of relevant staff and their training in resilience planning, early warning, communications and response; Development of communications protocols and plan of the unit and improvement coordination with other stakeholders; v) development of multihazard response plan for Tbilisi municipality; vi) development of feasibility, outline and detailed design studies of structural and/or non-structural measures, e.g. check-dams, reforestation/afforestation of river banks/slopes terraces, floodplain restoration within smaller watersheds of Kura in Tbilisi; - Potential sources of co-funding and issuance of the support/co-funding letter from the Mayor's Office discussed and, submission of request letter on co-funding from MoENRP agreed upon
					13-16 February, 2017 9-10 March, 2017 7-8 April, 2017	e-mail correspondence	- e-mails exchanged on submission of support/co-funding letter from Tbilisi City Hall; - Draft co-funding letter shared with UNDP and discussed
22.	Gocha Tsopurashvili	Deputy Minister	Ministry of Agriculture		3 November, 2016, MoA	Group meetings	- GCF project concept, including its objectives, outputs and activities presented and discussed; - current activities of MoA in agrometeorology and climate smart agriculture discussed; - areas of potential cooperation and MoA's role in the project discussed and preliminary agreed upon to be as follows: i) expansion of existing agrometeorological network operated by NFA; ii) capacity building and training for the Ministry of Agriculture, including specific training on the use of climate information and climate change
23.	Lasha Zivzivadze	Deputy Head of the Policy Analysis Department		lasha.zivzivadze@moa.gov.ge; tel: 577 08 0012			
24.	Nodar Khatiashvili	Deputy Director of the Agriculture Scientific-Research Centre		Nodar.khatiashvili@csrca.gov.ge/ n.inogate@yahoo.com; tel: +995 599 58 38 89			

25.	Konstantine Khuntsaidze	Deputy Head of the ACDA		Kote.khutsaidze@acda.gov.ge; tel: +995 577 15 09 01			- Project details discussed; - MoA's current activities discussed; - MoA's potential role in the project discussed to be as follows: i) expansion of the agrometeorological networks based on existing prototype; ii) capacity building of MoA in forecasts and warnings; iii) development of new climate information products for the agricultural sector (agro-climate maps, calendars, advisories, etc.) and delivery of these products to the farmers; iv) development of guidance documents, methodologies and technical regulations for the agricultural sector on climate risk assessment and management, use of climate information, etc.; - Potential co-funding sources and submission of co-funding/commitment letter by MoA discussed following follow-up measures agreed upon: i) The Ministry will prepare and submit their proposals for the GCF project activities with costing as well as additional background information on the current institutional system and capacities of the agrometeorological monitoring and information services; on-going and planned pilot and investment projects relevant to the agrometeorological monitoring and climate change adaptation in the agricultural sector; indicative co-financing for the proposed project activities. Ii) Information will be prepared by 11 November. Follow up letter will be drafted by UNDP and officially sent by the MoENRP.
26.	Khatia Tsilosani	Head of the International Relations Department		khatia.tsilosani@moa.gov.ge; tel: (+995 32) 237-80-05 (ext: 1077)			
27.	Nana Chinchilikashvili	Head of the Public Relations Department		nana.chinchilakashvili@moa.gov.ge;			
28.	Beka Dzadzamia	Project Manager	FAO, Georgian office	Beka.Dzadzamia@fao.org; tel: +995 599519197; Office: (+995 32) 2227705/2359440	3 November, 2016, MoA	Vis-à-vis meeting	FAO project details discussed. The project is installing 10 automated agrometeorological stations with soil sensors and pest monitoring in Kakheti (approx. costs EUR 8,000/per station, coverage 3-5 sq/km). The stations will be owned by the National Food Agency (NFA). These stations will be installed by the end of the year. The Agency already has 14 agromet stations (without soil sensors). FAO project will also provide 2 agromet. stations without soil sensors to NEA. The project team strongly

							recommended to set up the agromet monitoring network at NFA based on their competencies and capacities to analyze and communicate agrometeorological information. NFA and NEA use different types of equipment, data is not compatible. Earlier the project conducted a study on the existing and recommended coverage of the agrometeorological monitoring network and will make it available to UNDP. The overall needs have been assessed at 300 stations nation-wide but these needs could be prioritized. The project will set an EWS for pests/diseases. SMS messaging has been piloted. The current project phase will be completed in the end of 2017 but there are preliminary prospects for continuation.
29.	Mamuka Chikhladze	Operational Risk Manager, Risk Analysis Department	Georgian Co-investment Fund (GCF)	mchikhladze@gcfund.ge, tel: +995 577 555667	3 November, 2016, GGC	Group meeting	The discussion focused on how the GCF project outputs (risk maps, assessments, profiles, better hydro-meteorological and agrometeorological monitoring data) could be of use for the Fund's investments. The Fund's portfolio includes projects in hydropower, agriculture (green houses, farms), tourism and hospitality sectors; will share the pipeline with us. The minimum project value is $5 mln, but prefer working with larger investments. For the on-going Oni HPP project under development the Co-Investment Fund contractors have been purchasing hydrological data from NEA that was obtained with the new monitoring stations supplied by the Rioni project. For the other regions of Georgia the observation data is not available/have big gaps. Thus in general the Fund is fully supporting to the new project and is eager to release a letter of support with no financial commitment. The Fund's current investment framework covers 5-year horizon, projects are under development/implementation, GCF project risk monitoring and modeling will not be ready in time to inform the investment project, but will be useful for the future projects.
30.	Temo Jorbenadze	Managing Director (FMCG & Logistics)		tjorbenadze@gcfund.ge; +995 591 471515			
31.	George Bachiashvili	CEO		gbachiashvili@gcfund.ge			
32.	Tea Jokhadze	Managing Director (Finance, Risk and Investor Relations)		tjokhadze@gcfund.ge			
33.	Giorgi Ghibradze	Director National Crisis Management Centre	CMC, SSCMC	gghibradze@sscmc.gov.ge; tel + 995 577 11 33 31	4 November, 2016, CMC/SSCMC	Group meeting	- CMC/SSCMC mandate and ongoing projects/activities discussed; - GCF objectives, outputs and activities discussed;

34.	Levan Gelashvili	Senior Advisor, CMC		lgelashvili@sscmc.gov.ge; tel: +995 577 41 50 05			- SSCMC's potential role in the project discussed and preliminary agreed upon to be as follows: 1) participation in socio-economic vulnerability, damage and loss assessment and holding a disaster database; -follow-up steps discussed and agreed upon the SSMC reps. to send the DRR action plan to UNDP within one week
35.	Nugzar Gasviani	First Deputy Charman of the Road Department of Georgia	MRDI	ngasviani@yahoo.com; +995 32 1 37 05 08	4 November, 2016, MRDI	Group meeting	- GCF project discussed; - areas of cooperation discussed and preliminary agreed upon: to be as follows: i) guidance and capacity building to municipalities on risk management plans and tools; efficient municipal management (training and capacity building), implementation of structural measures; participation in developing municipal-level response plans.
36.	Giorgi Tsakadze	Head of the Department of the Local Self-governance development and Regional Policy		g.tsakadze@mrdi.gov.ge; +995 577 50 15 20			
37.	Shalva Khutsishvili	Deputy Minister/Parliamentary Secretary	MIA	shalvakhutsishvili@mia.gov.ge; tel: +995 577 29 72 29/office: +995 032 2 41 19 20	4 November, 2016, MIA	Group meeting	- Project details discussed; - MIAs latest development on creation of 24/7 Joint Operations Centre (JOP) discussed; - MIA/JOC's role in the project discussed and preliminary agreed upon to be as follows: JOC is well positioned to obtain and process information from NEA, and communicate warning appropriately to the recipients (government agencies, municipalities, public). In this context, MoENRP/NEA could be responsible for obtaining, analysis and supplying information on climate-induced hazards and risks, and the MoI through the Joint Operational Centre will be responsible for communicating and delivery of the warnings. The information and communication system and protocols, SOPs for decision making and communication need to be designed. An interagency working group needs to be established engaging all relevant government agencies. MHEWS for climate induced hazards will need to be integrated into a broader national EWS. Data compatibility needs to be addressed. (GCF Output 2). MoI field staff
38.	Zurab Chichua	Head of Bilateral and Multilateral Cooperation Unit International Relations Department		z.chichua@mia.gov.ge; tel: Tel: +995 32 2 41 87 76 Cell: +995 577 52 63 62			

							(policemen, border officers, etc.) could be equipped to contribute to the EWS (reporting on disasters, verification of information from sensor network, etc.). More details on the potential cooperation and synergies will be discussed with the responsible MoI staff member Sophia Beridze upon her availability after 14 November.
					4 November, 2016-April/May 2017	Phone conversations and e-mail communications	Phone conversations held and a number of e-mails exchanged on MIA's concrete roles in the project, potential sources of co-financing and issuance of the co-funding letter by MIA
					16 December, 2016	Group meeting with representatives of International Relations Department	- Project activities and sub-activities related to the last-mile warning and communications, response capacities and multihazard information systems discussed; - MIA's current projects and EWS concept being elaborated by the MIA with participation of various stakeholders discussed; - MIA's role and potential co-funding from the MIA discussed.
39.	Ramaz Chitanava	Head of the Hydrometeorology Department	NEA, MoENRP	E-mail: ramazchitanava@gmail.com; Tel: +995 591 404 070 18	i) 4 November, 2016 ii) 15 February, 2017 iii) 23 February 2017 iv) November, 2016-April, 2017	i) Group meeting ii) Group meeting iii) Group meeting iv)E-mail communications	– 4th of November, 2016 group meeting: justification on radars and drones were presented and discussed; coordination with the MoA and JOC of the MIA discussed; additional equipment needs discussed and agreed upon; cost estimates for the equipment presented and discussed – 15th of February 2017 group meeting: NEA's co-funding issues discusses, agrometeorology monitoring and forecasting issues discussed; – 23th of February 2017 group meeting: NEAs' co-funding issues discussed, radar issues discussed and agreed upon to remove large radars from the list of equipment to be purchased through GCF funding, location of agrometeorological network agreed upon to be with the NFA with a condition that the data would be shared with NEA – E-mail communications: request on inclusion of additional equipment in GCF proposal
40.	George Kordzakhia	Deputy Head of the Hydrometeorology Department		giakordzakhia@gmail.com; +995 599 14 56 56			
41.	Irakli Megreladze	Head of Hydrometeorological Department (NHMS)		E-mail: iramegrelidze@gmail.com; Mob: +995591404099 Office: +995322439537			

							received, discussed and agreed upon; co-funding issues and draft letter discussed and agreed upon
42.	Michael Sutter	International Services Development, Head of Asia, Africa and Americas EUWI+ Project Manager	Austrian Environmental Agency - UBA	E-mail: michael.sutter@umweltbundesamt.at Tel: +43 1 31304 5477	December 1, 2016, Tiflis Palace Hotel, Conference Hall	Kick-off workshop of the EUWI+ project	- GCF project presented; - cooperation areas between two projects discussed.
43.	Timothy Turner	EUWI+ Project Technical Coordinator	Thesis Consulting	E-mail: trturner@btinternet.com Tel.: +38 044 360 8775			
44.	Peep Mardiste	Environmental Affairs Officer	UN Economic Commission for Europe, Environmental Division	peep.mardiste@unece.org Tel: +41 22 917 3448			
45.	Tatiana Efimova	Programme Manager for EECCA	OECD	E-mail: tatiana.efmova@oecd.org Tel: +331 45 24 1434			
46.	Philipp Hobenblum	Laboratory equipment procurement	Austrian Environmental Agency - UBA	E-mail: philipp.hohenblum@umweltbundesamt.at			
47.	Andreas Scheidleder	Groundwater expert	Austrian Environmental Agency - UBA	E-mail: andreas.scheidleder@umweltbundesamt.at			
48.	Pierre Henry de Villeneuve	River Basin Management and Planning	International Office of Water - OIEau	E-mail: p.henry-de-villeneuve@oieau.fr			
49.	Yunona Videnina	Public Participation	International Office of Water - OIEau	E-mail: yunona.videnina@gmail.com			
50.	Zurab Jincharadze	EUWI+ Project Deputy Technical Coordinator	Zoi Environment	E-mail: zurab.jincharadze@gmail.com Tel: +995 593 080 011			
51.	Sophio Beridze	Head of the NATO Integration Division, International Relations Department	MIA	: sophiko_beridze@mia.gov.ge; tel: +995 577 224599	16 December, 2016, MIA	Group meeting	- Project activities and sub-activities related to the last-mile warning and communications, response capacities and multihazard information systems discussed;

52.	Ana Tchanturia	International Relations Department		a.tchanturia@mia.gov.ge			- MIA's current projects and EWS concept being elaborated by the MIA with participation of various stakholders discussed; - MIA's role and potential co-funding from the MIA discussed; - Agreement reached that the MoENRP would send a request letter on cofounding to the MIA.
53.	Tariel Beridze	Deputy Head of Hydro-Meteorological Department	NEA	tarielberidze@yahoo.com	26 December, 2016, NEA	Group meeting	- Conceptual designs prepared by UNDP CO engineering consultant discussed and adjusted/corrected as per NEA representative's comments in particular, for Kobuleti and Kodasheniskhevi projects; - Priorities among projects agreed upon to be as follows: Kobuleti and Kodasheniskhevi projects are of higher priority due to risks and potential impacts; - Agreement reached to resend an updated bill of quantity and O/M costs,
54.	Dmitri Ukeba	Engineering Consultant	UNDP CO	dimitri@btconsult.ge			
55.	Ivane Tsiklauri	Project Manager	UNDP/AF Rioni Flood Project	ivane.tsiklauri@undp.org			
56.	Giorgi Iakobashvili	Deputy Head	NFA	Tel: +995 599568569	10 January, 2017, NFA	Group meeting	- details of the project agromet-related activities discussed, including the number of stations, hosting organization, data to be generated, geographic locations, etc. and preliminary agreement reached to focus on either Shida Kartli or Kvemo Kartli, drought, frosts and other natural hazards and, to purchase around 15 stations to be hosted by NFA - contents of the co-funding/commitment letter from the MoA discussed
57.	Zurab Lipartia	Deputy Head		Tel: + 995(32) 291 91 68			
58.	Demna Khelaia	Deputy Head		Tel: + 995(32) 291 91 68			
59.	Nikoloz Meskhi	Head of the Phyto-sanitary Department		Nikoloz.meskhi@nfa.gov.ge; tel: +995 577080708	January-February, 2017	E-mail communications	- emails exchanged around MoA/NFA's co-funding letter
					30 January, MoA	Group meeting	- Agrometeorology monitoring, forecasting an early warning activities discussed; - Cofunding of the project MoA's side discussed; - Agreement reached to send a letter of request on project co-financing from the MoENRP
60.	Ekaterine Zviadadze	Head of the Policy Analysis Department	MoA	Office number: (+995 32) 2378045 (ext.:1086) E-mail: ekaterine.zviadadze@moa.gov.ge	30 January, 2017	Group meeting	
61.	Marika Gelashvili	Regional Coordination Department		Tel: +995 577080016			
62.	Valerian Mchedlize	Head of the		Office number: (+995 32) 2378019 (ext.:1115)			

		Amelioration and Land Management Department Ministry of Agriculture of Georgia		E-mail: v.mchedlidze@moa.gov.ge			
63.	Ioseb Dzamanashvili	Director of corporate sales	NOBLEX Ltd.	Tel: +995 32 2473003, 05 Fax: +995 32 2473015 Mobile: +995 599 240600 E-mail: ioseb.dzmanashvili@noblex.ge	10-18 January, 2017	Phone conversation; E-mail communications	- Specifications of agrometeorological equipment discussed, since NOBLEX conducted procurement of 10 automated agromet stations for NFA/MoA; - Costs of agromet stations discussed; - Costs and specs of agromet stations shared with UNDP CO and MoA
64.	Alexandre Ediberidze	Director	NOBLEX Ltd.	Tel: +995 32 2473003, 05 Fax: +995 32 2473015 Mobile: +995 599 550505 E-mail: alexander.ediberidze@noblex.ge			
65.	Gizo Chelidze	Head of the Integrated Management Department	MoENNRP	g.chelidze@moe.gov.ge	15 February, 2017	Group meeting	- Strategy for soliciting co-funding letters from various responsible parties discussed and agreed upon he MoENRP to take a lead over soliciting such letters; - Co-funding amounts and types of co-funding from MoENRP's side discussed and agreed upon to try to mobilize around US$ 29-30 million from MoENRP;s side for project co-financing.
66.	Nino Tkhilava	Head of the International Relations and Policy Department		Nino.tkhilava@moe.gov.ge			
67.	Grigol Lazriev	Head of the Climate Change Division		g.lazrievi@moe.gov.ge			
68.	Tamar Tsivtsivadze	Head of Program in Georgia	SDC	Phone +995 322 25 36 82 / 83 Fax +995 322 25 36 84 International Cooperation tbilisi@eda.admin.ch	23 February, 2017	Group meeting, email communications	SDC is launching its new assistance programme in Georgia for 2017-2020. In the framework of the new strategy/programme SDC plans to support the work on hazard mapping (methodology and implementation) and other related regulatory work. These activities have been planned under the new GCF proposal. SDC will consider co-financing of the relevant activities proposed for the GCF project. SDC will also consider UNDP as an implementing partner for their project. UNDP will share with SDC the draft feasibility study and an outline of corresponding activities addressing hazard/risk mapping and regulatory framework. It is important that some preliminary decisions are taken by the end of March.
69.	David Chichinadze	DRR Officer		Phone +995 322 25 36 82 / 83 Fax +995 322 25 36 84 International Cooperation tbilisi@eda.admin.ch			
70.	Olivier Burki	Regional Director, South Caucasus	SDC	Tel: +995 32 225 3682 Email: Olivier.burki@eda.admin.ch	4 April, 2017	Vis-a vis meeting	Follow up meeting to discuss the possibility of partnering with SDC, as noted above; detailed discussion on the content of the GCF proposal;

							overall agreement on partnership though, SDC will make final decision, including on partnership with UNDP once its strategy is approved by mid-Summer;
71.	Irakli Matkava	First Deputy Minister	MRDI	Email: i.matkava@mrdi.gov.ge Tel: +995 32 22510709 Mob: +995 591 744774	19 April, 2017	Group meeting	- 14 Structural measures discussed and MRDI's portion of co-funding preliminary agreed upon to be in the range of 50-70% of total costs; - Agreement reached to provide co-funding letter by the end of the next week and before its submission the draft would be shared with UNDP for crosschecking ; - Agreement reached that that MRDI would facilitate obtaining of co-financing letters from municipalities (good news indeed) confirming O&M costs after flood protection measures are in place.
72.	Mamuka Shalikashvili	Acting Head of Division Division for Relations with Infrastructure Development Partners		Tel.: +995 32 2 510 731 Mob.: +995 577 477 572 E-mail: m.shalikashvili@mrdi.gov.ge		Phone conversations; e-mail communications	Draft co-funding letter shared with UNDP CO, commented and signed scanned copy submitted
73.	Archil Nizharadze	Head of Operational Department	EMA Emergency Management Agency	Email: cepgeorgia@mia.gov.ge	1 May, 2017	Group meeting	The meeting MIA, NEA, MoENRP and UNDP representatives; EMA required clarification on the content of the Proposal that relates to EMA's mandate; the issue of cofounding was discussed; clarification provided and EMA confirmed its readiness to partner with the project and also provide co-financing for the related component of the project and provide MIA with required input for the co-financing letter
74.	Mamuka Tavadze	Deputy Head of Samtredia Municipality	Samtredia Municipality	m_tavadze@mail.ru	8 September, 2016	Group meeting	Meeting at Samtredia municipality. Aim of the meeting was to introduce local authorities about prospective project and select high flood risk sites in Samtredia municipality. After site visit 5 high flood risk sites were selected. Maintenance of future flood defense structures as well discussed and verbal confirmation received about readiness of the municipality on implementation maintenance of structures.
75.	Varaz Gabedava	Head of Municipality	Khobi Municipality	varazgabedava@gmail.com	8 September, 2016	Group meeting	Meeting at Khobi municipality. Aim of the meeting was to introduce local authorities about prospective project and select high flood risk sites in Khobi municipality.

							Three high flood risk sites on Rioni river visited and both selected for the long list. Local authorities assured on future maintenance of flood defense structures.
76.	Zurab Pataraia	Deputy Head of Municipality	Senaki Municipality	Zurab_pataraia@mail.ru	9 September, 2016	Group meeting	Meeting at Senaki municipality. Aim of the meeting was to introduce local authorities about prospective project and select high flood risk sites in Senaki municipality. Three high flood risk sites were visited and selected. Maintenance of future flood defense structures was discussed and confirmation received from local authorities on their maintenance.
77.	Vakhtang Gabelia	Deputy Head of Municipality	Abasha Municipality	gamgeobaabasha@yahoo.com	9 September, 2016	Group meeting	Meeting at Abasha municipality. Aim of the meeting was to introduce local authorities about prospective project and select high flood risk sites in Abasha municipality. Four high flood risk sites were selected. Maintenance of the future flood defense structures discussed and agreed that the municipality will reflect it in its future budget.
78.	Sulkhan Evgenidze	Head of Municipality	Kobuleti	gamgeoba@kobuleti.org.ge	9 September, 2016	Group meeting	Meeting at Kobuleti municipality. Aim of the meeting was to introduce local authorities about prospective project and select high flood risk sites in Kobuleti. After site visit one high flood risk site was selected. Future maintenance of the structure discussed and agreed that further consultation is needed with Georgian Amelioration on this issue.
79.	Tariel Maisuradze	Head of economic development unit	Gori	tariel.maisuradze72@gmail.com	10 September, 2016	Group meeting	Meeting at Gori municipality. Aim of the meeting was to introduce local authorities about prospective project and select high flood risk sites in Gori. Two high flood risk sites were selected. Maintenance of future flood defense structures discussed and agreed that the municipality will provide such letter confirming acceptance of future maintenance of the structures.
80.	Karlo Jamburia	Head of Municipality	Lagodekhi Municipality	lag_gamgeoba@yahoo.com	12 September, 2016	Group meeting	Meeting at Lagodekhi municipality. Aim of the meeting was to introduce local authorities about prospective project and select high flood risk sites in Lagodekhi municipality. Two high flood risk sites were selected. Maintenance of future flood defense structures discussed and agreed that the municipality will take such responsibility.
81.	David Potskhverishvili	Deputy Head of Municipality	Akhmeta Municipality	d.focxverishvili@gmail.com	12 September, 2016	Group meeting	Meeting at Akhmeta municipality. Aim of the meeting was to introduce local authorities about prospective

							project and select high flood risk sites in Akhmetaa municipality. One high flood risk site was selected. Maintenance of future flood defense structures discussed and confirmation received about readiness of the municipality on implementation future maintenance of the structure.
82.	Alexandre Sachishvili	Deputy Head	Telavi City Hall	aka-sachishvili@mail.ru	13 September, 2016	Group meeting	Meeting at Telavi city hall. Aim of the meeting was to introduce local authorities about prospective project and select high flood risk sites in Telavi. Two high flood risk sites were selected. Maintenance of future flood defense structures discussed and agreed that the city hall will take such responsibility.
83.	Berdo Asanishvili	Deputy Head of Municipality	Sighnaghi Municipality	signagi_gamgeoba@yahoo.com	13 September, 2016	Group meeting	Meeting at Sighnaghi municipality. Aim of the meeting was to introduce local authorities about prospective project and select high flood risk sites in Sighnaghi municipality. Four high flood risk sites were selected. Maintenance of future flood defense structures discussed and confirmation received about readiness of the municipality on implementation maintenance of the structures.

Table 2. List of Stakeholders consulted within the framework of environmental and social impact assessment in Western Georgia

#	Name	Settlement, organization	Contact details (Phone)
Samtredia			
1	Rostom Tavadze	vil.Ilori, depuri gamgebeli	599 71 17 11
2	Giorgi Bochorishvili	vil.Ilori, head of department	571 07 05 79
3	David Shanidze	vil.Ilori, local resident	598 10 38 54
4	Mamuka Chkhaidze	vil.Ilori, local resident	579 11 73 13
5	Otar Margiani	vil.Ilori, local resident	599 26 47 89
Kobuleti , Achkva project			
5	Zaza Kaikatsishvili	Head of infrastructure service, Kobuleti administration	599 85 85 48
6	David Zoidze	Member – infrastructure service, Kobuleti administration	
7	Lashs Chincharadze	Kobuleti, local resident	599 80 25 08
8	Amiran Verdzadze	Kobuleti, local resident	593 36 28 73
9	David Zakareishvili	Kobuleti, local resident	555 94 99 00
10	Makhvala Shanidze	Kobuleti, local resident	
11	Nino Motskhobili	Kobuleti, local resident	555 22 13 57
12	Lasha Kakaladze	Kobuleti, local resident	579 22 25 42
13	Nana Nutsubidze	Kobuleti, local resident	592 12 28 70
Abasha municipality, Gagma Kodori project			
14	Nestor Dzidziguri	vil.Pirveli Maisi, localresident	599 85 57 39
15	David Dzidziguri	vil.Pirveli Maisi, localresident	593 22 98 27
16	Aleko Komakhidze	vil.Pirveli Maisi, localresident	
17	David Komakhidze	vil.Pirveli Maisi, localresident	593 37 64 88
18	Giorgi Dzidzigrкш	vil.Pirveli Maisi, localresident	593 19 10 12
19	Bakar Shelia	vil Gaghma Kodori, deputy	577 60 33 83
20	Genadi Kvantaliani	vil Gaghma Kodori, localresident	551 24 23 43
21	Giorgi Khomeriki	vil Gaghma Kodori, localresident	598 43 30 02
Samtredia municipality, Vazisubani project			
22	Aleko Botsvadze	vil Tolebi, representative of administration	599 34 52 42
23	Nana Dzneladze	vil Tolebi, local resident	
24	Dato Shanidze	vil Tolebi, local resident	599 46 10 31
25	Tina Siradze	vil Vazisubani	
26	Mutraz Siradze	vil Vazisubani	557 75 49 47
27	Rostom Tavadze	vil Vazisubani, deputy gamgebeli	599 71 17 11
28	Giorgi Bochorishvili	vil Vazisubani, head of infrastructure service	571 07 05 79
Khobi municipality, Patara Poti, Patara Poti and Sagvichio projects			
29	Darejan Bachilava	Patara Poti, representative of local administration (rtsmunebuli)	599 04 40 65
30	Mtvarisa Bartia	Patara Poti, representative of gamgebeli	599 87 04 65
31	Goderdze Khurtsilava	Patara Poti, local resident	
32	David Ugrekhelidze	Patara Poti, local resident	
33	Nino Basilaia	Patara Poti, local resident	599 19 69 22
34	Vitali Gvichia	vil Sagvichio, administration representative	577 95 94 88
35	Dato Gvichia	vil Sagvichio, local resident	574 11 27 97
36	Marine Kiladze	vil Sagvichio, local resident	599 87 04 67
37	Giorgi Megrelishvili	vil Sagvichio, local resident	
38	Tariel Shamanadze	vil Sagvichio, local resident	
39	Murman Shanidze	vil Sagvichio, local resident	
Senaki municipality , Chaladidi project			
40	Natia(Vardo) Chikobava	vil. Zemo Chaladidi	59820 15 94
41	Irakli Rusia	vil. Zemo Chaladidi, gamgebeli representative	599 18 81 81
42	Malkhaz Abramia	vil. Zemo Chaladidi, local resident	589 53 41 67
43	Badri Khurua	vil. Zemo Chaladidi, local resident (Siriachkoni)	551 09 92 68

Table 3. List of Stakeholders consulted within the framework of environmental and social impact assessment in Eastern Georgia

#	Name	Settlement, organisation	Contact details (Phone)
Signhaghi municipality, Milari project			
1	Zakaria Alkhanishvili	vil. Anaga, gamgebeli	577 93 67 61
2	Irma Ghviniashvili	vil. Dzveli Anaga, local resident	599 85 56 38
3	Zakaria Gogilashvili	Milari, farmer	599 55 62 59
4	Mikheil Gogolashvili	vil. Anaga, farmer	595 53 71 21
Lagodekhi municipality, Lagodekhistskali Project			
5	Karlo Jamburia	Lagodekhi, gamgebeli	591 41 00 41
6	Sandro Shavlakadze	Lagodekhi, infrastructure service	555 18 65 98
7	Givi Maisuradze	Lagodekhi resident	551 12 86 12
8	Valeri Maisuradze	Lagodekhi resident	597 70 33 86
9	Valeri Iashvili	Lagodekhi resident	555 10 71 47
10	Irma Adamashvili	Lagodekhi resident	598 30 29 85
11	Susana Natroshvili	Lagodekhi resident	7 671 32 02
12	Ramas Zikharulidze	Tbilisi	598 68 88 99
Akhmeta municipality, Alaverdi/Khodasheniskshevi project			
13	Mikheil Meskhi	Alaverdi resident	599 51 37 33
14	David Nareklishvili	Alaverdi resident	558 14 55 67
Gori municipality, Gori project			
15	Nina Gigauri	resident,Tsmindatskali district resident, Gori	598 76 54 01
16	Inga Lelashvili	resident,Tsmindatskali district resident, Gori	595 91 09 14
17	Iago Tsiklauri	Gori, head of infrastructure service	599 85 84 24
18	Zurab Jalaghonia	Gori, head of architecture service	599 85 18 33

Stakeholder Engagement Plan

This GCF project aims to expand FEWS, established under UNDP AF Rioni project from one pilot basin (Rioni River Basin) to all major 11 river basins and create almost real-time multi-hazard EWS, together with relevant system, institutional and staff-level capacities at national, municipal and community levels for proper operations of MHEWS. It covers climate risk reduction and climate adaption thematic areas, where key responsible authorities are as follows:

- The Ministry of Environment Protection and Agriculture and its specialized agency – National Environmental Agency: climate change impact assessment, climate change adaptation planning, UNFCCC reporting, hydro meteorological and geological monitoring, forecast and early warning, agrometeorological monitoring and climate smart agriculture;
- The Ministry of Internal Affairs, including its specialized agency - Emergency Management Agency: Last-Mile warning and communications, preparedness and response;
- The Ministry of Regional Development and Infrastructure and its quasi-autonomous entity – Municipal Development Fund: implementation of flood/mudflow protection structural measures;
- The State Security and Crisis Management Council under the Prime-Minister's Office: decision-making and coordination of crisis situations of national importance;
- Local governments: disaster response and preparedness.

At the community level, currently there are no defined institutional structures to manage climate and disaster risks though, there are legally-registered community based organizations or informal community incentive groups in many rural communities who take care of solving various social, economic, infrastructural and natural resources management issues at the community level. These active community groups are mostly established in rural areas where international donors or national-wide NGOs are active. However, the most disadvantageous in terms of access to knowledge and resources as well as vulnerable to climate and natural disaster risks are smaller remote mountainous communities, with no/little experience in community mobilization and engagement. The project intends to work with such communities.

There are also international and national-wide NGOs, e.g. Care Caucasus, Mercy Corps, World Vision, Caucasus Environmental NGO Network (CENN), Regional Environmental Centre for the Caucasus (RECC), etc. who have been actively involved in the areas of community engagement and empowerment, rural development, livelihood support, natural resources management and DRR, etc. Some donor organizations including Swiss Development Cooperation Agency, EU, FAO support interventions in the fields of climate and disaster risk reduction and climate smart agriculture.

Concerning public awareness and education, there are no climate risk related awareness and educational programs in the country. The project also aims to build capacity in the area of awareness and education and to establish such programs within communities.

During the project preparatory phase, extensive consultations were conducted with all state authorities, Tbilisi City Hall, local governments, where priority structural measures will be implemented and donors (Please see Annex XIII (d) on stakeholder consultation) on project architecture, budget and stakeholder's participation. The MoENP as NDA for GCF was coordinating the process.

As a result of stakeholder consultation, all the parties unanimously agreed that the MoEPA as a major agency in climate adaptation and EWS, through its Integrated Management Department would act as project implementing partner. Meanwhile, various Ministries and specialized agencies would be responsible for individual project activities and/or sub-activities, including:

- NEA – responsible party for the activities related to the expansion of the hydro meteorological network, multi-hazard assessment and mapping, establishment of hazard meta-database, development of telecommunications system to support the new EWS and integration of telemetry system for near real-time dissemination and use of EWS, river basin multi-hazard risk reduction planning;
- NFA – responsible party for expansion of agrometeorological network and its integration in existing system, enhancing access and the use of weather/climate and agrometeorological information services by farmers and agricultural enterprises;
- SCMSC – responsible party for multi-hazard gender sensitive socio-economic vulnerability assessment and mapping and establishment of a relevant meta-database;
- EIEC – responsible party for public awareness and capacity building programme to effectively deliver climate risk information and training to communities and local first-responders;
- Road Department under the MRDI - Design and implementation of risk reduction intervention structural measures.

MIA, EMA and JOC will be important stakeholders for the establishment and O/M of multi-hazard disaster risk information and knowledge system, integration of the telecommunication and information dissemination system of the Joint Operational Centre and EMA to the national-wide EWS system, assistance to local governments in developing municipal-level multi-hazard response and preparedness plans.

Activities related to the establishing and integrating community-based EWS systems as well as conducting Community-Based Disaster Risk Management process will be implemented by a group/consortium of international and local NGOs, having grass-roots experience in the areas of community-level participatory risk planning and management, livelihood support, integrated natural resources management, community mobilization and empowerment, small-grants making. This group/consortium of organizations will be hired by UNDP through open call – Request for Proposal.

The Project Board will serve as a major institutional mechanism for key stakeholder engagement. It will be composed of high to mid-level representatives of the MoEPA, UNDP, all responsible parties and, municipal-level consultative councils composed of target community representatives.

Informal multi-stakeholder Technical Advisory Working Groups (TAWG) will also be established to provide inputs to and endorsement of the design and quality of the project outputs. The TAWG members will represent the government, private sector, academia and civil society to provide guidance and technical advice on the project.

Local stakeholders and community members have a key role in implementing and monitoring the project. It is planned to work with the most vulnerable 100-200 communities in order to establish community-based multi-hazard early warning systems there and enhance communities' resilience to climate induced natural hazards. Target communities will be selected based on climate risk profiles for each river basin and vulnerabilities of communities residing there as well as based on such other factors, as presence of active community groups, history of community engagement and development, etc. Community members from selected communities will be mobilized to form consultative community groups and will be engaged in establishing and operating MHEWSs there as well as in participatory planning and implementation of priority community resilience measures. On-the-ground community resilience interventions will be selected by

community consultative groups from a menu of community resilience actions outlined in community resilience/multi-hazard risk reduction plans through priority setting exercises.

Under the public awareness and education component, it is planned to target both general public and specific groups of society, including selected communities, youth (e.g. through informal eco clubs), local governments, NGOs, media, education institutions.

Letters of Agreements, binding documents on implementation of concrete activities/sub-activities will be signed with individual responsible parties that will create a legal basis for participation of selected government authorities in project activities. Other key means for stakeholder engagement will be project board meetings, stakeholder workshops, trainings/ToT, information and promo campaigns, media and youth competitions, various networking events (e.g. community forums), internet and Facebook communications/forums.

During the inception phase of the project, the MoEPA working together with UNDP, will consult with all stakeholders, including vulnerable community members, CBOs/CIGs/NGOs and local government, etc. and facilitate an understanding of the roles, functions, and responsibilities within the Project's decision-making structures, reporting and communication lines, and conflict resolution mechanisms. Local community consultations councils will be established at target municipality and/or community levels to maintain dialogue with the local beneficiaries and stakeholders throughout the project implementation. The project Logic Framework (indicators, means of verification, assumptions) will be reviewed and the quarterly and annual plans will be refined engaging the communities from the targeted districts. The stakeholders will also be engaged during the mid-term and final evaluations to assess the progress of the project and enable adaptive project management in response to the needs and priorities of the communities.

Below is the detailed stakeholder engagement plan, with indication of outputs, activities, stakeholders, their roles and means of their engagement.

Output	Activity	Stakeholders	Stakeholder Role	Means of Stakeholder participation
Output 1. Expanded climate-induced natural hazard observation network and modelling capacities secure reliable information on climate-induced hazards, vulnerability and risks	1.1 Expanding of the hydrometric network (49 automatic level measuring system; 8 mobile discharge meters; 12 automatic meteo-stations; 10 snow measurement automatic stations, 73 meteo-posts (rain gauges); 3 radars; drones; upper air sounding equipment (x2); 11 agrometeorological stations, upgrading 15 agrometeorological stations, 20 inclinometers, 1 super computer for strengthening early warning system	1. Integrated Management Department, MoEPA	Implementing partner	Participation in the project board through NPD and other staff, stakeholder consultations/workshops/trainings/ToTs
		2. NEA	Responsible party for procurement, installation and O/M of hydrometric network, co-funding of network expansion	Participation in project board, signing letter of agreement and implementing activities within this framework, participation in TWG, stakeholder consultations/workshops/trainings/ToTs
		3. National Food Agency (NFA)	Responsible party for procurement, installation and O/M of agrometeorological network	Participation in project board, signing letter of agreement and implementing activities within this framework, participation in TWG, stakeholder consultations/workshops/trainings/ToTs

	1.2 Floodplain zoning based on hazard and risk maps for all major basins in Georgia and hazard and risk maps for key climate-induced hazards (landslides, mudflows, avalanches, hailstorms and droughts), using the most appropriate modern technologies and methods and aligned with international and regional standards. In particular, flood hazard and risk maps will be developed in line with EU Floods Directive requirements	1. Integrated Management Department, MoEPA	Implementing partner	Participation in the project board through NPD and other staff, stakeholder consultations/workshops/trainings/ToTs
		2. NEA	Responsible party for multi-hazard risk mapping and assessment	Participation in project board, signing letter of agreement and implementing activities within this framework, participation in TAG, stakeholder consultations/workshops/trainings/ToTs
	1.3 Introduction and implementation of methods and tools for the systematic gender-sensitive socio-economic vulnerability assessment for decision making for prioritization of resilience investments	1. Integrated Management Department, MoEPA	Implementing partner	Participation in the project board through NPD and other staff, stakeholder consultations/workshops/trainings/ToTs
		2. SSCMC	Key stakeholder for vulnerability assessments	Participation of project board, signing letter of agreement and implementing activities within this framework, participation in TWG, stakeholder consultations/workshops/trainings/ToTs
		3. Ministries of Economy and Sustainable Development, Energy, Health, Regional Development and Infrastructure, MoEPA	Data providers, providers of expert's opinions, beneficiaries	Participation in TWG, stakeholder consultations/workshops/trainings/ToRs
		4. National-wide NGOs	Data providers, providers of expert's opinions, beneficiaries	Participation in TWG, stakeholder consultations/workshops/trainings/ToRs
		5. Academic institutions	Data providers, providers of expert's opinions, beneficiaries	Participation in TWG, stakeholder consultations/workshops/trainings/ToRs
	1.4 A centralized multi-hazard risk information and knowledge system, based on the output of DRR project MHRA methodology currently being developed. It will consist of national e-Library, databases, information systems and knowledge portal (web knowledge portal to increase awareness, provide interactive hazard maps, with integration with social media and	1. Integrated Management Department, MoEPA	Implementing partner	Participation in the project board through NPD and other staff, stakeholder consultations/workshops/trainings/ToTs
		2. NEA	Metadatabase on natural hazards	Participation in project board and TWG, stakeholder consultations/workshops/trainings/ToRs
		3. EMA/MIA	Key stakeholder for establishment and O/M of multihazard early warning system, co-funding of the activity	Participation in project board, signing letter of agreement and implementing activities within this framework, participation in TWG, stakeholder consultations/workshops/trainings/ToTs

	possible mobile app to increase community engagement and allow two-way flow of information)			
2. Multi-hazard early warning system and new climate information products supported with effective national regulations, coordination mechanism and institutional capacities	2.1 Institutional and legal frameworks, public-private partnerships and associated institutional capacity building for the MHEWS and for the enhanced use of climate information by the public and private sector. Improved coordination and communication protocols for early warning	1. Integrated Management Department, MoEPA	Implementing partner, co-funding the activity	Participation in the project board through NPD and other staff, stakeholder consultations/workshops/trainings/ToTs
		2. NEA	Stakeholder/beneficiary	Participation in project board and TWG, stakeholder consultations/workshops/trainings/ToRs
		3. EMA/MIA	Stakeholder/beneficiary, co-funding the activity	Participation in project board and TWG, stakeholder consultations/workshops/trainings/ToRs
		4. Tbilisi City Hall	Stakeholder/beneficiary, co-funding the activity	Participation in project board and TWG, stakeholder consultations/workshops/trainings/ToRs
		3. Ministries of Economy and Sustainable Development, Energy, Health, Regional Development and Infrastructure, MoEPA	Data providers, providers of expert's opinions, beneficiaries	Participation in TWG, stakeholder consultations/workshops/trainings/ToRs
		6. National-wide NGOs	Data providers, providers of expert's opinions, beneficiaries	Participation in TWG, stakeholder consultations/workshops/trainings/ToRs
	2.2 Development and implementation of the MHEWS covering all basins in Georgia, building on the Rioni basin prototype and on the rehabilitated hydrometric network to be achieved through activity 1.2	1. Integrated Management Department, MoEPA	Implementing partner	Participation in the project board through NPD and other staff, stakeholder consultations/workshops/trainings/ToTs
		2. NEA	Responsible party for establishment and O/M of MHEWS	Participation in project board, signing letter of agreement and implementing activities within this framework, participation in TWG, stakeholder consultations/workshops/trainings/ToTs
		3. NFA/ MoEPA	Responsible party for establishment and O/M of drought /agrometeorology related EWS	Participation in project board, signing letter of agreement and implementing activities within this framework, participation in TWG, stakeholder consultations/workshops/trainings/ToTs
		4. MIA/JOC	Key stakeholder for Last-Mile warning and communications, co-funding of activity	Participation in project board, signing letter of agreement and implementing activities within this framework, participation in TWG, stakeholder consultations/workshops/trainings/ToTs
	2.3 Development of sector-tailored weather/climate based advisories for the main hydro meteorological hazards and dissemination through ICT/mobile, print, and radio channels	1. Integrated Management Department, MoEPA	Implementing partner	Participation in the project board through NPD and other staff, stakeholder consultations/workshops/trainings/ToTs
		2. NFA/ MoEPA	Responsible party for grommet advisories, co-funding of activity	Participation in project board, signing letter of agreement and implementing activities within this framework, participation in TWG, stakeholder consultations/workshops/trainings/ToTs
		3. NEA	Participation in climate/weather advisories	Participation in project board, signing letter of agreement and implementing activities within this framework,

				participation in TWG, stakeholder consultations/workshops/trainings/ToTs
	2.4 MHRM planning platforms: Development of basin-level multi-hazard risk management plans; Municipal-level climate-induced multi-hazard response and preparedness plans	1. Integrated Management Department, MoEPA	Implementing partner	Participation in the project board through NPD and other staff, stakeholder consultations/workshops/trainings/ToTs
		2. NEA	Responsible party for developing basin level MHRM plans	Participation in project board, signing letter of agreement and implementing activities within this framework, participation in TWG, stakeholder consultations/workshops/trainings/ToTs
		3. EMA	Key stakeholder for assisting local government in developing municipal multi-hazard/flood preparedness and response plans, co-financier of the activity	Participation in project board, signing letter of agreement and implementing activities within this framework, participation in TWG, stakeholder consultations/workshops/trainings/ToTs
		5. Tbilisi City Hall	Data provider, provider of expert's opinions, beneficiary, co-financier of the activity	Participation in project board, participation in TWG, stakeholder consultations/workshops/trainings/ToTs
		6. Local governments of target municipalities	Data providers, providers of expert's opinions, beneficiaries	Participation in project board, stakeholder consultations/workshops/trainings/ToTs
		7. Ministries of Economy and Sustainable Development, Energy, Health, Regional Development and Infrastructure, MoEPA	Data providers, providers of expert's opinions, beneficiaries	Participation in TWG, stakeholder consultations/workshops
		8. National-wide NGOs	Data providers, providers of expert's opinions, beneficiaries	Participation in TWG, stakeholder consultations/workshops
		9. Donors: SDC, USAID, EU, Sida, etc.	Providers of expert's opinions, potential financiers of the plans	Participation in TWG, stakeholder consultations/workshops
3. Improved community resilience through the implementation of the MHEWS and priority risk reduction measures	3.1 Implementation of community-based early warning schemes where appropriate	1. Integrated Management Department, MoEPA	Implementing partner	Participation in the project board through NPD and other staff, stakeholder consultations/workshops/trainings
		2. Consultative councils of target communities/community groups, CBOs, CIGs	Data providers, provision of expert's opinion, beneficiaries, establishment and O/M of CBEWSs and implementation of CBMHRM processes	Participation in project board, stakeholder consultations/workshops/trainings/ToTs
		3. Group of international and national NGOs	Responsible party/contractor for supervision/facilitation of CBMHRM processes	Signing contract with UNDP and implementation of activities under this contract stakeholder consultations/workshops/trainings/ToTs
		4. Local governments	Data providers, provision of expert's opinion	stakeholder consultations/workshops/trainings/ToTs
	3.2 Public awareness and capacity building programme at all	1. Integrated Management Department, MoEPA	Implementing partner	Participation in the project board through NPD and other staff, stakeholder consultations/workshops/trainings

	levels to effectively deliver climate risk information and training to communities and local first-responders	2. EIEC, MoEPA	Responsible party for awareness raising, co-financier of the activity	Participation of project board, signing letter of agreement and implementing activities within this framework, participation in TWG, stakeholder consultations/workshops/trainings/ToTs, media/public information campaigns
		3. Target communities	Data providers, providers of experts' opinions, beneficiaries	Participation in stakeholder consultations/workshops/trainings/ToTs, media/public information campaigns
		4. General public	Beneficiaries	Participation in stakeholder consultations/workshops/trainings/ToTs, media/public information campaigns
		5. Media	Participation in outreach and information campaigns	Participation in stakeholder consultations/workshops/trainings/ToTs, media/public information campaigns
		6. Education and academic institutions	Participation in education activities	Participation in stakeholder consultations/workshops/trainings/ToTs, education programs
	3.3. Based on Multi-hazard risk management plans developed in 2.5, design and implementation of risk reduction intervention measures that would significantly reduce the risks against which the MHEWS will operate	1. Integrated Management Department, MoEPA	Implementing partner	Participation in the project board through NPD and other staff, stakeholder consultations/workshops/trainings
		2. MRDI and its Road Department	Key stakeholder and Responsible party for implementation of structural measures, co-financier of the activity	Participation in project board, signing letter of agreement and implementing activities within this framework, participation in TWG, stakeholder consultations/workshops/trainings/ToTs, media/public information campaigns
		3. Target communities	Data providers, providers of experts' opinions/feedback, beneficiaries	Participation in stakeholder consultations/workshops, monitoring of construction activities, etc.
		4. LGs of target communities	Data providers, providers of resources and experts' opinion, O/M of built infrastructure	Participation in stakeholder consultations/workshops, monitoring of construction activities, etc.
		5. Local environmental monitoring companies/labs, NGOs	Environmental monitoring of construction activities	Participation in stakeholder consultations/workshops, monitoring of construction activities, monitoring of construction activities

Annexure Two Guidance for Submitting a Request to the Social and Environmental Compliance Unit and/or the Stakeholder Response Mechanism

Empowered lives.
Resilient nations.

Guidance for Submitting a Request to the Social and Environmental Compliance Unit (SECU) and/or the Stakeholder Response Mechanism (SRM)

Purpose of this form

- **If you use this form, please put your answers in bold writing to distinguish text**
- **The use of this form is recommended, but not required. It can also serve as a guide when drafting a request.**

This form is intended to assist in:

1 Submitting a request when you believe UNDP is not complying with its social or environmental policies or commitments and you are believe you are being harmed as a result. This request could initiate a 'compliance review', which is an independent investigation conducted by the Social and Environmental Compliance Unit (SECU), within UNDP's Office of Audit and Investigations, to determine if UNDP policies or commitments have been violated and to identify measures to address these violations. SECU would interact with you during the compliance review to determine the facts of the situation. You would be kept informed about the results of the compliance review.

and/or

2 Submitting a request for UNDP "Stakeholder Response" when you believe a UNDP project is having or may have an adverse social or environmental impact on you and you would like to initiate a process that brings together affected communities and other stakeholders (e.g., government representatives, UNDP, etc.) to jointly address your concerns. This Stakeholder Response process would be led by the UNDP Country Office or facilitated through UNDP headquarters. UNDP staff would communicate and interact with you as part of the response, both for fact-finding and for developing solutions. Other project stakeholders may also be involved if needed.

Please note that if you have not already made an effort to resolve your concern by communicating directly with the government representatives and UNDP staff responsible for this project, you should do so before making a request to UNDP's Stakeholder Response Mechanism.

Confidentiality If you choose the Compliance Review process, you may keep your identity confidential (known only to the Compliance Review team). If you choose the Stakeholder Response Mechanism, you can choose to keep your identity confidential during the initial eligibility screening and assessment of your case. If your request is eligible and the assessment indicates that a response is appropriate, UNDP staff will discuss the proposed response with you, and will also discuss whether and how to maintain confidentiality of your identity.

Guidance

When submitting a request please provide as much information as possible. If you accidentally email an incomplete form, or have additional information you would like to provide, simply send a follow-up email explaining any changes.

Information about You

Are you…

1. A person affected by a UNDP-supported project?

Mark "X" next to the answer that applies to you: Yes: No:

2. An authorised representative of an affected person or group?

Mark "X" next to the answer that applies to you: Yes: No:

If you are an authorised representative, please provide the names of all the people whom you are representing; and documentation of their authorization for you to act on their behalf, by attaching one or more files to this form.

3. First name:
4. Last name:
5. Any other identifying information:
6. Mailing address:
7. Email address:
8. Telephone Number (with country code):
9. Your address/location:
10. Nearest city or town:
11. Any additional instructions on how to contact you:
12. Country:

What you are seeking from UNDP: Compliance Review and/or Stakeholder Response

You have four options:

a. Submit a request for a Compliance Review;

b. Submit a request for a Stakeholder Response;

c. Submit a request for both a Compliance Review and a Stakeholder Response;

d. State that you are unsure whether you would like Compliance Review or Stakeholder Response and that you desire both entities to review your case.

13. Are you concerned that UNDP's failure to meet a UNDP social and/or environmental policy or commitment is harming, or could harm, you or your community? Mark "X" next to the answer that applies to you: Yes: No:

14. Would you like your name(s) to remain confidential throughout the Compliance Review process?

Mark "X" next to the answer that applies to you: Yes: No:

If confidentiality is requested, please state why:

15. Would you like to work with other stakeholders, e.g., the government, UNDP, etc. to jointly resolve a concern about social or environmental impacts or risks you believe you are experiencing because of a UNDP project?

Mark "X" next to the answer that applies to you: Yes: No:

16. Would you like your name(s) to remain confidential during the initial assessment of your request for a response?

Mark "X" next to the answer that applies to you: Yes: No:

If confidentiality is requested, please state why:

17. Requests for Stakeholder Response will be handled through UNDP Country Offices unless you indicate that you would like your request to be handled through UNDP Headquarters. Would you like UNDP Headquarters to handle your request?

Mark "X" next to the answer that applies to you: Yes: No:

If you have indicated yes, please indicate why your request should be handled through UNDP Headquarters:

18. Are you seeking both Compliance Review and Stakeholder Response?

Mark "X" next to the answer that applies to you: Yes: No:

19. Are you unsure whether you would like to request a Compliance Review or a Stakeholder Response? Mark "X" next to the answer that applies to you: Yes: No:

Information about the UNDP Project you are concerned about, and the nature of your concern:

20. Which UNDP-supported project are you concerned about? (if known):

21. Project name (if known):

22. Please provide a short description of your concerns about the project. If you have concerns about UNDP's failure to comply with its social or environmental policies and commitments, and can identify these policies and commitments, please do (not required). Please describe, as well, the types of

environmental and social impacts that may occur, or have occurred, as a result. If more space is required, please attach any documents. You may write in any language you choose

a.

b.

c.

23. Have you discussed your concerns with the government representatives and UNDP staff responsible for this project? Non-governmental organisations?

Mark "X" next to the answer that applies to you: Yes: No:

If you answered yes, please provide the name(s) of those you have discussed your concerns with

Name of Officials You have Already Contacted Regarding this Issue:

First Name	Last Name	Title/Affiliation	Estimated Date of Contact	Response from the Individual

24. Are there other individuals or groups that are adversely affected by the project?

Mark "X" next to the answer that applies to you: Yes: No:

25. Please provide the names and/or description of other individuals or groups that support the request:

First Name	Last Name	Title/Affiliation	Contact Information

Please attach to your email any documents you wish to send to SECU and/or the SRM. If all of your attachments do not fit in one email, please feel free to send multiple emails.

Submission and Support

To submit your request, or if you need assistance please email: project.concerns@undp.org

Annexure Three: Livelihood Restoration Plan

Introduction

The section should include:

a. Brief project description;
b. Purpose of the Livelihood Restoration Plan, and
c. Scope of the livelihood impact management plan.

Project Description

a. Provide a comprehensive description of the project ;
b. Include an overview of the project and subsequently describe the pre-construction, construction, and operational phases of the project;
c. Key aspects relevant to fish resources, fishing based livelihoods restoration of project-affected communities should be described in detail.

Statutory and Regulatory Framework

Livelihood Systems of Project-Affected Communities

a. Describe the livelihood systems of project-affected fishing communities.

Local Resources and Activities

a. Describe local resources and activities that are both impacted by and at risk from project activities.
b. Describe the range of activities used by individuals, households, and communities impacted by the project. Include postharvest processing and sale, including the value chain of produce.

Identification of Stakeholders

a. Identify the various stakeholders who may be impacted or may be involved in the process of development, implementation, and monitoring of the programs.

Impact Assessment

a. Impact Assessment
b. Definition of Eligibility Criteria and Entitlement Matrix for Directly Affected Fishermen
c. Restoration Strategy Define the overall impact management strategy.

Program and Activity Description

a. Provide a description of program and component activities. Include key information pertaining to target group, implementation, human resources, timeline, budget, etc.

Project Implementation (human resources, partners, and organisational responsibilities)

a. Describe human resources for implementation of the plan and component programs/interventions.
b. Clearly define roles and responsibilities and organisational structure.
c. Describe potential partners (affected groups and communities, NGOs, government, etc.) and their respective roles and responsibilities.

Schedule

a. Multi-year schedule of implementation for the component programs/ interventions and the overall plan.

Budget

a. Budgets for the component programs/ interventions and the total cost of the plan.

Monitoring and Evaluation

a. Overall monitoring and evaluation framework that integrates the monitoring and evaluation requirements for the component programs/ interventions

Annexure Four: Erosion, Drainage and Sediment Control Management Plan and Contaminated Soil Disposal Management Plan Outline

Project Description

a. Provide a comprehensive description of the project; and

b. Include an overview of the pre-construction, construction, and operational phases of the project.

Purpose, Scope and Objective

The section should include:

a. Scope of the Erosion, Drainage and Sediment Control Management Plan (EDSCP) and Contaminated Soil Disposal Management Plan (CSDMP)

b. Establish objectives for general EDSCP and CSDMP;

c. Establish specific objectives for site specific EDSCP and CSDMP;

d. Relationship to specific mitigation measures

Statutory and Regulatory Requirements

a. Legislative requirements as prescribed in the Project Environmental and Social Management Plan (ESMP)

Potential Impacts

a. Overview of impacts identified in ESAR and ESMP;

Erosion and sediment control impacts and mitigations

Source of Impact	Potential Impact and Relevant Management Plan Objective	Mitigation and Management (Design Feature/ Specific Measure)	Mitigation Measure	Activity/ Monitoring	Frequency	Duration	Responsibility	Evidence

Project Implementation (human resources, partners, and organisational responsibilities)

a. Describe human resources for implementation of the plan and component programs/interventions;

b. Clearly define roles and responsibilities and organisational structure;

c. Discuss training that will be provided; and

d. Describe potential partners (NGOs, government, etc.) and their respective roles and responsibilities.

Resources

a. Equipment requirements including erosion and sediment control devices (sediment fencing, silt curtains, etc) water quality monitoring equipment; and on-site weather monitoring station;

b. Staff involved including Construction Environmental Officer; Environmental Coordinator; Monitoring Officer; Environmental and Regulatory Manager; and

c. Registers including water quality monitoring record; and non-conformance register.

Schedule

a. Multi-year schedule of implementation for the component programs/ interventions and the overall plan.

Monitoring and Evaluation

a. Overall monitoring and evaluation framework that integrates the monitoring and evaluation requirements for the component programs/ interventions.

Reporting and Notification

a. Contractor's monthly report including results of the surveys and inspections; and number and results of verification inspections, including but not limited to landform stability inspections, sediment control structure and stockpile inspections and control measures implemented to manage failing sediment control structures and stockpiles.

Budget

a. Budgets for the component programs/ interventions and the total cost of the plan.

Annexure Five: Social Inclusion Plan Outline

Scaling-up Multi-Hazard Early Warning System and the Use of Climate Information in Georgia

Social Inclusion Planning Framework

CONTENTS

1 INTRODUCTION

1. This Social Inclusion Planning Framework (SIPF) has been prepared in support of a project proposal entitled "*Scaling-up Multi-Hazard Early Warning System and the Use of Climate Information in Georgia*" (the project) by the Government of Georgia to the Green Climate Fund (GCF).

2. This SIPF has been prepared to guide the formulation of project components, ensuring equitable distribution of project benefits between ethnic minorities and internally displaced peoples and other communities who are affected by the Project. The principal objectives of the SIPF are to:

   a. Screen project components early to assess their impacts on tribal community households;

   b. ensure meaningful participation and consultation with communities living in the project locations in the process of preparation, implementation, and monitoring of project activities;

   c. provide a framework to mitigate any possible and unintended adverse impacts to communities;

   d. ensure that communities receive culturally appropriate social and economic benefits from the project;

   e. outline the monitoring and evaluation process of the review and implementation of the plan.

1.1 DESCRIPTION OF THE PROJECT

3. In order to adapt to climate change, Georgia needs to adopt a proactive integrated climate risk management (CRM) approach centred around risk reduction, prevention, and preparedness through the establishment of a multi-hazard early warning system and an enhanced use of climate information in planning and decision-making. The project will address the main barriers to the establishment of a multi-hazard early warning system (MHEWS) and all other aspects of a priority climate risk management required to support an effective MHEWS.

4. The project will improve the level of protection of land and communities in selected areas in Eastern (Kakheti; and Shida Kartli) and Western (Imereti; Samegrelo_Zemo Svaneti; and Ajara Autonomous Republic) Georgia (a total of 13 sites across the five locations) from mudflow and flooding risks. Figure 1 shows the locations of the Regions in Georgia.

Figure 16 Map of Georgia

1.1.1 Summary of Activities

5. The project will be undertaken through three outputs:

   a. expanded climate-induced natural hazard observation network and modelling capacities secure reliable information on climate-induced hazards, vulnerability and risks;

   b. multi-hazard early warning system and new climate information products supported with effective national regulations, coordination mechanism and institutional capacities;

   c. improved community resilience through the implementation of the MHEWS and priority risk reduction measures.

6. Under Output One, the project will deliver the following:

   a. Expanding the hydro-meteorological observation network and modelling capacities to secure reliable information on climate-induced hazards, vulnerability and risks. This will include the installation of twelve meteorological stations, 73 meteorological posts, 44 hydrological posts, ten snow measurement stations, 20 inclinometers; 2 radars; 2 drones and additional corpus; matrice 600 pro for flight control and thermal camera; geo-positioning equipment/GPS; Visual Computing Appliance (VCA) for processing aerial photos; upper air sounding equipment (x2); 15 agrometeorological stations, 8 mobile discharge meters, 1 super computer for strengthening early warning system; telecommunication system equipment.

   b. floodplain zoning based on hazard and risk maps for all (eleven) major basins in Georgia and hazard and risk maps for key climate-induced hazards (floods, landslides, mudflows, avalanches,

hailstorms and droughts), using the most appropriate modern technologies and methods and aligned with international and regional standards

c. Introducing and implementing methods and tools for the systematic gender-sensitive socio-economic vulnerability assessment for decision making for prioritisation of resilience investments

d. expanding the hydro-meteorological and agro-meteorological monitoring network, and supporting the establishment of a centralised multi-hazard disaster risk information and knowledge system, consisting of national e-Library, databases, information systems and knowledge portal; and

e. the development of local-level detailed hazard mapping and risk and vulnerability assessment.

7. Under Output Two, the project will deliver the following:

d. Undertaking institutional and legal frameworks and institutional capacity building for the MHEWS, and for the enhanced use of climate information. This will include improving the coordination and communication protocols for early warning; developing and/or strengthening policy, regulatory framework and technical guidance for MHEWS and climate risk management; institutional strengthening, coordination, communication and enhanced use of climate information to establish and strengthen resilience. The project will assist the government in developing and adopting relevant technical regulations. Trainings for staff also will be carried out;

e. Developing and implementing of the MHEWS covering all Georgia, building on the Rioni Basin prototype and on the expanded hydrometric network. This will include upgrading flood forecasting and expanding meteorological and hydrological forecasting capacities. Further, the project will then integrate the new data into the forecasting platform. This will allow the project to expand the hydrological and hydraulic models within the forecasting platform to cover all of Georgia. The work will also allow for drought, landslide, avalanche, wind, and hailstorm forecasting along with other physical parameters. The activity will also provide for an improvement of general forecasting;

f. enhancing access and the use of weather and climate information and agrometeorological information services by farmers and agricultural enterprises. This will include capacity building and training for the MoEPA, including specific training on the use of climate information and climate change adaptation for the Scientific Research Centre of Agriculture, National Food Agency and for the municipal Information and Consultations Centres as well as the training of National Environmental Agency. The activity will also include integrating climate risk and adaptation priorities into the agriculture sector plans, investments and budget frameworks, including the investment appraisal skills, economic valuation of climate change impacts, based on sector model, trade off analysis and cost-benefit assessments for a range of plausible adaptation options in agriculture. The activity will support the development of guidance documents, methodologies and technical regulations; climate mapping and agrometeorological advisory; the development of basin-level multi-hazard risk management plans; Municipal-level climate-induced multi-hazard response and preparedness plans.

8. Under Output Three, the project will deliver the following:

d. Implementation community-based early warning schemes and community-based climate risk management. This will include supporting 100 communities about relatively high risk, short lead time of the extreme events, potential technical constraints for the central system to effectively service the community (e.g. due to remote location or connection problems). For this activity the project will work with smaller and more vulnerable communities/settlements with the population of up to 6,000-7,000 people. With respect to the community-based climate risk management, local communities (particularly women and vulnerable groups) will be trained to implement and maintain non-structural intervention measures necessary to reduce various climate-induced risks. Gender differentiated indicators will be used to monitor the projects performance in achieving the right gender balance;

e. Raising public awareness and capacity building programme at all levels to effectively deliver climate risk information and training to communities and local first-responders. This will be undertaken under a number of undertaking capacity building of EIEC to develop their curriculum of training to include of the elements for CRM, DRR, CCA and EWS related to all hazards for

which they will deliver training under the project and on a long-term basis; and capacity building at all levels of Government and within the community; and

f. Implementing priority risk reduction interventions that would significantly reduce the risks the impacts of the MHEWS will operate. This will include targeting 13 sites for structural measures that will significant reduce the impacts of flooding. The sites are selected based on a report called "*Upscaling of Rioni Flood Damages to all Georgian Flood Plains and an overview of the Impacts on Population, Property and Agriculture within Georgia from Other Hydro meteorological hazards*" developed under the previously implemented Rioni project. The types of flood protection structures to be erected include embankments with rock boulder; wire mesh mat lining; concrete regulation wall; wire mash gabion wall; climate proofing water regulation facility; canal widening and lining; and riverbed and channel cleaning. The activity will mitigate the deleterious effects of mudslides and to provide flood mitigation. The current problem has resulted in the significant loss of agricultural, arable and other land from erosion. Figure 2 shows the location of the 13 proposed river works.

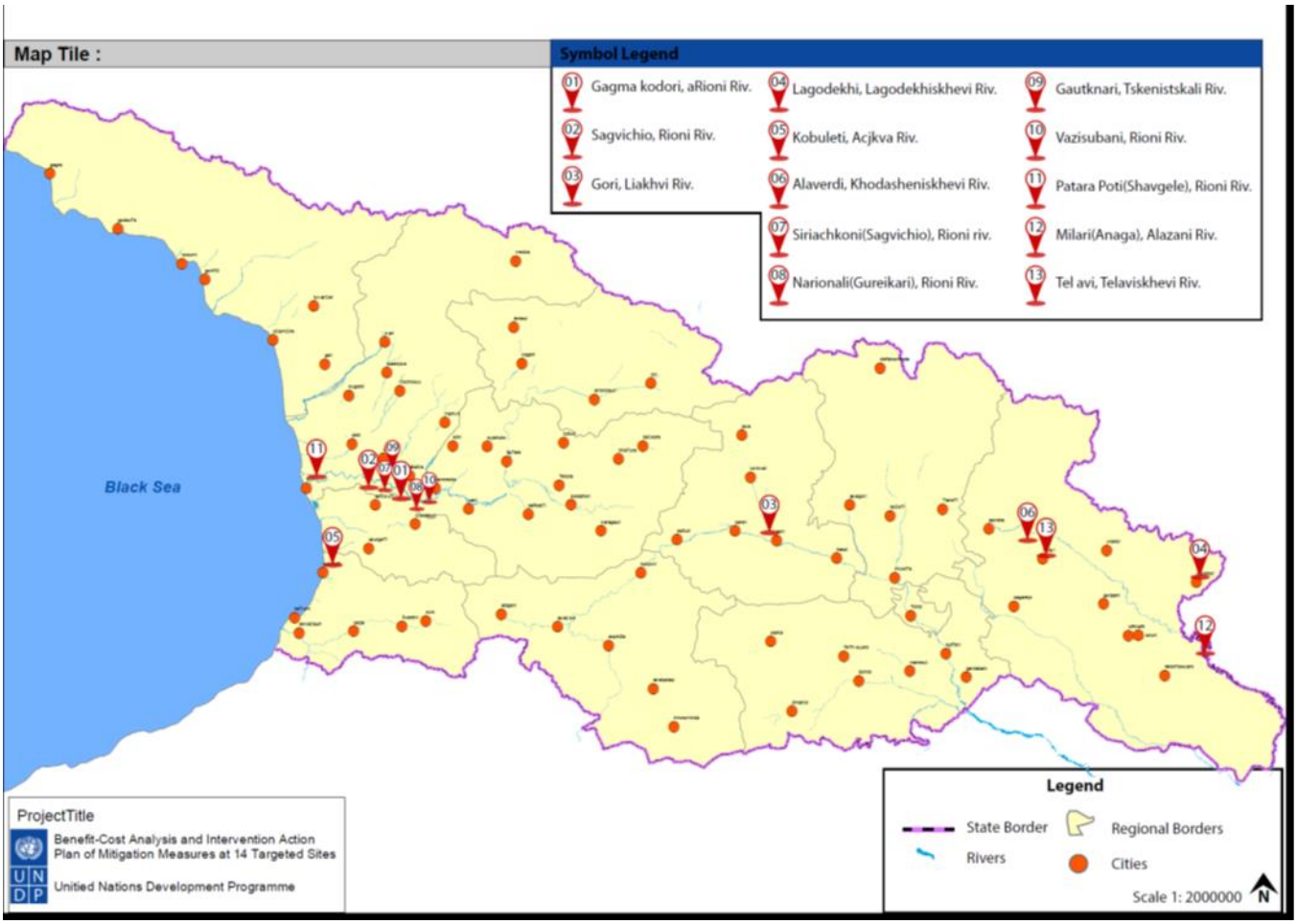


Figure 17 Thirteen locations of proposed river works

2 PRESENCE OF ETHNIC MINORITIES AND INTERNALLY DISPLACED PEOPLES

2.1 ETHNIC MINORITIES IN GEORGIA

9. There are five (5) regions of overall thirteen (13) with minority compact settlements in Georgia: Abkhazia, South Ossetia, Kvemo Kartli, Samtskhe-Javakheti and Kakheti. All of these five regions are transfrontier regions of Georgia bordering the regions or administrative divisions populated by the identical compact settlements of ethnic minorities. Some of minority groups are having compact settlements or are dispersed on the inner territories of the country. These groups are: ethnic Russians, Greeks, Kurds and/or Yezidi, Assyrians, Jews, Ukrainians, Armenians and Azerbaijanis.

10. According to the November 2014 census in Georgia, ethnic minorities make up 13.2% of the Georgian population. Azeris and Armenians are the two largest minority groups. Azeris account for 6.3% of the total population and constitute a significant group in the region of Kvemo Kartli which borders Armenia and Azerbaijan to the south. The Armenian minority accounts for 6% of the total population and is a significant group in the region Samstkhe Javakheti bordering Turkey and Armenia in the south. Other smaller ethnic minorities include Russians, Ossetians, Yezidis, Ukrainians, Chechens, Greeks and Assyrians. Both Azeri and Armenians tend to live in specific parts of the country, which historically have been less developed than the cities occupied by Georgians. Further, Georgia has small populations of ethnic Roma and Meskhetians. Table 3 shows the diversity of ethnic minorities from the 2014 Census.

Ethnic Minorities	Total	Percentage Distribution
Total Population	**3 713,8**	**100,0**
Georgians	3 224,6	86,8
Azeris	233,0	6,3
Armenians	168,1	4,5
Russians	26,5	0,7
Ossetians	14,4	0,4
Yazidis	12,2	0,3
Ukrainian	6,0	0,2
Kists	5,7	0,2
Greeks	5,5	0,1
Assyrians	2,4	0,1
Other	14,3	0,4
Refusal	0,6	0,0
Nationality not specified	0,5	0,0

Table 20 Ethnic Minority Populations (Thousand persons) in Georgia 2014

2.1.1 Azeri

11. Azeris form Georgia's largest minority, being the only minority group to have increased its proportional share of the population since 1989. In real terms, however, population numbers have slightly fallen. Azeris are compactly settled in the south-east region of Kvemo Kartli, bordering on Azerbaijan. Azeris

in Georgia are overwhelmingly rural. There are sizeable communities of Azeris living in the capital Tbilisi, the city of Rustavi and in the Lagodekhi region of Kakheti.

12. Like other minority groups, Azeris in Georgia expressed fears regarding Georgian moves towards independence after 1989. A number of Azeri associations were formed in Georgia in the early 1990s, notably the Geyret popular movement, formed in the town of Marneuli. Cordial relations between Georgian and Azerbaijani heads-of-state (as well as generally positive relations between Georgians and Azeris at the everyday level) and the background context of Azeri–Armenian conflict imposed significant constraints to potential for Azeri mobilization in Georgia.

13. Until reforms on local governance passed in 2006, Azeris were also Azeris remain under-represented in local administrative bodies in areas where they form a numerical majority, and, apart from a negligible number of symbolic posts, have no influence in government. The problem was especially acute for the Azeris in Kvemo Kartli, where Georgians held all the important positions. Like the Armenians in Javakheti the only point of access to the political life of the republic for Azeris was through local clan structures co-opted into the Georgian state.

14. Azeris have one of the lowest levels of proficiency in Georgian of any minority group in Georgia (15% in 2002), and have in recent years relied on Azeri teaching materials imported from Azerbaijan. However, in 2006 local broadcasting of mainstream Georgian news media in Azeri began; the Ministry of Education has also implemented programmes with the Organisation for Security and Co-operation in Europe assistance for the creation of Georgian language primers for Azeri-speakers.

2.2 Autonomous Regions of Abkhazia, Ajara and South Ossetia

2.2.1 Abkhazia

15. Abkhazia historically formed one of many principalities with a history of feudal semi-independence from the Georgian kingdoms. Linguistic evidence suggests that Abkhaz and Kartvelian languages have been in close contact for at least two millennia, although Georgian nationalist ideology portrays the Abkhaz as more recent newcomers to the region since the seventeenth century. The Russian Empire annexed Abkhazia in 1864, precipitating a massive emigration of the region's Muslim population to the Ottoman Empire, a movement known as the Muhajirstvo..

16. Georgian moves towards independence exacerbated Abkhazian fears, leading to the outbreak of clashes between local populations in Abkhazia in 1989. Abkhazia declared independence from Georgia after the collapse of the Soviet Union in 1991, which encountered resistance from the Georgian side. President Gamsakhurdia of Georgia negotiated a short-lived power-sharing agreement with the Abkhaz in 1991, which was violated due to the clashes between Georgian and Abkhaz military groups in August 1992; the war resulted in forced displacement of ethnic Georgian from the territory of Abkhazi to other regions of 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..

17. There are few ethnic Abkhazians in Georgia outside of Abkhazia. According to the 2009 census the population of this ethnic minority was approximately 3,500 people.

2.2.2 Ajara

18. Ajara is geographic and political-administrative region of Georgia, located in the country's southwestern corner along the coast of the Black Sea. Adjara is home to the Adjarians, a regional subgroup of Georgians and who speak a local dialect known as 'Adjarian dialect'. The written language is Georgian. The influence of Ottoman rule during 17-19 centuries resulted in converting majority of local population into Islam though maintained national identity, language, traditions. Thus, the Georgian population of Adjara had been generally known as "Muslim Georgians" until the 1926 Soviet census. Ajarians have not been counted as a separate ethnicity in Georgian demography since the 1930s, nor have they mobilized for identification as a separate group. Adherence to Islam today is

largely confined to mountainous areas in the region. According to the 2014 Georgian national census, 70% were Orthodox Christians, and 30% Muslim

19. Ajaria historically formed a borderland between the Russian and Ottoman empires, subject to cultural and political influences from both. Islamised during the region's period under Ottoman domination, Ajaria's population was incorporated into the Russian Empire in 1878.

20. Ajaria is one of the more prosperous regions of Georgia, benefiting from control of the border with Turkey and having avoided violent conflict in the 1990s. Under Aslan Abashidze, however, Ajaria acquired a reputation for authoritarian rule and human rights abuses. Abashidze's regime was one of the first casualties of the 2003 Rose Revolution, and he was forced to leave Ajaria for Russia in May 2004 following six months of confrontation with the new administration in Tbilisi. Ethnic or religious issues played no role in this confrontation.

2.2.3 South Ossetia

21. Approximately 70,000 Ossetians lived in the autonomous region of South Ossetia in 1989, with a further 100,000 elsewhere in Georgia before the outbreak of the conflict. According to the Georgian Census of 2002, 38,000 Ossetians remained in undisputed Georgian territory, accounting for 0.9 per cent of Georgia's population. A further 300,000 Ossetians live in the Republic of North Ossetia – Alania (a subject of the Russian Federation).

22. Many Georgian residents of the autonomous region fled as a result of the 1989 conflict, but an estimated 20,000 remained in villages typically intermingled with Ossetian villages. There has been significant intermarriage between Ossetians and Georgians, but statistics are unavailable. There is no reliable data for the total population of South Ossetia, although prior to the August 2008 war between the Georgian army and Russian forces, it was thought to be in the region of 70,000. Many ethnic Georgians fled or were driven from South Ossetia during and after the conflict, but the extent and duration of their displacement remain difficult to determine.

23. In the conflict zone of Tskhinvali, ethnic Ossetian villages were interspersed with ethnic Georgian villages, as well as those of mixed ethnicity, and there was some intermarriage between Ossetians and Georgians. Prior to the outbreak of conflict in August 2008, Russia assiduously distributed passports to Ossetians in the territory.

24. Figure 3 shows the location of the three autonomous regions. No project activities will be undertaken in Abkhazia and South Ossetia. Some activities will be undertaken in Ajara and accordingly, special attention will be paid with respect to the project activities in this area of Georgia.

2.3 Internally Displaced Peoples

25. There are significant numbers of internally displaced peoples in Georgia as a result of past conflicts. The Government of Georgia reported in December 2014 that it had registered 262,704 people as internally displaced peoples. 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, Accommodation and Refugees. The figure is a slight increase from the initial figure released after the re-registration exercise for two reasons. First, some internally displaced peoples failed to participate in the re-registration process in 2013 and consequently had their status terminated. They are now gradually approaching the Ministry in order to re-register and have their statuses restored. Secondly, children with one internally displaced parent are entitled to the status. Each month about 400-500 newborns receive the status, which causes an increase in the internally displaced peoples figure.

26. 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.

27. The number of internally displaced peoples registered by the Government includes people who have returned home to Abkhazia, but 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.

28. The Internal Displaced Monitoring Centre current suggested that there are an estimated 232,700 internally displaced peoples in Georgia in December 2014.

Figure 18 Autonomous and Disputed Areas of Georgia

3 LEGAL AND INSTITUTIONAL FRAMEWORK FOR ETHNIC MINORITIES AND INTERNALLY DISPLACED PEOPLES

3.1 UNITED NATIONS GENERAL ASSEMBLY

29. The United Nations General Assembly has passed numerous resolutions on the protection of and assistance to internally displaced persons and refugees from Abkhazia and the Tskhinvali region/South Ossetia within Georgia, including its resolutions 62/153 of 18 December 2007, 62/249 of 15 May 2008, 63/307 of 9 September 2009, 64/162 of 18 December 2009, 64/296 of 7 September 2010, 65/287 of 29 June 2011, 66/165 of 19 December 2011, 66/283 of 3 July 2012, 67/268 of 13 June 2013, 68/180 of 18 December 2013, 68/274 of 5 June 2014, 69/286 of 3 June 2015, 70/165 of 17 December 2015; 70/265 of 7 June 2016, and 71/290 of 1 June 2017.

3.2 LEGISLATION, POLICIES AND REGULATIONS

30. Since 2009, the Government of Georgia's policy towards ethnic/national minorities has been implemented through the "National Concept on Tolerance and Civil Integration and respective Action Plan for 2009-2014." According to Government of Georgia Order No. 348 of May 2009, the Office of the State Minister of Georgia for Reintegration was given the task to coordinate the process of elaboration and implementation of a policy in regard to ethnic/national minorities and report to the Government and the President's Council.

31. For effective coordination of these processes, the Georgian State Minister for Reintegration, based on Order No. 14 of July 2009, established the State Interagency Commission. The Commission was composed of the representatives of the Office of the State Minister of Georgia for Reintegration, as well as representatives from relevant state institutions, ministries, departments and organisations, the Tbilisi city council and three representatives of the regional administration from district with minority populations. Information on these is provided below.

3.2.1 Constitution of Georgia

32. The *Constitution of Georgia* lays down the legal framework that guarantees public access to information. The Constitution forms a vital component of the overall public consultation process with regards to environmental conditions; though, it does not directly address environmental issues.

33. Under Part 5 of Article 37, "*an individual has the right to obtain full, unbiased and timely information regarding his working and living environment*". According to the Constitution, the Georgian Government must secure the rational use of natural resources and protection of the environment. Article 41, part 1 of the Constitution states that Georgian citizens have access to information available in Government institutions concerning their personal matters, as well they have access to official documents provided they do not contain confidential information of the Government, professional or commercial importance.

34. The *Constitution of Georgia* also recognises the equal rights of every citizen regardless of race, colour, language, sex, religion, ethnic origin or nationality. Any violation of the equality of citizens is punishable under the Georgian law.

35. In 2012, the Constitution of Georgia was translated into Azerbaijani, Armenian and Russian languages and published (500 copies in total). The translated Constitution was distributed among local self-governments and non-governmental organizations in respective minority regions including Samtskhe-Javakheti, Kvemo Kartli and Kakheti.

3.2.2 Civil Code of Georgia

36. The *Civil Code of Georgia* regulates private civil relations, determines rights of ownership, family and neighbouring tenements and establishes inheritance rules. Ownership right enables the proprietor to

freely manage or alienate owned assets. Paragraph 183 of the Code states, "*that purchasing of real estate shall be confirmed by a written agreement and ownership right of the buyer is registered in the public register*".

37. The Civil Code gives the proprietor right to alienate assets with right to build, usufruct or servitude. The Code defines rules for neighbouring tenements. According to paragraph 180, if a land parcel has not access to public roads and power, gas and water supply networks, the proprietor has right to request a neighbour to use his/her parcel to provide such communications and for this pays one-time compensation. The Code also defines other rights of neighbouring tenements regarding bordering facilities, plants, fences and disturbances.

3.3 Legislation relating to Ethnic Minorities and Discrimination

38. There are many norms in Georgian legislation regulating the rights of ethnic minorities. As highlighted in Section 3.2.1, the Constitution of Georgia, which guarantees equality and prohibits discrimination based on ethnic and national basis. There are a number of laws and regulations, in the Georgian legislation that establish the Government's obligation to protect minorities from discrimination and ensure their involvement in civic processes.

39. The Government of Georgian has also developed legislation in line with international standards and to fulfil its obligations. In December 2011, the Parliament of Georgia adopted the Law on Personal Data Protection. The first part of Article 6 of the Law prohibits data processing for special categories. Special categories of data include data which relate to a person's racial or ethnic, political opinions, religious or philosophical beliefs, trade organization membership, health, sexual orientation, or criminal records, as well as biometric data.

40. Antidiscrimination provisions are included in the Criminal Code of Georgia. Amendments to the Article 53 of the Criminal Code in 2012 established that the crimes committed on the basis of race, colour, language, gender, sexual orientation, gender identity, age, religion, political or other opinions, disability, citizenship, national, ethnic or social origin, property, birth or social status, place of residence or discrimination on the bases of other signs of intolerance motives shall serve as an aggravating circumstance to any relevant offenses under the Criminal Code.

41. In 2013, the Ministry of Justice of Georgia introduced the Law on the *Elimination of All Forms of Discrimination*, which puts together a variety of existing anti-discrimination laws and regulations under one law. The law was elaborated with active participation of Georgian civil society and international experts.

3.3.1 Council for Ethnic Minorities

42. In 2005 the Council for Ethnic Minorities was established. The Council comprises most minority organisations within the Georgian territory. The Council is intended to ensure that the minorities and governmental structures maintain a dialogue on cooperation and consultation; including the monitoring of an action plan for tolerance and civil integration. This work was initiated by the State Ministry's Office of Reconciliation and Civic Equality, which was formed in 2008. The action plan is intended to implement measures within the following areas: rule of law, education, the Georgian language, access to media and other information, political integration and civic engagement, social and regional integration and culture and identity.

3.3.2 Civil Integration and Tolerance Council

43. In August 2005, the Government of Georgia established the Civil Integration and Tolerance Council. The Council's main function was to study the issue of tolerance towards ethnic minorities and their level of their participation to society. The Council defined six main priority areas for the development of policies, and consequently created six working groups inside the council: Rule of Law; Education; Culture; Social and Regional Integration of Society; Media; and Civic Participation.

44. The Council oversees the *Tolerance and National Integration Strategy and Action Plan* which was developed to support the creation of a democratic, consolidated civil society based on common values,

which considers diversity as the source of its strength and provides every citizen with the opportunity to maintain and develop their own identity. The action plan included specific activities and programs in accordance with the strategic direction of the national concept. The responsibility to implement the components within the Action Plan was allocated to specific Government agencies.

45. The National Concept for Tolerance and Civil Integration determines the Government's strategy and objectives in six key areas: rule of law, education and state language, the media and access to information, political integration and civic participation, social and regional integration, and culture and identity maintenance.

3.3.3 Tolerance Centre

46. The Tolerance Centre under the Public Defender works on the development of the culture of tolerance and equal environment in Georgia. The Centre makes an important contribution to the protection of the rights of religious and ethnic minorities. In this regard, it creates promoting conditions for a multilateral dialogue between the majority and minority groups, carries out educational activities, detects cases of religious and ethnic discrimination and xenophobia, and studies the existing trends and systemic problems in this field. The Tolerance Centre, together with the Council of Ethnic Minorities, monitors the National Integration Strategy and Action Plan each year and thus contributes to the engagement of national minorities in the process of integration.

47. One of the main activities of the Centre is to coordinate the Public Defender's Councils of Religions and Ethnic Minorities, which represent a space where religious and ethnic minorities have the opportunity to discuss and work on important issues. The Council of Ethnic Minorities currently unites about 100 organizations working on minority issues, while the Council of Religions combines more than 30 religious associations.

3.4 Multilateral Agreements and Protocols

48. As a member of the international community, Georgia has ratified several international agreements providing guarantees for ethnic minorities living in Georgia. Following is a list of such agreements:

    a. Universal Declaration of Human Rights;
    b. International Covenant on Civil and Political Rights;
    c. International Covenant on Economic, Social and Cultural Rights;
    d. International Convention Concerning Discrimination in respect of Employment and Occupation;
    e. European Cultural Convention;
    f. European Convention on Human Rights
    g. International Convention on the Elimination of All Forms of Racial Discrimination;
    h. Convention for The Protection of Human Rights and Fundamental Freedoms;
    i. European Charter of Local Self-Government;
    j. Framework Convention for the Protection of National Minorities; and
    k. European Outline Convention on Trans-frontier Co-operation between Territorial Communities or Authorities.

4 IMPLEMENTATION AND OPERATION

4.1.1 General Management Structure and Responsibilities

49. A high level project organisational structure is shown in Figure 19. The key roles are discussed below.

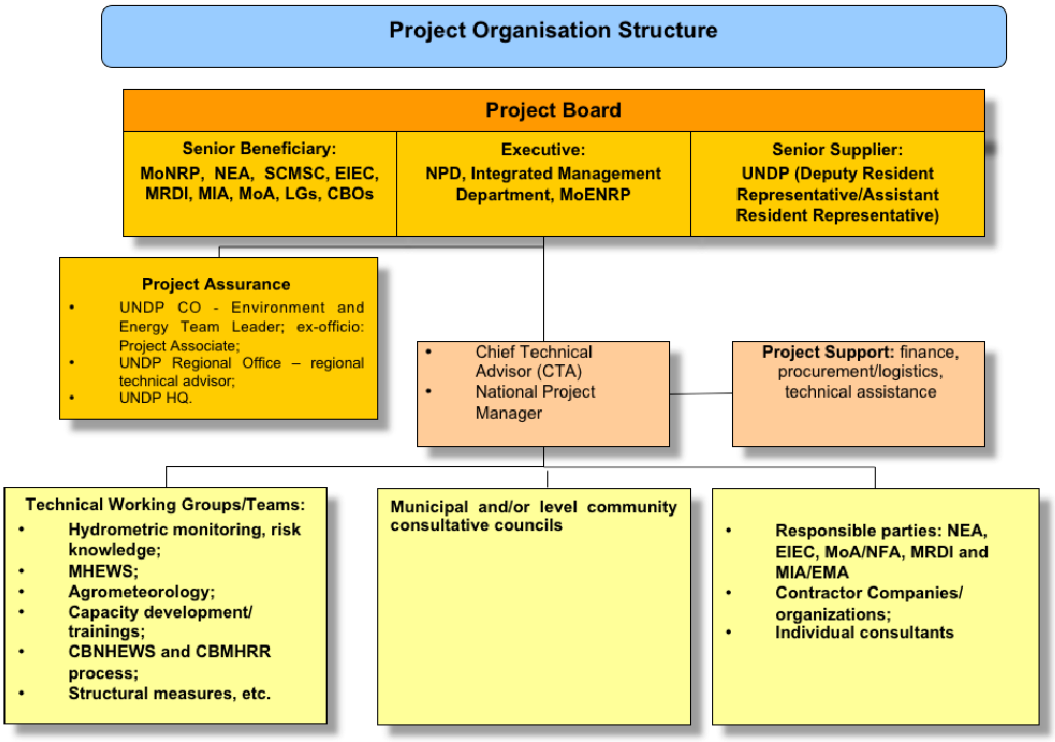


Figure 19 Project organisation structure

50. The project organisational structure will oversee the SIPF. The Ministry of Environment Protection and Agriculture of Georgia (MoEPA) as the National Designated Authority and Implementing Agency will lead the project and ensure compliance with the SIPF. Ministry of Regional Development and Infrastructure (MRDI) and its subordinate Road Department as the responsible party for implementing activity 3.3.will ensure compliance with the SIPF.

4.1.2 Institutional Arrangements, Development and Implementation of

51. The SIPF will be assessed for each sub-project by the MoEPA and UNDP prior to any works being undertaken. The ESAR and SIPF identifies potential risks to the environment and social matters from the projects and outlines strategies for managing those risks and minimising undesirable environmental and social impacts including any impacts on ethnic minorities and internally displaced peoples. Further, the ESAR, ESMP and SIPF provide a Grievance Redress Mechanism for those that may be impacted by the projects that do not consider their views have been heard.

52. The MoEPA will be responsible for the supervision of the SIPF. The MoEPA with gain the endorsement of the National Project Board and will ensure the SIPF is adequate and followed. The National Project Management Unit (NPMU) will ensure timely remedial actions are taken where necessary.

53. Any regional-level SIPs will follow the same institutional arrangements and implementation modalities outlined in the ESAR and ESMP. Similarly, the grievance mechanism outlined in the ESAR and ESMP will apply to all aspects of the project.

4.1.3 Public Consultation and Disclosure

54. The SIPF includes public consultation as part of the stakeholder engagement plan. The project was discussed with a wide range of stakeholders, including relevant government departments, industry groups, NGOs, and individual community members and approved by Government. Extensive on-ground consultation has been undertaken during the design of the project and it is expected that consultation with any affected communities will continue. It is anticipated that based on the communities' needs, the projects will be fully accepted.

55. The UNDP and Government of Georgia will develop and release updates on the project on a regular basis to provide interested stakeholders with information on project status. Updates may be via a range of media eg print, radio, social media or formal reports. A publicised telephone number will be maintained throughout the project to serve as a point of contact for enquiries, concerns, complaints and/or grievances. All enquiries, concerns, complaints and/or grievances will be recorded on a register and the appropriate manager will be informed. All material must be published in English and local languages as appropriate.

56. Where there is a community issue raised, the following information will be recorded:

    a. time, date and nature of enquiry, concern, complaints and/or grievances;

    b. type of communication (e.g. telephone, letter, personal contact);

    c. name, contact address and contact number;

    d. response and investigation undertaken as a result of the enquiry, concern, complaints and/or grievances; and

    e. actions taken and name of the person taking action.

57. Some enquiries, concern, complaints and/or grievances may require an extended period to address. The complainant(s) will be kept informed of progress towards rectifying the concern. All enquiries, concern, complaints and/or grievances will be investigated and a response given to the complainant in a timely manner. The grievance redress mechanism described in the ESAR to address any complaints and/or grievances that may not be able to be resolved quickly shall also apply to the SIPF.

58. Nominated PMU/contractor staff will be responsible for undertaking a review of all enquiries, concern, complaints and/or grievances and ensuring progress toward resolution of each matter.

4.2 Monitoring and Evaluation

59. The Project Board will convene at least twice annually, to review and contribute to the annual work plans of the project states as well as discuss and approve national level project activities. The Project Board will be supported by the NPMU, who will be responsible for day to day coordination of relevant components of the project at the national level and work in close coordination with the three project states. The NPMU will be headed by a National Project Coordinator, who will be supported, amongst others, by a Monitoring and Evaluation Expert.

60. A Regional Project Management Unit will have representation from the relevant Regional Departments, Agencies, and other stakeholders including private sector / industries, NGOs nominated by the Regional Government, representative of UNDP and National Project Management Unit (NPMU). The Regional Project Board shall meet at least twice in a year to review the progress of project implementation in the Region and take appropriate decisions for the smooth implementation of the project within the Region.

61. As can be seen above, there are various levels of monitoring and evaluation responsibilities, which will result in the SIPF/SIPs being monitored and evaluated are various implementation levels. It also

provides multiple entry points to trigger review of the SIPF/SIPs. The SIPF and sub-plans (SIPs) will be periodically reviewed throughout the life of the project and modified when necessary with the meaningful participation of ethnic minorities and internally displaced peoples and other communities who are affected by the Project. Significant grievances eg Tier 2, should be considered an automatic trigger for SIP review.

4.3 BUDGET

62. All costs of related to SIPF implementation have been included in the overall budget for the project. The SIPs will include detailed cost estimates and indicate source of funds for the required activities to facilitate smooth implementation, management and monitoring.

5 OUTLINE OF THE GCF SOCIAL INCLUSION PLAN

63. A Social Inclusion Plan (SIP) is required by the GCF for all projects with substantial impacts on local communities. If necessary, the plan will be prepared for each location, focusing on ethnic minorities and internally displaced peoples' communities in the area, and based on the outline contained in this SIPF.

64. The level of detail and comprehensiveness of an SIP is commensurate with the significance of potential impacts on the relevant social groupings. This outline guides the preparation of a GCFSIP, although not necessarily in the order shown.

Executive Summary of the GCF Social Inclusion Plan

This section concisely describes the critical facts, significant findings, and recommended actions.

Project Description

This section provides a general description of the project; discusses project components and activities that may bring impacts on ethnic minorities and internally displaced peoples and; and identify project area.

Social Impact Assessment

This section:

a. *reviews the legal and institutional framework applicable to ethnic minorities and internally displaced peoples in project context;*

b. *provides baseline information on the demographic, social, cultural, and political characteristics of the affected ethnic minorities and internally displaced peoples; the land and territories that they have traditionally owned or customarily used or occupied; and the natural resources on which they depend;*

c. *identifies key project stakeholders and elaborate a culturally appropriate and gender-sensitive process for meaningful consultation with ethnic minorities and internally displaced peoples at each stage of project preparation and implementation, taking the review and baseline information into account;*

d. *assesses, based on meaningful consultation with the affected ethnic minorities and internally displaced peoples and communities, the potential adverse and positive effects of the project. Critical to the determination of potential adverse impacts is a gender-sensitive analysis of the relative vulnerability of, and risks to, the affected communities given their particular circumstances and close ties to land and natural resources, as well as their lack of access to opportunities relative to those available to other social groups in the communities, regions, or national societies in which they live;*

e. *includes a gender-sensitive assessment of the affected ethnic minorities and internally displaced peoples' perceptions about the project and its impact on their social, economic, and cultural status; and*

f. *identifies and recommends, based on meaningful consultation with the affected ethnic minorities and internally displaced peoples and communities, the measures necessary to avoid adverse effects or, if such measures are not possible, identifies measures to minimize, mitigate, and/or compensate for such effects and to ensure that ethnic minorities and internally displaced peoples receive culturally appropriate benefits under the project.*

Information Disclosure, Consultation and Participation

This section:

a. *describes the information disclosure, consultation and participation process with the affected ethnic minorities and internally displaced peoples communities that can be carried out during project preparation;*

b. *summarizes their comments on the results of the social impact assessment and identifies concerns raised during consultation and how these have been addressed in project design;*

c. *in the case of project activities requiring broad community support, documents the process and outcome of consultations with affected ethnic minorities and internally displaced peoples and communities and any agreement resulting from such consultations for the project activities and safeguard measures addressing the impacts of such activities;*

d. *describes consultation and participation mechanisms to be used during implementation to ensure ethnic minorities and internally displaced peoples participation during implementation; and*

e. *confirms disclosure of the draft and final to the affected ethnic minorities and internally displaced peoples.*

Beneficial Measures

This section specifies the measures to ensure that ethnic minorities and internally displaced peoples receive social and economic benefits that are culturally appropriate, and gender responsive.

Mitigative Measures

This section specifies the measures to avoid adverse impacts on ethnic minorities and internally displaced peoples; and where the avoidance is impossible, specifies the measures to minimise, mitigate and compensate for identified unavoidable adverse impacts for each affected ethnic minorities and internally displaced peoples.

Capacity Building

This section provides measures to strengthen the social, legal, and technical capabilities of (a) government institutions to address ethnic minorities and internally displaced peoples issues in the project area; and (b) ethnic minorities and internally displaced peoples organizations in the project area to enable them to represent the affected ethnic minorities and internally displaced peoples more effectively.

Grievance Redress Mechanism

This section describes the procedures to redress grievances by affected ethnic minorities and internally displaced peoples and communities. It also explains how the procedures are accessible to ethnic minorities and internally displaced peoples and culturally appropriate and gender sensitive. It is anticipated this would utilized the already developed Grievance Redress Mechanism established under the Social Inclusion Planning Framework.

Monitoring, Reporting and Evaluation

This section describes the mechanisms and benchmarks appropriate to the project for monitoring, and evaluating the implementation of the Social Inclusion Plan. It also specifies arrangements for participation of affected ethnic minorities and internally displaced peoples in the preparation and validation of monitoring, and evaluation reports.

Institutional Arrangement

This section describes institutional arrangement responsibilities and mechanisms for carrying out the various measures of the Social Inclusion Plan. It also describes the process of including relevant local organizations and/or NGOs in carrying out the measures of the Social Inclusion Plan.

Budget and Financing

This section provides an itemized budget for all activities described in the Social Inclusion Plan.

Annexure Six: Standard General Environmental Contract Clauses

Generic contract clauses are provided in this annex to assist with environmental and social management works expected to have minor impacts. These mitigation measures are the core of a generic, standardised EMP (Environmental Management Plan) and the associated minor impacts typical of small works which can be routinely addressed with best industry practice. These clauses are general and may be modified to conform to applicable national laws, contract procedures and actual scope and nature of the works anticipated. These clauses are intended to be included as requirements in the works contract and shall remain in force throughout the contract period. These clauses represent the minimum standard of execution for environmental protection and include:

1 Permits and Approvals
2 Site Security
3 Discovery of Antiquities
4 Worker Occupational Health and Safety
5 Noise Control
6 Use and Management of Hazardous Materials, fuels, solvents and petroleum products
7 Use and Management of Pesticides
8 Use of Preservatives and Paint Substances
9 Use of Explosives
10 Site Stabilization and Erosion Control
11 Traffic Management
12 Management of Standing Water
13 Management of Solid Wastes -trash and construction debris
14 Management of Liquid Wastes

Standard Clauses

1. Permits and Approvals

The contractor shall be responsible for ensuring that he or she has all relevant legal approvals and permits required to commence works.

2. Site Security

The contractor shall be responsible for maintaining security over the construction site including the protection of stored materials and equipment. In the event of severe weather, the contractor shall secure the construction site and associated equipment in such a manner as to protect the site and adjacent areas from consequential damages. This includes the management of onsite, construction materials, construction and sanitary wastes, additional strengthening of erosion control and soil stabilization systems and other conditions resulting from contractor activities which may increase the potential for damages.

3. Discovery of Antiquities

If, during the execution of the activities contained in this contract, any material is discovered onsite which may be considered of historical or cultural interest, such as evidence of prior settlements, native or historical activities, evidence of any existence on a site which may be of cultural significance, all work shall stop and the supervising contracting officer shall be notified immediately. The area in which the material was discovered shall be secured, cordoned off, marked, and the evidence preserved for examination by the local archaeological or cultural authority. No item believed to be an artefact must be removed or disturbed by any of the workers. Work may resume, without penalty of prejudice to the contractor upon permission from the contracting officer with any restrictions offered to protect the site.

4. Worker Occupational Health and Safety

The contractor shall ensure that all workers operate within a safe environment. Sanitation facilities shall be provided for all site workers. All sanitary wastes generated as a result of project activities shall be managed

in a manner approved by the contracting officer and the local authority responsible for public health. The contractor shall ensure that there are basic medical facilities on site and that there are staff trained in basic first aid. Workers must be provided with the necessary protective gear as per their specific tasks such as hard hats, overalls, gloves, goggles, boots, etc. The contractor shall provide the contracting officer with an occupational health and safety plan for approval prior to the commencement of site activities.

The contractor must ensure that all workers operate within a safe environment. All relevant Labour and Occupational Health and Safety regulations must be adhered to ensure worker safety. Sanitary facilities must be provided for all workers on site. Appropriate posting of information within the site must be done to inform workers of key rules and regulations to follow.

5. Noise Control

The contractor shall control noise emissions generated as a result of contracting activities to the extent possible. In the case of site locations where noise disturbance will be a concern, the contractor shall ensure that the equipment is in good working order with manufacturer supplied noise suppression (mufflers etc.) systems functioning and in good repair.

Where noise management is a concern, the contractor shall make reasonable efforts to schedule activities during normal working hours (between 8 am and 5 pm). Where noise is likely to pose a risk to the surrounding community either by normal works or working outside of normal working hours or on weekends, the contractor shall inform the contracting officer and shall develop a public notification and noise management plan for approval by the contracting officer.

6. Use and Management of Hazardous Materials, fuels, solvents and petroleum products

The use of any hazardous materials including pesticides, oils, fuels and petroleum products shall conform to the proper use recommendations of the product. Waste hazardous materials and their containers shall be disposed of in a manner approved by the contracting officer in accordance with national laws. A site management plan will be developed by the contractor if the operation involves the use of these materials to include estimated quantities to be consumed in the process, storage plans, spill control plans, and waste disposal practices to be followed. Any plans required shall be approved by the contracting officer.

Elements of the hazardous materials management shall include:

a. Contractor must provide temporary storage on site of all hazardous or toxic substances in safe containers labelled with details of composition, properties and handling information;

b. Hazardous substances shall be placed in an leak-proof container to prevent spillage and leaching

c. Wastes shall be transported and disposed of in a manner approved by the contracting officer compliant with national laws and policies

7. Use and Management of Pesticides

Any use of pesticides shall be approved by the contracting officer and shall conform to the manufacturers' recommendations for use and application. Any person using pesticides shall demonstrate that they have read and understood these requirements and are capable of complying with the usage recommendations to the satisfaction of the contracting officer. All pesticides to be used shall conform to the list of acceptable pesticides that are not banned by the relevant local authority.

If termite treatment is to be utilised, ensure appropriate chemical management measures are implemented to prevent contamination of surrounding areas, and use only licensed and registered pest control professionals with training and knowledge of proper application methods and techniques.

8. Use of Preservatives and Paint Substances

All paints and preservatives shall only be used with the approval of the contracting officer. Information shall be provided to the contracting officer who describes the essential components of the materials to be used so that an informed determination can be made as to the potential for environmental effects and suitability can be made. Storage, use, and disposal of excess paints and preservatives shall be managed in conformance with the manufacturers' recommendations and as approved by the contracting officer. The contractor shall provide the contracting officer with a list of materials and estimated quantities to be used,

storage, spill control and waste disposal plans to be observed during the execution of the contract. This plan is subject to the approval of the contracting officer.

9. Use of Explosives

Use of explosives shall be at the approval of the relevant local authority and shall be supervised and undertaken by a qualified explosives technician. Blasting will be limited to between the hours of 9:00 am and 4:00 pm unless specifically approved by the local authority and the contracting officer. Any use of explosives shall be permitted only after an explosives management and blasting plan has been approved by the relevant local authority and the contracting officer.

This plan shall include:

1. Description of the explosive agent, charge description, intended use.
2. Site safety plan including:
    a. Storage of initiators, booster charges and principal blasting agents
    b. Handling precautions to be observed
    c. Transport to and from site
    d. Security of stored materials
    e. Disposal of excess or damaged explosive materials.
3. Analysis of risk to surrounding area and mitigation measures to be employed including:
    a. Over-pressure event
    b. Noise
    c. Flying debris
    d. Seismic transmission
    e. Accidental detonation
4. Name and qualifications for all persons responsible for handling explosive agents

10. Site Stabilization and Erosion Control

The Contractor shall implement measures at the site of operations to manage soil erosion through minimisation of excavated area and time of exposure of excavated areas, preservation of existing ground cover to the extent possible, provision of approved ground cover and the use of traps and filtration systems. Where excavations are made, contractor shall implement appropriate stabilizing techniques to prevent cave-in or landslide. Measures shall be approved by the contracting officer.

The contractor must ensure that appropriate erosion control measures such as silt fences are installed. Proper site drainage must be implemented. Any drain clogged by construction material or sediment must be unclogged as soon as possible to prevent overflow and flooding. The use of retaining structures and planting with deep rooted grasses to retain soil during and after works must be considered. The use of bio-engineering methods must be considered as a measure to reduce erosion and land slippage. All slopes and excavated areas must be monitored for movement.

The contractor will establish appropriate erosion and sediment control measures such as hay bales, sedimentation basins, and / or silt fences and traps to prevent sediment from moving off site and causing excessive turbidity in nearby streams, rivers, wetlands, and coastal waters.

An erosion management plan will be required where the potential exists for significant sediment accumulation e in wetlands, lakes, rivers and marine systems. This plan shall include a description of the potential threat, mitigation measures to be applied, and consideration for the effects of severe weather and an emergency response plan.

If works are along coastal marine areas or near major steams and river, water quality monitoring must be done before construction, and at regular intervals to determine turbidity levels and other quality parameters.

Construction vehicles and machinery will be washed only in designated areas where runoff will not pollute natural surface water bodies.

11. Air Quality

When appropriate, the contractor shall provide an air quality management plan for contracting officer approval. This plan will include provisions for the management and control of dust and unnecessary

emissions resulting from construction activities. The plan shall include control measures to be implemented including the management of dust generated from transportation and site construction activities as well as excess emissions from vehicles and equipment. Under no circumstances shall site or roadway dusts be managed using oil spray techniques.

12. Traffic Management

In the event that construction activities should result in the disruption of area transportation services, including temporary loss of roadways, blockages due to deliveries and site related activities, the contractor shall provide the contracting officer with a traffic management plan including a description of the anticipated service disruptions, community information plan, and traffic control strategy to be implemented so as to minimise the impact to the surrounding community. This plan shall consider time of day for planned disruptions, and shall include consideration for alternative access routes, access to essential services such as medical, disaster evacuation, and other critical services. The plan shall be approved by the contracting officer.

Elements of the traffic management plan to be developed and implemented by contractor shall include:

a. Alternative routes will be identified in the instance of extended road works or road blockages;

b. Public notification of all disturbance to their normal routes;

c. Signage, barriers and traffic diversions must be clearly visible and the public warned of all potential hazards;

d. provision for safe passages and crossings for all pedestrians where construction traffic interferes with their normal route;

e. Active traffic management by trained and visible staff at the site or along roadways as required to ensure safe and convenient passage for the vehicular and pedestrian public;

f. Adjustment of working hours to local traffic patterns, e.g. avoiding major transport activities during rush hours or times of livestock movement.

13. Management of Standing Water

Under no circumstances shall the contractor permit the collection of standing water as a consequence of contractor activities without the approval of the contracting officer and consultation with the relevant local environmental health authority. Recommendations from that local authority on how to manage and treat the standing water must be implemented. The condition of the standing water must be monitored by the contractor to ensure that it does not present itself as a breeding ground for any pests such as mosquitoes.

14. Management of Solid Wastes and Construction Debris

The contractor shall provide a solid waste management plan that conforms to the national solid waste management policies and regulations for approval by the contracting officer. The site waste management plan shall include a description of waste handling procedures including collection, storage and disposal through the national waste management system. There will be no open burning of waste material and the contractor shall endeavour to recycle wastes as appropriate through the national waste management system.

Under no circumstances shall the contractor allow construction wastes to accumulate so as to cause a nuisance or health risk due to the propagation of pests and disease vectors.

15. Management of Liquid Wastes

The contractor shall provide the contracting officer with a liquid waste management plan as part of a site waste management plan that conforms to the waste management policies and regulations of the relevant Saint Vincent and the Grenadines authority. Under no circumstances shall the contractor allow construction related liquid wastes to accumulate on or off the site, or to flow over or from the site in an uncontrolled manner or to cause a nuisance or health risk due to its content. The site waste management plan shall include a description of how these wastes will be stored, collected and disposed of in accordance with

current law. Additionally the contractor shall provide for the regular removal and disposal of all site wastes and provide the contracting officer with a schedule for such removal.

Specific elements of the contractor's liquid waste management plan shall include: contractor to abide by all pertinent waste management and public health laws; waste collection and disposal pathways and sites will be identified for all major waste types expected from demolition and construction activities; construction and demolition wastes will be stored in appropriate bins; liquid and chemical wastes will be stored in appropriate containers separated from the general refuse; all waste will be collected and disposed of properly in approved landfills by licensed collectors; the records of waste disposal will be maintained as proof for proper management as designed; whenever feasible the contractor will reuse and recycle appropriate and viable materials (except asbestos); construction related liquid wastes must not be allowed to accumulate on or off the site, or to flow over or from the site in an uncontrolled manner or to cause a nuisance or health risk due to its contents.