

**Environmental Assessment Non Technical Summary (NTS)
for Feasibility Study of Upgrading the Section between
Samtredia and Grigoleti,**

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1. Introduction

The objective of current assignment according to the ToR of the contract with the Road Department is to prepare the Environmental Impact Analysis for the project in compliance with the Georgian legislation and with the IFI's Guidelines for Confirmation of Environmental and Social Considerations. In the frame of environment assessment preliminarily studies and evaluation was implemented. The aim of preliminary studies is comparison of project strategic alternatives (first of all route alternatives; also principal alternatives of technical decisions) and creation of principal version in view of environment. The second important goal is definition of assessment of content of environmental impact relevant of detailed designing stage, basic problematic issues and volumes of works.

2. Guiding principles/criteria used in the road corridor route selection process

The general principles or criteria used to identify the motor road route alternatives were based upon a wide range of multidisciplinary considerations that can be summarized as follows:

Environmental Considerations

1. Avoidance of environmentally protected areas, having regard for the Protected area system being established and implemented in Georgia. This includes areas defined as Strict Nature Reserves, National Parks (existing and proposed), Natural Monuments, Reserves, Protected Landscapes, Multi-Use Areas, Biosphere Reserves, and World Heritage Sites as defined by the Law of Environmental Protection;
2. Acknowledgement of environmental conditions deemed to be environmentally important or significant based upon knowledge provided by Georgian environmental specialists and local government authorities. This could include areas of significant fisheries, valuable water bodies; wildlife areas protected by law (e.g. IUCN Red List, Red Data List), wildlife areas recognized as having an important ecological function (e.g. migratory routes/ stop over sites) strategic mineral resources; concentrations of cultural heritage sites or monuments (classified as to sensitivity to motor road construction) , local agricultural drainage/canal systems, special land use constraints (e.g. military facilities or exercise ranges), important groundwater or surface water supply points etc.;
3. Avoidance of terrain conditions that present significant hydrogeological or geotechnical concern such as extensive wetland soils, avalanche or landslide areas, potentially unstable slopes for construction purposes;
4. Consideration of opportunities to minimize the environmental effects of road construction by optimizing the length of road route through good terrain conditions that will result in minimal impact considering both construction and operational impacts;
5. Consideration of potential direct or indirect environmental impacts as a result of motor road construction (e.g. downstream impacts to fisheries resources, water supplies, etc.);
6. Consideration of environmental requirements imposed by environmental legislation;
7. Consideration of social aspects and population interviews outcomes;
8. Assessment of Alternatives

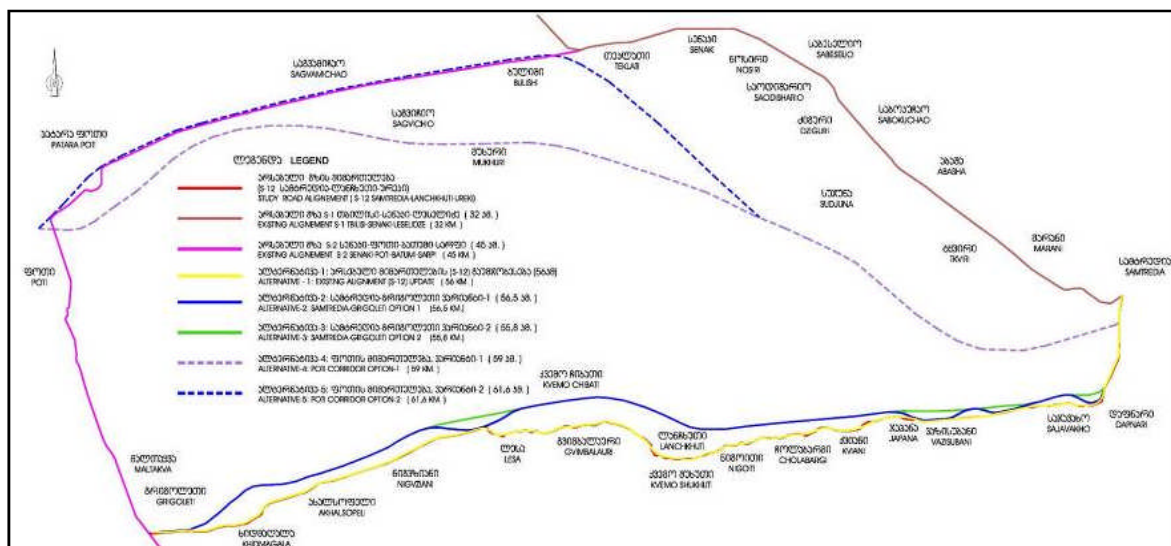


Fig. 1.1 Map of Proposed Alignment Alternatives

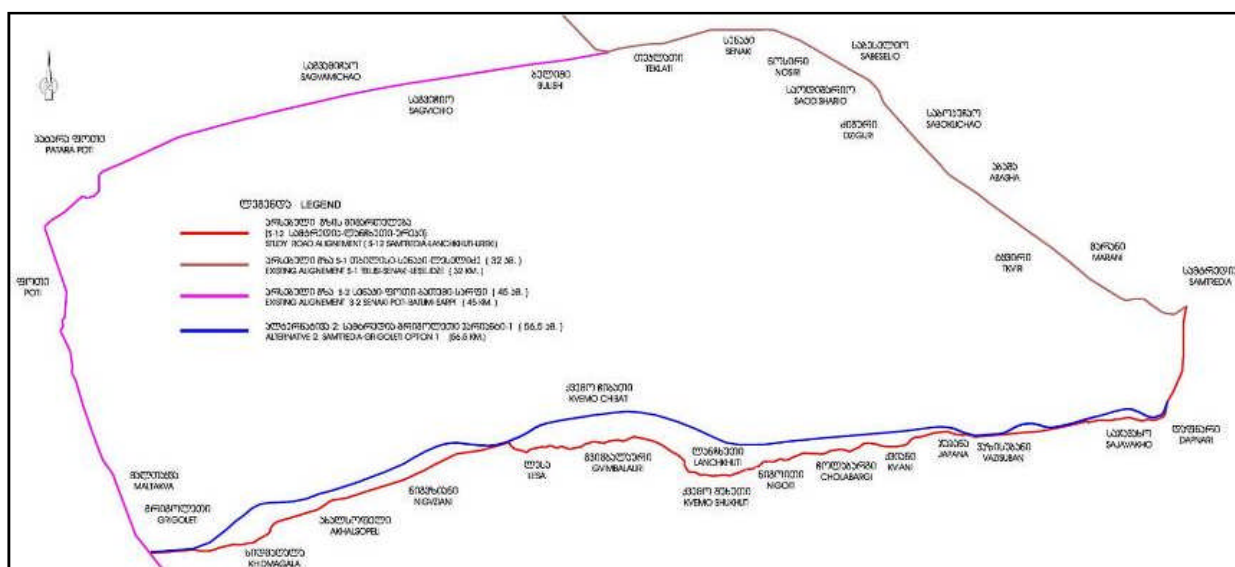


Fig. 1.2 Map of Selected Alignment Alternative

3. Environmental Baseline data

3.1 Physical-Geographic Conditions

The physical-geographic specifications of the region lie in the lowland and flat surface; equally moist and warm climate; abundant hydrologic networks, that is presented by slow rivers, marshlands and relict lakes; soils characteristic to moist ground and hydrographic vegetation. These characteristics of The Kolkheti Lowland are a result of newest geologic history and geographic location. It is known that the Kolkheti lowland is a former Black Sea bay that is full of river layers. It has formed during the last period of the quarter and it hasn't gone through significant changes during this historic time.

In the research territory climate is warm and humid. According to the data provided by meteorological stations in Poti, Zugdidi, Senaki and Samtredia the average yearly temperature is 13-14°. 4-5° is the coldest average temperature, the yearly amplitude of the average monthly temperature is 17-18. The yearly sum of atmospheric sediments are 1500-2300 milimeters. The Kolkheti lowland is under the influence of sea breezes that lowers the temperature in summer and increases the humidity of air.

The hydrographic network of Kolkheti lowland is bearing specific character as a result of geologic history of the newest past. The lowest central part of the lowland is the most humid, where the event of Black Sea water pooling is affecting the streaming. Tranquil and tortuous rivers characterize this area that flow in the downstream parallel to seashore. Also the area is characterized by lakes of river and sea origin.

3.2 Climate

The territory of concern is situated in the central part of the Kolkheti Lowland, where climate conditions characteristic to Kolkheti lowland are spread. The insignificant height of the territory, the proximity with the warm Black Sea, the frequency of penetration of warm air masses in all seasons causes the formation of humid subtropical climate here.

Compared to other areas of Georgia Kolkheti Lowland is under the highest influence of the Black Sea. Therefore winter here is warm and summer colder. Moreover, due to the existence of Caucasian Mountain Range the cold air masses from north have no direct access.

The durability of sunshine on the Kolkheti Lowland during the whole year is high and its average yearly size exceeds 2000 hours. The total size of radiation is 110-130 kilocalorie/cm² and the yearly radiation balance is approximately 60 kilocalorie/cm².

The hottest months in the zone are July and August and the coldest – January and December.

Atmospheric sediments that constitute one of the expansion elements of the climatic and hydrologic regimes in the area are abundant on the territory of concern. The yearly sum of the sediments on the territory of concern fluctuates between 1831 and 2305 mm-s. Moreover, the yearly pacing of sediments is characterized by a single minimum in April-May and in other months they are distributed almost equally.

3.3 The quality of atmospheric air

The quality of atmospheric air was assessed along the road and especially in the populated areas that were situated close to construction zones.

Given results in the Village Patara Poti (X 229455; Y 4676105)

Indicator of Concern	Measurement Unit	The amount allowed by the normative document (MPC)	Result	Normative Document Used
Dust	mg/m3	0.500	1.000	m.m #4436-87
Sulfur Dioxide	—	0.500	0.400	m.m #4588-88
Nitrogen Dioxide	—	0.085	0.080	m.m #4588-88

As it is clear from testing results, the dust consistency is higher than maximum permissible amount (at the village Patara Poti it is exceeding 2 times). These results are explainable by high anthropogenic activities. Sulfur Dioxide and Nitrogen Dioxide are under the maximum permissible level.

3.4 Landscape

The following section describes the landscapes found along the study road alternatives.

- From Samtredia to the Grigoleti (for all alternatives): Bogged places of the Kolkheti plain- Landscape 48 - plain-lowland accumulative landscape, with sphagnum bogs.

- Flat lowlands

Landscape 1 - flat lowland accumulative landscape, with bogged alder forests and at some places with sphagnum bogs.

- At more elevated places

Landscape 2 - plain-lowland accumulative landscape, with Imereti oak forests, at some places with evergreen undershrub.

- In the hill-mound zone

Landscape 7 - hill-mounds with erosive-denudative Kolkheti type hemigileias.

3.5 Kolkheti National Park

Kolkheti National Park is the most sensitive zone of all alternatives. It comprises marsh and wetland ecotopes. The National Park objective is to preserve the natural primary virgin swamped subtropical area. Therefore, this protected place is one of the most significant areas needing protection. Relief of the national park is flat and landscape differs from the landscapes of other Georgian and the Caucasian reserves. Swamped alder forests occupy about 340 ha. There is also wing nut – *Pterocarya pterocarpa*, *Quercus hartwissiana*, *Ficus carica* etc. Liana plants – *Hedera helix*, *Hedera colchica*, *Periploca graeca*, *Vitis vinifera*, *Smilax excelsa*, *Clematis vitalba* are distributed in the Colchic forests. Common reed, reed-sedges communities as well as coenoses typical for Colchic forests, formed by *Iris pseudacorus* are developed on excessively swamped territories. Swamp biotopes occupy 157 ha.

The following plants included into the Georgian “red data list” are distributed on the territory of Kolkheti National Park: *Pterocarya pterocarpa*, *Quercus hartwissiana*, *Ficus carica*, *Vitis vinifera*, *Molinia coerulea*, *Nymphaea colchica*, *Pancratium maritimum*.

Above this water and swamp plants communities of very rich composition are preserved in the national park. These places need special protection.

In the wetland zone of the Kolkheti protected area there are following communities:

- marsh
- water
- forest
- secondary meadow

3.6 Botany

The significant part of the territory covers inhabited areas and agricultural crops. Therefore natural vegetation has a character of fragmented distribution.

Ecophytocenotically vegetation the following formational versions of vegetation are presented here:

- Forest vegetation,
- Marshland and mesophilic fields,
- Marshland vegetation
- Water vegetation

Through the researches no rare, endangered or protected species of vegetation were discovered on the territory (for Alternative I).

The mesophilic and hydrophilic floroceno types here have no conservational value. These type of vegetation is widely spread in the Kolkheti lowland and belongs to the category of trivial ecosystem according to its structure and floristic composition.

As a result of field research of the target territory the impact of the construction activities on the existing vegetation cover will be insignificant.

3.7 Fauna

The following species of birds are spread in the fields:

Latin Names
Ardea cinerea
Circus aeruginosus
Falco tinnunculus
Tringa ochropus
Merops apiaster
Hirundo rustica , Delichon urbica
Motacilla flava
Passer domesticus
Oenanthe oenanthe
Corvus corone

Moreover in the forest near Nabada Settlement and river Rioni the following birds were noticed:

Latin Name
Botaurus stellaris
Ixobrychus minutus
Larus cachinnans
Accipiter nisus
Buteo buteo
Motacilla alba
Turdus merula

Although during winter much more species of birds could be found in this territory, they don't stop here for a long period of time. The reasons for this are degraded biotype, disturbance – the movement of people and means of transportation and hunting.

The number of nesting species between 20-30, these are mainly sparrow-like birds (source - publications: A. Abuladze, G. Edisherashvili, B. Eligulashvili, A. Bukhnikashvili, G. Bakhtadze).

Region is not rich with the animal species spread in the region. We can barely find wolvers, wild boar and other species of animals of the western Georgia. There are rare species of jackal, fox, badger, rabbit, marten, etc. Lizards, snakes, frogs and toads are spread.

3.8 Ichitio-fauna

There are several drainage canals in the territory most of which are of a collective type. The draining canals are of a closed type and are devoid of ichitio-fauna as all filtrated waters are. However, in some large draining canal one can find artificially bred crucian carp (Carassius auratus gibelio). In the draining canals that join river Rioni springer might enter for feeding purposes.

Apart from draining canals we take artificial canal into consideration that is laid in order to reduce the negative impact of Rioni of city of Poti in the first part of XIX century from the lower section of the river to the sea. In this artificial canal of Rioni we might find all those local fish

(small number) that live in the lower part of river. Therefore the canal that actually constitutes the branch of river Rioni is sensitive. The conduct of any kind of activity in this canal is forbidden till the end of August (the breeding period of fish). From the rivers of Western Georgia the Rioni river basin is the most diverse. It is the typical sturgeon river. The river is divided into three zones according to its eco-conditions and the ichthio-fauna spread there:

- From the start point of the Southern slopes of Caucasus till village Utsera. Only trout is spread in this section.
- From village Utsera till the beginning of The Kolkheti Lowland. The zone of fish feeding with benthos and water-plants. Here along with other fish we can find trout, but in fewer number.
- From the beginning of Kolkheti Lowland till the tributary. That covers the whole lower part of the River. This zone is for predator fish that feeds with benthos. There are 45 species and subspecies. Apart from local fish here one can find typical transient and semi-transient fish species.

The spillage of oil-products in the river system during the constructions in this zone might harm breeding places such of precious crossing fish as sturgeon-likes that use only this zone for breeding. Evidently, the breeding and feeding zones (main specter of nutrition is Zoo-benthos) of local ichthyo-fauna will also be damaged.

The motor-way from Lanchkhuti to the Sea (existing and I alternative) crosses the Kolkheti Lowland area. The ichthyo-fauna here is characterized with lowland nature and low speed of the flow. The river ground is sandy and silty. The significant part of the fish species belongs to the group of phytofils that produce small roe. The significant of plankton in fish nutrition increases. The predatory fish are introduced. In the river tributaries (specifically in Supsa) sea fish species occur.

In Rioni and its tributaries the species of different levels of endemism are found: Black Sea Roach (Rioni and Tskhenistskali tributaries), *Chondrostoma colchicum*, *Varicorhinus sieboldi*, certain species of Bullhead (*Gobio gobio lepidolaemus*) represent Kolkhic endemic specis, and *Nemachilus angorae* is an endemic species for South-western Asia. One of the sub-species of *Barbus* (*Barbus tauricus eschierichi*) – Kolkhic endemic species, that is found only in Rioni and its tributaries.

Hence, as it was shown above, in each zone the impact on ichthyo-fauna in case of emergency will be different. Therefore, the compensation of reproduction of such species as river trout, crossing sturgeon-likes, khramulya, etc should be ensured in advance and the reproduction centers should be formed.

3.9 Waste Management

After analyzing occurrence of possible wastes during the construction and exploitation of the motor-road, according to the types and hazard classes, as well as after assessing the possibilities of their accumulation and transferring the formation of the following wastes became possible:

- Domestic wastes
- Industrial wastes

Solid domestic wastes must be places in special containers and periodically moved to municipal landfills, or in special waste utilization pits.

For Sewage water there must be special cleaning pits that would be arranged according to the environmental and human health safety parameters and requirements. The removal of wastes

from these pits will be conducted periodically, or where possible local sewerage systems have to be used.

Industrial wastes along with non-hazardous wastes the formation of hazardous ones is also possible, for example changed worked-out oil, oil filters, cleaning materials polluted with oil products, worked-out filters, accumulators, etc. Its necessary to store these wastes separately, safely and according to requirements and to ensure its further stockpiling and recycling-regeneration (for example transporting it to the organizations having appropriate permit).

3.10 Archaeological, Historical, Cultural Resources

In order to describe archeological monuments and objects of cultural and historical importance situated in the corridor of the proposed alternatives of the highway section Samtredia – Grigoleti, and to determine their proximity from existing road (samtredia-Lanchkhuti-Grigoleti and alternative 1, not only published literature but also other sources have been used. It was determined, that for these two alternatives, from Samtredia till Grigoleti, there are 28 objects of archeological and cultural and historical importance.

Unfortunately, as it became obvious after overview of existing information, exact coordinates are known only for small part of these objects, and this makes difficult to determine their approximate location with regard to the highway route. We used the word “approximate”, because toponymes and hydronymes, usually used in the literature were of little help as landmarks for monuments, because they also are not shown on the maps.

4. List of general mitigation measures

During the construction of the motor road the following adverse impacts are possible:

- Direct habitat loss at ecologically valuable sites
- Habitat fragmentation and isolation
- Damage, mixing and loss of soils
- Possible erosion and landslides

An environmental Liaison officer should be appointed to oversee the implementation of mitigation measures during the construction activity. The duties should include: overviewing potential and actual effects of working procedures, instructing all site personnel on ecological requirements, supervising the post-construction monitoring program and highlighting any unforeseen ecological concerns.

4.1 Potential sources of environmental impact

During the construction of the motor road the most significant environmental impacts will be displayed during the construction processes. The information about the environmental impact of the construction activities is given in the table below.

4.1.1 Factors of Environmental Impact

Planned Activity	Factors of Impact
The transportation of the building materials, equipment and working force from the stock-piling base to the construction corridor	<ul style="list-style-type: none">• The proliferation of inorganic dust• Noise;• Dust;• The damage of local road cover• Formation of liquid and solid wastes (used accumulator, tires, oil);• The risk of spillage of fuel and oil;

	<ul style="list-style-type: none"> • Potential risks associated with the security of the population
Road construction activities, including all the activities connected with the road rehabilitation.	<ul style="list-style-type: none"> • The spread of inorganic dust; • Emissions • Noise • Vibration • The improvement of the road conditions (positive social impact);
The clearing of the construction corridor before activities start in order to ensure the safe passage of the transporting equipment	<ul style="list-style-type: none"> • The proliferation of the emissions in the air; • The proliferation of inorganic dust; • Noise; • Vibration; • Temporary loss of habitats; • Permanent loss of habitats in case if the rehabilitation of the previous conditions is impossible; • Temporary harassment of the local wild nature; • The potential risks to the security of the population; • Potential impacts on the local infrastructure;
The preparation of right-of-way corridors, that means the removal of the top-soil, ramming of the earth and construction of drainage systems if necessary	<ul style="list-style-type: none"> • The proliferation of the emissions in the air; • The proliferation of inorganic dust; • Noise; • Vibration; • Temporary loss of habitats; • Temporary harassment of the local wild nature; • Temporary loss of arable and pasture lands; • Potential damage to irrigation infrastructure; • Potential damage of access roads to private or lease lands
The work done by the heavy machinery for the construction	<ul style="list-style-type: none"> • The proliferation of the combustion products in the air • Noise • The formation of hazardous wastes
Land activities	<ul style="list-style-type: none"> • The proliferation of the combustion products in the air • Noise • Proliferation of inorganic dust
Restoration activities, including the demolition of the construction roads, restoration of the topsoil and sub soil, restoration of natural drainage systems and restoration of soil profile	<ul style="list-style-type: none"> • The storage of wastes
Fuel replenishment, including fuel replenishment of the construction equipment in the construction corridor	<ul style="list-style-type: none"> • The possibility of the spillage of fuels and oils on the ground or in the water (rivers, irrigation canals).
Hydro-testing, including the usage of sufficient amounts of water from the local water resources and water discharge	<ul style="list-style-type: none"> • The potential harassment of water supply and discharge sources; • The possibility of crop damage, if during hydro-testing in case of wrong discharge the water falls into the earth of small canal

The construction of on-ground buildings	<ul style="list-style-type: none"> • Proliferation of inorganic dust and combustion products • Noise • Temporary loss of habitats • Permanent loss of habitats • Temporary loss of arable lands • Permanent loss of arable lands
Formation of wastes, including all the fluid or solid wastes associated with the construction	<ul style="list-style-type: none"> • The possibility of pollution of surface and ground waters;
Construction activities and work places they create	<ul style="list-style-type: none"> • The probability of satisfaction with the work conditions; • The possibility of improvement of economic conditions

4.1.2 Types of Impacts and Mitigation Measures

Receptors/Potential Damage	Recommended Avoidance and Mitigation Measures
<p>The destruction of flora, fauna and their natural environment</p> <p>Proliferation of plural weeds species;</p> <p>Changes in population structure (temporary, as well as permanent);</p> <p>Destruction or fragmentation of natural environment as a result of on-ground construction and demolition of temporary or permanent facilities;</p> <p>The cutting down of the trees in the forest zone of the route;</p> <p>The harassment of the representatives of fauna by the noise and vibration;</p> <p>The destruction of biodiversity as a result of degradation of the stock-piled top-soil;</p>	<p>The proportion of compensating planting of the cut-down trees is determined after the consultations of appropriate regulative bodies – the representatives of the Forestry department. For the compensating purposes only those trees will be planted that represent the local flora. Along the road ... endemic and local species of flora will be planted. The working schedule will be planned so that to minimize the damage to the representatives of fauna (including the ichthyo-fauna).</p>
<p>Soil Damage</p> <p>The destabilization of the topsoil, from where the vegetation was removed.</p> <p>The loss of soil fertility as a result of stockpiling.</p> <p>The reduction of soil volume due to erosion and movement/transportation.</p> <p>The loss of seed bases as a result of stockpiling.</p> <p>The pollution of soil during the stockpiling.</p>	<p>Determination of method (method determination for ecologically sensitive areas, sources). For each anti-erosive and restoration activities the inspection plans will be developed and inspection notes will be made. For the right-of-way this kind of plans are called erosion, emission control and restoration activity plan. For the means it is called erosion, emission control and landscape plan.</p> <p>Along the right-of-way the topsoil has to be stabilized.</p> <p>Restoration activities must be conducted according to local conditions – sensitivity of</p>

	the territory, soil erosion and ecologic situation.
The Destruction of Property of the third Person	Along the whole territory of ... corridor permanent restoration plan will be realized considering local conditions – land usage, crops, soil condition and topography.
The damage inferred to agriculture	
<p>Crossing of Streams</p> <p>The increase of silt in rivers and water reservoirs due to the wastes discharged from the construction.</p> <p>The drainage structures connected with the steep slopes might damage local above hydrological regime of streams and rivers, because the level of water will increase significantly</p>	<ul style="list-style-type: none"> • The construction of crossings during the minimal loss of water in the streams, if the construction schedule allows it. • Minimization of construction duration on the riverbeds. • Construction of crossings in accordance with the principles of the environment management plan. • Segregation of the surface materials of the riverbed (streams with gravel riverbeds, separation of sediment layer from gravel) for further filling in. • The stockpiling of the topsoil and subsoil must be done at a minimal distance of 25 meters. • During the construction of the crossing the digging out of the streambed will be last and will be filled in first. • The realization of erosion and sedimentation measures on the both sides of the shore, in order to avoid the falling of sediments in the water and before starting revegetation for the stabilization of the shores. • The streambed must be restored to its primary condition wherever it is possible • During the restoration all precautionary measures must be taken into consideration in order to maintain natural draining systems. • All possible measures will be taken to ensure fish movement up-stream as well as down-stream. • Procedures that ensure the parameters of tubes and drains are suitable to passing of average run-off downstream. The passing of water should be on the same nominal level of marking in order to avoid big amount of cascading spillage of water from tubes and canals. • The construction of streams so that the damage to ichthyofauna is minimized. This requires: • Ensuring the continuity of stream by throwing the water stream away from main canal. • The realization of sediment control

	<p>measures, that imply usage of straw edges. The construction sedimentation pods according to river characteristics and seasonal conditions.</p> <ul style="list-style-type: none"> • Prohibition of fuel replenishment and other polluting activities near the river.
<p>Landscape violation and Visual Impacts</p> <p>The decrease in landscape quality due to construction and/or restoration activities.</p> <p>The decrease in visual receptors due to construction and/or restoration activities.</p>	<p>Wherever possible, conducting restoration activities until the restoration of natural profile.</p>
<p>Air Pollution</p> <p>Construction machinery and mechanisms, etc.</p> <p>Pollution of air with emissions</p>	<p>The emission control of construction technologies and means of transportation are taken into consideration. In case of exceed usage of pollutants the exploitation of the machinery will be prohibited until their technical conditions will be satisfactory.</p>
<p>Accidental damage of archeological monuments during construction activities</p>	<ul style="list-style-type: none"> • On the archeologically sensitive zones archeological researches have to be conducted before the construction starts. • During the construction qualified field officer must be engaged in the activities, who will make decisions about halting the construction in case of discovery of the archeological monument and will immediately contact the monitoring service of the corporation.

The aim of the environment protection and pollution reduction measures during the construction activities must be the minimization of negative impacts.

5. Alternatives

5.1 Environmental assessment of Alternatives

The modernization corridor of automobile road on the Samtredia-Grigoleti territory is situated within the borders of the accumulative relief of Kolkheti Lowland. Its main part lies on the left bank of Rioni. The only exception is the first 5 kilometres of the Samtredia road section, where the road lies on the right bank grove if the river Rioni. From geomorphologic point of view the major part of the road section is optimal for the projection. The situation is complicated in the place where the project route line comes close to the riverbed of Rioni and where the road has to cross certain marshlands.

Within the borders of the automobile road upper Pilocenti-holocentic River and sea-river sediments, where clay facies, glei podzol facies in the marshlands are dominating, construct the territory. They are characterized with high draining and deformation. Therefore a big amount of sub-base will be needed during the road construction because this soil will be put on the marshy territories.

Other Alternatives (Alternative 2 and 3 Existing Northern Road)

As it was described in previous chapters the territory for other alternatives to be conducted is really different from the geological as well as from the point of view of flora and fauna

composition. However several hyper sensitive territories have to be mentioned, that will be discussed below.

In the southwestern part of Abasha region there is Kabotsuri reserve, which is founded in 1996 and its whole area is 295 ha. In the territory of the reserve there were forests of the Kolkhian type, specifically elder groves, sections of ashen, chestnuts and hornbeam trees. The territory represents the part of the Kolkheti Lowland where primary and kolkhety type habitats are completely changed due to meliorate activities conducted in previous years. As a result of the removal of forest covers and drying of the marshlands the territory of the reserve was transformed into agricultural land. After the formation of Katsoburo (the primary state hunting land) reserve along with the fencing of the territory and artificial planting of the forests the moist alder groves appeared here once again. Nowadays there are well-developed secondary elder grove forests on the territory.

Nowadays reserve is isolated from the Rioni flow although river Rioni causes damage to the territory during floods. This requires the conduct of shore protective activities.

The ground waters, the level of which reaches the surface and creates marshes, are important for the development of vegetation cover. Therefore the reserve represents highly moist ecosystem with the elements of Kolkhic flora. A lot of species of birds are living, nesting and staying here, among them the otter entered into the "red list" of Georgia.

Hence it follows that the reserve territory is a significant habitat for the many species of animals, for example for the otter and for the migrating birds. Although the locating of the automobile road is planned on the right side of the river Rioni of reserve territory according to one of the versions, it is advisable to review other alternatives, which eliminate even the mere impact on the protected territory.

The conduct of all the alternatives discussed here is eventually planed on highly sensitive territories, especially in the delta of river Rioni and near the protected territories of Kolkheti. This is risky from the point of view of impact on the protected territories.

As a result of the studies for preparing compensational package of potential limitation of the water abundant territory of central Kolkheti about the implementation of the project "Sea Terminal in the Tributary of River Khobistskali for Transporting Oil products", the compensative territories were offered, from which the territory to south-east of Nabada zone the so called Etsera-dikhagubua territory was included into the Kolkheti National Park. The declaring of Anaklia (389 ha territorial + 124 ha sea), Maltakva (646 ha), the lakes of Narionali (431 ha) as protected territories and inclusion of the Rioni tributary (984 ha) in the Kolkheti National Park was also suggested but it's not decided yet.

The highly moist territory of Dikhagudzuba-etsera is situated 12-15 km to the south-east from the tributary of river Khobistskali. The territory is the continuation of the eastern part of Nabada peat bog. It borders with Poti-Senaki automobile road and railway from the south and with the artificially straightened riverbed of river Tsiva from the north. From the west the moist territory of Dikhagudzuba-etsera is bordering with the moist territory with international significance that is situated on the eastern shore of the sea marshes of Nabada. The cultural (agricultural) landscape is found to the east of moist territories of Dikhagudzuba-etsera.

From the landscape point of view, the marshy elder groves, secondary moist fields and insignificant lands of marshlands significantly alter the Dikhagudzuba-etsera territory. The surface of the territory is flat. Its height does not exceed 2.5 meters. This territory is saturated with water due to its moist climate. From its surface small streams of water flow to the Nabada marshlands. River Tsia also feeds from this territory, the riverbed of which is artificially straightened. Therefore, Dikhagudzuba is a natural buffer zone, it borders with the Ramsar protected Nabada peat bog land and marshy forest.

From the ornithological point of view the tributary of river Rioni can be classified as a territory with high (on the local level), high-intermediate (on the national level) and intermediate (on the international level) ornithological value.

The river tributary with nearby shore-waters and shoals represents the part of moist territories of Kolkheti – the most important moist territory in Georgia from the ornithological point of view and one of the most important moist territories in the South Caucasus and in the southern part of the Black Sea Region. These territories are characterized by high diversity of birds, approximately 120 species including vulnerable and endangered species.

This is the well-known “Bottle neck” for migrating birds: especially important migrating route (corridor) and feeding territory for migrating predators, water birds, etc. This route is known as “the eastern migrating route of the Black Sea”. It transits the nesting populations of birds from Scandinavia, European part of Russia, Ural region, western Siberia and Northern Caucasus to the wintering places in the near east, Mediterranean region and eastern Africa.

Apart from the above statements the in case of realization of these alternative routes the rivers and waters streams will have to cross in far more sensitive zones (riv. Tskhenistskali, Nogela, Abasha, Tsivi, Main canal, Rioni, Kaparcha, small streams), which will have great impact on the environment, including ichthio-fauna, especially in case of rivers that are included in the “Red List” of Georgia.

Hence it follows from the above that the implementation of these alternatives is unacceptable from geological as well as environmental perspective because the route versions will impact on such sensitive territories as Kolkheti National Park, The territories selected according to Ramsar Convention and habitat places for wild animals including migrating birds.

Table below summarizes the environmental assessment.

5.1 Environmental Evaluation of Alternatives

Environment	Existing S-12 Corridor	Samtredia Griguleti		Samtredia to Poti	
		Option 1	Option 2	Option 1	Option 2
Impact on Flora and Fauna	low	medium	medium	high	high
Protected areas	low	low	low	high	medium
Sensitive sites	low	low	low	high	high
Generation of hazardous geological processes	low	low	low	medium	medium
Surface water objects	medium	medium	medium	high	high
Land area (length of the road in km)	Low	low	low	medium	High
Reduction of agricultural areas	low	high	high	high	high
Demolition of house hold	high	low	low	medium	medium
Noise and air pollution	High	low	low	low	low
Scoring					
Impact on Flora and	+	O	O	-	-

Fauna					
Protected areas	+	+	+	-	O
Sensitive sites	+	O	O	-	-
Generation of hazardous geological processes	+	+	+	O	O
Surface water objects	O	O	O	+	+
Land area (length of the road in km)	+	+	+	O	-
Reduction of agricultural areas	+	-	-	-	-
Demolition of house hold	-	+	+	O	O
Noise and air pollution	-	+	+	+	+
Score	4	4	4	-2	-2

* The impact of the alternative 1 on the sensitive sites is considered to be neutral due to the changes in routing

- = -1; O = 0, += +1

5.1.1 Conclusion

Southern alternative alignments score higher than the Poti corridor options and are preferable. Improvements to the existing alignments would have the least impact on environment, however, will come with considerable impacts on the human and build environment.

5.2 Social assessment of Alternatives

5.2.1 Alternative analysis

The conducted survey revealed the circumstances, which may have a significant impact upon the social-economic status of the project impact area and this must be considered during Detailed Design in order to avoid or minimize the negative impact.

5.2.2 Impact on Public Infrastructural Facilities

Most of the public infrastructural objects (administrative building, school, dispensary, etc.) are located along the existing road.

The new alternatives will have an impact on the agricultural land drainage system of Lanchkhuti region (which is partially rehabilitated under the World Bank project). No impact on any other public infrastructural objects by the new alternatives is expected.

At the design phase, maximum attention should be paid to arranging the convenient system of passages and stations so that the existing means of communication and the access of the population in the region to the local vitally important roads are not limited. At the stage of design, developing the convenient junctions connecting to the new alternatives in the city of Lanchkhuti and other settled areas (in case they are realized) should be envisaged, as well.

Supsa territorial unit
(Lanchkhuti region).

Arranging at least 4 passages (2 in Akhalsopeli, 1 passing towards Basileti, and 1 at the power distribution sub-station (KP-50);

Nigvziani territorial unit (Lanchkhuti region).	At least 5-6 passages near the existing passages
Lesi territorial unit (Lanchkhuti region).	Arranging 2 passages near the existing passages near the existing passages;
Jurukveti territorial unit (Lanchkhuti region).	Arranging 3 passages (towards Jurukveti pastures, vill. Etseri and Baglebi cornfields, Chavleishvilebi's area)
Chibati territorial unit (Lanchkhuti region).	Arranging at least 4 passages: in the villages of Kvemo Chibati, Zemo Chibati, Chala, as well as at the border of village Lesi;
The territorial unit of the city of Lanchkhuti (Lanchkhuti region).	Arranging the passages by considering the structure of the existing road.
Gvimbalauri territorial unit (Lanchkhuti region).	Arranging at least 3 arranging passages near the existing passages;
Shukhuti territorial unit (Lanchkhuti region).	Arranging at least 2 passages: in Kvemo Shukhuti and Zemo Shukhutshi;
Nigoiti territorial unit (Lanchkhuti region).	Arranging at least 6 passages: in village Japana, the Nutsbidzes' and Mshvidobadzes' passage (in village Chkonagora), the Ormotsadzes' passage (in village Cholabargi) and in Nigoiti (these passages will also serve the population of villages Atsana, Aketi, Chanchati and Mamati);
Tolebi territorial unit (Samtredia region).	Arranging at least 3 passages: approximately at KP-10, KP-11 (at Korei district), KP-12 (at village Vazisubani).
Sajavakho territorial unit (Samtredia region).	Arranging at least 3 passages: at Railway Station, near school and on the riv. Tkilnara.
Gomi territorial unit (Samtredia region).	Arranging of passages should be specified in the process of detailed designing (approximately will be needed 2-3 passages).

The public meetings also revealed that the residents of the project impact area use the riverbeds for cattle grazing, and therefore, the riverbeds are desirable to preserve and improve (by laying a storm sewage of a proper capacity to protect them against the seasonal flooding).

The new alternatives may divide most of the owners' plots in two what will necessitate new access roads.

The possibility of the proposed alternatives coming in contact with the following objects of public infrastructure is also to be considered:

In Supsa territorial unit (Lanchkhuti region), the new alternatives will be crossed by high-voltage lines (at about P50, where there is also a power distribution sub-station located) and Supsa oil pipeline;

In Nigvziani territorial unit (Lanchkhuti region), the new alternatives will be crossed by a high-voltage line (at village Khajalia);

Lesia territorial unit (Lanchkhuti region), the new alternatives will be crossed by a high-voltage line;

The territorial unit of the city of Lanchkhuti (Lanchkhuti region). There is a stadium.

Shukhuti territorial unit (Lanchkhuti region). There is a high-voltage line and power distribution units (at village Shukhuti);

Nigoiti territorial unit (Lanchkhuti region). The gas mains crosses all alternatives and the waterline crosses the existing road in the vicinity of village Kviani. There is a high-voltage line and power distribution units (along the railway and existing road). There is a territory owned by the Ministry of Defence between Nigoiti and Shukhuti (over 115 ha);

Tolebi territorial unit (Samtredia region). There is a Supsa oil pipeline, a gas pipeline supplying the asphalt plant (at about KP-10), and a communication line (along the railway and existing road). There is also a stadium (at village Vazisubani).

Sajavakho territorial unit (Samtredia region). There is a Supsa oil pipeline, a gas pipeline supplying the asphalt plant (at about KP-10), and a communication line (along the railway and existing road), school, power supplying units.

Gomi territorial unit (Samtredia region). Nearby of existing road there is a school of the village Dafnari.

Table 5.2.1. Impact of the project alternatives on public infrastructure

Existing Road			
	Lanchkhuti	Samtredia	Total
Channel	170	1	171
Road	95	22	117
Bridge for cars	1	0	1
Railway	0	1	1
Railway Bridge	0	0	0
Communications	1	0	1
Total	267	24	291
Samtredia – Griguleti Option 1			
	Lanchkhuti	Samtredia	Total
Channel	164	2	166
Road	92	16	108
Bridge for cars	1	0	1
Railway	0	1	1
Railway Bridge	0	0	0
Communications	1	0	1
Total	258	19	277
Samtredia – Griguleti Option 2			
	Lanchkhuti	Samtredia	Total
Channel	32	4	36
Road	236	64	300
Bridge for cars	17	4	21
Railway	22	5	27
Railway Bridge	10	1	11
Communications	0	1	1

Total	317	79	396
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5.2.3 Historical/Cultural Monuments

No significant impact on famous cultural or historical-archaeological objects by the new alternatives is expected. However, the following surroundings should be taken into account:

North of the city of Lanchkhuti (Lanchkhuti region), there is a (new) cemetery, in whose vicinity the new alternatives will pass having a possible impact on the cemetery and arranging an access road may become necessary.

In Tolebi territorial unit (Samtredia region), there is the Korei Virgin Mary's Church and a cemetery near it near the new alternatives. Therefore, arranging an access road to it may become necessary.

The St. George Church of Nigoiti and other monuments of different significance are located near the existing road.

The fact that during the construction of Supsa oil pipeline, there were archaeological expeditions working near village Grigoleti and village Cholabargi in the late 1980s having found interesting objects is to be considered. In the vil. Dapnari is expected impact on ruins of Virgin Mary's Birth Church, which are underground now.

Table 5.2.2. Impact level of Project Alternatives on cultural or historical-archaeological objects (Assessments established during public consultations)

Alternative 1			
	Lanchkhuti	Samtredia	Total
Assessment	L	L	L
Alternative 2			
	Lanchkhuti	Samtredia	Total
Assessment	L	L	L
Alternative 3			
	Lanchkhuti	Samtredia	Total
Assessment	M	L	M

Note:: L -Low, M-Medium, H-High

Alternative 1 and 2 new alignment, Alternative 3 existing alignment (See pic 1.1)

5.2.4 Impact on socio-economic activity

In Lanchkhuti district, in the opinion of the public meeting participants, the impact of the proposed alternatives on the social-economic activity of the population will be positive generally, if the priority is given to the new alternative. In such a case, small business functioning along the existing road will not be subject to any damage, as they mainly serve the local population.

In the opinion of participants, widening of the road is not reasonable, as the project will come in touch with many public infrastructural objects, as well as residential houses of many residents and their personal plots what will even more aggravate even so severe safety and environmental problems along the existing road.

In the territorial units of Tolebi, (Samtredia district) participants preferred new alternatives. However, as for participants of Sajavakho and Gomi territorial units could not prefer any alternatives explicitly.

In the territorial units of Sajavakho and Gomi widening of the road will cause great impact on residential plots, and new alternatives can impact agricultural lands. Herewith, in Sajavakho and Gomi territorial units due to often rising of riv. Rioni significant areas are flooded, that in opinion of local population requires creation of effective system of storm sewage of proper capacity them against seasonal flooding.

As within the project impact area, the principal branch of agriculture is cattle breeding, the meeting participants think it purposeful to fence the modernized motorway with barriers to prevent the cattle from getting on the road.

5.2.5 General attitude to the project

The general attitude of the public meeting participants to the road modernization project is positive, except Gomi and Sajavakho territorial units everywhere are preferred new alternatives, as generally more beneficial and reasonable. In Sajavakho and Gomi territorial units any alternatives has not been preferred explicitly.

5.2.6 Conclusions

The results of the qualitative and quantitative study at hand at the moment demonstrate that new alternatives, which in general are given in the table 5.2.6 - are preferred as generally more beneficial and reasonable, are preferred by considering the above-mentioned remarks.

Table 5.2.6 Evaluation of Alternatives Impact Level

	Samtredia-Griguleti Option 1	Samtredia-Griguleti Option 2	Existing Alignment
Impact on Public Infrastructure	L	L	H
Impact on Socio-economic environment	L	L	H
Impact on historical and cultural objects	L	L	M
Impact on residential plots	L	L	H
Impact on agricultural lands	H	H	L

Note: L-low, M-medium, H-high

Considering the above mentioned conditions and also based on additional engineering/technical studies and economic calculations the final version of road alignment was designed (pic. 1.2), which will be addressed below from the point of view of land acquisition and resettlement.

Herewith, choice of new alternatives stipulates development of significant complex of mitigation measures, which should consider effective system of passages and stations, rest areas, access to local roads. Also are possible, additional inner access roads to ensure easy accessibility to agricultural lands, also effective system of storm sewage of proper capacity against seasonal flooding (especially in Gomi and Sajavakho territorial units) and to improve drainage system for proper functioning.

6. Social Study

6.1 Introduction

The study included a social impact assessment and analysis of the alignment alternatives for selection of preferred alignments and identification of the social impacts caused by the proposed interventions.

As specified in the chapter about Alternatives, several alternatives were investigated in the initial stage of the study and upon scrutiny with the community along the road, and on consideration of engineering, environmental, land use, and financial feasibilities, alignment alternatives with six bypass options have been preferred for further evaluation to select the best option for upgrading the road section.

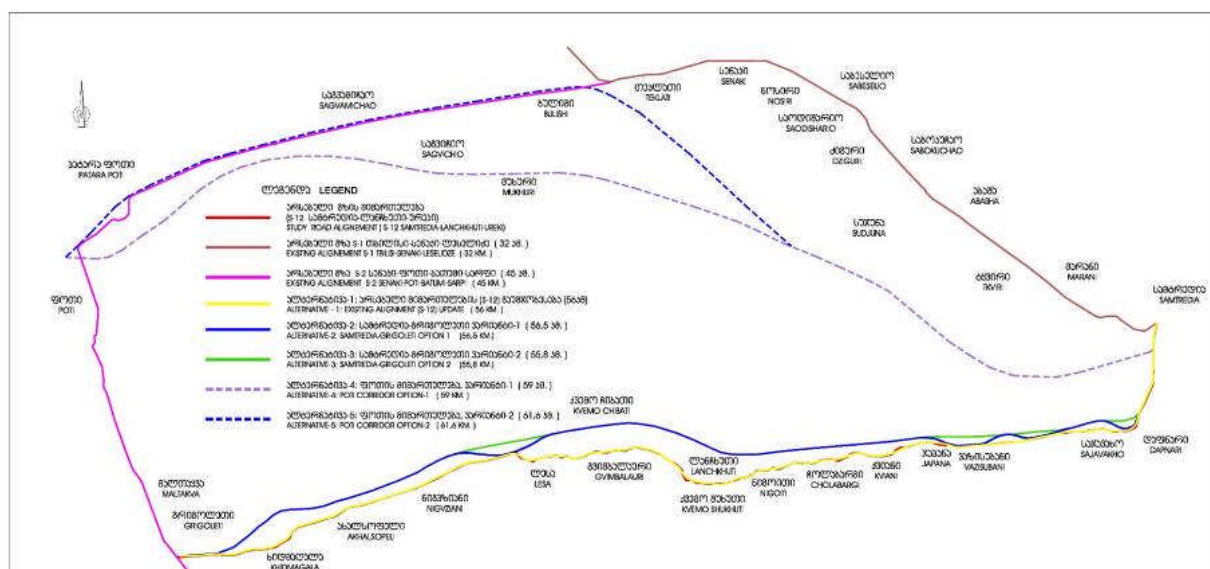


Fig. 1.1 Map of Proposed Alignment Alternatives

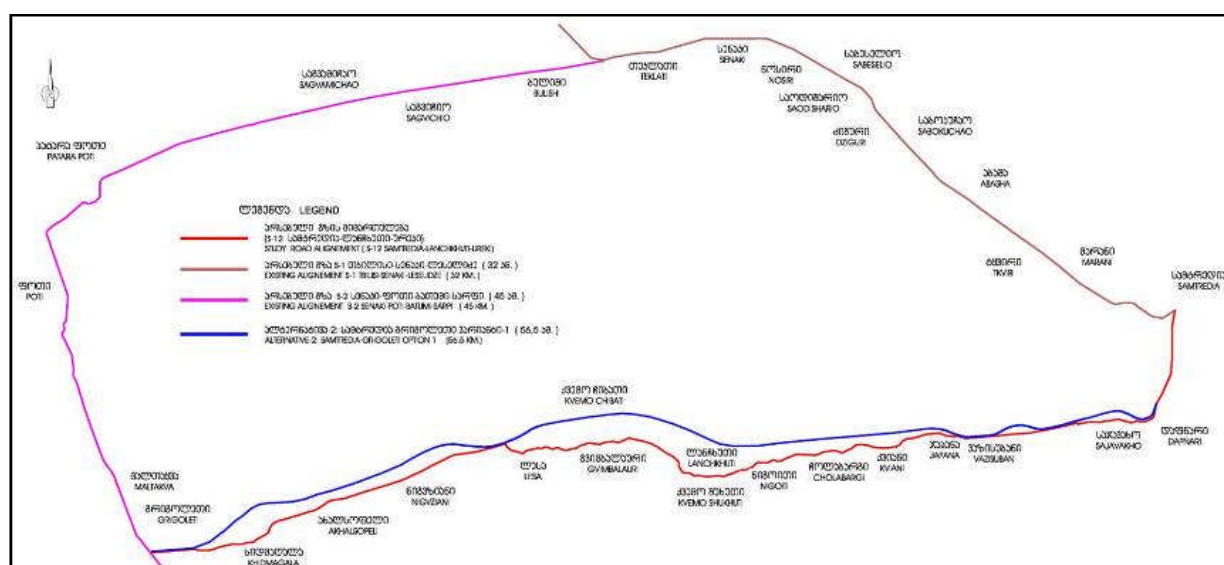


Fig. 1.2 Map of Selected Alignment Alternative

6.2 Research Approach and Tools

The investigations of potential impacts in pursuing the various alignments which are being considered in the Samtredia-Grigoleti Project involve the following methods and approaches:

- Site visit and observation
- Key informant interview
- Public consultation meetings
- Households survey

6.2.1 Public Meetings and Key Informant Interviews

Public meetings were conducted to determine general reactions and attitude of local officials/leaders and key informants about the project and proposed alignment alternatives for rehabilitation of the Samtredia-Grigoleti highway section. Focus group discussion focused primarily on the following issues and objectives:

1. Identification of social infrastructure units along the proposed road alternatives, their importance at the rayon/sakrebulo level and estimation of expected impacts of corresponding alternatives upon them.
2. Identification of cultural, historical, archeological and ritual objects along the proposed road alternatives, their importance at rayon/sakrebulo level and assessment of expected affect of corresponding alternatives upon them.
3. Clarification of common attitude towards proposed alternatives (positive or negative)
4. Assessment of proposed alternatives total impact upon socio- economic activities (positive or negative) at the rayon/sakrebulo level.

During the public meetings, the participants were also provided with all necessary information concerning project. Public meetings and consultations included representatives from raional and sakrebulo/ territorial entity administering levels within the proposed alternative impact areas.

6.2.2 Sample Households Survey

A survey of selected households using the random-sampling technique was carried out along the built-up area of the various alternatives alignments. A special questionnaire was developed for household survey and applied during the face-to-face interviews with households' heads. Interviews were undertaken by experienced interviewers, who had been instructed beforehand for better understanding of the nature and details of the investigation.

Table 6.2.2 Household survey quotas in the settled areas

	Selection quota
Imereti Region	
Samtredia region	
Tolebi Sakrebulo	
Vazisubani	10
Guria Region	
Lanchkhuti region	

Sakrebulo of the city of Lanchkhuti	
The city of Lanchkhuti	10
Shukhuti Sakrebulo	
Kvemo Shukhuti	10
Gvimbauri Sakrebulo	
Gvimbauri	10
Nigvziani Sakrebulo	
Khajalia	10
Nigoiti Sakrebulo	
Cholabargi	10
Japana	10
Chibati Sakrebulo	
Kvemo Chibati	10
Supsa Sakrebulo	
Akhalsopeli	10
Grigoleti	10
Total	100

Sampling design followed a three-step procedure. At the first stage, the settlements located within the close vicinity of the alternatives to be investigated were selected. At the second stage, from among the previously selected settlements, a proportionate number of households were quoted. At the third stage of sampling, interviewers using the randomization procedure following the random walk method with a fixed step (every 3 households) selected the household to be included in the sample coverage.

The whole survey was conducted in 2 rayons (Zestaphoni and Kharagauli) and involved 100 households (Table 6.2.2).

6.2.3 Analysis of Cadastral Data

Analysis of cadastral data has been implementing by using of official cadastral data of Samtredia and Lanchkuti districts. By comparison of the base of cadastral data and project alternatives outline has been established complexity of the impact parcels coming in contact with proposed alternatives and their primary cadastral attributes. Unfortunately, existing cadastral data cannot allow us the possibility of detailed analisys due to its old age and less quality.

6.3 PROJECT IMPACT AREA

6.3.1 Regional Context

Alternative alignments envisaged by the Project pass through the four territorial units of Imereti Region, including city of Samtredia and villages Gomi, Sajavakho and Tolebi of Samtredia District, as well as through the ten territorial units of Guria Region comprising city of Lanchkhuti

and villages Chibati, Gvimbauri, Jurukveti, Lasi, Nigoiti, Nigvziani, Ninoshvili, Supsa and Shukhuti of Lanchkhuti District.

Non-agricultural industries of Samtredia and Lanchkhuti Districts are mainly represented by small and medium-sized commercial and service companies. Specifically, as for the end of 2009 conditions, the selected project alternative (ref. to Fig. 12) enters into contact with 11 and 5 businesses in Lanchkhuti and Samtredia Districts respectively, i.e. in total its direct impact is extended over 16 business-units. In average 4 employees are occupied in each of these businesses. In addition, the roadside trade also exists within the Project Impact Area (PIA).

The agricultural sector of Samtredia and Lanchkhuti Districts in general comprises small individual farms. Population of these districts pursues conventional agricultural activities suitable to the mainly humid-subtropical climate prevailing in Imereti and Guria Regions. The major agricultural industries include as the plant cultivation, so livestock farming that is particularly widespread in Lanchkhuti District.

6.3.2 Socio-economic Profile of PIA Population

Socio-economic profile of the population living in the Project Impact Area has been drafted based on results of the sample survey. The major socio-economic parameters of the Project Impact Area do not differ significantly by districts (Samtredia and Lanchkhuti). Therefore, the data provided below are applicable to the whole area falling under impact of the Project.

6.3.2.1 Demography, Education, Employment

In average, 4.9 members reside in the each household of the Project Impact Area. Average numbers of children (under 15 years old), adults (15-65 years old) and elder persons (above 65 years old) per household are 1.1, 3.1 and 0.7 respectively. The numbers of males and females are almost equal. (ref. to Table 6.3.2.1).

Table 6.3.2.1 Age and sex composition of the households

As shown in Table	Age group	Members per household			in
		Male	Female	Total	
	Children (<15 years)	0.5	0.6	1.1	
	Adults (15-65 years)	1.6	1.5	3.1	
	Elders (>65 years)	0.3	0.4	0.7	
	Total	2.4	2.5	4.9	

Source: Survey conducted by Kocks in 2009 fall

6.3.2.2, which gives distribution of the householders by sex and age, 89% of the surveyed families are headed by males, whose average age is 59 years. The female householders are rather older with average age of 68 years. In 92% of the households the heads are Georgian, in 7% - Armenian and in remaining 1% - of other nationalities.

Table 6.3.2.2 Distribution of the householders by sex and age

Sex, %	
Males	89
Females	11
Average age, years	

Males	59
Females	68

Source: Survey conducted by Kocks in 2009 fall

About 9% of the population (family members) living within the Project Impact Area is composed by preschool and primary school age children. Other part of the population is characterized by the various education levels (ref. to Table 6.3.2.3)

Table 6.3.2.3 Distribution of the population by education levels

In	Education Level	%		
		Males	Females	Average
	Preschool or primary school aged	15%	18%	17%
	Primary	44%	45%	44%
	Secondary	12%	13%	12%
	High school	19%	17%	18%
	University	15%	18%	17%
	Total	100	100	100

Source: Survey conducted by Kocks in 2009 fall

average PIA household, the age of 3.8 family members is higher than 15 years. From these, 0.8 members are economically inactive, 0.5 – employed, 2.1 – self-employed, and 0.9 consider themselves as unemployed.

Table 6.3.2.4 Economical activeness of the family members older than 15 years

	Number of members per household		
	Males	Females	Average
Economically active	0.1	0.2	0.3
employed	0.3	0.2	0.5
Self-employed	1.0	1.1	2.1
Unemployed	0.5	0.4	0.9
Total	1.9	1.9	3.8

Source: Survey conducted by Kocks in 2009 fall

Income and Expenditures

The average monthly income of families living within the Project Impact Area is 698 GEL, i.e. 140 GEL/month per capita. Distribution of the household incomes and expenditures is shown in Tables 6.3.2.5 and 6.3.2.6.

Table 6.3.2.5 Structure of the household incomes

Source of income	%
Employment remuneration	24%
Farming	41%
Income from the own business	9%
Rent	2%
Pensions and state allowances	13%
Monetary support (money received from abroad)	2%
Monetary support (money received from locals)	1%
Other	8%

Source of income	%
Total	100.0

Source: Survey conducted by Kocks in 2009 fall

The data above allow assessing the salary incomes received by employed members of the PIA households. Based on estimation results, the average employment salary in the Project Impact Area is 335 GEL/month. The monthly per capita income of 31.2% of the PIA families is below 50 GEL (i.e. less than \$1 per day).

Table 6.3.2.6 Structure of the household expenditures

Category of expenditure	%
Food and beverages / tobacco	48%
Clothes and shoes	5%
Household items	4%
Health care	9%
Education	2%
Communication	2%
Electricity bill	2%
Transportation	4%
Fuel for household needs	5%
Recreation, entertainment	1%
Agriculture	13%
Other	5%
Total	100.0

Source: Survey conducted by Kocks in 2009 fall

6.3.2.2 Household Assets

6.3.2.2.1 Buildings and Structures

Families living in the Project Impact Area own the permanent residential houses built in average 43 years ago. Mostly these houses are the represented by two-story buildings (average number of stores is 1.8) with 122 sq.m average plan area. In average, the residential buildings comprise 7 rooms. The construction materials used are bricks, cement, concrete (in 89% of buildings) and timber (in 98% of buildings). All 100% of the houses are supplied with electricity, 4% - with natural gas, and 36% are provided with utility water supply (while 47% are supplied with water from the wells); 20% of the buildings have flushing lavatories, and in 98% the firewood is used for heating. Based on the respondents' self-valuation, the average construction cost per one square meter in plan (i.e. 1 sq.m of 1.8 stores) is 830 GEL.

From the household located within the PIA, 7% own the commercial buildings. Average area of the these buildings is 43 sq.m, number of stories – 1, age – 10 years. The respondents failed to specify the value of their commercial buildings.

The 98% of the PIA households own the auxiliary structures, from which 73% are of permanent type, 93% are built using bricks/stones/concrete and timber. Average area of the auxiliary structures is 31 sq.m, number of stores – 1, age – 28 years. As per the respondents, the estimated unit price of their own auxiliary structures is 273 GEL per square meter.

The premises of 99% of the PIA households are fenced; 90% of fences are built with combination of concrete and wire mesh. Based on the respondents information, the average fence length is 45 m, age – 26 years, and estimated cost per linear meter – 120 GEL.

6.3.2.2.2 Long-Term-Use Household Items and Domestic Animals

The data on long-term-use household items and domestic animals owned by the PIA households are provided in Tables 6.3.2.2.7 and 6.3.2.2.8.

Table 6.3.2.2.7 Possessed long-term-use items

	Percentage of households
TV set	99
Satellite antenna	14
PC	10
Mobile phone	88
Gas stove	86
Washing machine	42
Refrigerator	63
Conditioner	3
Motorcycle	1
Vehicle	19
Tractor / mini tractor	1

Source: Survey conducted by Kocks in 2009 fall

Table 6.3.2.2.8 Number of the owned domestic animals

	Average number per household
Cattle	2.3
Sheep/Goat	0.3
Swine	0.8
Poultry	9.7
Horse/Donkey	0.1

Source: Survey conducted by Kocks in 2009 fall

6.3.2.2.3. Land

Average area of the land parcels owned by PIA households is 1.1 Ha, from which 0.4 Ha is an area of the homestead parcel, and 0.7 Ha – of the agricultural land (drained arable land). Families living in the Project Impact Area do not own any commercial land.

Land owned by the PIA households is distributed by crops as follows: land under grain crops – 67%, vegetable gardens – 7%, orchards / vineries – 26%.

Table 6.3.2.2.9 shows the previous economic year outputs from operation of the agricultural land as disclosed by the respondents.

Based on the self-valuation results provided by the respondents, the average price of 1 sq. m of arable and homestead parcels within the Project Impact Area are 7.23 GEL and 11.54 GEL respectively.

Table 6.3.2.9 Results of the economic year of 2009

	Productivity (t/Ha)	Price (GEL/t)	Earning capacity (GEL/sq.m)
Grain crops	4.83	639	0.31
Vegatables	6.00	7,500	4.50
Fruits/grape	7.00	1696	1.19

Source: Survey conducted by Kocks in 2009 fall

6.3.2.2.4. Perception of Poverty

The respondents were asked to describe the economical state of their families. The answers distributed as follows:

- Family experiences the malnutrition – 37%;
- Family has no permanent income source – 56%
- Family has not funds for the children education – 27%
- Family has no heating capabilities – 20%
- Family has no funds for purchasing the clothes – 63%.

6.3.2.2.5 Infrastructural Facilities and Historical/Cultural Monuments

The PIA population survey results showed that local residents assign a high importance to the public infrastructural facilities, such as school, kindergarten, ambulance station, club-house/cinema, library, stadium, etc. (average score - 3.5, standard deviation - 0.7)¹. Relatively widespread spectrum of the responses is explained by uneven importance level of the evaluated facilities for individual respondents.

The abovementioned public facilities, e.g. schools and ambulance stations, are available for the all residents living in the Project Impact Area despite their remoteness. For example, the average distance from the respondent's dwellings to school is 2.5 km, and to ambulance station – 2.7 km.

Also, the PIA population survey revealed that the local residents award a very high importance to local historical, cultural and ritual facilities (average score - 3.8, standard deviation - 0.4)¹. The Table 2.13 below provides the list of monuments identified as important by local population.

Table 6.3.2.10 Cultural and historical monuments of high significance for PIA population

	Names of the cultural and his monuments	Location	
		District	Territorial unit
1.	Ioane Petritsi Church (under construction)	Lanchkhuti	Cibati, city of Lanchkhuti
2.	Iberian Mother of God Icon's Church	Lanchkhuti	Sity of Lanchkhuti
3.	Jikheti Nuns Monastery	Lanchkhuti	Nigoiti, Supsa
4.	St. Lazare Church	Lanchkhuti	Gvimbauri
5.	Mother of God's Birth Church	Lanchkhuti	Nigoiti, Tolebi

¹ Scale: 1 - minor, 2 - some significant, 3 - significant, 4 - very significant.

6.	St. George Church	Lanchkhuti	Nigvziani, Shukheti
7.	All Saints Church	Lanchkhuti	Supsa
8.	Mother of God's Birth Church	Samtredia	Tolebi
9	Akaki Shanidze House Museum	Samtredia	Tolebi

6.3.2.2.6. Evaluation of the Project's Impact on Social and Economical Environment

The survey conducted among the PIA population revealed the Project's impacts on social and economical environment is assessed as positive (average score – 4.2, standard deviation – 0.3)²

It should be noted that only 51% of the interviewed families agreed to verbally evaluate Project impact on Sakrebulo's social and economical environment. From these respondents, 3% negatively describe the Project impacts on businesses operating within the Project Impact Area, while others hope that the Project will be beneficial for social environment provided that “no restrictions are imposed on cattle movement and access to agricultural plots”.

7. RESETTLEMENT POLICY FRAMEWORK

7.1 Introduction

7.1.1 General

This report presents the Resettlement Policy Framework (RPF) for upgrading the Samtredia-Grigoleti road section (hereinafter referred to as the Project). The RPF sets out policies and procedures to mitigate adverse social impacts likely to occur as a consequence of implementation of the Project. This RPF has been prepared to ensure compliance of the Project with the World Bank's safeguard policy on Involuntary Resettlement (OP 4.12), as well as the active Georgian laws and regulations on acquisition of private land for public purpose. World Bank OP 4.12 applies to this Project as it involves (i) the involuntary taking of land for project purposes, resulting in loss of shelter or the need to relocate (physical resettlement), loss of assets or access to assets, or loss of income sources or means of livelihood or (ii) the involuntary restriction of previously existing access to natural resources within protected areas, when this adversely affects people's livelihoods.

A Resettlement Action Plan (RAP) will be prepared for this section as per policies and principles set out in this RPF. The RAP will define detailed compensation packages to be provided to each category of Project Affected People (PAP). Land acquisition and payment of compensation will be accomplished, prior to the commencement of civil works.

Improvement of roads is one of the top priorities of the Government of Georgia in order to develop Georgia's competitiveness as a transit country in the region. The Government has undertaken several projects for modernization of the corridor.

The design road section is now a two-lane carriageway. The project envisages the widening of the existing road and constructing a four-lane dual carriageway with a center mall. According to the existing proposal, the total width of the improved road will be 28.00 m.

The proposed improvement attempts to avoid the densely populated areas taking bypasses on feasible sides of the existing road in terms of access to the improved road by the local residents,

² Scale: 1 - very adverse, 2 - adverse, 3 - neither adverse nor positive, 4 - positive, 5 - very positive

avoiding productive agricultural land and forestry areas, and impact on places of tourists' interest and historical and heritage sites.

Based on the observation of the population residing along the road, organized at the initial stage of the study and by considering the technical, environmental, land-use and financial feasibility, there were several initial alternative routes proposed to modernize the road section, with the final variant developed in the present document through their further detailed analysis.

Land will be acquired under the provisions of national legislations and any unavoidable displacement of people from their residence, places of business and income, and common property resources will be addressed in addition to the provisions of the active national legislations. Estimate of land acquisition and resettlement has been provided in Section 7.10.

The Project will involve land acquisition for alignment improvements and taking of bypasses to avoid built-up areas. But it is not possible at this stage to determine the exact location and the extent of land acquisition and resettlement impacts of the Project as several options of route alignments have been proposed for selection for detail engineering design and implementation at the subsequent stages. This RPF has, therefore, been developed as a precautionary measure. The feasibility study and alternative alignment analysis is prepared for selection of the best possible alignment feasible in all considerations: land acquisition, resettlement, construction cost, engineering viability and future maintenance.

All the preferred alignment alternatives will need fresh acquisition of land and displacement, if cannot be avoided. Depending on the severity of impact of the selected alignment, the assigned consultant will prepare the RAP that will be agreed with the Bank. The RAP would include an implementation schedule, specific responsibilities of the RDMRDI and other institutions, complete budget, and earmarked source of Government funds for its implementation.

7.2. PROJECT IMPACTS

Project impacts will be understood precisely when the final alignment will be selected removing alternatives on feasibility considerations and detail engineering design will be finalized. A census and inventory of losses will be carried out based on the final engineering design on a selected alignment. This RPF is based on findings of preliminary field investigations and analysis of the preferred alignment alternatives on the cadastral maps and ownership data from the Public Registry. It is understood that direct impact of the Project extends mainly on agricultural land parcels, pasture land and land plots with commercial and residential buildings.

The impact of the Project expected during the implementation may include both temporary and permanent losses of assets and income. The potential losses of the affected peoples due to undertaking of the Project may include the following:

1. Permanent losses¹
 - a. Loss of land (agricultural, residential, commercial and state land);
 - b. Loss of existing physical assets and income;
 - c. Loss of shelter.
2. Temporary losses
 - a. Loss of land use;
 - b. Loss of residential area;
 - c. Loss of existing assets and income.

Detail measurement survey will be conducted after alignment fixation and final engineering design to determine the exact impacts of the Project. Based on the analyses, the resettlement policy framework will be updated and amount of compensation will be determined in the Resettlement Action Plan.

7.3 LEGAL AND POLICY FRAMEWORK

7.3.1 Georgian Laws on Land Acquisition and Resettlement

The Georgian laws and regulations on land acquisition and resettlement, provide compensation for lost assets based on current market price without depreciation; compensation for income loss such as loss of standing crops and closure of business activities; and also compensation for those land owners without official titles. Affected persons have the right to information and participation in project implementation process. The laws allow displaced persons with grievance to lodge their complaint at the court, which appoints an independent auditor who assesses compensation paid and value of properties lost, and submit report to the court on appropriate compensation, which is final. The above-listed laws and regulations give the possibility of applying the following mechanisms for legal application of the property rights:

- (i) Acquisition of land from private ownership through the payment of due compensation (on the basis of direct negotiations or a court decision) prior to commencement of project civil works; and
- (ii) Acquisition of land through expropriation that gives the possibility of obtaining permanent right to land and/or other real estate property on the basis of Eminent Domain Law or a court decision through the payment of due compensation.

Attempts should first be made to acquire private land on the basis of negotiation with individual affected entities. Should the negotiation fail, the power of eminent domain will be sought, and expropriation process will start. Under the existing laws in Georgia, the President will issue an order for expropriation based on the request from relevant state agencies. Relevant regional court will assess the presidential order and determine the case of public needs, and grant the expropriation entity rights to obtain land. The court will also appoint a third party auditor to assess the market value of lost assets and determine the compensation payable to relevant land owners accordingly to the value of assets thus found.

7.4 INSTITUTIONAL ARRANGEMENTS

7.4.1 Responsible Institutions

The Roads Department of the Ministry of Regional Development and Infrastructure of Georgia (RDMRDI) has the lead responsibility for road construction, as well as implementation of this RPF and the subsequent RAP. RDMRDI will develop and implement the RAP for the Project on approved alignment based on the policy and procedures set out in this RPF, the World Bank OP 4.12 and the active national legislations relevant to acquisition of private land for public purpose.

In addition to the RDMRDI, a number of other government departments and private agents will play an instrumental role in the design, construction and operation of the Project.

- RDMRDI of Georgia

- RDMRDI Department Board
- RDRD Responsible Group
- Civil Works Contractor
- Consultants and Auditors
- Court of Georgia
- Ministry of Finance
- Ministry of Justice

7.5 BASIC POLICIES AND PROCEDURES OF LAND ACQUISITION AND RESETTLEMENT

7.5.1 Basic Policies

The objective of this RPF is to assist the PAPs in restoring their livelihoods at least to the level equal to the pre-project level.

Based on the Georgian laws on land acquisition and World Bank OP 4.12 Involuntary Resettlement, the basic policies of the RPF include the following:

- Project design will avoid residential areas wherever possible to minimize physical relocation of people, and select alignment that minimizes acquisition of privately or publicly held productive land;
- Adopt design standards that minimize the need to impose land use restrictions on adjoining areas;
- Where displacement and acquisition of land are unavoidable, develop fair and transparent procedures, as defined in the Entitlement Matrix in this RPF, to determine compensation for (i) temporary loss of land/ assets during construction; (ii) permanent acquisition of land and assets; and (iii) restrictions on use of land that may be applied to areas adjoining the corridor;
- Acquire land (or right to use land) through negotiated agreements and with the use of the power of eminent domain only as a last resort.
- Upon completion of construction, restore land as best as possible to its original condition in the event of temporary disruption so as to enable landowners/users/lessees to resume their pre-project activities;
- Keep affected people and communities fully informed about the project implementation schedule, the process that will be followed to acquire and compensate for land, and their related rights and avenues for redress. They will be consulted regarding the principles of land acquisition and loss of or damage to assets. The RAP will be disclosed to the PAPs in the local language.
- Ensure that grievances PAPs may have will be redressed adequately, and that solutions in line with principles laid out in this RPF be employed;

- All PAPs, without regard to legal status of property, will receive support as per the principles set out in the Entitlement Matrix, to assist them in their efforts to maintain their livelihoods and standards of living prevailing prior to the Project.
- Those who illegally own land will not be compensated for loss of land, but will receive compensation for loss of other assets which had been established on their own finance and for loss of income such that they are also assisted in their efforts to maintain their livelihoods.
- Vulnerable PAPs in terms of gender, ethnicity and poverty will have additional assistance as per provision of this RPF.
- Damages to assets, such as standing crops, trees, fences and kiosks, and loss of income, including loss of harvest, will be minimized, and where inevitable, will be compensated.
- A market survey will be conducted to assess the prevailing market prices of land, construction materials for affected structures, crops and other relevant items, which will be used as the unit prices to determine compensation. This will additionally ensure that the market prices will allow PAPs to purchase replacement land.
- Loss of income and assets will be compensated on a net basis without depreciation as set out in the Entitlement Matrix attached to this RPF.
- Payment of compensation, resettlement assistance and rehabilitation measures will be fully provided prior to the contractor taking physical acquisition of the land and prior to the commencement of the any construction activities on a particular section of the road.
- Compensation eligibility will be limited by a cut-off date, which coincides with the day of the start of detail measurement survey/census. After cut-off date inhabitants of project affected land aren't eligible for compensation and no property modifications will be taken into consideration.

7.5.2. Preparation of Resettlement Action Plan

Resettlement Action Plan (RAP) will be developed in the subsequent evaluation process when the alignment will be final and detail engineering design will be carried out. Following the finalization of road alignment and identification of the land parcels, cross-sections design and land acquisition requirements, a Detailed Measurement Survey (DMS), a census of all project affected households (PAH) and project affected persons (PAPs) and a valuation of all affected asset will be carried out to assess the losses and relative compensation budgets.

In addition, a sample socioeconomic survey will be conducted based on the 20% of the PAHs. The socio-economic survey will cover the major socio-economic features of the affected population (ethnicity, education level, modes of livelihood, and sources of income, poverty/income levels, and house type/value and land tenure types). The DMS and census survey will include the following:

- (i) Inventory of the 100% loss of land parcel and property;
- (ii) Categorization and measurements of loss;
- (iii) Measurements of the affected assets/structures, including their replacement valuation;

- (iv) The socioeconomic survey will identify household characteristics, including social, economic and demographic profile;
- (v) The Census will identify all PAHs and their members by number, gender and age, land occupancy status; all severely PAH (losing >10% of their land and income); and all vulnerable PAHs (women headed family or family under poverty line); and
- (vi) Identification of non-titleholders and vulnerable PAPs.

The RAP will be developed as per this RPF and Bank OP 4.12 as well as Georgian legislation for Project itinerary that defines detailed compensation packages and implementation schedule. The details of land acquisition procedure and the process of resettlement of affected households and persons will be spelt out in the RAP.

RDRD will carry out resettlement impact assessment as above using the services of consultants and develop the RAP in compliance with this RPF. The final RAP will be submitted to and consented by the WB prior to the execution of civil works for relevant sections.

7.5.3 Procedures of Land Acquisition

Land will be acquired under the active legislations of Georgia on land acquisition. RDRD will be responsible for all procedures for acquiring land for the project. RDRD will confirm the registration of property rights by the PAPs at the beginning of the acquisition process. Correct and accurate initial registration of ownership rights is the necessary condition for undertaking voluntary acquisition or mandatory expropriation of real property.

RDRD will attempt voluntary acquisition of land negotiating each individual affected person or entity at the first stage. After the ownership rights are registered and confirmed with the Public Registry, RDRD will carry out negotiation with each individual owner of land and property. RDRD will employ a third party private auditor for assessing the property under acquisition and the replacement market value of the same. If negotiation is reached with the owner, a Purchase Agreement and a Demarcation Act will be signed by both the RDRD and the individual owner on the event. The PAP will open a bank account at a prescribed bank and the compensation amount as determined will then be transferred to the account by the Ministry of Finance.

If negotiation fails, the power of eminent domain will be sought, and expropriation process will start. RDRD will report to the Department Board of RDMRDI that will decide for applying to the President for a decree on applying power of eminent domain.

Under the existing law in Georgia, the President will issue an order for expropriation based on the request from relevant state agencies. Relevant regional court will assess the presidential order and determine the case of public needs, and grant the expropriation entity rights to obtain land. The court will appoint a third party to assess the market value of lost assets and determine the compensation payable to relevant land owners according to the value of assets thus found.

7.5.4 Resettlement of Project Affected Persons

Project affected persons eligible for compensation and resettlement assistance as per this RPF will be identified as per the eligibility criteria set out in this document as per the provision of the Bank policy on involuntary resettlement (OP 4.12).

The RPF recognizes all legal owners of land and property and those having a legal claim on the property as well as those without valid ownership on the property they use as will be identified before the eligibility cut-off date for this project.

RDRD will negotiate all the eligible PAPs for compensation and resettlement assistance as per DMS and Census of PAHs based on detail engineering design of the final alignment.

The compensation and assistance, and the eligibility are detailed in Section 7 on compensation and entitlement matrix.

7.6 PARTICIPATION AND GRIVENCE PROCEDURES

7.6.1 Identification of Project Stakeholders

Land acquisition and resettlement will precede civil works activities. To ensure that stakeholders are aware of resettlement policies for Upgrading the Ruisi – Rikoti Section of the E-60 Highway Project, comprehensive information campaign and public disclosure program will be undertaken. The primary stakeholders of the RAP will be the informal users and household members of road ROWs and road shoulders and private owners of land and buildings beside the road those will be affected by the ROW acquisition and private contractors who will undertake the civil works. The secondary stakeholders include the RDMRDI, the concerned village and rayon officials traversed by the final alignment of the Project, the Public Registry; the beneficiary community in general and the World Bank. The stakeholders' view and recommendations will be properly considered in the preparation and implementation of the RAP.

7.6.2 Disclosure and Participation

In the process of preparing this RPF, several community level meetings were held during March and April 2009 at the Sakrebulo and Rayon Municipality levels. A quick consultation with the community peoples along the project road section was also carried out by the expatriate and national social/resettlement specialists on July 30, 2009. Potential affected persons, community officials and other stakeholders took part in these meetings. The road design, probable alternative alignments, and land acquisition and resettlement issues were disclosed to and discussed with the community peoples. The communities and potential affected persons have confirmed their willingness to the land acquisition with an appeal for adequate compensation and resettlement measures. Views of the community were given due consideration in identifying preferred alignment alternatives, in the road design and in this RPF.

The RPF will be disclosed to the community in the process of preparing the RAP of the Project during detail design after finalization of alignment. Further discussions will be held with the primary stakeholders (landowners, vendors, hawkers, and business operators) on the project concept and planned interventions. The draft RAP will be prepared in consultation with the stakeholders and PAPs.

During the initial consultations, a wide range of issues and concerns were raised. The summary of which is presented below:

- Fair and immediate compensation for affected assets and properties;
- Employment of local population in civil works;

- Environmental and safety issues concomitant to construction and increased traffic;
- Protection of productive agricultural lands;
- Unavailability of alternative land for replacement of agricultural or resident lands;
- Impact on public utilities including irrigation infrastructure;
- Protection of cultural and historical sites and monuments; and
- Community/public access to and across the road during and after construction.

In order to achieve maximum transparency and public participation in the process of preparation and implementation of the RAP, the communities along the road section will be fully informed on the policy and provisions of the RPF and the subsequent RAP. In particular, the final version of the RAP will be provided to the district and territorial authorities for information and disclosure, as well as disseminate through the internet.

Public meetings were conducted to determine general reactions and attitude of local officials/leaders and key informants about the project and proposed alignment alternatives for rehabilitation of the Samtredia-Grigoleti highway section. Focus group discussion focused primarily on the following issues and objectives:

1. Identification of social infrastructure units along the proposed road alternatives, their importance at the rayon/sakrebulo level and estimation of expected impacts of corresponding alternatives upon them.
2. Identification of cultural, historical, archeological and ritual objects along the proposed road alternatives, their importance at rayon/sakrebulo level and assessment of expected affect of corresponding alternatives upon them.
3. Clarification of common attitude towards proposed alternatives (positive or negative)
4. Assessment of proposed alternatives total impact upon socio- economic activities (positive or negative) at the rayon/sakrebulo level.

During the public meetings, the participants were also provided with all necessary information concerning project. Public meetings and consultations included representatives from raional and sakrebulo/ territorial entity administering levels within the proposed alternative impact areas.

Table 7.6.2.1. Details of the Public Consultations

Issues	Participants' Comments Opinion, and Suggestions	Response to Questions and Concerns	Action Points during Feasibility Study of Road
General perception about the project and the awareness about the proposed project.	Most of the participants are in favor of the project and are aware about the possibility of the proposed project implementation.		
Support of local people for the proposed project?	Almost everybody said that they will support the project and advised the Consultant to take precautions in the environmental mitigation to avoid Kolkheti National Park and religiously sensitive locations.	The Consultant explained that current alternatives are not going close to the buffer zone of the Kolkheti National Park and Cultural Heritage Sites will be avoided.	<i>The alignment were further revised to avoid any impacts.</i>
Any critical issue or concern by the local people regarding the project? Any criteria you would like to see considered during project design, construction and operation stage?	Dust suppression, landslide, and noise mitigation should be considered. Engineers should design the bridges and culverts in accordance with good engineering practices so as to	Dust suppression measures and noise barriers will be considered in detail during the Detailed Design. Retaining walls has been considered to protect landslide is also considered	<i>Mitigation measures are followed to prevent or mitigate geohazards, noise.</i>

Issues	Participants' Comments	Opinion, and	Response to Questions and Concerns	Action Points during Feasibility Study of Road
	improve water flow.		in the engineering design. Proper hydrological analysis has been done to design the drainage structures.	<i>Hydrological design considered 50 year design discharge for culverts and 100 year design discharge for bridges.</i>
Are you aware of any information that is vital for the proposed project (economic development, savings in travel time, easy access to social infrastructure)?	The Project will enhance economic development of Georgia as a transit country by constructing of proposed road.			
Are there other criteria you would like to see considered during project design, construction and operation stage (access road, bridge or culverts, village market etc)?	Soil erosion and geohazards should be considered while designing the roads. Land acquisition should be minimized and proper compensation should be considered.		Slope protection by design retaining structures, vegetation in unstable batters, and rock fence are considered in the engineering design. A Land Acquisition and Resettlement Plan will be prepared in details during Detailed Design compliance with IFI guidelines.	<i>Slope protection measures and retaining structures are designed considering geohazard conditions of preferred alternative.</i>
Do you support proposed road project?	Support the development of the project for economic development.		By constructing of new roads, the traffic congestion and traffic safety of the existing road will be improved.	
Any Other Issues you may feel to share	All the participants agreed that the project should start as soon as possible. Local people and local contractor should be employed during construction. In order to comply with environmental requirements, the road should be constructed avoiding Narionali Lakes.		It is recommended employment of the local people during construction. The road has been realigned avoiding Narionali Lakes.	
Is this consultation useful? Comments	Everybody was of the opinion that the consultation is very useful and they expect the continued consultation in the future also.		Additional consultations will be organized in cooperation with RD and further consultation has been recommended in the EA during detailed design and construction phases.	

Table 7.6.2.2: Details of Consultations carried out by the Environmental Team

Date	Place	Names of the Persons and Organisation	Points raised by the Participants
November 2009	Tbilisi	Mrs. Lika Bubashvili, Environmental Specialist, Roads Department	The Road Department confirmed the need of EA for the feasibility study preparation.
November 12, 2011	Kutaisi	Mr. Teimuraz Kepuladze, head of the regional service of the Ministry of Environment Protection and Natural Resources	Locations of quarry and borrow sites will be decided by the government if the consultant provide section wise requirements of borrow and quarry material. Spoil disposal sites will be proposed during the Detailed Design.

November 2009	Tbilisi	Mr. Papuna Khachidze, Head of Forestry Department of the MOEPNR	Discussions were held on roadside tree plantations and compensation measures after tree logging;
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Table 7.6.2.3 Summary of Public Meetings

	Place of the Public Meeting	Date of the Meeting
1.	Lanchkhuti Municipality	30 October, 2009
2.	Supsa territorial unit	29 October, 2009
3.	Nigvziani territorial unit	29 October, 2009
4.	Lesi territorial unit	29 October, 2009
5.	Lanchkhuti Municipality	29 October, 2009
6.	territorial unit of the city of Lanchkhuti	30 October, 2009
7.	Gvimbauri territorial unit	30 October, 2009
8.	Shukhuti territorial unit	30 October, 2009
9.	Nigoiti territorial unit	30 October, 2009
10.	Tolebi territorial unit	31 October, 2009

Table 7.6.2.4: Summary of Community Consultations

Issues Discussed	Participant's Comments and Suggestions	Opinion ,	Significance
General perception about the project and the awareness about the proposed project.	Most of the participants are in favour of the project and have been made aware of the proposed project through the various surveys that have taken place		Acceptance of the project
Support of local people for the proposed project?	The vast majority support the project. Some participants mentioned that they are ready to work on the project as unskilled labourers		Acceptance of the project Availability and willingness to work on the project
Any critical issue or concern by the local people regarding the project? Or Any criteria you would like to see considered during project design, construction and operation stage?	Preference to identify suitable alignment that avoids as many structures as possible is the major concern. Respondents requested that environmental hotspots (like school, hospital, cemeteries etc.) are avoided as much as possible		Wish to minimize effects on property and cemeteries
Do you have any problem with the existing road?	Long journey times for travel		Dissatisfaction with existing condition of the road
Is the proposed project going to reduce accidents and provide better traffic system?	All the participants felt that the proposed road development project will facilitate a better traffic system. However, it was felt that accidents might increase in number if a high		Some concerns over safety, supporting design measures such as increased signage

	standard of engineering design is not followed. Participants mentioned that safety measures are especially important for social institutions like schools, hospitals	
Protected areas (national parks protected forest, religiously sensitive sites, historical or archaeological sites), if any	Kolkheti National Park is about 3 km away from the alignment.	No concerns over the park, the nearest sites with terms of cultural or religious significance are far from the road.
Employment Status: Percentage of employment/unemployment/underemployment	Unemployment is common in the project area	Currently concerned about levels of earning opportunities.
Perceived losses from the project	Land acquisition and resettlement will be the major issue. According to the participants, this can be mitigated through proper compensation and assistance to the affected persons	No major concerns provided adequate compensation is provided
Is this consultation useful? Comments	All respondents were of the opinion that the consultation is very useful and they expect continued consultation in the future.	Keen to continue to be consulted on road construction
If this road is improved, there may be large groups of workers living temporarily in the area, and construction operations that generate noise and dust. Are there any other issues about construction, including noise and dust that might worry you?	The respondents strongly welcome the road construction activities. Many observed that the measures are temporary and besides there will be more chances for local communities to be employed during construction, providing both skilled and unskilled labor. Participants did not mention any other problems which might bother them other than following basic safety rules.	Residents understand that construction impacts can be expected and do not have an issue with these, provided safety measures are taken.
Given that the new road will be wider and smoother, enabling higher driving speeds, what Road Safety Issues/measures would you propose?	Participants suggested signage (speed limits, warnings etc.), pedestrian crossings in front of social institutions and to ensure that there are footpaths along the road	Pedestrian crossings as well as signage

7.6.3 Grievance Redress Mechanism

A grievance redress mechanism will be available to allow an affected person to appeal on any disagreeable decision, practice, application, or activity arising from the implementation of the land acquisition and resettlement as per the RPF and the subsequent RAP. The PAPs will be fully informed of their rights and procedures for addressing complaints whether verbally or in writing during consultation, survey and time of compensation. Experience from former two projects on the E-60 Highway shows that if the PAPs are well informed of their entitlements and obligations, they primarily rely on negotiation to agree on terms of compensation, and the number of PAPs with grievance comes to a minimum. Efforts will be applied to reduce occurrence of grievances at the village level through ensuring full disclosure and participation in the process of RAP preparation and implementation. Likewise consultation and information activities will be conducted to ensure that the PAPs, the community and local officials know of the details of the RAP and its implications.

The staff of the RDRD Responsible Group will be regularly available and accessible for PAPs to address concerns and grievances. Solutions acceptable to both RDRD Responsible Group and the PAPs with grievances will be sought during negotiation. However, any unresolved grievances will be addressed through the process described below.

1. Resolution of all complaints will be attempted primarily at the Sakrebolu level with the involvement of village authorities and RDRD Responsible Group.
2. If there is any critical complaints could not be solved mutually at the Sakrebolu and RDRD Responsible Group level, the PAP will lodge to the RDMRDI Department Board. The PAP will lodge the complaint to the Department Board and must produce documents supporting his/her claim. The Board will provide a response within 2 weeks of registering the complaint.
3. Should the grievance redress system at the RDMRDI Department Board fails to satisfy the PAP, they can pursue further action by submitting their case to the appropriate court of law.

If the ruling by the court is below the market price assessed through the open market survey earlier, RDMRDI will provide additional funds to ensure that compensation provided reflects replacement value.

The RDRD at RDMRDI headquarters will keep record of complaints received for its use as well as for use by the World Bank during regular supervisions.

7.7 The types of recognizable losses

PAPs in principle of the RPF are those losing their land, houses and income due to undertaking of the project. Entitlements for compensation and assistance to the PAPs include provisions for permanent and temporary land losses, house and building losses, crops and tree losses, a relocation subsidy and a business allowance loss based on tax declaration amounts and/or lump sums. PAPs compensation eligibility will be limited by a cut-off date. Below of the entitlement shows in detail the recognizable losses, definition of affected persons and entitlements.

Agricultural land: PAPs with legal title/traditional land rights will be compensated in cash at current market rates. Squatters will be provided with actual crop loss compensation and resettlement assistance.

Severe impact: When a PAP losses more than 20% of income or agricultural land, she/he will get an allowance for severe impacts equal to the market value of a year's net yield of the land lost in addition to standard crop/tree compensation and if she/he so wishes can request for a replacement of an equivalent land.

Residential (“homestead”) land: Legal landowners will be compensated at replacement rate in the form of cash at market rates free from transaction cost and depreciation.

Commercial (non-agricultural) land: Legal landowners will be compensated at replacement rate in the form of cash at market rates free from transaction cost and depreciation.

Houses, buildings and structures: These will be compensated in cash based on replacement cost free of deductions for depreciation, salvaged materials and transaction costs irrespective of the registration status of the affected item.

Trees: Cash compensation should be paid in accordance with prescribed regulations. Privately owned fruit/productive trees will be compensated at market value. State owned timber and wood trees will not cost the project for resettlement but for environmental mitigation measures.

Crops: Arrangement for the harvest of crops on the ground by the cultivator should be made 60 days before the start of construction; otherwise no compensation will be made for this item. If crop harvest is impossible to gain, the monetary compensation shall be granted.

Business: In case of business permanent loss, it should be compensated in cash equal to a 1-year income based on tax declaration.

Business workers and employees: Indemnity for lost wages for the period of business interruption up to a maximum of 4 months based on tax declaration.

Relocation assistance: PAPs forced to relocate will receive relocation assistance sufficient to cover transport costs.

Common property and public utilities: If damages are unavoidable, these will be fully replaced or restored to meet their pre-project functions.

Vulnerable affected households: Women headed households, elderly headed households and household below the national poverty line affected will be considered as vulnerable affected households.

Temporary impact during construction: Temporary impacts concerning traffic diversion and rerouting during construction is a major consideration. In order to remove this effect contractor must carry out certain mitigating measures. Civil works contractor is also responsible for the temporary acquisition and reinstatement of all land, required outside the road reserve for construction camps, offices, borrow pits, materials storage and processing sites and haul roads, necessary for building materials and equipments transportation.

7.8 MONITORING AND EVALUATION

Land acquisition and resettlement implementation will be subject to monitoring and evaluation. Monitoring will be the responsibility of RDMRDI. To ensure that the Project is implemented in compliance with the provisions of the RPF and the subsequent RAP, an internal monitoring mechanism will be established within RDMRDI to be executed by the RDRD.

RDRDI will assess the progress and results of RAP implementation periodically and adjust the work program, where necessary. Indicators for internal monitoring will be those related to process and immediate outputs and results.

A completion report will be submitted to the Bank. On the basis of the completion report, the Bank will conduct an evaluation including a site visit and document review to assess the exact status of RAP implementation.

A monitoring framework will be included in the RAP for internal and external monitoring and the subsequent evaluation.

7.9 Scales of the project impact

7.9.1 Impact on land

The selected project alternative has an impact on 823 state-owned plots with the total area of 1981 ha, with 176 ha to be allotted for the project purposes. Most of these plots (602 of them) are not used for economic purposes at present (gorge, rocky riverbank, bushes, etc.), 165 of them are arable lands, with the others having different designations of social importance. Table 7.9.1 shows the summary of the impact of the selected project alternative on the state lands.

Table 7.9.1. Impact on state land

	Number of plots	Total area of plots	Area of cut plots	Impact
Arable	165	4651504	485296	10%
Forest	1	114724	12004	10%
Wind break belt	8	39737	4559	11%
Railway	18	72440	42335	58%
High-voltage tower	3	77	77	100%
Channel	24	92140	8765	10%
Sports ground	1	7120	69	1%
Cemetery	1	1658	475	29%
Other	602	14833882	1209548	8%
Total	823	19813282	1763129	9%

Source: Cadastre data and Consultant's calculations

Table 7.9.2 shows the impact of the selected project alternative on private land plots. Total 1144 plots with the total area of 447 ha will be impacted by the project, with 105 ha to be purchased for the project purposes.

Table 7.9.2. Impact on private land

	Number of plots	Total area of plots	Area of cut plots	Impact
Arable	1077	4282171	973600	23%
Commercial	19	402755	23206	6%
Personal plots	48	181044	57895	32%
Total	1144	4865970	1054701	22%

Source: Cadastre data and Consultant's calculations

7.9.2 Impact on buildings

Table 7.9.3 shows the impact of the selected project alternative on the privately-owned buildings. The selected alternative has no impact on public buildings. 45 private buildings with the total accommodation area of 5799 sq. m. will be impacted by the project, with 3986 sq. m. subject to quite strong project impact (69%). For the purpose of drafting the preliminary estimate of resettlement, it has been estimated that the impact on fence/wall is 1960 linear meters.

Table 7.9.3. Impact on buildings

	Number	Accommodation area	Cut area	Impact
Residential	32	4773	3227	68%
Commercial	8	829	607	73%
Auxiliary	5	197	152	77%
Total of buildings	45	5799	3986	69%
Fence/wall, linear m	40	1960	1960	100%

Source: Cadastre data and Consultant's calculations

7.9.3 Impact on fruit trees

No registration of impact on the fruit trees along the selected alternative has been undertaken because of absence of demarcation. Considering the findings of study, the number of the fruit trees subjected to the impact, is estimates as 3 741 total for the entire RoW.

7.9.4 Impact on harvest

For the purpose of drafting the preliminary estimate of resettlement, it has been admitted that the losses of harvest because of the project impact are the case on the whole area of the private noncommercial land purchased for the project purposes (i.e. all 1031495 sq. m. for the project).

7.9.5 Impact on income and employment

The selected alternative has different-scale impacts on 19 business units. As per our estimation, there are average 4 workers permanently employed in business in the project impact area what enables us to conclude that the project will have an impact on the wages of about 76 people. The summarized data about the project impact on incomes and employment are given in Table 7.9.4

Table 7.9.4 Impact on income and employment

Business units under the impact	19
Employees under the impact	76

Source: Cadastre data and Consultant's calculations

7.9.6 Vulnerable families affected by impact

The social-economic study in the project impact area makes it clear that 31% of the families in the project area are below the poverty line, 11% of the families are women-headed and 7% of the families are elderly-headed. The analysis of the cadastre data demonstrates that the selected alternatives will presumably have an impact on families. The given data allows estimating the number of vulnerable families affected by possible impact within the impact area of the selected alternative (see Table 7.4.5).

Table 4.5 Vulnerable families affected by impact

Families below the poverty line	349
Women-headed families	124
Elderly-headed families	79
Total of vulnerable families	551

Source: The social-economic study data and Consultant's calculation

7.10 ESTIMATED BUDGET

7.10.1 Valuation of Land and Property

Compensation for land and physical assets has to be determined and paid to the affected persons at full replacement cost and market value. Replacement value of land will be determined based on existing market rates to the extent possible. If no land markets exist in the vicinity of the project area, compensation will be determined based on productivity of the land parcels with

equal features, access and productivity. A clear valuation methodology for these cases will be detailed in the RAP.

Replacement value of houses/buildings will be determined based on construction type, cost of materials, types of construction, labor, transport and other construction costs at current rates. No deduction for depreciation and transaction costs will be applied. If the loss of buildings is less than 15% then compensation will be applicable for the repair of the affected structure only.

Market value of annual crops will be determined at net market rates at the farm gate for the first year crop. In the eventuality that more than one-year compensation is due to the PAPs the crops after the first will be compensated at gross market value.

Estimation of fruit/productive trees will be made according to their age and species. The compensation for young trees will be granted according to the investment made, and that for the grown fruit trees will be granted according to the mean annual yield, age of the fruit garden and market price of the given fruit species.

The unit compensation rates will be assessed by RDRD through a third party private auditor or the Project consultants. The assessed compensation rates will then be verified and certified by the RDRD and approved by the Board.

7.10.2. Financing and its sources

The Road Department of the Ministry of Regional Development and Infrastructure of Georgia is responsible for allotting the funds to purchase the land and cover the resettlement expenses of the people affected by the project. The budget of the resettlement action plan will be drafted on the basis of the detailed design of the final route. The Council of the Road Department of the Ministry of Regional Development and Infrastructure of Georgia will approve the budget of land acquisition and resettlement. Paying the funds and rendering the assistance as a compensation is the obligation of the Ministry of Finance, who discharges this function at the request of the Road Department of the Ministry of Regional Development and Infrastructure of Georgia.

7.10.3. Total budget

Table 7.10.1 shows the estimate of the compensation budget for the selected project road. According to the present advance estimate preliminary estimate, the cost of land acquisition and resettlement is 40.4 million Gel (equaling to 24.2 million USD at the present exchange rate).

Table 7.10.1 Land Acquisition and Resettlement – Budget

	Unit	Unit price (GEL)	Price
Land			
Agricultural			
Arable		5.72	5,568,992
Number of land parcels			1,077
Area	sq.m		973,600
Non-agricultural			
Homestead		11.54	668,108
Number of land parcels			48
Area	sq.m		57,895

Commercial		15.81	366,887
Number of land parcels			19
Area	sq.m		23,206
Buildings and Structures			
Residential		830.00	3,961,590
Plan area	sq.m		4,773
Auxiliary		273.00	53,781
Plan area	sq.m		197
Commercial		684.00	567,036
Plan area	sq.m		829
Fences and walls		120.00	235,200
Length	m		1,960
Trees			
Productive fruit trees		197.40	738473
Number of plants	1		3741
Harvest			
All crop varieties		0.37	381,653
Harvested area	sq.m		1,031,495
Businesses			
Net profit		7728.00	146,832
Number of businesses	1		19
Employees' salaries		1340.00	101,840
Number of employees	1		76
Allowances			
Poverty		716.00	249,884
Number of households	1		349
Female-headed households		716.00	88,784
Number of households	1		124
Household headed by elders		716.00	56,564
Number of households			79
Implementation			
Implementation costs		945.00	1,081,080
Number of parcels	1		1,144
Total planned costs			15,386,831
Contingencies		15%	2,308,025
Total Budget (GEL)			17,694,856
Total Budget (USD)		0.60	10,616,914