



## **Rehabilitation of Gergeti village road and arrangement of foot trail to Gergeti Trinity Church**

### **Environmental and Social Screening and Environmental Management Plan**

**WORLD BANK FINANCED  
Third Regional Development Project**

**July, 2016**

## Sub-project Description

Under the presented sub-project (SP), it is planned to rehabilitate the motor road in the village Gergeti and access foot trail to Gergeti Sameba in Kazbegi Municipality.

The whole length of the rehabilitative road is 1804 m. The section of motor road starts from the left bank of existing motor bridge on the river Terek of the small town Stapantsminda and passes through village Gergeti.

Under the presented SP, the following works are envisaged:

- Arrangement of road bed (processing pavement with jackhammer and excavator, manual excavation of earth and transporting to the landfill) and Cement-concrete pavement;
- Dismantling of the existing cement-concrete pipe in the two place of steams crossing and arrangement of new cement-concrete rectangular pipe with cross section 4,0 m<sup>2</sup>.
- Arrangement of transverse water inlet with cast iron lattices (0,54X0,70m);
- Arrangement of the wire mesh gabions;
- Arrangement of the prefabricated road ditch (storm water will be discharged with self streaming in ravines and streams adjacent to the road);
- Carriageway marking and installation of road signs;

Pedestrian access road (1.4 km) to Gergeti Sameba passes through old revoked forest way. Under the SP, it is planned to arrange steps of natural materials, in complex section of the pedestrian road and wooden bench (20) for rest. Separate sections of the footpath will be profiled and road signs will be installed.

## Environmental screening

### (A) IMPACT IDENTIFICATION

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|--|---|
| <b>Has sub-project a tangible impact on the environment?</b> | The SP has a modest negative environmental impact and it is expected to have tangible long-term positive impact by providing comfortable environment for the local population and tourists. |
|--|---|

|   |   |
|---|---|
| <p><b>What are the significant beneficial and adverse environmental effects of sub-project?</b></p>               | <p>The main impact will be during the construction phase, which includes works for arrangement of the road bed, movement and operation of heavy vehicles, supply of materials.</p> <p>The expected negative environmental impacts are likely to be short term and typical for small to medium scale rehabilitation works in urban landscape: noise, dust, vibration, and emissions from the operation of construction machinery; generation of construction waste; disruption of traffic and pedestrian access.</p> <p>In village Gergeti, design road crosses streamlet in two places which inflows with river Terek. Existing concrete footbridges (concrete foot path and coast piers) on the small river are weathered. Demolition works may cause pollution of river bed with construction waste.</p> <p>Transportation of the inert materials and generated waste will slightly increase a road congestion, will cause disturbance of population/visitors and traffic interruption as well.</p> <p>Some part of the access foot trail to Trinity church, is located in the traditional use zone of the Kazbegi National Park. The respective land plot has already transferred from the Ministry of Environment and Natural Resources protection to Municipal Developmnet Fund for special use (Copy of the Decree of the Ministry of Environment and Natural Resources Protection # i-164, 29.03.2016 is attached to the EMP). According to the decree, entity that will operate the foot trail shall be defined within the one yaer.</p> <p>Increased tourist flows may have indirect negative environmental impacts, such as: waste and wastewater generation, vandalism, etc.</p> |
| <p><b>May the sub-project have any significant impact on the local communities and other affected people?</b></p> | <p>The SP will have a long term positive social impact through improving living and transportation conditions of the local population. As a result of the SP implementation increase traffic and pedestrian safety will be increased. It will decrease existing negative impacts on community such as dust, emissions, noise and fuel consumption. At the same time, it will improve the visual side of the area. Impact on the Kazbegi National Park will be decreased, as for the time being, tourist are paving the ways in the new directions, due to poor conditions of the trail.</p>   |

**(B) MITIGATION MEASURES**

|   |   |
|---|---|
| <b>Were there any alternatives to the sub-project design considered?</b>  | Discussions were carried out regarding the arrangement of motor road with and without sidewalks. Due to the fact that arrangement of sidewalks is connected with unjustified expenditures of land acquisition, this alternative has been rejected.  |
| <b>What types of mitigation measures are proposed?</b>  | <p>The expected negative impacts of the construction phase can be easily mitigated. The contractor will be responsible for the waste disposal at the permitted location, use the quarry materials from the licensed quarries only, prevent water and soil from pollution (fuel spills due to equipment failure, raw asphalt/concrete spills), avoid disturbance of population (noise, dust, emissions) through proper work/supplies scheduling, traffic management, good maintenance of the construction machinery.</p> <p>In the process of the implementation period of rehabilitation works it is necessary to manage traffic movement. All underground communications existing in the zone of work implementation have to be opened before works starts to adjust their depth insert and location in the plan. This process has to be necessarily provided under monitoring of responsible persons for those communications. Adjusted communications have to be fenced with relevant markings.</p> <p>Dumping of construction waste in the streamlet crossing places will be prohibited.</p> <p>All staff will be strictly prohibited from foraging, logging or other damaging activities of the nearby landscapes.</p> |
| <b>What lessons from the previous similar projects have been incorporated into the sub-project design?</b>  | MDF have wide experience of implementation of medium and large scale road and streets rehabilitation subprojects financed by various donor organizations. Based on lessons learned from previous similar projects, design envisages not only rehabilitation of road pavement but also rehabilitation of storm water ditches which will backing further maintenance of the road cover.   |
| <b>Have concerned communities been involved and have their interests and knowledge been adequately taken into consideration in sub-project preparation?</b> | MDF and local municipality will organize consultation meeting to discuss about EMP with local population before starting of rehabilitation works.   |

**(C) CATEGORIZATION AND CONCLUSION**

Conclusion of the environmental screening:

1. Subproject is declined
2. Subproject is accepted

Subproject preparation requires:

1. Completion of the Environmental Management Checklist  
For Small Construction and Rehabilitation Activities
2. Environmental Review, including development of  
Environmental Management Plan

## Social Screening and Cultural Resource Screening of SP

| Social safeguards screening information  |  | Yes | No |
|--|--|-----|----|
| 1  | Is the information related to the affiliation, ownership and land use status of the sub-project site available and verifiable? (The screening cannot be completed until this is available)                 | X*  |    |
| 2  | Will the sub-project reduce people's access to their economic resources, such as land, pasture, water, public services, sites of common public use or other resources that they depend on?                 |     | X  |
| 3  | Will the sub-project result in resettlement of individuals or families or require the acquisition of land (public or private, temporarily or permanently) for its development?                             |     | X  |
| 4  | Will the project result in the temporary or permanent loss of crops, fruit trees and household infra-structure (such as ancillary facilities, fence, canal, granaries, outside toilets and kitchens, etc)? |     | X  |
| If answer to any above question (except question 1) is "Yes", then OP/BP 4.12 Involuntary Resettlement is applicable and mitigation measures should follow this OP/BP 4.12 and the <b>resettlement Policy Framework</b>  |  |     |    |
| Cultural resources safeguard screening information   |  | Yes | No |
| 5  | Will the project require excavation near any historical, archaeological or cultural heritage site?   |     | X  |
| If answer to question 5 is "Yes", then <b>OP/BP 4.11 Physical Cultural Resources</b> is applicable and possible chance finds must be handled in accordance with OP/BP and relevant procedures provided in the <b>Environmental and Social Management Framework</b> . |  |     |    |

\* The road Stepantsminda – Trinity church (6 km), 1804 m length section of which will be rehabilitated within the SP belongs to the national roads, managed by the LEPL Roads Department of Georgia. Written consent of the adjacent land plot owners on the road rehabilitation is received.

Land plots passed through by the foot trail are registered as municipal property. Only some sections of the access foot trail to Trinity church, is located in the traditional use zone of the Kazbegi National Park. The respective land plot has already transferred from the Ministry of Environment and Natural Resources protection to Municipal Development Fund for special use (Copy of the Decree of the Ministry of Environment and Natural Resources Protection # i-164, 29.03.2016 is attached to the EMP). According to the decree, entity, that will operate the foot trail shall be defined within the one year.

# Environmental Management Plan

## PART A: GENERAL PROJECT AND SITE INFORMATION

| INSTITUTIONAL & ADMINISTRATIVE                |  |  |   |
|---|--|--|---|
| <b>Country</b>                                | Georgia  |  |   |
| <b>Project title</b>                          | Regional Development Project 3   |  |   |
| <b>Sub-Project title</b>                      | Rehabilitation of Gergeti village road and access foot trail to Gergeti Trinity Church (Kazbegi Municipality).   |  |   |
| <b>Scope of site-specific activity</b>        | <p>Under the SP, it is planned to rehabilitate the motor road in the village Gergeti and access foot trail to Gergeti Sameba in Kazbegi Municipality.</p> <p>The whole length of the rehabilitative road is 1804 m. The section of motor road starts from the left bank of existing motor bridge on the river Terek of the small town Stapantsminda and passes through village Gergeti.</p> <p>Under the presented SP, the following works are envisaged:</p> <ul style="list-style-type: none"> <li>- Arrangement of road bed (processing pavement with jackhammer and excavator, manual excavation of earth and transporting to the landfill) and Cement-concrete pavement;</li> <li>- Dismantling of the existing cement-concrete pipe in the two point of steams crossing and arrangement of new cement-concrete rectangular pipe with cross section 4,0 m<sup>2</sup>.</li> <li>- Arrangement of transverse water inlet with cast iron lattices (0,54X0,70m);</li> <li>- Arrangement of the wire mesh gabions;</li> <li>- Arrangement of the prefabricated road ditch (storm water will be discharged with self streaming in ravines and streams adjacent to the road);</li> <li>- Carriageway marking and installation of road signs</li> </ul> <p>Pedestrian access road (1.4 km) to Gergeti Sameba passes through old revoked forest way. Under the SP it is planed to arrange natural materials steps in complex section of the pedestrian road and wooden benches (20) for rest. Separate sections of the foot path will be profiled and road signs will be installed.</p> |  |   |
| <b>Institutional arrangements (WB)</b>        | Task Team Leader:<br>Rosanna Nitti   |  | Safeguards Specialist:<br>Darejan Kapanadze |
| <b>Implementation arrangements (Borrower)</b> | Implementing entity: Municipal<br>Development Fund of Georgia  | Works supervisor:<br>JV of "Soosung<br>Enginnering Co.Ltd."<br>(Korea), "Voyants | Works<br>contractor:<br>(-----)             |

|  |   |  |  |
|--|---|--|--|
|  |   | Solutions Pvt. Ltd."<br>(India) SAMAN<br>Corporation" (Korea)<br>and<br>"GZAMSHENPROJECT<br>LTD" (Georgia) |  |
| <b>SITE DESCRIPTION</b>  |   |  |  |
| <b>Name of institution whose premises are to be rehabilitated</b>                      | LEPL Roads Department of Georgia<br>Kazbegi Municipality  |  |  |
| <b>Address and site location of institution whose premises are to be rehabilitated</b> | LEPL Roads Department of Georgia : Georgia 0160, Tbilisi, Kazbegi ave N12;<br><br>Kazbegi Municipality: Daba Stepantsminda Al. Kazbegi street №1;   |  |  |
| <b>Who owns the land?<br/>Who uses the land (formal/informal)?</b>                     | <p>The road Stepantsminda – Trinity church (6 km), 1804 m length section of which will be rehabilitated within the SP belongs to the national roads, managed by the LEPL Roads Department of Georgia.</p> <p>Land plots passed trough by the foot trail is registered as municipal property. Only some sections of the access foot trail to Trinity church, is located in the traditional use zone of the Kazbegi National Park. The respective land plot has already transferred from the Ministry of Environment and Natural Resources protection to Municipal Developmnet Fund for special use (Copy of the Decree of the Ministry of Environment and Natural Resources Protection # i-164, 29.03.2016 is attached to the EMP). According to the decree, entity that will operate the foot trail shall be defined within the one yaer.</p>   |  |  |
| <b>Description of physical and natural environment around the site</b>                 | <p>The section of motor road starts from the left bank of existing motor bridge on the river Terek of the small town Stapantsminda and passes through village Gergeti. Houses and homestead lands are located on the both sides of the road, therefore the road gets narrow from 6m to 4 m. Due to the mentioned fact, under the SP arrangement of footways is not envisaged. Design route crosses existing streamlet in two places. The small river is characterized by small water flow ability. At present access motor road in the village Gergeti of Kazbegi municipality is damaged, unsafe and uncomfortable for both traffic and pedestrians.</p> <p>Access foot trail to Gergeti Trinity Church passes trough forested areas and meadows. Forest composition is represented by birch, asp, ordinary ash, sycamore maple and sea-buckthorn. Access foot trail passes through old revoked forest way. Some sections of the mentioned trail are damaged and tourists are paving the ways in new directions.</p> |  |  |



|   |   |
|---|---|
| <b>Locations and distance for material sourcing, especially aggregates, water, stones?</b>  | Nearest licensed borrow pit is located in Kobi district (approximately 16-28 km).   |
| <b>LEGISLATION</b>  |   |
| <b>National &amp; local legislation &amp; permits that apply to project activity</b>  | <p>The SP has been classified as low risk Category B according to the World Bank policies and the ESMF.</p> <p>Georgian legislation does not require any type of environmental review, approval, or permitting for the SP. Though according to the national regulatory system:</p> <ul style="list-style-type: none"> <li>i. construction materials must be obtained from licensed providers,</li> <li>ii. if contractor wishes to open quarries or extract material from river bed (rather than purchasing these materials from other providers), then the contractor must obtain licenses for extraction,</li> <li>iii. if contractor wishes to operate own asphalt or Cement-concrete mixing plant (rather than purchasing these materials from other providers), then the contractor must obtain an environmental permit with an established ceiling of pollutant concentrations in emissions and technical report on inventory of atmospheric air pollution stationary source agreed with Ministry of Environment and Natural Resources Protection.</li> <li>iv. Permanent placement of the inert material (cut ground and sedimentary soil) generated in the course of earth works in a selected location must be approved by local (municipal) governing bodies in written;</li> <li>v. If over 200 tons of nonhazardous waste or over 1000 tons of inert materials or any volume of hazardous waste is generated annually as a result of contractor’s activities, they shall prepare and cause the Ministry of Environment and Natural Resources of Georgia to approve the Waste Management Plan for the Company and waste inventory report and appoint an environmental manager, and submit an information on his/her identity to the Ministry of Environment and Natural Resources of Georgia in accordance with requirements of the “Waste Management Code”.</li> </ul> <p>Copies of extraction licenses (if applicable), permits for operating asphalt/concrete plants (if applicable) and waste disposal permits will be attached to this EMP once the contractor is selected and mobilized to the works site.</p> <p>GOST and SNIP norms must be adhered.</p> |
| <b>PUBLIC CONSULTATION</b>  |   |
| <b>When / where the public consultation process will take /took place</b>   | MDF and local municipality will organize consultation meeting to discuss about EMP with local population before starting of rehabilitation works.   |
| <b>ATTACHMENTS</b>  |   |
| <p>Attachment 1: Site maps of sub-project implementation places and pictures</p> <p>Attachment 2: Decree of the Ministry of Environment and Natural Resources Protection #o-164, (dated 29.03.16) on Transferring land plot from Kazbegi National Park for special use to the MDF</p> |   |

Attachment 2: Minutes of public consultation meetings (to be provided)

Attachment 3: Agreement on waste disposal (to be provided)

Other permits/agreements – as required

**PART B: SAFEGUARDS INFORMATION**

| <b>ENVIRONMENTAL /SOCIAL SCREENING</b>                       |  |   |                     |
|--|--|---|---------------------|
|  | Activity/Issue                               | Activity/Issue  | Activity/Issue      |
| Will the site activity include/involve any of the following? | A. road rehabilitation                       | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | See Section A below |
|  | B. New construction                          | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | See Section A below |
|  | C. Individual wastewater treatment system    | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | See Section B below |
|  | D. Historic building(s) and districts        | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | See Section C below |
|  | E. Acquisition of land <sup>1</sup>          | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | See Section D below |
|  | F. Hazardous or toxic materials <sup>2</sup> | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | See Section E below |
|  | G. Impacts on forests and/or protected areas | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | See Section F below |
|  | H. Handling / management of medical waste    | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | See Section G below |
|  | I. Traffic and Pedestrian Safety             | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | See Section H below |

<sup>1</sup>Land acquisitions includes displacement of people, change of livelihood encroachment on private property this is to land that is purchased/transferred and affects people who are living and/or squatters and/or operate a business (kiosks) on land that is being acquired.

<sup>2</sup>Toxic / hazardous material includes but is not limited to asbestos, toxic paints, noxious solvents, removal of lead paint, etc.

**PART C: MITIGATION MEASURES**

| ACTIVITY   | PARAMETER                      | MITIGATION MEASURES CHECKLIST   |
|--|--------------------------------|---|
| <b>0. General Conditions</b>                                     | Notification and Worker Safety | <p>(a) The local construction and environment inspectorates and communities have been notified of upcoming activities</p> <p>(b) The public has been notified of the works through appropriate notification in the media and/or at publicly accessible sites (including the site of the works)</p> <p>(c) All legally required permits have been acquired for construction and/or rehabilitation</p> <p>(d) The Contractor formally agrees that all work will be carried out in a safe and disciplined manner designed to minimize impacts on neighboring residents and environment.</p> <p>(e) Workers' PPE will comply with international good practice (always hardhats, as needed masks and safety glasses, harnesses and safety boots)</p> <p>(f) Appropriate signposting of the sites will inform workers of key rules and regulations to follow.</p> |
| <b>A. General Rehabilitation and /or Construction Activities</b> | Air Quality                    | <p>(a) Demolition debris shall be kept in controlled area and sprayed with water mist to reduce debris dust</p> <p>(b) During pneumatic drilling/wall destruction dust shall be suppressed by ongoing water spraying and/or installing dust screen enclosures at site</p> <p>(c) The surrounding environment (sidewalks, roads) shall be kept free of debris to minimize dust</p> <p>(d) There will be no open burning of construction / waste material at the site</p> <p>(e) There will be no excessive idling of construction vehicles at sites</p> <p>(f) Truck loads should be confinement and protected with lining.</p>  |
|  | Noise                          | <p>(a) Construction noise will be limited to restricted times agreed to in the permit</p> <p>(b) During operations the engine covers of generators, air compressors and other powered mechanical equipment shall be closed, and equipment placed as far away from residential areas as possible</p> <p>(c) The machinery should move only along the preliminarily agreed route;</p> <p>(d) The maximum allowed speed should be restricted;</p> <p>(e) Proper technical control and maintenance practices of the machinery should be applied;</p> <p>(f) No-load operations of the vehicles and heavy machinery are not allowed. Proper mufflers will be used on machinery.</p>  |
|  | Water Quality                  | <p>(a) Contractor will be required to organize and cover material storage areas. The material storage sites should be protected from washing out during heavy rain falls and flooding through covering by impermeable materials. Appropriate erosion and sediment control measures will be established such as e.g. hay bales and / or silt fences to prevent sediment from moving off site and causing excessive turbidity in nearby streams and rivers;</p> <p>(b) Contractor will plan all excavations, topsoil and subsoil storage so as to reduce to a minimum any runoff;</p>   |

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|  |  | <p>(c) Revision of vehicles will be required to ensure that there is no leakage of fuel and lubricating materials. All machinery will be maintained and operated such that all leaks and spills of materials will be minimised. Daily plant checks (Vehicle Maintenance Procedure) will be undertaken to ensure no leaks or other problems are apparent. Vehicle maintenance, cleaning, degreasing etc. will be undertaken in designated areas, of hard-standing, not over made ground. Maintenance points will not be located within 50m of any watercourse;</p> <p>(d) Lubricants, fuel and solvents should be stored and used for servicing machinery exclusively in the designated sites, with adequate lining of the ground and confinement of possible operation and emergency spills. Spill containment materials (sorbents, sand, sawing, chips etc.) should be available on construction site;</p> <p>(e) Wet cement and/or concrete will not be allowed to enter any watercourse, pond or ditch.</p> <p>(f) Works on the bridges. Contractor shall ensure proper handling of paints materials, oil and lubricants to avoid any spillage of them into the water. It is not advised to paint the metal railings with the sprayer. Storage of potentially polluting materials within 50 m of watercourses is prohibited. Dumping of waste in the rivers/watercourses is prohibited.</p> |
|  | Waste management                                 | <p>(a) Waste collection and disposal pathways and sites will be identified for all major waste types expected from demolition and construction activities.</p> <p>(b) Mineral construction and demolition wastes will be separated from general refuse, organic, liquid and chemical wastes by on-site sorting and stored in appropriate containers.</p> <p>(c) The records of waste disposal will be maintained as proof for proper management as designed.</p> <p>(d) Whenever feasible the contractor will reuse and recycle appropriate and viable materials.</p>  |
|  | Material supply                                  | <p>a) Use existing plants, quarries or borrow pits that have appropriate official approval or valid operating license.</p> <p>b) Obtain licenses for any new quarries and/or borrowing areas if their operation is required;</p> <p>c) Reinstate used sections of quarries and/or borrowing areas as extraction proceeds on or properly close quarries if extraction completed and license expired;</p> <p>d) Haul materials in off peak traffic hours;</p> <p>e) Place speed regulating, diverting, and warning signs for traffic as appropriate.</p>   |
| F. Affected forests, wetlands and/or protected areas | Nature Protection                                | <p>(a) Trees, especially Imeretian Oak, (species included in the Red List of Georgia) along the road must be protected from cutting or unintentional damage; All large trees shall be marked and cordoned off with fencing, their root system protected, and any damage to the trees avoided;</p> <p>(b) Protected area in the immediate vicinity of the activity will not be damaged or exploited, all staff will be strictly prohibited from hunting, foraging, logging or other damaging activities.</p> <p>(c) There will be no unlicensed borrow pits, quarries or waste dumps in adjacent areas, especially not in protected areas.</p>  |
| <b>H Traffic and Pedestrian Safety</b>               | Direct or indirect hazards to public traffic and | In compliance with national regulations the contractor will insure that the construction site is properly secured and construction related traffic regulated. This includes but is not limited to  |

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|--|--|--|
|  | pedestrians by construction activities | <ul style="list-style-type: none"><li>- Signposting, warning signs, barriers and traffic diversions: site will be clearly visible and the public warned of all potential hazards</li><li>- Traffic management system and staff training, especially for site access and near-site heavy traffic. Provision of safe passages and crossings for pedestrians where construction traffic interferes.</li><li>- Adjustment of working hours to local traffic patterns, e.g. avoiding major transport activities during rush hours or times of livestock movement</li><li>- Active traffic management by trained and visible staff at the site, if required for safe and convenient passage for the public.</li><li>- To arrange speed bumps to reduce vehicle speed and appropriate signs (road narrows/mind pedestrians) in agreement with local traffic police.</li></ul> |
|--|--|--|

**PART D: MONITORING PLAN**

| Activity   | What (Is the parameter to be monitored?)  | Where (Is the parameter to be monitored?) | How (Is the parameter to be monitored?)        | When (Define the frequency / or continuous?)         | Why (Is the parameter being monitored?)   | Who (Is responsible for monitoring?)         |
|--|---|---|--|--|---|--|
| <b>CONSTRUCTION PHASE</b>  |   |   |  |  |   |  |
| Supply with construction materials   | Purchase of construction materials from the officially registered suppliers   | In the supplier's office or warehouse     | Verification of documents                      | During conclusion of the supply contracts            | To ensure technical reliability and safety of infrastructure  | MDF, Construction supervisor                 |
| Transportation of construction materials and waste<br>Movement of construction machinery | Technical condition of vehicles and machinery;<br>Confinement and protection of truck loads with lining;<br>Respect of the established hours and routes of transportation   | Construction site                         | Inspection                                     | Unannounced inspections during work hours and beyond | Limit pollution of soil and air from emissions;<br>Limit nuisance to local communities from noise and vibration;<br>Minimize traffic disruption.                                      | MDF, Construction supervisor, Traffic Police |
| Sourcing of inert material   | Purchase of material from the existing suppliers if feasible;<br>Obtaining of extraction license by the works contract and strict compliance with the license conditions;<br>Terracing of the borrow area, backfilling to the exploited areas of the borrow site, and landscape harmonization;<br>Excavation of river gravel and sand from outside of the water | Borrowing areas                           | Inspection of documents<br>Inspection of works | In the course of material extraction                 | Limiting erosion of slopes and degradation of ecosystems and landscapes;<br>Limiting erosion of river banks, water pollution with suspended particles and disruption of aquatic life. | MDF, Construction supervisor                 |

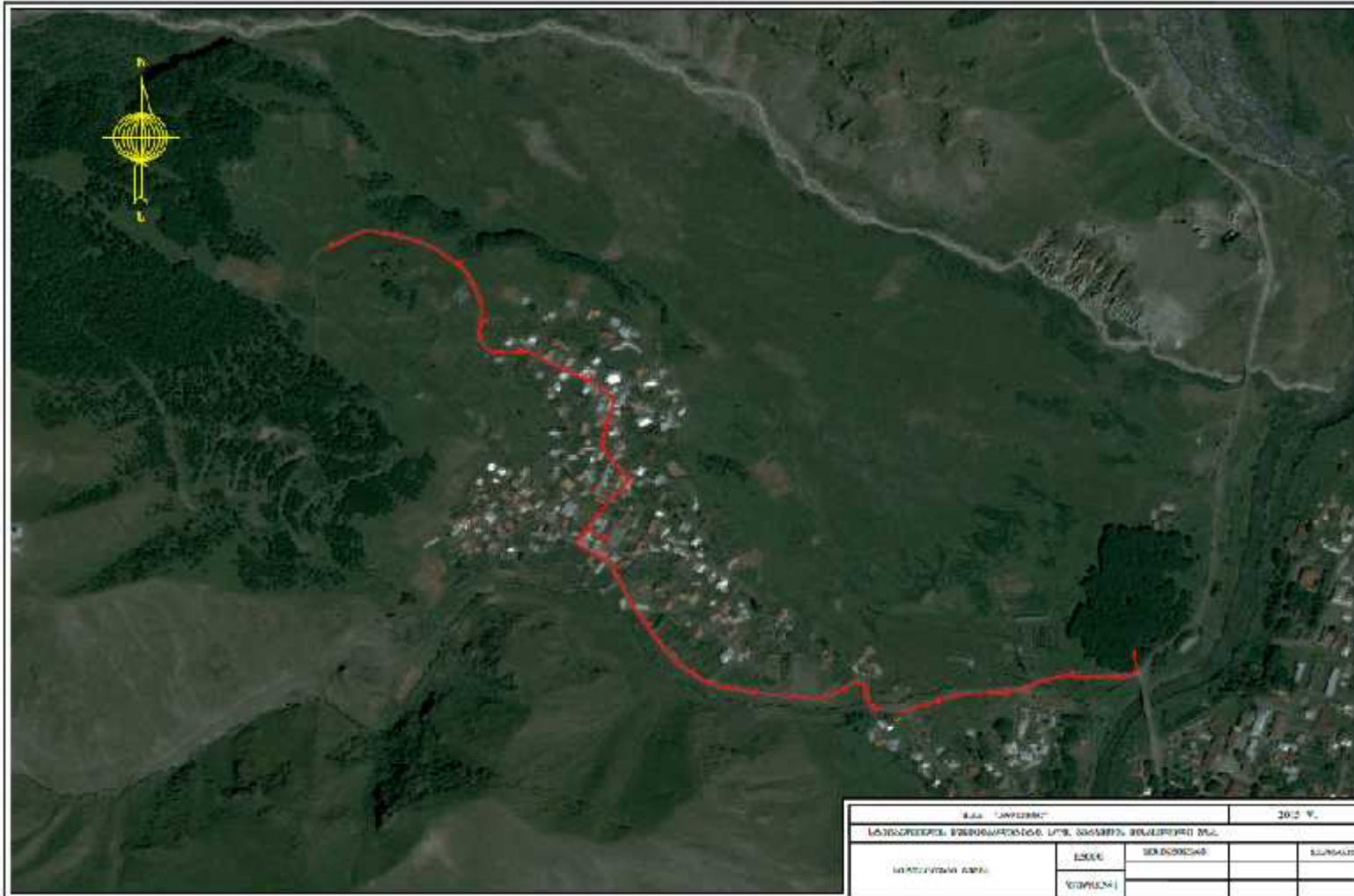
|  |   |   |            |  |   |                                 |
|--|---|---|------------|--|---|---------------------------------|
|  | stream, arrangement of protective barriers of gravel between excavation area and the water stream, and no entry of machinery into the water stream.   |   |            |  |   |                                 |
| Generation of construction waste       | Temporary storage of construction waste in especially allocated areas;<br>Timely disposal of waste to the formally designated locations   | Construction site;<br>Waste disposal site                   | Inspection | Periodically during construction and upon complaints | Prevent pollution of the construction site and nearby area with solid waste | MDF,<br>Construction supervisor |
| Protection of vegetation and landscape | Works implementation area adjacent to Kazbegi national park is surrounded with fences. Large trees are protected from cutting or unintentional damage.<br><br>Protected area in the immediate vicinity of the activity is not damaged or exploited. | Works implementation area adjacent to Kazbegi national park | Inspection | Periodically during construction and upon complaints | Protection of adjacent landscapes and vegetation                            | MDF,<br>Construction supervisor |



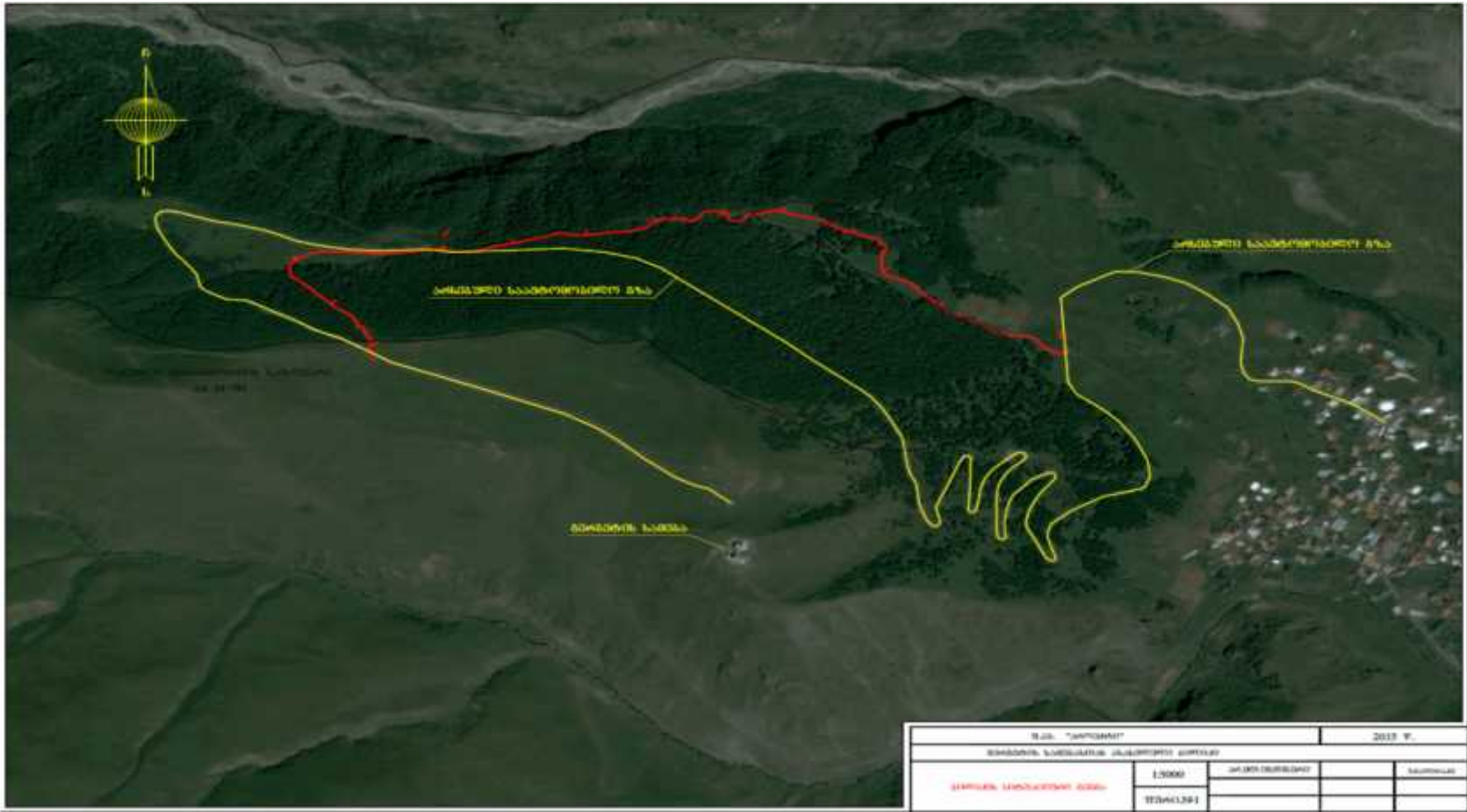
|  |  |                                     |            |   |   |                                 |
|--|--|-------------------------------------|------------|---|---|---------------------------------|
| Traffic disruption and limitation of pedestrian access | Installation of traffic limitation/diversion signage;<br>Storage of construction materials and temporary placement of construction waste in a way preventing congestion of access roads                                      | At and around the construction site | Inspection | In the course of construction works           | Prevent traffic accidents;<br>Limit nuisance to local residents | MDF,<br>Construction supervisor |
| Workers' health and safety                             | Provision of uniforms and safety gear to workers;<br>Informing of workers and personnel on the personal safety rules and instructions for operating machinery/equipment, and strict compliance with these rules/instructions | Construction site                   | Inspection | Unannounced inspections in the course of work | Limit occurrence of on-the-job accidents and emergencies        | MDF,<br>Construction supervisor |
| <b>OPERATION PHASE</b>                                 |  |                                     |            |   |   |                                 |
| Maintenance of rehabilitated road                      | Maintenance of relevant road signage for traffic safety;<br>Demarcation of the sections of streets under repair;<br>Disposal of asphalt and or other waste from the repair works to the designated landfill.                 | Rehabilitated sections of roads     | Inspection | During maintenance works                      | Prevent road accidents and disruption of traffic                | Kazbegi municipality            |

Attachment I. Site maps of sub-project implementation places and pictures

Access Motor Road in Gergeti Village



Access foot trail to Gergeti Trinity Church







Access Footpath to Gergeti Trinity Church



**Attachment 2: Decree of the Ministry of Environment and Natural Resources Protection #o-164, (dated 29.03.16) on Transferring land plot from Kazbegi National Park for special use to the MDF**



