Integrated Revitalization of Cultural Heritage Site of Ubisa Monastery

Sub-Project Environmental Review

WORLD BANK FINANCED
REGIONAL DEVELOPMENT PROJECT 2

Environmental Screening and Classification

Integrated Revitalization of Cultural Heritage Site of Ubisa Monastery sub-project (SP) envisages arrangement of light tourist infrastructure and water supply system for the Ubisa Monastery. Ubisa Monastery is located in West Georgia, Imereti Region, Kharagauli Municiplaity, 175 km west from Tbilisi.

The SP includes:

- Construction of the visitors' center in the vicinity of Ubisa monastery;
- Arrangement of the parking area;
- Rehabilitation of the access road;
- Arrangement of the water supply system for Ubisa Monastery and visitor center;
- Arrangement of internal sewerage system in visitors' center and biological waste water treatment unit.

Total area designated to the arrangement of the tourist infrastructure is 2236 m^2.

The visitor center represents a single-storey frame construction (145.82 m^2) finished by local natural dressed stone. The following premises are arranged in the center: visitors room (23.80 m^2), public WC (22.24 m^2), open terrace (76.20 m^2), roofed terrace (23.58 m^2). Building will be heated by using electricity. A small-size support wall will build up in certain part of the relief for the purpose of arrangement of a parking area nearby the infrastructure facility. The parking area is designed for passenger cars and buses, and provides for parking and availability of movement and turning.

Tourist infrastructure, water intake and waste water treatment unit will be arranged on the land plots which are registered as municipality property.

The tourist infrastructure has been designed by request of the National Agency for Cultural Heritage, on the basis of the designing and planning assignment.

The SP includes rehabilitation access way to Ubisa Monastery complex. In particular rehabilitation of the road cover (length 580 m, width 6 m) with asphalt-concrete layer, arrangement of the storm water ditches (1205 m), arrangement of support wall (252 m) and arrangement of the sidewalks (580 m). Storm water will be discharged in river Dzirula through the pipe.

The current water supply system of the monastery is thoroughly amortized. The source of the current water penstock uses to dry in summer and generally, the debit of this source does not meet even the minimum demands of local water consumers.

The SP includes arrangement of the water supply system for the Ubisa Monastery and the visitor center. Water will be provided from river Dzirula filtrate. Horizontal water intake will be placed on the river Dzirula terrace approximately 80 m distance from river. Drained water will be pumped out to the stainless steel reservoir (V=25m^3) by polyethylene pipe. From reservoir water will flow by polyethylene pipe to the visitor center and Monastery. At water intake chlorination unit will be arranged with chlorinated lime.

At the bank of the river Dzirula, at the upper mark of the flooding zone wastewater treatment structure of the capacity Q= 2 m^3/24hr will be arranged approximately 140 m distance from river. After passing through the treatment unit, water will flow into river Dzirula.

Horizontal water intake (236.25 m^2), water reservoir (40 m^2) and wastewater treatment unit (20.25 m^2), territories will be surrounded with wire fence.

(A) IMPACT IDENTIFICATION

Has the subproject a tangible impact on the environment?	The SP has a modest negative environmental impact and is expected to have tangible long term positive impact on the social environment.
What are the significant beneficial and adverse environmental effects of the subproject?	Construction of the visitor's center of Ubisa monastery will improve infrastructure for service delivery to support the development of tourism-based economy and cultural heritage circuits in the Imereti region. The expected negative environmental and social impacts are likely to be short term and typical for small to medium scale rehabilitation works: noise, dust, vibration, and emissions from the operation of construction machinery; generation of construction waste; disruption of traffic and pedestrian access. Although SP will be implemented around the territory of a cultural heritage site, no interventions are planned on the structural elements of the Monastery buildings. Therefore, the risk of negative impacts on the structural integrity and historical value of the Monastery complex is minimal. As the SP is to be implemented on a CH site, there is higher than average likelihood of encountering chance-finds during excavation works.

May the subproject have any significant impact on the local communities and other affected people?	No new land take and resettlement are expected. The long term social impact will be beneficial: growth of tourist flow, attraction of private sector investment in tourist infrastructure (hotels, restaurants, shopping, entertainment, etc.). Negative impacts are short term and limited to the construction site. They are related to the possible disturbance described above.

(B) MITIGATION MEASURES

Were there any alternatives to the sub-project design considered?	Sitting alternatives for parking and other facilities have been considered and the optimal option selected
What types of mitigation measures are proposed?	The expected negative impacts of the construction phase can be easily mitigated by demarcation of the construction site, traffic management, good maintenance of the construction machinery, observance of the established working hours, and well organized disposal of waste to the formally agreed sites. In case of chance finds, works will be taken on hold and notification be sent to the Ministry of Culture. Works will resume only upon written consent of the Ministry. Water extracted for the supply to the Monastery complex will be chlorinated for disinfection. A biological waste water treatment unit will be installed and maintained properly to avoid water pollution by newly arranged sewage system in the visitor center.
What lessons from the previous similar subprojects have been incorporated into the project design?	The initial design of the tourist infrastructure has been amended and specific changes were made such as engineering details securing sustainability of construction and details securing the rights of using the building by disabled people.

Have concerned communities been involved and have their interests and knowledge been adequately taken into consideration in sub-project preparation?	SP environmental review and management plan was discussed at the public consultation meeting held on October 23, 2014. Minutes of the meeting is attached.

(D) CATEGORIZATION AND CONCLUSION

Based on the screening outcomes,

sub-project is classified as environmental Category A ☐

B ■

C ☐

Conclusion of the environmental screening:

1. Subproject is declined ☐
2. Subproject is accepted ■

If accepted, and based on risk assessment, 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

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)		✓ *
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?		✓
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?		✓
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)?		✓
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 **Resettlement Policy Framework**			

*Tourist infrastructure will be arranged at the land plots which are registered as municipal property (see attached files cadastral information).

Procedure for registration of the horizontal water intake, reservoir and waste water treatment unit territories is ongoing.

Environmental Review and Environmental Management Plan

1. Introduction

1.1. Background Information

The Government of Georgia approved in June 25, 2010 (Government resolution no. 172), the State Strategy on Regional Development of Georgia for 2010-2017, prepared by the Ministry of Regional Development and Infrastructure (MRDI). The main objective of the strategy is to create a favorable environment for regional socio-economic development and improve living standards. These objectives will be attained through a balanced socio-economic development, increased competitiveness and increased socio-economic equalization among the regions.

In order to better utilize the tourism and agriculture potentials that exist in Imereti and reduce internal socio-economic disparities, the Government of Georgia approached the World Bank with the request to provide financial support to the regional development in Imereti. A Regional Development Project II (RDP II) was prepared jointly by the Government of Georgia and the World Bank, and the latter is expected to provide a loan funding for the implementation of RDP II.

SP for the Integrated Revitalization of Cultural Heritage Site in Ubisa Monastery is a part of the RDP II and shall be prepared, reviewed, approved, and implemented in agreement with the requirements of the Georgian legislation and the World Bank policies applicable to the RDP II.

Municipal Development Fund of Georgia (MDF) has an extensive experience in implementation infrastructure projects. Up to date it has implemented numerous projects for the rehabilitation and construction of the buildings, water supply and sewage systems, power supply and roads in the country. It should be noted that the similar Regional Development project (US$75.0 million) is being implemented in Kakheti Region and MDF staff has already gained additional experience in similar projects.

1.2. Institutional Framework

MDF is a legal entity of public law, the objective of which is to support strengthening institutional and financial capacity of local government units, investing financial resources in local infrastructure and services and improving on sustainable basis the primary economic and social services for the local population (communities). MDF is designated as an implementing entity for the RDP and is responsible for its day-to-day management, including application of the environmental and social safeguard policies.

MDF prepares and submits to the World Bank for approval the Subproject Appraisal Reports (SARs), with safeguards documents attached. These may include, as case may be, an Environmental Review (ER) along with an Environmental Management Plan (EMP), an EMP prepared using the Environmental Management Checklist for Small Construction and Rehabilitation Activities, and a Resettlement Action Plan (RAP).

Key Stakeholders

Grant Recipient/ Borrower:	Government of Georgia represented by the Ministry of Finance
Local Representation:	Municipality of Town Kharagauli
Sources of Funding/Financing:	Word Bank (WB) and Municipal Government (MG)/Government of Georgia (GOG)
Implementing Agency:	Municipal Development Fund of Georgia (MDF)

1.3 Legislation and Regulations

According to the law of Georgia on Permit on Environmental Impact (2008) the SP does not require preparation of EIA and obtaining of Permit on Environmental Impact.

The SP triggers to the OP/BP 4.01 Environmental Assessment and OP/BP 4.11 Physical Cultural Resources safeguard policies of the World Bank.

According to the above mentioned safeguard policies and the Environmental Management Framework adopted for the current program, the SP has been classified as B (+) category and requires preparation of Environmental Review (ER) and environmental Management Plan (EMP), in complains with recommendations of Environmental Management Framework (EMF).

2. Subproject Description

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The current water supply system of the monastery is thoroughly amortized. The source of the current water penstock uses to dry in summer and generally, the debit of this source does not meet even the minimum demands of local water consumers. The SP includes arrangement of the water supply system for the Ubisa Monastery and visitor center. Water will be provided from river Dzirula filtrate. Horizontal water intake will be placed on the river Dzirula terrace approximately 80 m distance from river. Drained water will be pumped out to the stainless steel reservoir ($V=25m^3$) by polyethylene pipe (200 m). From reservoir water will flow by gravity polyethylene pipe (150 m) to the visitor center and Monastery. At water intake chlorination unit will be arranged with chlorinated lime.

At the bank of the river Dzirula, at the upper mark of the flooding zone wastewater treatment monoblock "Biotal" type structure of the capacity Q= 2 m^3/24hr will be arranged approximately 140 m distance from river. After passing through the treatment unit, water will flow into river Dzirula.

Horizontal water intake (236, 25 m^2), water reservoir (40 m^2) and wastewater treatment unit territories will be surrounded with wire fence.

3. Baseline Environmental Conditions

Ubisa Monastery is located in the Kaharagauli Municipality, Imereti region, 175 km west from Tbilisi.

Kharagauli Municipality is located in central part of Georgia, at 285-2642 meter altitude above sea level. Relief is hilly. Total area of the municipality is 91, 3 thousand ha.

The climate in the lowland of the Municipality is mildly subtropical with comparatively cold winter and dry summer. Average annual temperature is 14^0C, temperature in January is 3,7 – 4,3^0C and in August - 24^0C. Number of precipitations amounts to 1190 mm.

Geological formation of the surveyed area is mostly due to the early quaternary, late quaternary and segmented quaternary deposits. The early quaternary deposits are represented by shingle, sand and clay that occur on the high terraces of the rivers.

According to the hydro geological zoning of the territory of Georgia, this territory is located on the boundary of the Georgian block artesian basin region Argveti cavernous, fissure, fissure-karst

and Dzirula chrystal massif fissure and fissure-karst ground water district. Hydro geological conditions of this territory bear the features of hydro geological formation of the Argveti cavernous, fissure, fissure-karst water artesian basin region. In this region there are early cretaceous, late cretaceous and Paleogene pressure and alluvial sand-pebble massive aqueous horizons. The fissure and fissure-karst type ground waters have low mineralization level, their composition is sulphate-hydrocarbonated. The horizon is not distinguished by high water.

The Ubisa monastery is located on the right bank of river Dzirula, left tributary of the river Kvirila. Length of the river Dzirula is 83 km. The catchment area of the river is 1270 km^2. The annual average flow of the river is 20,9 m^3/second. The river is fed by rain, snow and ground waters. The spring floods start in April and continue until end of May. The water level of the river is the lowest in September.

The soils of Imereti plain are the sequence of the brown and alluvial type soils.

Area around the village Ubisa is covered by mixed broadleaf forest. The forest consists of: hornbeam, beech, oak, hawthorn, chestnut.

The SP area is strongly modified landscape covered by secondary grass vegetation. Around the SP area there are several poplar trees.

Village Ubisa, which is located in the vicinity of Ubisa Monastery, belongs to Boriti community. The village is located on both riversides of the river Dzirula, at 320 m altitude above sea level, 11 km from town Kaharagauli. There are some 400 inhabitants living in the village. There is a primary public school in the village. The Tbilisi-Senaki highway runs through the village. Main means of livelihood comes from maize, been and vegetable crops. The number of families have small restaurant business operating along the highway.

At Dzirula Riverbank at the outskirts of Village Ubisa is located the ancient Ubisa Monastery Complex St. George Church (IX century) of middle ages. Its foundation is connected with Grigol Khandzteli name. Four-storey tower – dwelling for the column saint (year 1141), ruins of the ancient fence (XII century), later additions to the structures (XVI century), church (bell) tower and other economic structures. The Church and the “Column” (Tower) is built with porous shirimi stone of yellowish color. The facades almost lack the ornamental décor. Ubisa is especially famous for frescos that were painted in XIV century. The most remarkable of the ensemble is the painting of the Church that was implemented (according to the inscription) with the leadership of Damiane – “By the hand of Gerasime who was Damiane’s pupil”. The features of the artist himself and the characteristics of Byzantine painting are noted here. The trace of the other master is noted too. Painting covering the whole arch, walls, and pilasters to almost the floor is quite well preserved. From the one part it continues the traditions of Georgian monumental painting (colors, some iconographic details) and from the other part it reveals tight connection with the monuments of Paleo-logos art. The main area of the arch and walls of Ubisi Church is occupied with the painting reasoning from the traditions of Georgian wall painting.

4. Analysis of Potential Impacts

4.1 Construction Phase

4.1.1 Social Impacts

- **General set of social issues.** Significant social impact of construction activities, like change of local demographic structure, influx of new settlers, secondary development, job opportunities, and increase of AIDS risks is not envisaged.
- **Resettlement Issues.** SP does not imply private land acquisition and no permanent impacts are envisaged on private or leased agricultural lands and private assets or businesses.
- **Positive impact related to Job opportunities for construction workers.** Limited and temporary during construction and limited during operation.
- **Health issues related to noise, emissions, vibration.** Limited and temporary.
- **Traffic Disruption**. Local traffic can be impacted limited and temporary by transport activities related to the SP.
- **Safety and Access.** There will be reduced access to areas adjacent to rehabilitation and potential hazards to vehicles and pedestrians during rehabilitation downtime.

4.1.2. Impacts on the physical Cultural Property

The SP will be implemented around the territory of a cultural heritage site. No interventions are planned on the structural elements of the Monastery buildings. Therefore, the risk of negative impacts on the structural integrity and historical value of the Monastery complex is minimal.

The volume of earth works required for the SP implementation is modest. Nonetheless, there is likelihood of encountering chance finds. In such cases works will be taken on hold immediately, the Ministry of Culture and Monument Protection will be informed in writing, and activity will resume upon formal permission from the National Agency for Cultural Heritage Preservation.

4.1.3 Environmental Impacts

Improper handling, storage, use and disposal of construction materials and wastes could pose a risk of water soil contamination at the construction site and storage site. Improper maintenance and fueling of equipment could also lead to the potential contamination of soil and to some extent – water (near the crossings of the unnamed seasonal stream). The later impact is less probable.

Soil Pollution

Potential pollutants from a SP of this nature include the following (this list is not exhaustive):

- Diesel fuel, lubrication oils and hydraulic fluids, antifreeze, etc. from construction vehicles and machinery;
- Miscellaneous pollutants (e.g. cement and concrete);
- Construction wastes (packaging, stones and gravel, cement and concrete residue, wood, etc.).

Water Pollution

Water pollution may result from a variety of sources, including the following:

- Spillages of fuel, oil or other hazardous substance, especially during refuelling

- Releasing silt water from excavations
- Silt suspended in runoff waters (“construction water”)
- Washing of vehicles or equipment
- Exposure of contaminated land and groundwater
- Impact on surface and/or underground water with chlorine-containing waste water that are expected to be formed in washing and disinfection process before launching operation of newly installed water pipes.

Spillages may move quickly downhill to a watercourse or water body. Once in a watercourse, it can be difficult to contain the pollution which can then impact over a wide area downstream. It is therefore vital that prompt action is taken in the event of any potential water pollution incident.

Once the working width has been stripped of topsoil, the subsoil becomes exposed. During earthworks in a wet weather this may result in uncontrolled release of suspended solids from the work area.

Air Pollution and Noise

Potential impact of air pollution is minimal and related to operation of vehicles and heavy machinery at the construction site and during transportation of materials.

- Noise and vibration arising from heavy machinery and vehicles
- Air emissions (from vehicles, bulldozers, excavators etc.)
- Dust (from vehicles).

Construction Related Wastes

Inert Construction Wastes

The following types of inert waste are anticipated to be produced from these activities:

- Natural materials (soil and rock);
- Contaminated soil with non-hazardous substance or objects

Non Hazardous Construction Wastes

In summary the main non-hazardous construction wastes will include the following:

- Packaging materials.
- Metals (including scrap metal and wire) – negligible amount of metal waste is expected.

Hazardous Construction Wastes

Small quantities of the hazardous wastes will arise mainly from the vehicle maintenance activities. A number of hazardous wastes, which could be generated, include:

- liquid fuels;
- lubricants, hydraulic oils;
- chemicals, such as anti-freeze;

- contaminated soil;
- spillage control materials used to absorb oil and chemical spillages;
- machine/engine filter cartridges;
- oily rags, spent filters, contaminated soil, etc.

Transport related impacts

- Noise & Vibration Impacts
- Traffic congestion (nuisance)
- Air pollution
- Mud on roads
- Refuelling, maintenance and vehicle cleaning and related risks of soil and water contamination.

Topsoil losses due to topsoil stripping

- Topsoil washout due to improper storage and reinstatement
- Silt runoff to watercourses and water bodies
- Exposure of contaminated land

Vegetation, Fauna and Landscape

Potential impact on vegetation is minimal, although the SP design envisages. The SP does not envisage woodcutting or cutting of bushes. Measures will be implemented to avoid any damage of the Red listed plants (especially roots) and other large trees in the vicinity of SP area.

Not a single fauna species found in the SP area is protected by either the national legislation of Georgia or any other international agreements and treaties. Besides, the SP site is not a wintering, feeding or migrating place for the mentioned species.

The SP design does not envisage any substantial changes of landscape. The preexisting relief will be reinstated.

4.2 Operation Phase

Potential impact related to the operation of the provided light infrastructure would be the following:

- Increase of the number of tourists will result in the increased volume of waste and noise;
- The traffic will increase in adjacent area of CH sites, which will result in the increased level of local emissions and noise as well as traffic safety issues;
- Tours of sites of worshipping may conflict with local traditions and/or religious beliefs;
- Shooting photos of wall paintings may result in damage due to photochemical reactions induced by flashing.

The potential risks of chlorination of the supplied water are related to disruption of chlorination process when:

- Inappropriate transportation, storage and application of chlorination lime, it may cause damage to personnel health and chlorine content overdose in potable water;
- Interruption of chlorination process.

Positive social impact will be related to the increasing of the tourist infrastructure that will have positive effect on the local population, in terms of employment.

5. Mitigation Measures

This Environmental Management Plan (EMP) has been prepared to ensure that negative environmental impacts associated with this SP are minimized.

5.1 Construction Phase

The contractor is required:

1. To obtain construction materials only from licensed providers;
2. 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 inert material extraction;
3. If contractor wishes to operate own asphalt (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;
4. If contractor wishes to operate own concrete plant (rather than purchasing these materials from other providers), then the contractor must prepare technical report on inventory of atmospheric air pollution stationary source and agree with the Ministry of Environment and Natural Resources Protection (MoENRP);
5. Construction waste must be disposed on the nearest municipal landfill in accordance with written agreement with the Municipal authorities and approved by the supervisory company. The records of waste disposal will be maintained as proof for proper management as designed.
6. Copies of extraction licenses (if applicable), agreed technical report on inventory of atmospheric air pollution for operating concrete plants (if applicable), and waste disposal agreement must be submitted to the MDF prior to the commencement of works.

A number of restrictions and mitigation measures are to be taken into account during the construction process:

1. The machinery should move only along the preliminarily agreed route;
2. The maximum allowed speed will be restricted;
3. The frequency of movement of the machinery will be restricted;
4. Uncontrolled storage of hazardous wastes on the construction area will be prohibited;
5. Any construction or municipal wastes produced during construction stage should remove from the site area every day at the end of working hours;

6. Large trees in the vicinity of the SP area shall be marked and cordoned off with fencing, their root system protected, and any damage to the trees avoided.

7. In course of construction activities and especially during soil excavation works, in case of observing any suspicious object, the rehabilitation works will be suspended and will restart only upon issuance of the permit by the National Agency for Cultural Heritage Preservation.

Noise

The following measures will be implemented for noise reducing:

- The import of the inert material shall be conducted from the licensed quarries nearby SP area. The rout of the transport movement during the transportation of inert material and any other construction material should be agreed upon with the appropriate regional services and overload with the trucks and violation of the allowed traffic intensity should not take place;
- The maximum speed should be restricted;
- Proper technical control and maintenance practices of the machinery should be applied;
- Activities should be limited to daylight working hours.

Pollution

Water/Soil Pollution. Specific mitigation measures should be implemented at the construction site for prevention of water and soil pollution:

- Prevent operation of vehicles in the watercourses;

- 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, and degreasing will be undertaken in designated areas, of hard-standing, not over made ground. Maintenance points will not be located within 50m of any watercourse.

- 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.

- No fuel, lubricants and solvents storage or refuelling of vehicles or equipment will be allowed near the cultural heritage site.

- Contractor should 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.

- Wet cement and/or concrete will not be allowed to enter any watercourse, pond or ditch.

- Washing and disinfection of the newly paid pipelines and reservoirs

Upon completion of washing and disinfection of pipes and reservoirs the disinfection solution will be neutralized by the contractor prior to release to the environment – to avoid damage to terrestrial or aquatic organisms. In the case of disinfection via chlorination this is achieved by application of a reducing agent, such as sodium bisulfate to achieve de-chlorination. The reducing agent, in turn, must be applied by the contractor at the precise dosage to neutralize the disinfectant – but no more, since reducing agent residuals are also detrimental to aquatic ecosystems.

Releasing of neutralized water to the environment by the contractor will be agreed with the local municipality.

The disposal of excess soil and rock

- Allow local communities to utilise any excess rock, which may be left following reuse. Suitable access to the materials will be agreed with the local authorities in consultation with the community.
- Transport any remaining material, if required, for the permanent disposal to the location authorised in writing by local authorities.

Waste Handling

- Construction waste should be removed frequently from the SP site and site shall be kept clean and tidy. Temporary storage area of the construction waste should be enclosed and protect from the washing out.
- Construction waste must be disposed on the nearest municipal landfill in accordance with written agreement with local authorities and supervisor company. The records of waste disposal will be maintained as proof for proper management as designed.
- Municipal waste (rubbish, plastic or glass bottles, glasses, waste food, etc.) should be placed into plastic containers and removed from the site every day.
- Burning of waste on construction site is forbidden.
- The records of waste disposal will be maintained as proof for proper management as designed.

Dust and emissions

All vehicles shall be maintained so that their emissions do not cause nuisance to workers or local people. Activities will be limited to daylight working hours to reduce impacts. All vehicles will be checked and repaired in case of need to eliminate increased level of noise due to damaged parts.

If deemed necessary in dry conditions or where significant quantities of dust are being or are likely to be produced mitigation measures will be arranged with the Construction Manager. Mitigation measures will include:

- Dumping down using water bowsers with spray bars or other technical means;
- Sheeting of construction materials and storage piles; and
- Use of defined haulage routes and reductions in vehicle speed where required. Materials will be transported to site in off peak hours.
- Materials and waste will be covered/ wetted down while transportation to reduce dust. The construction site will be watered as appropriate. Protective equipment will be provided to workers as necessary. All vehicles will be checked and repaired in case of need to eliminate increased emission due to damaged parts.
- During demolition works destruction dust shall be suppressed by ongoing water spraying and/or installing dust screen enclosures at site;
- The surrounding environment (sidewalks, roads) shall be kept free of debris to minimize dust;
- There will be no open burning of construction / waste material at the site;
- There will be no excessive idling of construction vehicles at sites.

Subsoil Storage

The storage of subsoil in stockpiles, no more than 3m high with side slopes at a maximum angle of 60^0, will take into consideration the following:

• Dedicated storage locations where the stockpiles will not be compacted by vehicle movements or contaminated by other materials; and

• Segregation from topsoil stockpiles.

Topsoil storage and reinstatement

Topsoil should be stripped before starting of earthworks.

The topsoil shall not be handled by construction contractor when the following conditions are observed:

• The topsoil is frozen;
• The site is experiencing persistent rainfall;
• The topsoil is saturated; or
• Handling will damage the structure of the topsoil.

Topsoil will be stored in stockpiles, no more than 2m high with side slopes at a maximum angle of 45^0. The following shall also be taken into consideration:

• Dedicated storage locations will be used that prevents the stockpiles being compacted by vehicle movements or contaminated by other materials;

• Topsoil will be segregated from subsoil stockpiles;

• No material will be stored where there is a potential for flooding;

• No storage at less than 25m from river/streams, subject to the site specific topography.

In the event that the stockpiles experience significant erosion the Contractor will be required to implement corrective action, such as installing erosion matting over the stockpiles if further surface compaction and/or topsoil seeding fails. The Contractor shall protect the stockpiles from flooding and run-off by placing berms or equivalent around the outside where necessary.

Stored topsoil should be used for reinstatement and landscaping. Topsoil from the sites, which will not be reinstated to the initial conditions will be distributed carefully on the surrounding area.

Protection of adjacent landscapes and vegetation

Loss of trees will be avoided. Adverse effects on all trees within or in the vicinity of the SP site shall be minimized by the adoption of suitable mitigation measures, including, but not limited to the following (where appropriate):

- the use of matting around the root zone to prevent excess soil compaction;
- the use of paling around the trunk to prevent damage; and
- notwithstanding (ii) above, construction activities shall be controlled in the vicinity of all trees so as to minimize excessive compaction of the ground beneath the entire canopy of the tree. No heavy materials or plant shall be stored, and construction traffic movements shall be controlled, within the areas.

Any tree that is damaged or cut down without approval or dies as a consequence of the construction shall be treated or be replaced by a suitably sized transplant to the approval of the MDF.

Movement of vehicles will strictly limit within traffic lane; Pockets for turning of vehicles should be arranged. All workers will be strictly prohibited from, foraging, waste dump or other damaging activities to adjusted landscapes.

Mitigation measures for Site safety access

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:

- Signposting, warning signs, barriers and traffic diversions: site will be clearly visible and the public warned of all potential hazards;
- Alternate safe pavement will be provided for visitors.
- Construction site and all trenches should be fenced and properly secured to prevent unauthorized access (especially of children);
- Appropriate lighting and well defined safety signs should be provided;

- Adjustment of working hours to local traffic patterns, e.g. avoiding major transport activities during rush hours or times of livestock movement.

5.2 Operation Phase

For proper management of the **increased volume of waste** generated due to the increased number of visitors the following measures have to implement:

- **Containers should be placed.** The number and volume of containers to be placed in the tourists gathering centers depends on the following factors: the expected number of tourists; the area of the territory, existence of access roads. Based on the calculations, for the expected 300 tourists one 1.1 m^3 capacity metal container should be placed. It should be taken into consideration that the distance between containers should not exceed 50m and at the same time the 1.1 m^3 containers should be easily accessible by the respective vehicles and there should be space for maneuvering. If the abovementioned requirements cannot be met, a smaller size easily portable 0.24 m^3 plastic containers should be used.
- **Imposing of penalty sanctions against littering of the site.** Placement of the containers will have no tangible result, if the penalty sanctions are not imposed and exercised. The more effectively the penalty mechanism is introduced, the more accelerated will be the pace of fulfillment of the set target.

The traffic will increase in adjacent area of CH sites, which will result in the increased level of local emissions and noise as well as traffic safety issues. The Mitigation measures for this will be:

- Parking lots will be located along the access road the Monastery.
- The car parking area and lots are located so that cars and buses will be able to stop and maneuver uninterruptedly;
- The proper management services will reduce negative impacts, imposed by traffic jams causing increased volumes of emissions and noise.

To ensure **safe functioning of the water supply disinfection system via chlorination** following mitigation measures will be implemented:

- Health & Safety Plan for protection of operations staff & environment - will be prepared, regarding transport, storage, use, application, disposal, emergency first-aid facilities/ procedures for chlorine disinfection system;

- Operations & Maintenance Training (upon facility start-up and 4x seasonally during guarantee period) – will be executed by works contractor, including supply of Operations Manuals and preparation of Training Program -Summary Report.

Noise and shouting is forbidden at the monastery territory. Shooting photos should be limited to in monasteries and especially near the wall paintings. A dress code is applied at the monastery site. Restrictions come from the patriarchate of Georgian Orthodox Church and monastery authorities. Women requested not to wear shorts or open t-shirts and to put on skirts cover head with scarf will be available for skirts and scarves provided at all entrances for free; and men are required not to cover heads with sport caps and not to wear shorts.

At the monastery to take photos monks without their permission is not allowed. There are some exceptions with prior agreement to monastery authorities.

6. Monitoring

MDF carries overall responsibility for monitoring of the implementation of the environmental mitigation measures. A consulting firm hired for supervision of works will supplements MDF's in-house capacity for tracking environmental and social compliance of works undertaken under this SP. Field monitoring checklist will be filled out and photo material attached on monthly basis. Narrative reporting on the implementation of EMP will be provided on quarterly basis as part of the general progress reporting of MDF. MDF will also be expected to obtain from contractors and keep on file all permits, licenses, and agreement letters which contractors are required have according to the Georgian law for extracting material, operating asphalt/concrete plants, disposing various types of waste, etc.

7. Costs of Implementation

Costs of implementing the proposed individual mitigation measures are small and difficult to single out from the costs of construction operations. Nonetheless, it is recommended that Bill of Quantities presented in the tender documentation carries a line item for the disposal of waste and excess materials. Other costs of adherence to good environmental practice and compliance with this EMP are expected to be integrated into the pricing of various construction activities.

8. MONITORING MANAGEMENT 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?)
CONSTRUCTION PHASE						
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 Movement of construction machinery	Technical condition of vehicles and machinery Confinement and protection of truck loads with lining 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; Limit nuisance to local communities from noise and vibration; Minimize traffic disruption.	MDF, Construction supervisor, Traffic Police
Earth Works	Temporary storage of excavated material in the pre-defined and agreed upon locations;	Construction site	Inspection	In the course of earth works	Prevent pollution of the construction site and its surroundings with construction waste;	MDF, Construction supervisor NACHP

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?)
	Backfilling of the excavated material and/or its disposal to the formally designated locations; In case of chance finds immediate suspension of works, notification of the Ministry of Culture and Monument Protection, and resumption of works exclusively upon formal consent of the Ministry.				Prevent damage and loss of physical cultural resources	
Sourcing of inert material	Purchase of material from the existing suppliers if feasible; Obtaining of extraction license by the works contract and strict compliance with the license conditions; Terracing of the borrow area, backfilling to the exploited areas of the borrow site, and landscape harmonization; Excavation of river gravel and sand from outside of the water stream,	Borrowing areas	Inspection of documents Inspection of works	In the course of material extraction	Limiting erosion of slopes and degradation of ecosystems and landscapes; Limiting erosion of river banks, water pollution with suspended particles and disruption of aquatic life.	MDF, Construction supervisor

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?)
	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; Timely disposal of waste to the formally designated locations	Construction site; Waste disposal site	Inspection	Periodically during construction and upon complaints	Prevent pollution of the construction site and nearby area with solid waste	MDF, Construction supervisor
Washing and disinfection of the newly laid pipelines	Neutralization of disinfecting solvent prior to release to the natural environment	End points of pipelines	Inspection	In course of pipeline washing by the time of completion of their installation	Prevent environmental damage due to release of concentrated disinfectant solvents	MDF, Construction supervisor

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?)
Construction activities	Marking and cordoning of the large trees, Protecting of the roots of the plants.	Along the route of water supply and sewage pipes	Inspection	Periodically during construction and upon complaints	Protection of adjacent landscapes and vegetation	MDF, Construction supervisor
Traffic disruption and limitation of pedestrian access	Installation of traffic limitation/diversion signage; 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; Limit nuisance to local residents	MDF, Construction supervisor
Workers' health and safety	Provision of uniforms and safety gear to workers; 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, Construction supervisor

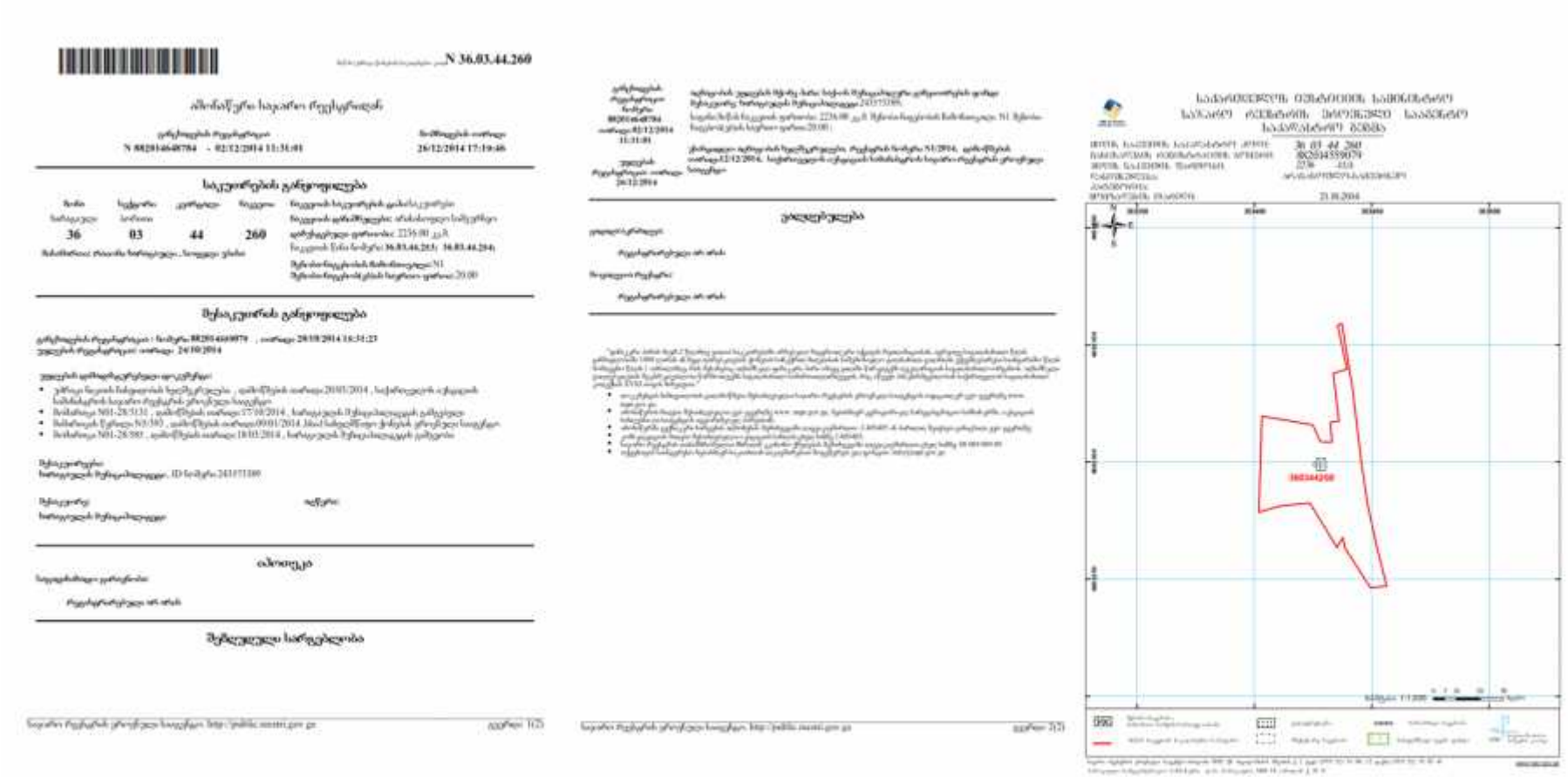
Activity	What (Is the parameter to be monitored?)	Where (Is the parameter to be monitored?)	How (Is the parameter to be monitored?)	When (Define the frequency / or continuous?)	Why (Is the parameter being monitored?)	Who (Is responsible for monitoring?)
OPERATION PHASE						
Management of the solid waste from the visitors' center	Trash binds provided on site and arrangement in place for timely regular out-transporting of waste	Rehabilitated facilities	Inspection	During operation of facilities	Prevent littering of the site and area around it	Kharagauli municipality
Servicing of water supply scheme and sewage treatment unit	Water supply scheme does not leak and water supply uninterrupted Sewage treatment block operate smoothly	Rehabilitated facilities	Inspection	During operation of facilities	Prevent water loss and water logging of the site; Prevent pollution of surface and ground water with untreated sewage	Kharagauli municipality
safe functioning of the water supply disinfection	Health & Safety Plan for protection of operations staff & environment is prepared, regarding transport, storage, use, application, disposal, emergency first-aid facilities/	Potable water treatment facility	Inspection	Upon start-up of water supply system operation	Prevent environmental damage due to operational and emergency release of chlorine	Kharagauli municipality

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?)
system via chlorination	procedures for chlorine disinfection system; Operations & Maintenance Training (upon facility start-up and 4x seasonally during guarantee period) – is executed by works contractor, including supply of Operations Manuals and preparation of Training Program -Summary Report.					
Maintenance and operation of the monastery complex and the visitors' center	No unauthorized construction and no informal land use in the vicinity of the historical site	Rehabilitated facilities	Inspection	During operation of facilities	Prevent loss of the historical and aesthetic values of the monument and surrounding area	Kharagauli municipality

Attachment 1. General Plan of the tourist infrastructure

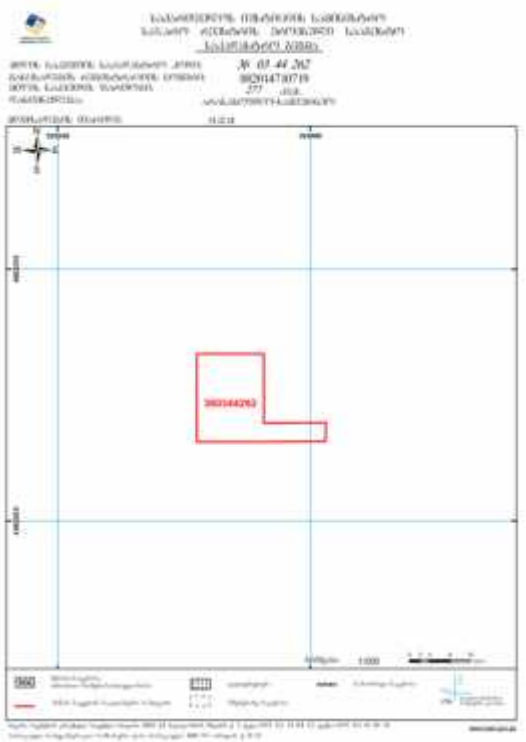
Attachment 3. Cadastral Information

a) Visitor Center and Water Reservoir



b) Waste water treatment unit

g) Water intake and pump station



Attachment 4: Documentation on Public Consultation Process

Imereti Regional Development Project

Public Hearings on Natural and Social Environmental Management Plan for the SP of Improvement of Cultural Heritage Zone by Ubisa Monastery

Minutes

October 23, 2014

On October 23, 2014 public hearings on natural and social environmental management plan for the Sub-Project of Improvement of Cultural Heritage Zone by Ubisa Monastery were held in Village Ubisa (Kharagauli Municipality) public school building.

Those present at the meeting:

Koba Lursmanashvili – Gamgebeli of Kharagauli Municipality, Manana Barbakadze – Deputy Chairman of Kharagauli Municipality Sakrebulo, Jemal Maghlakelidze – Authorized Representative of Boriti Community, Giorgi Tsikarishvili - Assistant to Authorized Representative of Boriti Municipality, Nino Kapanadze – Journalist of the Newspaper "Chemi Kharagauli", Mirza Gamezardashvili - Press Service of Kharagauli Gamgeoba, Inga Beradze – Adviser to Gamgebeli on Gender Equality Issues, Malkhaz Pkhaladze – Head of Infrastructural Service of Gamgeoba, Makar - Father Superior of Ubisa Monastery.

Representatives of Boriti Community: Khatuna Sebiskveradze, Nazibrola Sebiskveradze, Otar Sakhvadze, Tsiala Sakhvadze, Gizo Sakhvadze, Temur Sebiskveradze, Maya Gelashvili, Inga Barbakadze, Izo Barbakadze, Manana Kvelaidze, Pati Nozadze, Nino Shomakhia, Shorena Sakhvadze, D. Sebiskveradze, N. Kanchaveli, G. Sebiskveradze, Besik Sakhvadze, Giorgi Khutsishvili.

Representatives of the Municipal Development Fund of Georgia: Ana Rukhadze – Environmental Safety Specialsit, Ushangi Papuashvili – Environmental Protection and Safety Specialist, Irakli Tsurtsumia – Project Assessment Unit, Avtandil Gotsadze – Specialist of West Georgia Project Monitoring Unit;

Other attendants: Lasha Zhorzholiani – "Inzhmsheni - 96" Ltd. and Paata Chankotadze - Consulting Company "Eptisa".

The meeting was opened by Anna Rukhadze, who briefed the public about the projects ongoing and planned under Imereti Regional Development Projcet. Afterwards, she presented to the audience a Natural and Social Environmental Management Plan for the Ubisa cultural zone improvement Sub-Project. She discussed works planned under the Sub-project, its expected environmental impact and mitigation measures, as well as environmental protection liabilities of the contractors. A. Rukhadze informed the participants of the contact persons, which may be communicated with by the population in case of existence of any complaints concerning environmental or social impact issues.

Participants posed the following questions:

Questions and remarks	***Answers and comments***
When is the sub-project commencement planned?	Works under sub-project are expected to commence on November 1, 2014.
What is the amount of sub-project budget?	Cost of sub-project amounts to GEL 1 039 774.
How will the wastewater get treated?	The sub-project envisages biological treatment of wastewater with "Biotale" type 2m^3/24hr capacity treatment plant. This type of treatment plant provides not only for mechanical, but also for biological treatment of wastewater.
Will the local labor be employed?	Labor will be employed by the civil works contractor. In accordance with World Bank requirements, in case of equal qualification, preference will be given to local labor force. The representative of "Inzhmsheni-96" Ltd has clarified that maintenance workers will be hired locally; moreover, local specialists with adequate qualification will be advantaged.
Is street lighting envisaged along the road?	The project does not envisage arrangement of street lighting along the road.
Will it be possible to sell souvenirs in the visitors' center?	Arrangement of the souvenir shop in the visitors' center is envisaged under the project.

Gamgebeli of Kharagauli Municipality noted that the Municipality Gamgeoba was actively involved in project planning. The person in charge of project implementation from the side of the Municipality is Manana Barbakadze - Deputy Chairman of Sakrebulo, the Infrastructural Service of Gamgeoba will also be actively involved in this process. It is considerable that as a result of project implementation, new technologies of quality potable water supply and wastewater treatment will be piloted in the Municipality, which is a very costly project. Though, in future, similar technologies may be used for provision of water supply to the population. Under the sub-project road will be rehabilitated from the central road turn to the bridge over river Dzirula. However, the Municipality plans to rehabilitate the road up to the village Ghoresha (22km) and finally the above-mentioned road will connect with the new highway. The

Gamgebeli noted that it would be advisable to introduce amendments to the SP and add street lighting installation works. But if the above-mentioned amendment will hamper project implementation, than Gamgeoba will seek to allocate respective resources required for the lighting project. Finally, the Gamgebeli stated that implementation of the above-mentioned SP is of great importance in terms of touristic infrastructure adjustment in Kharagauli Municipality.

Father Superior of Ubisa Monastery has favorably received all activities planned under the present SP and has encouraged its implementation.

Minutes prepared by Anna Rukhadze, MDF Environmental Safety Specialist.

October 24, 2014.

რეგიონული განვითარების მეორე პროექტი

კულტურული მემკვიდრეობის ზონების კეთილმოწყობა უბისას მონასტერთან

ქვე-პროექტის ბუნებრივ და სოციალურ გარემოზე ზემოქმედების მართვის გეგმის საჯარო განხილვა

23 ოქტომბერი, 2014 წელი

შეხვედრაზე დამსწრეთა რეგისტრაციის ფურცელი

	სახელი, გვარი	ორგანიზაცია	საკონტაქტო ინფორმაცია	ხელმოწერა
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4.	[illegible]	[illegible]	595 44-55-65	[illegible]
5.	[illegible]		593- 49 - 65 - 45.	[illegible]
6.	[illegible]		551-70-96-50	[illegible]

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8.			599181753	
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12.			577-67-13-12	
13.			57767 13 23	
14.			577 67 13 21	
15.			57767 13-19	
16.			577 67 13 15	

17.	ნინო ჭოხბია	ყვარლის სკ. სტუდ. პარლამენტი.	555 11-59-91.	ნ. [illegible]
18.	მირიანა ნახვაძე		568 85-87-95	მ. ნახვა[illegible]
19.	ქ. [illegible]			
20.	[illegible]			
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23.	[illegible]			
24.	ნ. ყანჩაველი			
25.	[illegible]