



MUNICIPAL DEVELOPMENT FUND OF GEORGIA

Rehabilitation of Batonis Tsikhe (Museum and territory) in Telavi Town - Phase 2



Environmental Review

**WORLD BANK FINANCED
REGIONAL DEVELOPMENT PROJECT**

**Tbilisi
May, 2015**

ABBREVIATIONS

| | |
|--------|--|
| WB | World Bank |
| EIA | Environmental Impact Assessment |
| EMP | Environmental Management Plan |
| ER | Environmental Review |
| MDF | Municipal Development Fund |
| MoENRP | Ministry of Environment and Natural Resources Protection |
| RDP | Regional Development Project |
| SECHSA | Strategic Environmental, Cultural Heritage, and Social Assessment |
| CH | Cultural Heritage |

Environmental Screening and Classification

The Subproject (SP) site is located in city Telavi, in eastern Georgia. The city represents the Administrative center of Kakheti region and is located on foothills of Tsiv-Gombori Range and the Plain of Alazani River. 550-800 m above the sea level. Access to the site is possible through Tbilisi-Telavi motorway and distance from Tbilisi is 158 km.

Batonis Tsikhe Museum is located neighboring to the Palace of the King Erekle II, at Erekle II Square, in Telavi city. The SP envisages reconstruction and functional equipment of present unfinished facility, as well as building of a new space for Iashvili gallery. Building design mainly contains deaf facades. Part of the roof will be surfaced with soundboard. Also it is planned to arrange a terrace and café on this section of the roof.

The palace and the museum are set out on the 21 607km² area, which represents the state owned land and is transferred to the Telavi Historical Museum under the status of usufruct.

The SP includes the following activities:

- Reconstruction and functional equipment of present unfinished facility
- Facing works
- Equipment with engineering communications
- Landscaping

The building, where museum should be arranged, is one of the buildings included in the architectural complex of Batonis Tsikhe along with the Palace of the King Erekle II. It is a semi-basement space with a high (5.5 m) ceiling, where, according to the original design, a wine museum was planned to be arranged. The SP also envisages arrangement of two exhibition halls, café and administration on the upper floor.

Taking into consideration a new architectural task and recommendations, the main exhibition hall, as well as halls for temporary exhibitions are planned to be arranged on the existing floor. In addition, an independent space will be allocated for so called "Iashvili collection", as well as appropriate spaces will be considered for administration, conference hall and all other auxiliary storage areas. A café will be arranged above the main exhibition hall. As there is not enough space for all exhibition and conference halls of "Iashvili Collection" within the existing building, a one-story building is planned to be constructed along the historic wall to the South of the existing building.

(A) IMPACTS IDENTIFICATION

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| <p>Has sub-project a tangible impact on the environment?</p> | <p>The SP is expected to have a modest short-term negative environmental impact while its long term impact will be positive.</p> <p>The main impact during the construction phase will be related to the movement and operation of heavy vehicles and supply of materials. The expected impacts (noise, emissions, construction and domestic waste generation, temporary disturbance of traffic and pedestrian access, etc) are transitory and insignificant.</p> |
| <p>What are the significant beneficial and adverse environmental effects of the subproject?</p> | <p>SP is expected to have positive long-term environmental and social impact through arrangement of high standard, multifunctional museum neighboring to the CH site and will improve touristic attraction. The increased tourist flows will have positive social impact through improvement of employment opportunities.</p> <p>In addition, the object will be much more protected from the influence of climatic and other natural phenomena through the implementation of the project.</p> <p>The expected negative environmental and social impacts are likely to be short term: as a result of rehabilitation and construction works, dust and emissions from the operation of construction machinery will be increased, background noise and vibration levels will rise, generation of different types of construction waste is expected, the flow of traffic may be temporarily obstructed, etc. The main receptors of the impact are the local population, students and teachers of the adjacent school.</p> <p>In addition, increased tourist flows may have indirect negative environmental impacts: waste generation, vandalism, etc.</p> |
| <p>May the sub-project have any significant impact on the local communities and other affected people?</p> | <p>No physical or economic resettlement is expected as a result of project implementation.</p> <p>The long-term social impact will be beneficial (improvement of local population living conditions and growth of tourist flow), as the local</p> |

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| | <p>community will be provided with a new comfortable building of museum which will cause significant improvement of the conditions for local staff 64 (61 female and 3 male) and tourists.</p> <p>Personnels' salary is paid by the Ministry of Culture and Monument Protection of Georgia. SP will not have effect on personnels' income, as their salary will be paid uninterrupted by ministry during the civil works within SP (the relevant letter will be provided).</p> <p>SP will create temporary employment opportunities for locals during the construction works; that will increase their income of local population.</p> <p>Due to construction of Cafe, number of employed persons will be increased and income of local population will be increased too.</p> <p>Significant social impact of rehabilitation activities, like change of local demographic structure, influx of new settlers, secondary development, and increase of AIDS risks is not envisaged.</p> <p>Negative environmental impacts described above will be short term and limited to the construction site. School #1 is an operational school where the teaching process will continue in ordinary mode. It should be taken into consideration that the school will be closed for holidays in end of May and short-term disturbance expected from the construction process will be minimised.</p> <p>The temporary space for exhibits storage was found in the different side of school building that is isolated from the other part of school, where classrooms are located and no vacating of the classrooms needed. So temporary storage of exhibits in the #1 school building will not cause disruption of teaching process and carry out any risk of damaging exhibits.</p> |
|--|--|

(B) MITIGATION MEASURES

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| <p>Were there any alternatives to the sub-project design considered?</p> | <p>Arrangement of a wine museum in the existing building and exhibition halls, cafe and administration on its upper floor was considered as a project alternative. Considering proposed recommendations, priority has been given to the arrangement of the main exhibition and temporary exhibition halls of the museum. The proposal is an attempt to arrange museum without large construction works. It should be noted that the new architecture of the building, as the context requires, has been selected so that to be less distinct and not to suppress the dominance of walls and palace complex.</p> |
| <p>What types of mitigation measures are proposed?</p> | <p>Reduction of adverse environmental impact during the rehabilitation and construction works will be possible through protecting the following key conditions: fencing the construction site and fixing the relevant signs throughout its perimeter, proper management of waste and constant monitoring, ensuring the technical functionality of machinery used during construction works, selecting less sensitive period (daytime) for construction works, If necessary, the population and other receptors (school pupils and teachers) should be properly explained and so forth.</p> |
| <p>What lessons from the previous similar projects have been incorporated into the sub-project design?</p> | <p>The project design was selected based on the principles, approaches and methodology provided in the Action Plan for Conservation of Batonis Tsikhe Complex.</p> |
| <p>Have concerned communities been involved and have their interests and knowledge been adequately taken into consideration in subproject preparation?</p> | <p>Telavi population was informed about the planned activities related to the restoration of Batonis Tsikhe building and reconstruction of museum building located adjacent to the Batonis Tsikhe. Reaction of the local population is positive.</p> <p>SP EMP will be available for local population and will be publicly discussed prior to the construction works, in a consultation meeting.</p> |

(C) CATEGORIZATION AND CONCLUSION

Based on the screening outcomes,
subproject will be classified as environmental Category

| | |
|---|-------------------------------------|
| A | <input type="checkbox"/> |
| B | <input checked="" type="checkbox"/> |
| C | <input type="checkbox"/> |

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 and Cultural Resource Screening of Subprojects

| Social safeguards screening information | | Yes | No |
|---|--|------------|-----------|
| 1 | Is the information related to the affiliation and ownership status of the subproject site available and verifiable? (The screening cannot be completed without this) | ✓ | |
| 2 | Will the project reduce other people's access to their economic resources, such as land, pasture, water, public services or other resources that they depend on? | | ✓ |
| 3 | Will the 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 infrastructure (such as 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 | | | |
| Cultural resources safeguard screening information | | Yes | No |
| 5 | Will the project require excavation near any historical, archaeological or cultural heritage site? | ✓ | |
| If answer to question 5 is "Yes", then OP/BP 4.11 Physical Cultural Resources is applicable and possible chance finds must be handled in accordance with OP/BP and relevant procedures provided in the Environmental Management Framework . | | | |

ENVIRONMENTAL ASSESSMENT

1. Introduction

1.1. General Information

Subproject envisages arrangement of the museum neighboring to the Palace of the King Erekle II. SP site is located in Town Telavi, Kakheti region, Eastern Georgia. Access to site is possible through Tbilisi-Telavi motorway.

The SP is implemented in the frames of the Regional Development Project, which aims tourism development and utilization of agriculture potentials in Kakheti Region and reduction of internal socio-economic disparities, the Government of Georgia approached the World Bank with the request to provide financial support to the regional development in Kakheti. A Regional Development Project (RDP) 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.

As the SP is a part of the RDP it 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.

1.2. The Municipal Development Fund as Implementing Agency

The Municipal Development Fund of Georgia (hereinafter: the 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. Depending on whether a subproject is carrying higher or lower risks, the due environmental diligence applicable to it may include conduct of an environmental review (including development of an EMP) – for high risk Category B, or be limited to the use of Environmental Management Checklist for Small Construction and Rehabilitation Activities – for low risk Category B.

1.3. Brief Information on Proposed Sub-Project

The SP envisages arrangement of space for administration, entrance hall, exhibition halls, bathrooms, cafe, storage facilities of exhibits, engineering and other auxiliary facilities. Project area is located in eastern Georgia, in administrative center of Kakheti region – city of Telavi, 158 km away from Tbilisi. The main access road is Tbilisi-Bakuritsikhe-Telavi highway.

Key Stakeholders

Grant Recipient/ Borrower: Government of Georgia represented by the Ministry of

| | |
|--------------------------------------|---|
| | Finance |
| <u>Local Representation:</u> | Municipality of city Telavi |
| <u>Sources of Funding/Financing:</u> | World Bank (WB) and Municipal Government (MG)/Government of Georgia (GOG) |
| <u>Implementing Agency:</u> | Municipal Development Fund of Georgia (MDF) |

Implementation Structure

World Bank (WB) Loan Agreement with the Government of Georgia; Project Implementation Agreement between the Borrower (Georgia) and MDF for the project; Investment Financing Agreement (IFA) for the funding of the Rehabilitation works between MDF and the Municipal Government (MG) of city Telavi.

2. Legislation and Regulations

According to the law of Georgia on Permit on Environmental Impact (2008) the SP does not require 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 of the World Bank.

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

According to the Law on „Cultural Heritage“, permit should be obtained for conduction of rehabilitation work of the cultural heritage monument.

Batonis Tsikhe (Museum and Territory) SP design is approved by council of CH agency and as always in case of CH sites, MDF will obtain construction permit under contractor name from CH agency as soon as contractor will be revealed.

3. The Subproject

Project area is located in eastern Georgia, in administrative center of Kakheti region – city of Telavi, 158 km away from Tbilisi. The main access road is Tbilisi-Bakuritsikhe-Telavi highway.

The project includes the following activities:

- reconstruction and functional equipment of present unfinished facility
- Facing works
- Equipment with engineering communications

- Landscaping of the museum territory

Part of the building is divided into two levels, which allows to arrange administration, entrance hall, bathrooms, cafe, storage facilities of exhibits, engineering and other auxiliary facilities. Height of exhibition halls remains high. Dividing into two floors is considered through steel structure and its subsequent packaging and facing. Structure is based on foundation plate with steel pillars.

Based on recommendations, reinforced concrete convex stairwell and ramp will be dismantled. As for the dismantle of angle spans of the west facade of the building, outer walls of maintenance exit will be dismantled and joined to inner wall with inclined plane and further, steep green slope will be arranged.

The cafe, which will be arranged on the top of the main exhibition space is also a metal structure, which is hanging on the upper reinforced concrete roofing tile. There will be no additional columns in the exhibition hall.

Lowering of entrance level mark leads to the dismantle of reinforced concrete slab in axis 4-4 and also ramp will be partially dismantled. Slab will be also removed in axis 5-6 and F-D, where inner garden is to be arranged, in order to obtain natural lighting in the rooms arranged for the administration of the museum and in premises.

Because of the fact that exhibition and conference halls of "Iashvili collection" cannot be placed in the existing building, construction of one-story building is planned along the historic wall, to the South of the building, the roof height of which will be identical to the roof height of the existing building.

Facades of the building to be constructed will be mainly without windows. Represent the sloping reinforced concrete walls or reinforced concrete decorative grid in areas where there is a need for natural lighting or decoration. Part of the façade will be covered with land slopes with 8-30 degree tilt, which will be covered with grass and spreading plants. Terrace with stone stairs will be arranged on the slope of the South facade in order to get on the roof of the building.

Perimeter of the roof will be mainly arranged with rectangular flowerbeds, low and creeping greenery. The rest part of the roof will be finished by the wooden deck.

Part of the roof will be used as terrace, which can be used for displaying large-scale archaeological specimens and exhibits (e.g. large stones). In particular, exhibits that are permitted to be placed in the open air. Café will be arranged on another part of the terrace, which will be technically connected to the café arranged on the lower floor.

Scope of Work planned under the SP is provided below:

| | | |
|---|--|--------------------|
| 1 | Loading the concrete debris and waste (by hand) to the vehicle and transportation at 25 km | 890 Tons |
| 2 | Ferroconcrete works | 435 m ³ |
| 3 | Thermal Insulation of roofs | 774 m ² |
| 4 | Arranging galvanized metal vitrage (stained-glass) | 134 m ² |
| 5 | Facing of interior ceiling with painted MDF | 447 m ² |

| | | |
|---|--|-----------------------|
| 6 | Processing of concrete surfaces with protective solution | 2580 m ³ |
| 7 | Arranging artificial raised floor cover with all the necessary profiles and fastening elements | 879,74 m ³ |
| 8 | Yard green cover | 5875 m ² |
| 9 | Laying basalt tiles | 2135 m ² |

The following types of equipment and machinery can be used during the rehabilitation and construction works:

| # | Name | Model | Q-ty | Notes |
|----|--|----------------------|------|---|
| 1 | 2 | 3 | 4 | 5 |
| 1 | Single-bucket excavator 0,40 m ³ | EO-2621 | 1 | Earth works |
| 2 | Pneumatic equipment (drilling, Demolition) | DU - 31 IE - 4501 | 1 | ground Stamping |
| 3 | Tipper | | 3 | Soil removal, delivery of inert materials |
| 4 | Truck | | 4 | Load delivery |
| 5 | Surface vibrator | IV – 77 IV – 91 | 2 | Concrete works |
| 9 | Welding unit | SO – 48 | 2 | Welding works |
| 10 | Concrete mixer | SB – 30 SB – 159 | 2 | Concrete transportation |
| 12 | Crane 10 .0 tons | | 1 | load lifting |
| 13 | Electric-pneumatic tool for different purposes | | | Construction works |

Depending on volume of planned activities, arrangement of independent concrete plant is likely not considered (although this issue will be clarified before starting the works, after the construction contractor is detected).

Waters supply, power supply, sewage systems will be connected to the existing municipal networks.

The duration of the construction works is about 13. The approximate cost of the project is 3,442,481.76GEL

4. Baseline Environmental, Social and Cultural Heritage Conditions

This section describes the environmental, social and cultural heritage background for the sub-project area, which is located in town Telavi, on the territory of the Telavi Historical Museum Complex. Overall features of major environmental, social and cultural heritage components of in the sub-project area including geography, landscapes, flora and fauna, protected areas, hydrology, local population, museum staff and cultural heritage are discussed.

4.1. Physical-geographical Description, Geology, Geomorphology, Hazardous Geological Processes

Kakheti Region is situated in the eastern part of Georgia. The Kakheti Region is bordered by Russian Federation from the north (Republics of Chechnya and Dagestan), Azerbaijan from the east and south and Georgian regions - Mtskheta-Mtianeti and Kvemo Kartli from the west.

The area of Kakheti is 11040,6 km² constituting 16,6% of the whole territory of Georgia. Kakheti includes 8 administrative regions.

Telavi is the city in the Eastern Georgia. It is located in the bottom of the north-east side of Gombori Mountain, on Alazani valley. It is the administrative center of Kakheti region and Telavi Municipality. Telavi is the final destination of Tbilisi-Telavi railroad. It is located 550-800 m. above the sea level and distance from Tbilisi is 158 km. Telavi was established and received its status as a city in 1801. The population of Telavi is 21.8 thousand people (according to 2002 census).

There are 24 villages in Telavi municipality.

General physical-geographical description

Geographically the region includes inner and downstream of Ivri River and Alazani river basin.

The area of Kakheti is 11040.6 km² constituting 16,6% of the whole territory of Georgia. Kakheti includes 8 administrative regions.

Telavi municipality is located in East Georgia, in historical province of Kakheti. Telavi municipality is bordered by Akhmeta municipality from the North and West, by Kvareli municipality from the East and Sagarejo Municipality from South-west.

Telavi is the administrative center of Kakheti region. It is located in the bottom of the north-east side of Gombori Mountain, on Alazani valley, at 550-800 m above sea level.

Morphological, geological and tectonic conditions

The north-eastern part of Telavi municipality covers south-west slopes of the Caucasus, between the branch ridges of Sajikhve-Girgali (East) and Nakerala (West). It is built up by clay shales, sandstones, clay, marl, schists and limestones of the Jurassic and Cretaceous age. There are fragments of Jurassic diabases, porphyrites in the upstream valley of Stori River. Palaeozoic age crystalline shale and marble are represented in the upstream valley of Lopota River.

The relief is strongly inclined and deeply divided by V- shaped valleys with steep slopes. The branches of the Caucasus main watershed ridge are: Sajikhve-Girgali (Sajikhvistavi Mountain – 2870 m), Andanazari (Didi Andanazari Mountain – 3039 m), Nakerali (Didgverdi mountain – 3293 m). Watershed ridges are serrated, in some places it is exposed. Traces of the Quaternary glaciers are observed in sloping line of the Caucasus.

Southwest part of Telavi Municipality includes north-eastern slope of young, folded Gombori ridge to the watershed of Shromiskhevi and Mghvriekhevi Rivers. It is mainly built up by Sarmatian-Cimmerian molasse, so called Tsivi suite conglomerates, loose sandstones and clays. In the sloping line, Tsivi suite is washed out and upper and lower Cretaceous limestones and volcanic suites, tuff breccia, tuff-sandstones and porphyrites are exposed. The ridge is flattened. Gombori Ridge slope is inclined towards Alazani plain. The highest point is the section between Gombori (1839,5 m) and Manavistsivi (1681,6 m) mountains. Landslides are common in river valleys.

The central part of the municipality is occupied by accumulative plain (350-600 m) of Alazani River, which tectonically belongs to the depression of Mtkvari and represent the intense subsiding zone. It is built up by Quaternary alluvial, proalluvial and diluvial-proalluvial cobbles, sandstone and clay. The plain is divided into two parts and is slightly inclined to the southeast. It is surrounded by Kakhetian Caucasus from north-east and by foothill of Gombori Ridge from south-west. Alluvial fans and solifluctions are widely developed in foothill zone fragmented by valleys.

Pliocene sediments are represented by a thick (several hundreds of meters in thickness) continental sediments, in the formation of which conglomerates play an important role. In geological literature these sediments are known as Alazani suite (Middle and Upper Pliocene).

General assessment of seismic risks and hazardous geological processes

Southern part of Kakheti region is located within earthquake intensity of 7 grade, the central part comprising Dedoplistskaro and Sagarejo falls within 8 grade, Signangi and Gurjaani is located at the boarder of 8 and 9 grade zones and the Northern part of Kakheti, including Telavi, Ikalto, Akhmeta, Kvareli, as well as Tusheti falls within the most high risk zone of 9 grade earthquake intensity.

There are no geo hazard areas and hazardous geological processes at within the SP area.

Climate

Telavi municipality belongs to the moderately humid subtropical climate district. Alazani valley formed hot humid summers and moderately cold winters. Main annual air temperature is 11-12⁰C, in January - 0,2⁰C, in July - 22-24⁰C. The absolute maximum is 39⁰C, while the absolute minimum is 21⁰C. There is 700-800 mm precipitation per year.

Hydrology

City Telavi is located in the catch basin of river Alazani which is the second largest river in Georgia, heads on the southern slopes of the Caucasian mountain chain at 825 m altitude above sea level, at the point where two rivers, the Tsplovaniskhevi and Samkuristskali merge at village Kadori. The river flows into Mingechauri water reservoir at the eastern ending of outer Kakheti plateau.

There are no significant water bodies in the vicinity of the project area. The nearest water body – Telavi Khevi flows to the West from the object, 300-400 m away and negative impact on it is less expected.

Soils

On the left side of the Alazani valley is developed meadow-forest noncarbonated alluvial soil and on the right side the alluvial carbonate soil. Brown soil is developed in the foothill zone. In the Caucasus range and in the lower of slopes under broad-leaved forest is developed gray forest soil.

Natural soil cover is not presented within the project area. The top layer of the area is of technogenic nature.

Social Conditions

Total number of community population is 21 805, out of which Man- 9 891 Women- 11 914 Minorities- 1171, IDP-303, Disable people 1761, Rate of migration-23.9, Number of workforce 42%, number and percentage of population employed in the Industrial sector (agriculture, fish-farming, trade, timber processing, cattle-breeding, poultry farming, catering, etc.) 5,3%, population employed in Budgetary sector (education, healthcare, post, communal service, local self-governance, water supply system etc.) 4,8% (2004 y data.)

Physical Cultural Heritage Conditions

Description & brief history:

The building, where the construction of the museum and other supporting infrastructure is planned, is one of the buildings of architectural complex in the center of the Telavi town . It is located to the West of the central building of the complex - Palace of the King Erekle II. According to the saying great lord of Kartli-Kakheti Erekle the Second has leaved and deceased in this Palace. The palace and the whole complex, due to its artistic and historical value is one of the most significant monuments of cultural heritage in Kakheti. In the XVIII c. King Erekle II has erected new fortification construction which was reconstructed several times in XIX-XX.

In 1860 the building was transferred into the ownership of Saint Nino Women’s charity organization. Under the initiative from the chairman of the above organization Ana Chavchavadze and Grigol Orbeliani’s personal initiative, without consideration of community’s position, unjustified reconstruction of the Palace had been implemented during 1864-67 years.

In 1867 the reconstruction of school was finalized. As a result the complex of non-systematically developed adjacent buildings was created. With added and built on new buildings the Palace was lost among the irrelevant and blank buildings.

A three level block building was added to the west part of non-systematically developed palace complex in 1912.

Such complex existed up to 1981, when based on the decision of “extended” methodical board (almost all specialists of the area, art critics as well as representatives from the adjacent areas participated in

the Board) the Palace was cleaned from the late additions. The block built later - in 1912 - remained in place. Telavi historical museum was located in the above building.

In 1974-82, restoration works were carried out on the monument. Author of the then restoration project was Z. Megvinetukhutsesi.

5. Analysis of Potential Impacts

5.1. Construction Phase

Social Impacts

- **General Social Issues.** Significant social impact of rehabilitation and construction activities, like change of local demographic structure, influx of new settlers, secondary development, job opportunities, increase of AIDS risks is not expected;
- **Resettlement Issues.** Physical or economic resettlement as a result of the project is not expected. Also, 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.** Impact will be short term and temporary;
- **Health issues related to noise, emissions and vibration.** Impact will be short term, which will be easily reduced with relevant mitigation measures;
- **Traffic Disruption.** Impact on traffic will be limited and temporary.
- **Safety and Access.** There will be reduced access to areas adjacent to construction sites and there will be potential hazards to vehicles and pedestrians. During construction works, minor negative impact on school pupils and employees is expected.

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 (surface runoff). The latter is less expected.

Soil Contamination

Soil contamination is possible:

- In case of spills of Diesel fuel, lubrication oils and hydraulic fluids and antifreeze from construction vehicles and machinery;
- In case of improper management and storage of different pollutants (e.g. cement and concrete);
- In case of improper management of construction wastes (packaging materials, stones and gravel, cement and concrete waste, wood waste, etc.)
- Small amount of solid hazardous waste (e.g. waste oils, oily rags, spent filters, contaminated soil, etc.) is expected to be generated.

Water Pollution

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

- Spillages of fuel, oil or other hazardous substance;
- Pollution of surface runoff with suspended particles;
- Washing of vehicles or equipment

Air Pollution and Noise

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

- Noise and vibration arising from operation of heavy machinery and vehicles;
- Air emissions (from vehicles, etc.);
- Dust (from vehicles and during management of loose materials);
- Smoke, during the transportation of materials.

Construction Waste

Inert and Non Hazardous Construction Wastes

The following types of inert and non-hazardous construction waste are anticipated to be produced from different activities:

- Inert (mineral) construction waste;
- Removed old wood materials;
- Removed bricks, gypsum plastering, glass;
- Removed tin, lime and cement plastering, bitumen waste from the roofs.

Hazardous Construction Wastes

Small quantities of the hazardous wastes will arise mainly from the vehicle operation activities, including:

- liquid fuels;
- Lubricating oils, hydraulic fluids;
- chemicals, such as antifreeze;
- contaminated soil;
- spillage control materials used to absorb oil and chemical spillages;
- machine/engine filter cartridges;
- Oily rags, used filters, contaminated soil, etc.)

Impact related to the transportation

- Noise & Vibration;
- Traffic load (discomfort);
- Air pollution;
- Mud on roads;

- Refuelling, maintenance and washing of vehicles and related risks of soil and water contamination.
- **Flora.** No potential impact is expected, The project does not envisage woodcutting.
- **Landscape.** The project design does not envisage any substantial changes of landscape. The preexisting relief will be reinstated.

Impacts on the physical cultural property

The subproject will be implemented in the territory of a cultural heritage site, including historical buildings, exhibits of history and art. Risks related to restoration and upgrading of the site are: damage to old constructions due to earth works and vibration on site; impact on the historical and aesthetic values of the site; physical damage or loss of exhibits. Operational phase risks are related to management of visitation, securing exhibits from unfavorable storage conditions and preventing vandalism on site, maintenance of water supply and sanitation systems, and household waste management.

6. Environmental Management Plan

Based on the expected impacts on social and natural environment and on cultural heritage described above which are related to the construction activities under the SP, the relevant mitigation measures have developed to avoid or minimized these negative impacts.

The proposed mitigation measures described below summarized in a EMP, which is attached (page 30) and is an integral part of this ER. ER including EMP is part of the construction contractor contract and implementation EMP requirements is obligatory for contractor.

6.1. Mitigation Measures

Construction Phase

Implementation of the relevant mitigation measures during the construction/rehabilitation works will significantly reduce or in some cases will eliminate negative environmental impacts, namely:

1. The route of machinery movement should be determined in advance and works should not exceed the marked boundaries;
2. The maximum allowed speed should be restricted;
3. The frequency of movement of the machinery should be restricted;
4. Working hours should be strictly defined;
5. Parking place of the machinery/vehicles should be arranged outside of the cultural heritage site and no vehicles should be left on the site after working hours.
6. Construction materials must be obtained from licensed providers. Contractor will be required to submit to the MDF copies of the licenses, permits, written agreements, certificates, etc. to prove that all materials are obtained from licensed providers, including wood materials from oak. Contractor will not be allowed to use wood species that are listed in the Red List of Georgia.
7. Storage of hazardous wastes on the cultural heritage rehabilitation area should be prohibited
8. Any construction or municipal waste produced during rehabilitation stage should be removed from the cultural heritage rehabilitation area every day at the end of working hours.
9. Every worker at mobilization stage will undergo the respective training on working on the high sensitivity site. The institute provide such training and module of the training should be agreed with National Agency for Cultural Heritage Preservation.

In course of rehabilitation activities, 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.

Noise

Noise is one of the typical impacts related to the construction activities. The compliance with the environmental requirements is even more significant for the SP area due to the considerations

regarding the construction activities list to be implemented within the territory of historical monument area, because it will involve the transportation of heavy cargo with heavy vehicles in the direct proximity of the historical monuments.

In case of absence of special measures and disregard to the restrictions the transport and devices could inflict serious damage.

Contractor construction organization should adopt special measures to achieve agreement with all stakeholder organizations on cargo transportation.

Mitigation Measures

- The selected movement route of the heavy vehicles should be far away from historical monuments and densely populated districts of Batonis Tsikhe, as well as from the existing school. The allowed intensity of the vehicle traffic and speed should be determined for the exceptional cases;
- 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 municipal services and overload with the trucks and violation of the allowed traffic intensity should not take place;
- The maximum speed should be restricted to the safety level during the pass of the trucks in the proximity of the historical monuments;
- Proper technical control and maintenance practices of the machinery should be applied.
- Activities should be limited to daylight working hours;
- No-load operations of the vehicles and heavy machinery are not allowed. Proper mufflers will be used on machinery.
- The contractor organization should develop and submit to the customer the risk factors, their mitigation measures and emergency situation action plan prior to the beginning of the works;
- In case of emergency the measures agreed with the customer should be implemented under the surveillance of the interested organizations and with due regard to their comments;

Pollution Prevention Measures:

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, arranged outside of the cultural heritage site, of hard-standing, not over made ground. Maintenance points will not be located within 50m of any water bodies, well or dry gorge.
- Lubricants, fuel and solvents should be stored and used for servicing machinery exclusively in the designated sites, arranged outside of the cultural heritage site, 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 on 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 water body, pond or ditch.

Waste Management

All types of waste from the construction site will be disposed in accordance with environmental regulations and at approved landfills.

Inert and Non Hazardous Construction Waste

- Written agreement with the "Solid Waste Management Company of Georgia" Ltd should be obtained by contractor on the disposal of construction waste on the nearest approved landfill prior to the works commencement.
- The personnel involved in the handling of hazardous and non-hazardous waste will undergo specific training in:
 - Waste handling
 - Waste treatment; and
 - Waste temporary storage
- Burning of waste on the SP site is forbidden.
- The records of waste disposal will be maintained as proof for proper management as designed.

Hazardous Wastes

- Written agreement with the licensed company should be obtained by contractor on the transportation, handling, disposal of hazardous waste prior to the works commencement;
- Temporarily storage of all hazardous or toxic substances will be in safe containers labelled with details of composition, properties and handling information;
- The containers of hazardous substances shall be placed in an leak-proof container to prevent spillage and leaching
- Paints with toxic ingredients or solvents or lead-based paints will not be used.

Dust and emissions

- All vehicles shall be maintained so that their emissions do not cause nuisance to workers and local people, or pupils and employees of the existing school;
- 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.
- Regular maintenance of diesel engines will be undertaken to ensure that emissions are minimised, for example by cleaning fuel injectors. Routine maintenance will be to a high

standard to ensure that vehicles are safe and that emissions and noise are minimised. All plant used on site will be regularly maintained so as to be in good working order at all times to minimise potentially polluting exhaust emissions.

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:

- Sheeting of construction materials and storage piles;
- Use of defined haulage routes and reductions in vehicle speed where required. Materials will be transported to site in off peak hours;
- Materials transported to the construction site will be covered/ wetted down 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 removing of the bricks, gypsum plastering, etc. 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

Mitigation measures for site safety access

- To avoid any accident related to construction works, the relevant means should be used. First of all, building contractor should ensure the protection of pupil and employees of the school located on the territory of Batonis Tsikhe. Relevant barriers with warning signs should be arranged within the perimeter of the construction site in order to ensure the safety of pupil and employees of the school. Also, prior to and after the learning process, employees selected by the contractor should control the work area boundaries, in order to avoid pupil's access to the construction site. After the end of each working day all kinds of waste materials should be placed in a safe area, which will not be accessible for others.

Protection of CH Monuments

Temporary relocation and secure storage of Batonis Tsikhe exhibits

Administratively Batonis Tsikhe is managed as the Telavi State Historical Museum Under the decision of the Ministry of Culture and Monument Protection of Georgia and the Governor's administration, for storage of museum funds was allocated the building of the school №1, which is situated near the museum and the space there turned out to be sufficient for placement of all kinds of funds. Prior to the works for transfer of museum exhibits, the museum director sent a letter to the Ministry on issuing the permission for commencement of the action (March 07, 2012 Letter # 17). According to the instructions of the Georgian Law "on Museums" and "on Protection and Record of Museum Values" the Ministry gave its consent on transfer of the exhibits from the museum to temporary storage location (March 12, 2012 Letter # 22/08/846). After this, under Museum Director's order a working group was created, which was ordered to specify the details related to the transfer of funds. The

transfer of the exhibits to the school building started on March 13 and was completed on March 25, 2012.

The main part of 67 367 exhibits have been stored in the conference hall and storage rooms of school building. For safety purposes, the steel doors and steel frames on windows are installed for the storage rooms. In the conference hall and storage rooms where the exposition particles and pictures from gallery were located, special shelves there were installed. The existing climate conditions is satisfactory, rooms are well-ventilated and will ensure good ventilation and required temperature of the rooms.

Currently, the historical and art exhibits of the Batonis Tsikhe Museum are stayed relocated to temporary storage facilities. School #1 is an operational school where the teaching process continue in ordinary mode. There was not any need to vacate space in classrooms for storage. The temporary storage space are located in the different side of building and isolated from the other part of the school, where classrooms are located. So relocation of exhibits to the temporary storage area, in the #1 school building do not cause disruption of teaching process and carry out any risk of exhibits damage. Maintenance of the museum exhibits is carried out by museum relevant staff, in accordance with established rules for maintenance and protection of exhibits. The site is guarded by Security Police of Ministry of Internal Affairs of Georgia within 24-hour regim.

The valuable metals and arms (artifacts from gold, silver) are stored in the special vault of the Commercial Bank in the special storage boxes.

In order to improve the knowledge about museum exhibits and get more information about their Storage conditions, some meetings has been organized with museum depositories by perrepresentatives of joint venture between STEGET S.r.l. and ESTIA S.r.l. (hereinafter called STEGET) and certain recommendations were given.

Operation Phase

Waste Management

Increase of the number of tourists will result in the increased volume of waste. 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 m³ 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 m³ 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 m³ plastic containers should be used. Therefore, for each case the number, size and location points should be determined on individual basis.

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 effectively implementation of the penalty mechanisms will lead to accelerated achievement of the target.

Traffic and pedestrian access

The traffic will increase in adjacent area of Batonis Tsikhe, as well as in town Telavi, 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 are located in the nearest streets and squares of Batonis Tsikhe in Telavi. 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, on cultural heritage site.
- For pedestrian there will be arranged relevant sidewalks, pedestrian passes and signage on the site access roads around Batonis Tsikhe.

Water supply and sewage

Increased number of tourists will increase using of water supply and sewage systems. To exclude any accident that will cause water losses or disruption of sewage systems proper management and monitoring of the systems is required during operation period.

6.2. Institutional Framework for EMP Implementation

Construction contractor is obligated to follow EMP and good construction practice. In order to meet this obligation, a contractor shall have at least one environmental specialist on the team, who is able to fully understand recommendations of EMP and professionally apply prescribed mitigation measures to the contractor's daily operations.

Construction Contractor requirements

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 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);
4. Construction waste must be disposed on the Telavi municipal landfill in accordance with written agreement with the Solid Waste Management Company of Georgia Ltd. under the Ministry of Regional Development and Infrastructure. The records of waste disposal will be maintained as proof for proper management as designed.

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.

GOST and SNIP norms must be adhered

Supervisory company commissioned by MDF is responsible to establish strong field presence in the SP area and keep a close eye on the course of works. Along with ensuring consistency with the design and ensuring quality of works, the supervisor is mandated to track implementation of EMP by the construction contractor, reveal any deviations from the prescribed actions, as well as identify any unexpected environmental issues should they emerge at any stage of works. The company will be responsible for ensuring that the following requirements are met: (i) Georgian environmental regulations; (ii) environmental permits are obtained; (iii) waste is disposed to a licensed disposal site; (iv) any other requirements identified by the MoENRP and agreed with the MDF; and (v) the Environmental Management and Monitoring Plans are implemented.

MDF is responsible for liaising with local municipality authorities, local community and the contractors engaged for construction on environmental issues associated with the implementation of this EMP and the Environmental Guidelines for Contractors.

MDF provides a general oversight on the environmental compliance of works through ensuring quality performance of the technical supervisor and of the construction contractor.

6.3. 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 carry 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.

6.4. Environmental Monitoring

The Environmental and Social specialists of MDF and responsible representatives of construction supervisor company hired by MDF are responsible for monitoring of social, environmental and cultural Heritage issues related to the SP.

Based on risk assessment a relevant monitoring program has been developed. Monitoring of sensitive receptors should be implemented before, during, and after construction and during operation of the camp site. Types and Frequency of monitoring may vary from simple visual inspection to complex analyses, depending on the risks. Monitoring measures include site supervision, verification of permits, monitoring of compliance of the contractor performance and environmental impacts like: noise, dust, soil and water pollution and air emissions etc. The recognized best-practice of monitoring and analytical methods will be used during environmental monitoring of construction site related activities. The results of environmental monitoring and occurred noncompliance / incident and ways for their resolution will be summarized in the relevant monthly and Quarterly reports.

The environmental monitoring plan for the SP is summarized in the Table on the page 35.

6.5. Reporting on EMP Implementation

Technical supervisor prepares monthly and quarterly progress reports, which include information related to the EMP implementation and environmental performance of the contractor. The reports provide information on the main types of activities carried out within the reporting period, status of any clearances/permits/licenses which are required for carrying out such activities, mitigation measures applied, and any environmental issues emerged in relations with suppliers, local authorities, affected communities, etc. Technical supervisor must highlight any cases of non-compliance with EMPs, inform on any acute issues brought up by contractor or revealed by supervisor himself, and propose corrective actions.

MDF must ensure that monthly reports from the contractor and from the technical supervisor are made available for the environmental specialists of the MDF promptly upon their arrival in MDF administration. The MDF, through its environmental specialists, shall report each quarter (1 report per 3 months) to the WB on the status of environmental compliance of construction works. Such reporting shall contain information on all violations identified and the actions taken for fixing of such cases. MDF shall inform the WB on any major environmental issues at any time, independently from the schedule of regular reporting.

6.6. Remedies for EMP Violation

MDF, as a client of construction works, will be responsible for enforcing compliance of contractor with the terms of the contract, including adherence to the EMP. For minor infringements, an incident which causes temporary but reversible damage, the contractor will be given 48 hours to remedy the problem and to restore the environment. If restoration is done satisfactorily during this period, no further actions will be taken. If it is not done during this period, MDF will arrange for another contractor to do the restoration, and deduct the cost from the offending contractor's next payment. For major infringements, causing a long-term or irreversible damage, there will be a financial penalty up to 1% of the contract value in addition to the cost for restoration activities.

7. Public Awareness

ER including EMP will be discussed with beneficiary community prior to the commencement of works. The information regarding SP activities should be open and available for all stakeholders during SP implementation and operation Batonis Tsikhe Museum and its infrastructure.

8. Grievance redress mechanism

Appropriate grievance redress mechanisms will be established to solve APs grievance if occurs. A responsible person will be assigned to receive, review and react on the APs grievance if occurs.

ENVIRONMENTAL MANAGEMENT PLAN

| Activity | Expected Negative Impact | Mitigation Measure | Responsible for implementation |
|--|--|--|---|
| Pre-Construction Phase | | | |
| Obtaining of required permits/licenses and making of contracts | Incompliance to Georgian Law and World Bank requirements | <p>Obtaining of permits required by Georgian legislation. These include:</p> <ul style="list-style-type: none"> – Permit for disposal (stockpiling) of excessive soil – licenses for inert material extraction – Permits for production of such construction materials that belongs to the activity subject to ecological examination. – Other permits required by the national law <p>Agreements should be made with solid waste management companies for waste disposal on household waste and construction waste landfills.</p> | Construction contractor |
| Consultations with local community and other stakeholders | <p>Incompliance to the World Bank requirements</p> <p>Failure to consider opinion and interests of stakeholders in decision-making</p> | <ul style="list-style-type: none"> – Meeting with local community and other interested parties to provide information about planned activities and obtain their feedback – Public consultation meeting with local population and discussion of SP ER including EMP | <p>MDF, Construction supervisor Construction contractor</p> |
| Arrangements for implementation of environmental measures | <p>Incompliance to Georgian Law and World Bank requirements</p> <p>Significant environmental and social impacts</p> | <ul style="list-style-type: none"> – Appointing a person responsible for protection of social and natural environment and EMP implementation – Training of workers regarding social and environmental protection measures to be implemented | Construction contractor |

| Activity | Expected Negative Impact | Mitigation Measure | Responsible for implementation |
|---|------------------------------------|--|--------------------------------|
| | | <ul style="list-style-type: none"> – Delivery of supplies required for implementation of planned mitigation measures | |
| Construction Phase | | | |
| Construction works, including: <ul style="list-style-type: none"> - Preparation of construction sites - Earth works - Installation of facilities - Machinery operations | Deterioration of ambient air | <ul style="list-style-type: none"> – Watering of construction sites and road during dry weather (when required) – Suspension of earth works during strong winds – Vegetation clearing immediately before construction works – Proper stockpiling of stripped soil/ excavated ground – Reinstatement of the sub-project territory immediately after finalizing of construction works – Covering of bulk building materials during transportation – Imposing of a speed limit for transportation operations – Minimizing of idle running time for project machinery – Ensuing that project machinery is in good technical condition | Construction contractor |
| <ul style="list-style-type: none"> - Transportation operations | Propagation of noise and vibration | <ul style="list-style-type: none"> – Implementation of transportation operations only during day-time – Limitation of machinery speed for residential areas – Minimization of idle running period for machinery – Ensure that machinery is in good technical condition | Construction contractor |

| Activity | Expected Negative Impact | Mitigation Measure | Responsible for implementation |
|----------|--------------------------|--|--------------------------------|
| | Soil disturbance | <ul style="list-style-type: none"> – Demarcation of construction sites’ boundaries and access roads before construction works are launched – Adherence to demarcated work site boundaries during operations – Stripping of topsoil from work sites (whenever possible) and stockpiling for subsequent reinstatement, in compliance with the Technical Regulations on Stripping, Stockpiling, Use and Reinstatement of Topsoil (2014) – Topsoil stripping during heavy rains should not be allowed – Reinstatement of the sub-project area immediately after completion of construction works. As appropriate, this may include leveling of ground surface, reinstatement of topsoil and measures to facilitate natural recovery of vegetation | Construction contractor |

| Activity | Expected Negative Impact | Mitigation Measure | Responsible for implementation |
|----------|--------------------------|--|--------------------------------|
| | Soil pollution | <ul style="list-style-type: none"> – provision of staff with toilets and bathrooms, and discharge generated wastewater in the centralized sewer system of town Telavi – Ensuring that machinery are well maintained – Refueling of machinery using respectively equipped refueling trucks, and using of drip trays during refueling operations – Refueling and maintenance of machinery only at a specially devoted site, where topsoil is tripped and gravel layer is arranged – Ensuring that building materials are appropriately stockpiled – Ensure that all spills are cleaned up immediately, and contaminated soil is respectively disposed off – Cleaning up of the entire sub-project territory from construction waste as soon as the construction works are finalized – Implementation of the proposed waste management measures | Construction contractor |
| | Water pollution | <ul style="list-style-type: none"> – Implementation of the measures proposed for prevention of soil pollution – Arrangement of silt barriers at topsoil / subsoil stockpiles – Implementation of the proposed waste management measures – Ensure that wastewater collection system are connected to the sewer network of town Telavi | Construction contractor |

| Activity | Expected Negative Impact | Mitigation Measure | Responsible for implementation |
|----------|--|--|--------------------------------|
| | Environmental pollution with solid and liquid wastes | <ul style="list-style-type: none"> – Burning of waste should be prohibited – Separated collection of wastes – Designation of special sites for waste accumulation, and implementation of pollution prevention measures there – Disposal of solid waste (except of waste soil and hazardous waste) on landfills, based on the contract made with a solid waste management company. Household waste should be disposed at the municipal landfill of town Telavi and construction waste should be delivered to the construction waste landfill. – Hazardous waste should be handed over to a permitted waste management company, on a contractual basis – Waste soil should be delivered to a pre-selected site. Permit on the disposal of waste soil should be obtained prior disposal is undertaken. – Maintenance a waste logbook to record wastes generated on site and waste flow – Ensure that sewage network of museum is connected in correct manner to the sewer system of town Telavi | Construction contractor |
| | Impact on traffic flow | <ul style="list-style-type: none"> – Impose speed limitation to the sub-project machinery – Ensure that sub-project machinery move using only pre-determined routes | Construction contractor |
| | Health and safety risks for local community and school pupils and personel | <ul style="list-style-type: none"> – Protection of construction site from random access to the site. – Implementation of measures recommended for air protection and noise abatement – Imposing of speed limitation to the sub-project machinery | Construction contractor |

| Activity | Expected Negative Impact | Mitigation Measure | Responsible for implementation |
|----------|--|--|--------------------------------|
| | | <ul style="list-style-type: none"> – Ensuring that sub-project machinery move using only pre-determined routes – Demarcation of work sites and installation of warning signs | |
| | Damage to private property | <ul style="list-style-type: none"> – Ensuring that sub-project machinery move using only pre-determined routes – Imposing of speed limitation to the sub-project machinery – Full compensation of all losses incurred | Construction contractor |
| | Conflicts with local population or other affected people | <ul style="list-style-type: none"> – Meeting with local population (if required) – Reception and addressing of complaints/grievances | Construction contractor |
| | Occupational health and safety risks | <ul style="list-style-type: none"> – Informing of the sub-project labor about potential health and safety risks, and instructing them regarding safety measures to be adhered. This should be ensured before launching construction works and during civil works – Ensuring that required personal protection equipment (e.g. helmets, gloves, etc.) is supplied and used by workers as appropriate – Ensure safety of machinery operations – Provision of safety signs for high risk zones – Implementation of measures recommended for air protection and noise abatement | Construction contractor |
| | Impact on cultural heritage | <ul style="list-style-type: none"> – Prohibition of machinery entry on the territory of Batonis Tsikhe Complex | MDF, Construction contractor |

| Activity | Expected Negative Impact | Mitigation Measure | Responsible for implementation |
|--|--|---|--------------------------------|
| | | <ul style="list-style-type: none"> – Cleaning up and reinstatement of the sub-project area immediately after the construction works are completed – Suspension of construction operations if archeological objects or artefacts are discovered during earth works, informing of the Ministry of Culture and Monument Protection about the chance finding and resume works only after respective permission is issued. | |
| Operation Phase | | | |
| Operation of the New Museum and its Infrastructure | Environmental pollution with solid and liquid wastes | <ul style="list-style-type: none"> – Installation of waste bins around the sub-project facilities – clean up the museum territory on daily basis – Regularly deliver solid waste from the site to the municipal landfill of Town Telavi, on the basis of a contract made with the municipal waste management company – Burning of waste should not be practiced – Sewage collector system and should be maintained in good technical condition | Museum Management |

ENVIRONMETALMONITORING 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/licensed 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 |
| Construction-rehabilitation works | Compliance with design approved by NACHP | Construction site | Inspection | In the course of restoration works | Prevention of damage of historical features of building and historical site in hole. | 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?) |
|--|---|--|---|--|--|--|
| Sourcing of inert material | <p>Purchase of material from the existing suppliers if feasible; Obtaining of extraction license by the works contract and strict compliance with the license conditions;</p> <p>Terracing of the borrow area, backfilling to the exploited areas of the borrow site, and landscape harmonization;</p> <p>Excavation of river gravel and sand from outside of the water stream, arrangement of protective barriers of gravel between excavation area and the water stream, and no entry of machinery into the water stream.</p> | Borrowing areas | <p>Inspection of documents</p> <p>Inspection of works</p> | In the course of material extraction | <p>Limiting erosion of slopes and degradation of ecosystems and landscapes;</p> <p>Limiting erosion of river banks, water pollution with suspended particles and disruption of aquatic life.</p> | MDF, Construction supervisor |
| Generation of construction waste | <p>Temporary storage of construction waste in especially allocated areas;</p> <p>Timely disposal of waste to the formally designated locations</p> | <p>Construction site;</p> <p>Waste disposal site</p> | Inspection | Periodically during construction and upon complaints | Prevent pollution of the construction site and nearby area with solid waste | MDF, Construction supervisor |
| Traffic disruption and limitation of pedestrian access | <p>Installation of traffic limitation/diversion signage;</p> <p>Storage of construction materials and temporary placement of construction waste in a way preventing congestion of access roads</p> | At and around the construction site | Inspection | In the course of construction works | <p>Prevent traffic accidents;</p> <p>Limit nuisance to local residents, pupils and employees of the existing school</p> | 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?) |
|---|--|--|--|---|--|--|
| All types of activities (transport operations, construction works) that leads to an increase in background noise levels | Discontent of population, pupils and employees of the existing school due to the increased background noise levels | At and around the construction site (especially near the boundary of the school) | Check the technical condition of the machinery. If necessary noise level measurements. | During the training process, as well as during the implementation of activities causing intense noise | Limit nuisance to local residents, pupils and employees of the existing school | 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 |
| Health and safety of pupils and personnel of the nearby school | Random access to the construction site | Perimeter of the construction site, especially in the northern border | Inspection | During construction period (especially prior to and after learning process in the school) | Limit occurrence of on-the-job accidents and emergencies | MDF, Construction supervisor |

| Operation Phase | | | | | | |
|---|--|--|--|---|---|---|
| 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?) |
| Management of cultural heritage monuments | Household waste management Maintenance of water supply and sanitation system Control installation of new physical constructions and infrastructure within the site | BatnoisTsikhe site | Inspection | During operation of facilities | Prevent littering of the site Prevent malfunction of fountains, public WCs, and utilities in the administration buildings Preserve historical and aesthetic value of the site | Administration of the Telavi Historical Museum Telavi municipality |
| Management of visitation to cultural heritage monuments | Development and implementation of a site management plan | BatonisTsikhe site | Inspection | Prior to the rehabilitated site re-entering into operation and throughout operation | Prevent over-crowding of the site and dissatisfaction of visitors | Administration of the Telavi Historical Museum |

Attachment 1 – Cadastral information

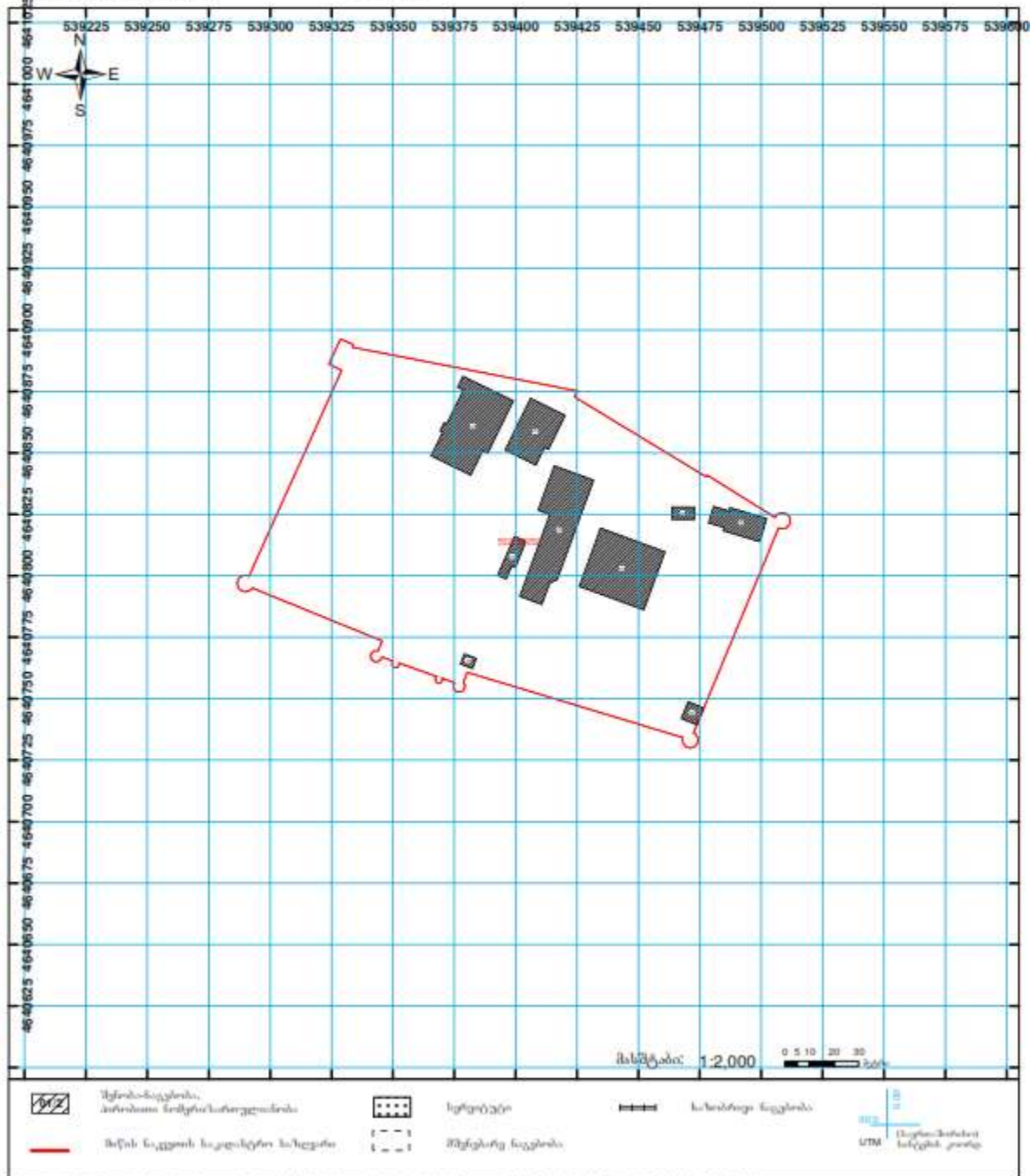
მწის (უბრაო ქრესის) სარეგისტრაციო № 532037052

| საქართველო ამონაწერი საჯარო რეგისტრაციის მწის (უბრაო ქრესის) შესახებ | | | | |
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| განაცხადის რეგისტრაციის № | 882008352247 | თარიღი | 28.11.2008 | |
| | | ამონაწერის მიმზადების თარიღი | 01.12.2008 | |
| ა) საკუთრების განყოფილება | | | | |
| სარეგისტრაციო შიში | უბრაო | 57 | სახელმწიფო / თვითნაირი / საკუთარი სხვა / შემოღობული პირდაპირი რეგისტრაცია / ცვლილება შერეული კატეგორიის ფართობი-2879,8კვმ საკუთრების კატეგორია: საკუთრების წინა № საკუთრების ფუნქცია არასასაბჭო-სამეურნეო | |
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| ბ) შესაკუთრების განყოფილება | | | | |
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| სპ. ქრესის აღრიცხვის და პრეცედენტის კატეგორიის სახსრის სახსრის მისამართი №3071 0809/08 ქ.თბილისი, სსიპ-ს | | სახელმწიფო უფლების რეგისტრაციის მოთხოვნის განაცხადის რეგისტრაციის თარიღი: 19.09.2008 უფლების რეგისტრაციის მოთხოვნის განაცხადის რეგისტრაციის ნომერი: 882008278784 უფლების რეგისტრაციის თარიღი: 23.09.2008 | | |



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საკადასტრო გეგმა**

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 კატეგორია:
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