Preservation Measures for Katskhi and Ubisa Monasteries Sub-Project

Environmental Review for the Preservation Measures for Ubisa Monastery

WORLD BANK FINANCED
SECOND REGIONAL DEVELOPMENT PROJECT

September, 2015

Environmental Screening and Classification

The subproject (SP) envisages:

- Partial restoration of buildings of Katskhi Monastery complex;
- Restoration of Ubisa Monastery complex.

This Environmental Review is prepared for the Ubisa Monastery complex restoration part of the SP.

The ancient Ubisa monastery complex of the IX-XIV centuries is situated at Dzirula Riverbank at the outskirts of Village Ubisa in Kharagauli municipality, Imereti region. The site is acting Monastery open for visitors. Ubisa Monastery is widely visited by local and international tourists.

The Ubisa Monastery complex is funded by St. Gregory of Khandzta. The site consists of St. George Church (IX century), a 4-floor tower (AD 1141), fragments of a 12th-century defensive wall and several other buildings and structures. The monastery houses a unique cycle of murals from the late 14th century made by famous painter Damiane and his apprentice Gerasime apparently influenced by art from the Byzantine Palaiologan period (1261-1453). The Church and the Tower is built with porous Shirimi stone of yellowish color.

Basically technical conditions of structure included in Ubisa Monastery complex are satisfactory. Selecting irregular restoration methods in different periods of time caused main temple modification, in particular: On North façade of West annex surface alignment is restored with non-identical stones, upper part of the wall is restored with cobblestone on concrete solution, does not have eaves. The same situation is in temple's west and south aisles. Open arches of South gate are bricked; eave of pediment is damaged and needs repair with existing profile and identical stone material. Some fragments of trail around church are damaged. Some fragments of central hall stone floor are amortized and in some places floor is restored with concrete. In altar floor level is not equal under refectory and requires to be shifted. Staircase, balcony and door of tower located on East part of temple are amortized. After eliminating above mention damages complex will significantly return original look.

Works for restoration of the Ubisa monastery complex include:

- Restoration of amortized pavement in the North part of the Cathedral with natural Nichbisi stones;
- Replacement of the limestone surface coarse, on the North façade of the West structure with Shirimi (travertine) stones;
- Restoration of paving in the interior; removal of the concrete layer from the interior; Replacement with the limestones;
- Replacement of the amortized timber stairs with the solid timber material in the tower of the East part of the Cathedral;
- Installation of the new metal-wood entrance door of Tower.
- The local crack-repairs on the Cathedral east facades with lime;
- Replacement of the existing grave tombstones with new nichbisi stones.

The Ubisa Monastery restoration design was prepared by `*Dzveli Galavani*` Ltd based on the Terms of Reference developed by the Municipal Development Fund of Georgia.

The restoration design will be submitted for approval to the Patriarchy Architectural and Arts council and to the National Agency for Cultural Heritage Preservation of Georgia before announcing of the tender.

Permit for Works on Cultural Heritage Monument will be issued by the National Agency for Cultural Heritage Preservation of Georgia after signing contracts with contractor.

(A) IMPACT IDENTIFICATION

Has sub-project a tangible impact on the environment?	The SP has a minor negative environmental impact.
What are the significant beneficial and adverse environmental effects of sub-project?	SP is expected to have positive long term social impact through rehabilitation and conservation of Ubisa Monastery Cultural Heritage Site. The main risk related to the implementation of this SP is damaging authenticity and historic value of the CH site as well as structural damage to it due to improperly planned and/or undertaken works on the historic buildings. However, if adequately performed, the restoration works will preserve the monument from further damage, natural disasters and severe weather. The expected negative environmental and social impacts are likely to be short term and limited to the generation of common construction waste, as well as the disruption of the access to the Church for visitors.
May the sub-project have any significant impact on the local communities and other affected people?	No significant negative impact is expected. The long term social impact will be beneficial (growth of tourist flow, attraction of private sector investment in tourism infrastructure).

(B) MITIGATION MEASURES

Were there any alternatives to the sub-project design considered?	Consideration of alternatives was irrelevant for this SP.

What types of mitigation measures are proposed?	To avoid loss of historic value and unintended damage to the CH site, design and methodology of restoration works will be cleared with the Church and the National Agency for Cultural Heritage (CH) Preservation. All works in the interior will be done by hand, without using a pneumatic hammer, as the vibration may cause the damage of paintings. All other expected negative impacts of the SP can be easily mitigated by demarcation of the places under restoration, proper storage and disposal of construction waste, observance of the established working hours, proper using of personal protective gear. Materials will be obtained from licensed providers; construction waste will be disposed on the nearest municipal landfill or in an alternative location approved by local (municipal) governing bodies in written.
What lessons from the previous similar projects have been incorporated into the sub-project design?	The initial design has been amended and specific changes were made such as removal of concrete layer from the floor and replacement with the lime stones; Replacement of the stonework on the north elevation of the western extension with new one which align with the surviving medieval stonework. The aim of the amendments was to provide for maximum likeness with the original state.
Have concerned communities been involved and have their interests and knowledge been adequately taken into consideration in sub-project preparation?	Subproject-specific EMP will be made available for Ubisa population and will be discussed in a consultation meeting prior to the commencement of works.

(C) CATEGORIZATION AND CONCLUSION

Based on the screening outcomes,

subproject 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 and ownership status of the subproject site available and verifiable? (The screening cannot be completed until this is available)	✓	
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 infra-structure (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 and Social Management Framework**.			

ENVIRONMENTAL REVIEW

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.

Sub-project (SP) for Preservation Measures for Katskhi and Ubisa Monasteries 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.

1.2. Institutional Framework

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. 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).

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 EMF.

The restoration design will be submitted for approval to the Patriarchy Architectural and Arts council and to the National Agency for Cultural Heritage Preservation of Georgia before announcing of the tender.

Permit for Works on Cultural Heritage Monument will be issued by the National Agency for Cultural Heritage Preservation of Georgia after signing contracts with contractor.

2. Subproject Description

The subproject (SP) envisages:

- Partial restoration of buildings of Katskhi Monastery complex;
- Restoration of Ubisa Monastery complex.

This ER is prepared for the Ubisa Monastery complex restoration part of the SP.

Works for restoration of the Ubisa monastery complex include:

- Restoration of amortized pavement in the North part of the Cathedral with natural Nichbisi stones;
- Replacement of the limestone surface coarse, on the North façade of the West structure with Shirimi (travertine) stones;
- Restoration of paving in the interior; removal of the concrete layer from the interior; Replacement with the limestones;
- Replacement of the amortized timber stairs with the solid timber material in the tower of the East part of the Cathedral;
- Installation of the new metal-wood entrance door of Tower.
- The local crack-repairs on the Cathedral east facades with lime;
- Replacement of the existing grave tombstones with new nichbisi stones.

3. Baseline Environmental Conditions

The ancient Ubisa monastery complex of the IX-XIV centuries is situated at Dzirula Riverbank at the outskirts of Village Ubisa in Kharagauli municipality, Imereti region at 320 m altitude above sea level, 175 km from Tbilisi.

The site is acting Monastery open for visitors. Ubisa Monastery is widely visited by local and international tourists. The site consists of St. George Church (IX century), four-storied tower-dwelling, ruins of the ancient fence (XII century), later additions to the structures (XVI century), church (bell) tower.

The Ubisa Monastery complex is funded by St. Gregory of Khandzta. The site consists of St. George Church (IX century), a 4-floor tower (AD 1141), fragments of a 12th-century defensive wall and several other buildings and structures. The monastery houses a unique cycle of murals from the late 14th century made by famous painter Damiane and his apprentice Gerasime apparently influenced by art from the Byzantine Palaiologan period (1261-1453).

The Church and the 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 Ubisa Church is occupied with the painting reasoning from the traditions of Georgian wall painting.

Basically technical conditions of structure included in Ubisa Monastery complex are satisfactory. Selecting irregular restoration methods in different periods of time caused main temple modification, in particular: On North façade of West annex surface alignment is restored with non-identical stones, upper part of the wall is restored with cobblestone on concrete solution, does not have eaves. The same situation is in temple's west and south aisles. Open arches of South gate are bricked; eave of pediment is damaged and needs repair with existing profile and identical stone material. Some fragments of trail around church are damaged. Some fragments of central hall stone floor are amortized and in some places floor is restored with concrete. In altar floor level is not equal under refectory and requires to be shifted. Staircase, balcony and door of tower located on East part of temple are amortized. After eliminating above mention damages complex will significantly return original look.

Conservation works will preserve the monument from further damage, natural disasters and severe weather.

The area around the Ubisa monastery is strongly modified landscape. The monastery fence is surrounded by the road that connects the village Ubisa to Tbisli-Senaki central highway (175 km). Slope with shrubs, arable land plot, non-agriculture land plot and monks house are located along the road. Construction of the light tourist infrastructure on the non-agriculture land near the monastery, as well as construction of water supply system for monastery and tourist infrastructure and rehabilitation of the access road to monastery is ongoing within the RDP II.

4. Analysis of Potential Impacts

4.1.1. Construction Phase

4.1. 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.** The 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, and 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

Restoration will be undertaken on the surface coating layers of the exterior and interior walls, external ladder and door or the tower building, and storm water drainage passages around the buildings. Therefore, the risk of negative impacts on the structural integrity and historical value of the Monastery complex is moderate. 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.

Conservation works will preserve the monument from further damage, natural disasters and severe weather.

4.1.3 Environmental Impacts

Improper handling, storage, use and disposal of construction materials and wastes could pose a risk of water and soil contamination at the construction site and storage site. The later impact is less probable.

Soil Pollution

Potential pollutants from a project of this nature include the following (this list is not exhaustive): dismantled stones, concrete, wood materials, gravel, cement and concrete residue, lime mortar.

Water Pollution

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

- Silt suspended in runoff waters (“construction water”)
- Washing of vehicles or equipment

Air Pollution and Noise

Air pollution and noise will be caused by dismantling works of existed structures and processing of the stones, transportation of materials and waste.

Construction Related Wastes

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

- Inert materials (removed concrete and stones, rock, wood,);
- Packaging materials.

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.

Vegetation and Landscape

The SP design does not envisage any substantial changes of landscape. Potential impact on vegetation is minimal, although the SP design envisages. The SP does not envisage woodcutting or cutting of bushes.

Operation Phase

Increased number of visitors after the site rehabilitation may possibly result in the increased volume of waste and noise. 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. Environmental Management Plan

This EMP has been prepared to ensure that negative environmental impacts associated with this SP are minimized.

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 nearest municipal landfill or in an alternative location approved by local (municipal) governing bodies in written. 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.

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

1. Application of the heavy machinery and equipment is prohibited; The machinery should move only along the preliminarily agreed route; The maximum allowed speed will be restricted; The frequency of movement of the machinery will be restricted;

2. The interior works shall be done by hand, without using a pneumatic hammer, as the vibration may cause the damage of paintings.

3. Any construction or municipal wastes produced during restoration works should remove from the site frequently, site shall be kept clean and tidy;

4. After completion of the rehabilitation works scaffolding should be removed and disposed in written agreement with local municipality administration.

5. In course of restoration 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 Preservation.

Noise

The following measures will be implemented for noise reducing:

- The maximum speed should be restricted to the safety level during the pass of the trucks;
- 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.

Pollution Prevention Measures:

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

Waste Handling

- Construction waste shall 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 or in an alternative location approved by local (municipal) governing bodies in written. 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.

Dust and emissions

- 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;
- Materials and waste will be covered/ wetted down while transportation to reduce dust;
- The construction site will be watered if deemed necessary in dry conditions or where significant quantities of dust are being or are likely to be produced;
- Protective equipment will be provided to workers as necessary;
- 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

The contractor will ensure 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 additional containers shall be placed and penalty sanctions against littering on the site shall apply.

- 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. Within the SP for`Integrated Revitalization of Cultural Heritage Site of Ubisa Monastery which is also included into the RDP II work program, arrangement of the parking area for cars and buses is envisaged.

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
Restoration 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	Purchase of material from the existing supplier	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
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
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

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?)
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

Attachment 1. Elements of the buildings and infrastructure of the Monastery Complex proposed for restoration