SFG2301

FONDI SHQIPTAR I ZHVILLIMIT
ALBANIAN DEVELOPMENT FUND

ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

For the “Rehabilitation of the Cobblestone road to castle "Mihal Komneno" and the Panoramic View Point “Tabja””

Town of Berat
Draft June 2016

INTRODUCTION

This sub-project is an investment identified as part of the first –year activities funded under the proposed Project for Integrated Urban Economic Development in Albania, which is expected to play a critical role to pilot and demonstrate an innovative and integrated approach to implement regional development in line with the new National Territorial Development Strategy and the Coastal Management Strategy**.**

This Environmental and Social Management Plan captures the cobblestone road rehabilitation. Another subproject under this umbrella to be implemented in Berat town is the rehabilitation of the vehicle access road, for which another ESMP will be prepared, once the design is finalized.

No expropriation and no affected ownership is foreseen for the implementation of this project.

The aim of the sub-project is the rehabilitation of the pedestrian road to the castle of Berat (Figure 1), at a length of 1,060 m, including the panoramic view point located at the Southern Side of the Castle.

Figure 1: View of Berat cobblestone road connecting to castle

Due to its architecture, cultural heritage, and characteristic buildings, Berat has been considered one of the most beautiful towns of Albania for decades. Berat has also been nominated a UNESCO town in 2008. The castle of Berat is listed as one of the Cultural Monuments protected under the Albanian legislation. Berat Castle, a fortress landmark in the city of Berat, lies high above the Osum River.

The Osum is a river in southern Albania known for its beautiful canyons. Its source is in the southwestern part of the Korçë County, near the village Vithkuq at an altitude of 1,050 metres (3,440 ft). It flows initially south to the Kolonjë municipality, then west to Çepan, and northwest through Çorovodë where it flows through the famous Osum Canyon, Poliçan, Berat and Urë Vajgurore. It joins the Devoll near Kuçovë, to form the Seman River, which flows further into the Adriatic Sea.

The castle of Berat dates back 2,500 years and records of its first conquering were accomplished by the Romans in 200 B.C. After many centuries of stone reinforcement, the exterior (perimeter) was enlarged slowly over time, under Byzantine conquerors, in the 5th, 6th, and 13th centuries. Currently, the castle is in restoration due in part to a UNESCO World Heritage Site acknowledgement. The castle of Berat is connected with the town through numerous pedestrian cobblestone roads. The castle is an inhabited neighborhood. Berat town has a population of approximately 70,000 inhabitants, of which 600-700 inhabitants live in the Castle area.

Recently, the cobblestone roads to the Berat castle have deteriorated due to the increase of construction activities and passing of vehicles for tourism, community services, and shops.In line with the detailed project design, the subproject foresees rehabilitation of the existing cobblestone pavement of the Mihal Komneno road, including the improvement of the existing road drainage, and installation of lighting and traffic markings. The project design also includes the rehabilitation of “Tabja” (Figure 2.2, 5), which is a panoramic viewpoint over Berat City that offers a picturesque view of this UNESCO protected town. Part of the project activities, during the pre-construction phase, include preliminary small scale works for cleaning of the area around the Tabja panoramic viewpoint including the remains of an old antenna (Figure 2.1, 3), out of service, and an affiliated building (approx. $5m^2$ surface) that is not in use, but once served for the functioning of the antenna (Figures 2 and 3).
In more detail, works for the Tabja view point include: The demolition of 1 store antenna's object, removal of the concrete foundation and the television antenna, pavement of the new path as the existing model cobbled pavement, improvement of the green area, stone pavement of the damaged area from the removal of television antenna, new metallic railings, wooden benches with metallic structure, trash cans, telescope.

Figure 2.1: View of the antenna to be removed

Figure 2.2: View of Tabja (top) from Berat town

Figure 3: View of the antenna building to be removed (building in red bricks)

The project design has been contracted by the European Union Delegation to Albania, with the Ministry of Culture and Municipality of Berat as beneficiaries. The design has been prepared by the joint venture of the companies Safege+AAK+Atelier4, in November 2014.
A plan design of the project layout is given in Figure 6, where the “Mihal Komneno” road is highlighted in green.

Figure 4: View of the existing road in its current conditions

Figure 5: View from the Tabja panoramic view point

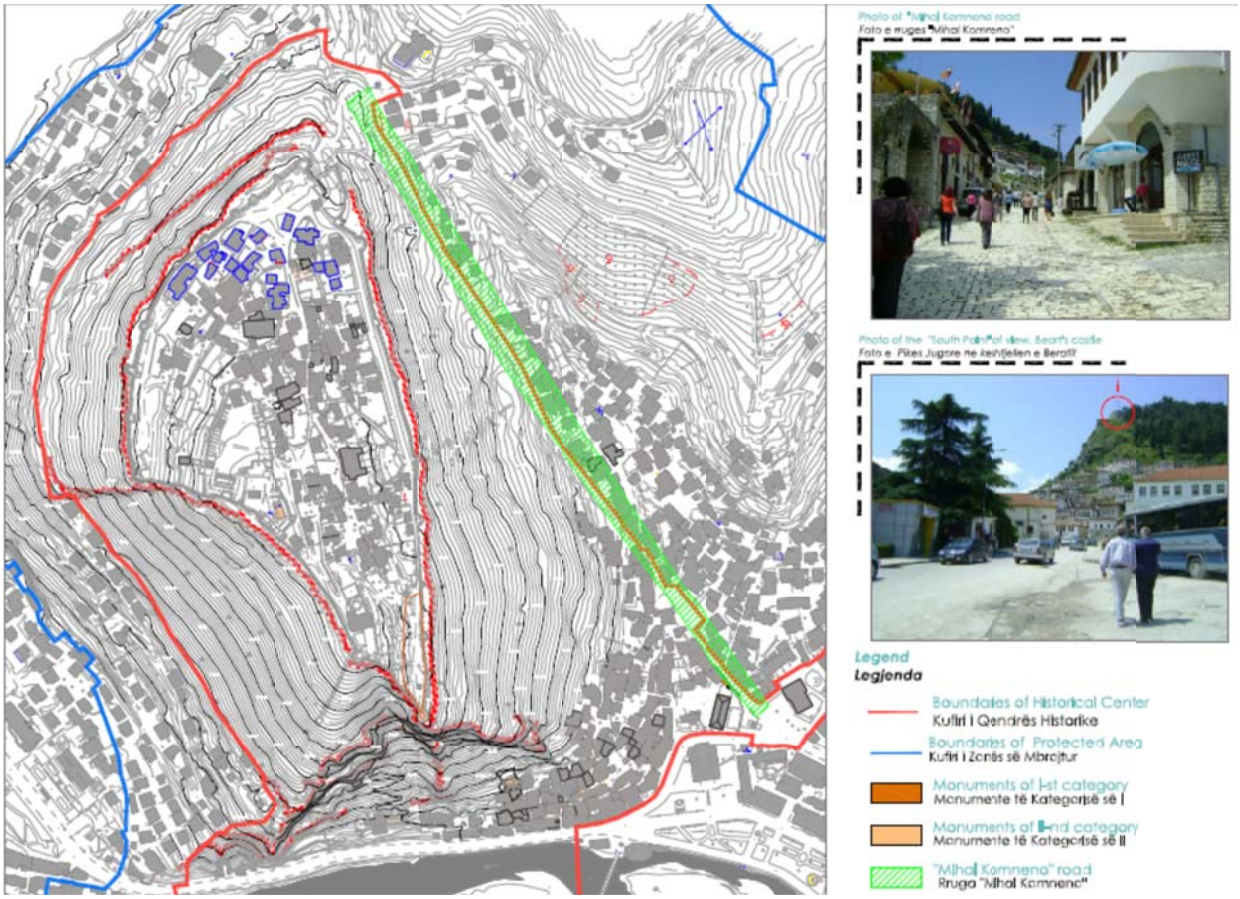

Figure 6.1: Map of the roads connecting to Berat castle (Mihal Komneno road in green)

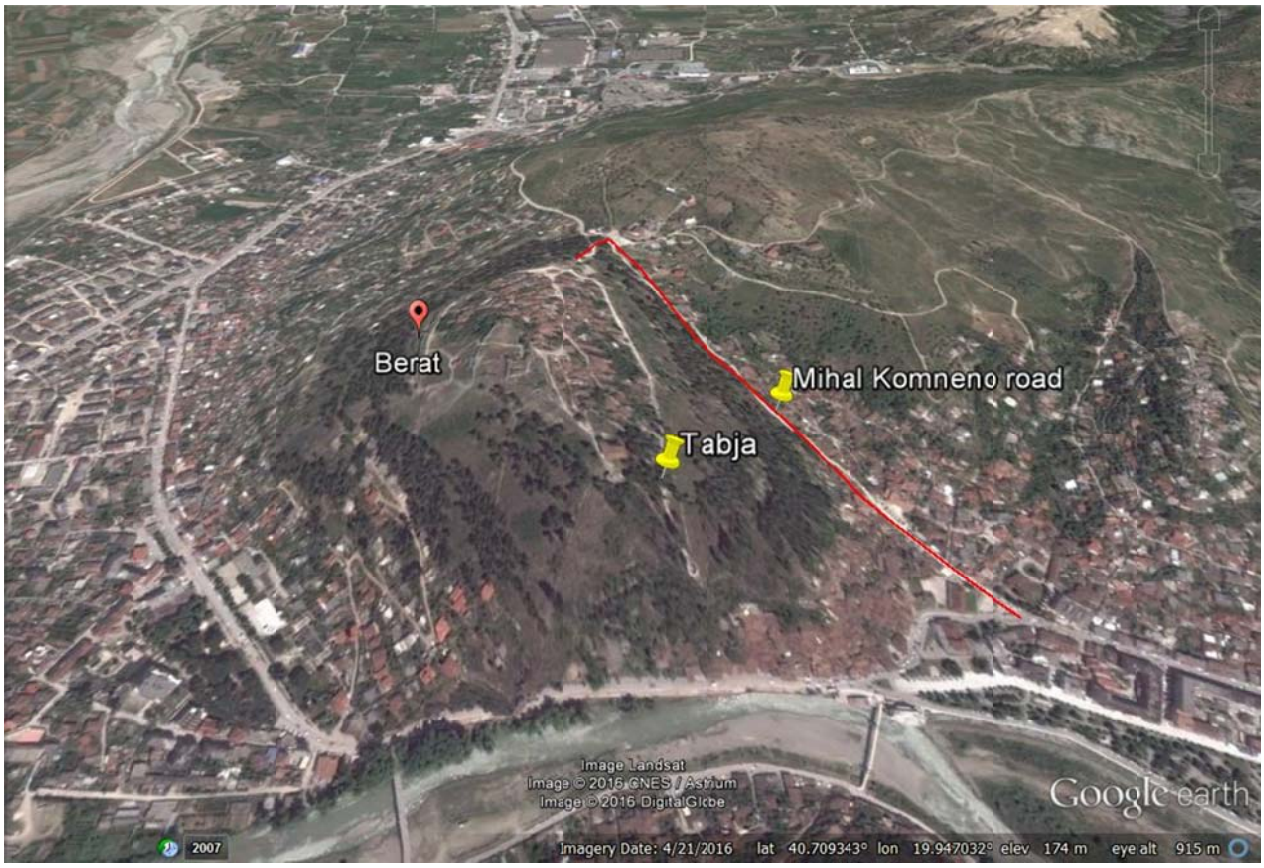

Figure 6.2.: Satellite view of the location of Tabja Panoramic View and Mihal Komneno road (Source: Google Earth)

Environmental and social baseline information

Sub-Project location, terrain and landscape

The sub-project is located in the town of Berat. The existing environmental components of the project site are characteristic of an urban town with a Mediterranean climate. Berat is situated in the Central of Albania, surrounded by mountains in the East and West. The terrain is diverse: hilly, mountainous and flat, with an average altitude of 455 above sea level.
The pedestrian road (green line in Figure 6) is steep going all the way up from Berat downtown to the castle. The Tabja panoramic view point is situated on the southern side of the castle (Figure 6.2).

Climate

Berat climate is typical mediterranean. Yearly average temperature is 15.9 °C, lowest absolute temperature has been -12.2 °C and highest temperature has been 47.1 °C.
The summer is long and dry, while winter is rainy, with a yearly average rainfall of 1200 mm rain.

Hydrology and water resources

The town of Berat is situated on both sides of Osumi river (Figure 7). Osumi is one of the main rivers of Albania, important for agriculture, hydroenergy, ecology, tourism and landscape.

Figure 7: Osumi river and the town of Berat

Osum river regime depends on the atmospheric and evaporation variability. According to the National Report on Environmental State, prepared by the National Environmental Agency of Albania, Osumi river is of medium quality (secondary quality) in regards to parameters such as Chemical Oxygen Demand, Biological Oxygen Demand, Nitrites and Phosphorus (EU standards).

During the last years, there are ongoing rehabilitation works inside Berati castle area to rehabilitate the whole area inside the walls of the castle, the cobbled surface ways, electric system and water systems (drinking, fire-fighting, and sewerage and storm water).
The castle area drains into 2 different points. Therefore, the sewerage and storm water systems discharge into 2 manholes, located outside the walls of the castle: the eastern part discharge manhole and the western part discharge manhole. The discharging manholes also serve as septic tanks.

Flora, Fauna and Natural Habitats

Flora

Since the sub-project is situated within an urban area, flora and fauna species are not found randomly within the site. The vegetation in the town of Berat is characterized of bushes and low vegetation species, such as *Anagyris foetida, Arctostaphylos uva-ursi, Arbutus unedo, Buxus semprevirens, Carpinus betulus, Carpinus orientalis, Cercis siliquastrum, Cistus sp. Colutea arborescens, Cornus mas, Corylus avellana, Cornus sanguinea, Crategus monogyna, Crategus pentagyna, Cotinus coggygria, Erica arborea, Erica carnea, Evonymus ssp, Hedera helix, Juniperus communis, Juniperus foetidisima.*

Fauna

The sub-project area is not rich in fauna species. Insects species are frequently found, which populate the typical flora of the area.
There are no endangered or protected species of flora and fauna at the subproject site, since it is a highly inhabited area. However, there is a variety of species outside the town of Berat, but not near the project site.

Air quality

The project area is located in the center of the town, which is impacted by heady traffic, causing an increased air pollution within the project site. Sources of air pollution in Berat include greenhouse gases released by vehicle engines, few petrol processing units outside of town that release volatile organic substances, dust and suspended particles from vehicles and engineering works.
Although there is a decrease of industrial air pollution from the 90's up to now, due to closing down of factories and petrol processing in the surrounding area, there is an increase in vehicle emissions (consumption of fuels) due to increased number of vehicles and large number of old vehicles used.

Local community

This road is situated in an inhabited urban area, at the length of 1,060 linear meters, starting from the main cobblestone walkway in the town center up to the castle of Berat. Due to its location, this road serves as one of the most frequently visited roads in the town of Berat, especially during tourism season. There are a number of approximately 20 small businesses and a few houses on both sides of the road. The businesses consist of bars, 1-2 hostels, 3 restaurants and a few souvenir shops and markets.

Analysis of Possible Environmental Impacts

Rehabilitation of the cobblestone pedestrian road to Berat Castle is not expected to cause significant environmental impacts and those that are likely to occur could be readily mitigated through good construction practices and adequate environmental mitigation measures, described in the Environmental Management (Mitigation) Plan below.

The environmental impacts associated with this project are presented during the construction phase as well as the operational phase.

Construction phase:

Specific materials (black and white stones) are expected to be used during the rehabilitation of this road, as it is stated in the technical project. The design foresees colored stones. The tender documents will also acknowledge that the materials must be obtained from licensed suppliers/quarries.
No asphalt will be used during this rehabilitation project. Works will consist mainly in improvement of the existing cobblestone road through replacement of existing stones, improvement of the existing road

drainage, and the upgrade and rehabilitation of the Tabja panoramic view point, with works described above.
The road is also foreseen to be restricted to vehicle traffic during rehabilitation works.

Air quality and noise generation

Construction activities including general construction and transport to and from the site may cause dust emissions, temporarily reducing air quality in the area during the construction works.
Noise during construction will be caused as a result of loading and discharging of vehicles and material transport. No heavy machinery are expected to be used during construction (i.e. no excavating), but there may be used small machinery for opening of canals for installation of drainage pipes.

The technical project is approved by the Institute of Cultural Monuments, since the work site is situated within the Berat Castle, a site of National Cultural Heritage and also a UNESCO site.
The aim of this intervention is to promote the cultural heritage through rehabilitation of existing infrastructure. The works related to this intervention will follow special actions and measures advised by the Ministry of Culture in the construction permit given the cultural protection level of the castle. However, as it is foreseen in this ESMP, in case of chance find items, works will be stopped and responsible organizations will be notified immediately in line with national procedures.

Geology and soils

Limited impacts on geology and soils are foreseen during this project.
The aim of the rehabilitation works is to strengthen the base of the road and furnishing with better materials.
Since the base of the road is already established and works will consist in improvement of the road surface, the drainage water system, installation of lighting and signs, temporary impacts on soil are identified, such as improper disposal of waste materials, improper material storage, management and usage, accidental spillage during connection of the existing sewage and drainage system to the new pipes.

Generation of construction waste

During the implementation of the works, since the stones of the pavement will be replaced, a certain amount of waste will be generated. The waste will be generated during works for site clearance, removal of inert materials, dirt, including the old unused antenna and the unused building.
This waste will have a negative visual impact if not managed or disposed of properly.

Hydrology, surface and ground waters

The project also foresees installation of a drainage system underneath the cobblestone surface, on the sides of the road. This is an add-on to the existing drainage system, to compensate for the growing community. This system will serve for collecting rain and sewage water from the existing sewage system of the houses and businesses along the road, transferring them to the existing drainage and sewage system of the town, at the beginning of Mihal Komneno road.

The actual system uses manholes that collect domestic used waters in the town water drainage system. No environmental impacts are foreseen to occur on surface and underground waters, other than improvement of the actual situation and the avoidance of floods due to rainwater overflow.

Habitat and biodiversity

The road is situated within a highly inhabited urban settlement and also a tourist attraction.
Due to the type of works to be implemented, no impacts are foreseen to occur on natural habitats and biodiversity.
Near the Tabja, there are a certain number of trees that are planted for urban beautification purposes (Figure 8). Since the project does not foresee any widening of the road, these trees and surrounding vegetation will remain untouched. There are no known protected areas, parks or habitats of special national value at the subproject area.

Figure 8: Existing cypress trees on the road sides, planted for landscaping purposes

Local community and socio-economic impacts

During the construction phase, there will be impacts on social activities and small businesses situated along the road.
On the other hand, removal of the old non-functional building and the rusted antenna, as well as the rehabilitation and upgrade of the Tabja panoramic viewpoint, will have a positive impact on tourism and local economy, due to the improvement of the area and the increase of visits to this site. Increase of the number of tourists visiting the Berat castle is expected to bring extra income to the local community.

Operation phase:

During the operation phase, minor environmental impacts are foreseen.
All impacts foreseen to occur during the operation phase are detailed in the Environmental and Social Management Plan (Table 2).

Summary of recommended mitigation measures for the "Rehabilitation of the cobblestone road and Tabja panoramic view point"

In addition to the impacts identified in the ESMP table and detailed corresponding mitigation measures, below are highlighted the mitigation measures that are considered most important due to the specificities of this project:

- Waste (recycling and disposal)
    - Since one of the main impacts of this project is the solid waste that is produced during the removal of the existing stone surface of the cobblestone road, as well as the removal of rusted antenna and abandonded 5 m^2 building at the Tabja panoramic viewpoint, it is crucial that before the construction phase, actions must be taken in cooperation with the Berat Municipality and other actors currently performing similar activities, or are in need of stone materials, as well as in cooperation of the Ministry of Culture, for recycling these materials. The remaining solid waste that cannot be recycled, will be disposed off in the nearest landfill, as assigned by Berat Municipality. The antenna is recommended to be sold for scrap metal Other waste (which cannot be recycled) should be disposed off in the designated waste disposal site by the Municipality of Berat, since this municipality does not yet have a designated landfill.

- Chance find items of cultural and historical interest
    - According to the Albanian law, in case of any chance findings during excavation and general works, the works will cease immediately, the area will be secured and the relevant authorities will be informed within three days of said finds. The authorities will have fifteen days to respond and indicate what measures need to be taken to proceed with the works. Excavations during the construction phase will be supervised by archaeologists of the Institute of Cultural Monuments.

- Traffic management/ access of local community during construction activities
    - Specific attention must be paid to the management of construction works in order to not disturb pedestrian pathways, especially for the local inhabitants and businesses. Measures include performance of works only on half of the road lengthwise and allowing free passage ways for locals at the other half of the road.
    - In order to avoid impacts on local community, works **will be** implemented outside the tourism season, which is **July**-**August**.

- Other concerns
    - Since this road is part of the Castle of Berat and is connected to the cobblestone main road around the castle, it is recommended that materials are transported through the asphalted road Muzak Topia near the work site.
    - The Osumi river runs along Berat town and there must be paid special attention during construction activities to avoid solid waste dumping in Osumi river (by accident or otherwise).

Implementation arrangements for ESMP

All mitigation measures listed in the ESMP table at the end of this document will be monitored during implementation of works.
The Albanian Development Fund will be the contracting authority for the implementation of this subproject, which will be funded by the World Bank. The responsibilities of ADF during implementation include, among others, the fulfillment of the criteria set out in the Environmental and Social Management Plan. The ADF unit consisting of dedicated environmental and social specialists will monitor the work site weekly and provide a check list for each site visit on the fulfillment of criteria as set out in the ESMP plan. The ADF environmental unit will prepare monthly environmental reports, tackling all problems noted during the site visits and providing recommendations and measures to be taken.
No environmental permit is required by Albanian Law and therefore periodical reporting to the National Environmental Agency is not mandatory.
Construction works will be supervised by a licensed supervisor for this type of works, as well as by the Municipality of Berat and the Institute of Cultural Monuments, due to the work site being a UNESCO heritage site.
However, since environmental and social safeguards instruments are considered an integral and important component during implementation of World Bank financed projects, monitoring and reporting will be performed as requested.

ESMP Capacity building

The construction operator and/or supervisor must be fully aware of the ESMP provisions and trained regarding its implementation. The ADF staff will provide training on ESMP implementation and reporting, in line with the World Bank guidelines and the Environmental and Social Management Framework.

Reporting and monitoring

The supervising engineer/contractor will report on the implementation of the ESMP to the ADF monthly as well as on the implementation of works. The report must include a chapter on environmental performance, based on ESMP items. The content of the report will be agreed with ADF. In case of accident or negative impact on the environment (not predicted by the ESMP) the supervising engineer will report to ADF immediately.
Due to the fact that the work site is a cultural monument, the supervisor of the project implementation must be licensed by the Institute of Cultural Monuments.
The Institute of Cultural Monuments, as well as the Municipality of Berat, will closely monitor the work site during project implementation in line with national legislation requirements and address any issues considered important due to the site being a cultural site.

Public information and disclosure

The right of the public to be informed is a mandatory process requested by the Aarhus convention, of which Albania is a signatory party.
Upon approval of project financing, the Municipality of Berat, in cooperation with the ADF, will make available to the public the technical project for public review.

Since this project does not require an environmental permit, the public consultation for EIA is not mandatory by Albanian law. However, in line with the World Bank operational policies (OP 4.01 and disclosure of information), the draft ESMP will be disclosed in local language in Berat (Berat municipality and on the ADF website) and consulted together with the project ESMF in Tirana before project appraisal. Feedback that is gathered based on the public consultation organized before appraisal, will be taken into account in the latest version of the ESMP.

Table 2: Environmental and Social Management Plan

Part A: Environmental and Social Mitigation Plan

A. Environmental and Social Mitigation Plan

Phase	Issue	Mitigating measure	Cost (in EUR)		Institutional responsibility		Comments (e.g. secondary impacts)
			Install	Operate	Install	Operate	
Pre-construction	*Cleaning up of the work site from inert materials, dirt; Removal of existing antenna and abandoned building*	In consultation with the Municipality of Berat, provide an appropriate method for recycling construction materials and scrap metal materials.	NA	**7,413**	ADF/Municipality of Berat	Contractor	As provided in BOQ
Pre-Construction	*Materials supplied* from illegal or unauthorized sites may exert pressure on the natural resources	use existing and licensed stones quarries; requirement for official approval or valid operating license	NA	NA	stone quarry	Contractor to obtain all permits	No asphalt will be used during the reconstruction activity Specific stones will be used according to the technical project
Construction	*Dust generated* during transport of stone or aggregate materials	wet or covered truck load	NA	70/month	Construction Contractor	Construction Contractor	To be specified in bid documents
Construction	*Dust* generated during construction works	water construction site and material storage sites as appropriate	NA	100/month	Construction Contractor	Construction Contractor	To be specified in bid documents.
Construction	*Air pollution and noise* from machinery on site, transport and combustion on site	Do not allow vehicles or machinery to idle on site Use attested and proper equipment No open burning or combustion of any sort allowed on site	Minimal	Minimal	Construction Contractor	Construction Contractor	
Construction	*Noise disturbance* to humans and animals	Check that noise emitted during rehabilitation of the pedestrian road does not exceed the national norms set out in regulations (85 dB for urban environment, outside)	minimal	50/month	Construction Contractor	Construction Contractor	To be specified in bid documents.
Construction	*Traffic* that may create noise, vehicle exhaust, road congestion on and around the site	Arrange for material transport at hours of minimum traffic. Use alternative routes to minimize traffic congestion. Works to be performed alternatively on half of the road length in order to allow pedestrians to pass	NA	minimal	Construction Contractor: Transport manager and Truck operator	Construction Contractor: Transport manager and Truck operator	
Construction	*Traffic disruption* during	Traffic management plan with	as	minimal	Construction	Construction	Measures to be included in the

Phase	Issue	Mitigating measure	Cost (in EUR)		Institutional responsibility		Comments (e.g. secondary impacts)
			Install	Operate	Install	Operate	
	construction activity	appropriate measures to redirect traffic and is easy to follow; in cooperation with the local authorities, include traffic police	specified in bidding docum ents		Contractor	Contractor	Traffic management Plan (Bid documents)
Construction	*Vehicle and pedestrian safety*	Appropriate lighting and well defined safety signs. Timely announcement in the media when construction will take place	as specified in bidding documents	minimal	Construction Contractor	Construction Contractor	
Construction	*Water and soil pollution* from improper material storage, management and usage of construction machines	organize and cover material storage areas; reuse soil for covering up the drainage system, isolate wash down areas of concrete and other equipment from watercourse by selecting areas for washing that are not free draining directly or indirectly into watercourse; Install leak control equipment Ensure proper waste management on site in order to prevent pollution Have a leak control mechanism in place and emergency interventions to control spills	as specified in bid documents	50 / month	Construction Contractor	Construction Contractor	It is recommended that stones and other materials that will be removed, to be reused and recycled at the advice of the Institute of Cultural Monuments and the municipality.
Construction	*Water and soil pollution* from improper disposal of waste materials	Dispose waste material at appropriate designated location protected from runoff, in cooperation with the municipality of Berat. For temporary, short storage of wastes, select an area on impermeable surface, away from any potential leaking into the watercourse. Collect and adequately manage all wastes in a timely manner, including dredged material that can only be disposed of at locations	minimal	100/month of the additional 3,840 EUR foreseen in BOQ	Construction Contractor	Construction Contractor	Most of the waste generated can be recycled.

Phase	Issue	Mitigating measure	Cost (in EUR)		Institutional responsibility		Comments (e.g. secondary impacts)
			Install	Operate	Install	Operate	
		approved by the municipality					
Construction	*Potential contamination of soil and water* from improper maintenance and fueling of equipment	proper handling of lubricants, fuel and solvents by secured storage; ensure proper loading of fuel and maintenance of equipment; collect all waste and dispose to permitted waste recovery facility. In the case of leakage the contaminated soil should be collected and as hazardous waste disposed. The waste should be collected in separate containers. Have a leak control mechanism in place and emergency interventions to control spills	minimal	minimal	Construction Contractor	Construction Contractor	The municipality of Berat must provide a written permission for an appropriate waste disposal site before the construction works may commence
Construction	Interruption of surface and underground drainage patterns during construction, creating of standing water.	In line with approved design, maintain natural drainage pattern.	minimal	minimal	Construction Contractor	Construction Contractor	
Construction	Workers health and occupational safety	provide workers with safety instructions and protective equipment (glasses, masks, helmets, boots, et ; safe organization of bypassing traffic; medical kit present at the site		minimal	Construction Contractor	Construction Contractor	
Construction	Impacts on vegetation, trees, meadows, etc.	The clearing of vegetation shall be kept to a minimum, with replacement planting planned and conducted, and shall be done in coordination with the measures for protection of habitats and river banks.	NA	According to the national environmental regulations, for 1 tree	Construction Contractor; Forestry Directorate,		

Phase	Issue	Mitigating measure	Cost (in EUR)		Institutional responsibility		Comments (e.g. secondary impacts)
			Install	Operate	Install	Operate	
				that is cut, 3 must be planted			
Construction	Chance finds items of cultural/historical interest.	In case of any chance finds during excavation and general works, the works will cease immediately, the area will be secured and the relevant authorities will be informed within three days of said finds. The authorities will have fifteen days to respond and indicate what measures need to be taken to proceed with the works.	NA	In case of chance finds, the project owner will pay for all required investigations	Construction Contractor, ADF, municipality of Berat		Albanian legislation details necessary actions in case of chance find items.
Construction	**Labour and working conditions** a)Disease prevention and health examinations b)Creation of additional workplaces c)Workforce accommodation d)Workers safety on site	a) Preventative health examinations for workers, training on disease prevention, provision of education/ information and health related to reduce sexually related disease. b) Informing of local population on vacancies. Maximum possible involvement of local labour c) Accommodation needs will be assessed in all worker camps. Ensure standard for accommodation d) provide workers with safety	As specified in BOQ	minimal	Contractor, ADF	Contractor	It is a legal requirement to provide protective equipment for safety at work

Phase	Issue	Mitigating measure	Cost (in EUR)		Institutional responsibility		Comments (e.g. secondary impacts)
			Install	Operate	Install	Operate	
		instructions and protective equipment (glasses, masks, helmets, boots, etc); b)Provision of construction workers training c) Grievance mechanism for workers to raise reasonable workplace concerns (comments or complaints)					
Operation / Maintenance	*Noise disturbance to local population* and workers caused by regular and scheduled maintenance works on the road, the lighting system and the panoramic point.	Limit activities to daylight working hours (as agreed with local authorities.)	Minimal minimal	minimal minimal	Maintenance Contractor/LGU	Maintenance Contractor/LGU	to be specified in maintenance contract documents-Technical Specifications for realization of maintenance works, in cooperation with the Institute of Cultural Monuments. It is recommended that maintenance works by authorities in charge, as decided in cooperation with the ICM, to commence after the heavy rain period.

Part B: Environmental and Social Monitoring Plan

Phase	**What activity/impact** *is to be monitored?*	**Where** *will be monitored?*	**How** *is to be monitored?/ type of monitoring equipment*	**When** *is to be monitored? (frequency of measurement or continuous)*	**Why** *is the parameter to be monitored? (optional*	Indicators	Cost		Institutional responsibility	
							Install	Operate	Install	Operate
Pre-Construction	possession of official approval or valid operating license for stone quarries and other material supply subjects	on location of stone quarry	inspection of all necessary documents	before work begins	to ensure sustainable use of materials	possession of official approval or valid operating license	NA	NA	Quarry Operator	Quarry Operator
Construction	Covering or wetting down transported materials that can generate dust, such as stone, sand or gravel	job site – each vehicle	supervision	continuously	ensure minimal disruption to air quality	Covered truck load Report from the supervising engineer	NA	minimal	ADF	Supervision Contractor Supervision Contractor
Construction	Congestion on site, disruptions to traffic patterns, complaints on traffic management	On the site	Visual supervision	regularly by supervision	To ensure minimal disruptions to the local traffic	Number of complaints received		minimal	a) ADF	Supervision Contractor
Construction	Damage to soil structure, landslides and slips, embankments	job site	supervision	unannounced inspections during work, after heavy raining	To ensure minimal impacts on soil	land slips, erosion, damaged embankments	NA	minimal	ADF	minimal
Construction	Noise disturbance to human and animal population, and workers on site	job site; nearest homes	noise meter and analyzer, inspection	once for each machine and equipment when works start and on complaint	b- assure compliance of performance with environment, health and	Nr of grievances recorded	minimal	minimal	ADF	Supervision Contractor
Construction	Air pollution parameters of dust, particulate matter	At and near job site	Sampling by authorized agency	Upon complaint	To ensure no excessive emissions during works	Nr of grievances recorded, reports of REA	minimal	100/month	ADF	Supervision Contractor
Construction	water and soil quality (suspended solids, oil and grease	At and near job site (upstream and downstream)	Sampling by authorized agency Visual inspection of leaks or runoff	Upon complaint or spill/leak into the river	To ensure no excessive emissions during works	Nr of grievances recorded, reports of REA	minimal	minimal	ADF	Supervision Contractor
Construction	Safety signage in place	At and near job site	Visually by supervisor	Regularly	To ensure clear posting of safety signs	Number of signs	minimal	ADF	Supervision Contractor	minimal

Construction	Disposal of waste materials at authorized site	On site for timely collection and disposal on final disposal site	Through official designation of the commune, visually	Before start of works and regularly	To ensure proper waste management	Designation from municipality, amounts of waste removed	minimal	ADF	Supervision Contractor	minimal
Construction / *Workers safety*	Protective equipment (glasses, masks, helmets, boots, et ; organization of bypassing traffic.	job site	inspection	unannounced inspections during work		number of on-job accidents recorded	NA	minimal	Supervision, ADF	Supervision Contractor
Construction/ *Destruction of crops, trees meadows etc*	loss of/impact on vegetation	job site	Supervision, photographic reports	during material delivery and construction		Reports of frequent visits on site by the Env. Expert	NA NA	minimal minimal	Supervision Contractor, ADF	
Construction/ *Chance find items*	*Cultural properties*	Job site	Expert visits from Institute for Cultural Monuments, regular supervision	continuous		Catalogue of items found, including photographic and textual documentation	Should be part of the regularly scheduled activities	minimal	Supervision Contractor, ADF, ICM	Supervision Contractor, Cultural Directorate, ADF
Operation *Vehicle and pedestrian safety when there is no construction activity*	visibility and appropriateness	at and near job site	observation	once per week in the evening		Number of warning signs installed, number of accidents recorded	minimal	minimal	LGU	maintenacne Contractor

Increase of domestic solid waste due to increased number of visitors to the site	Visual impact	At or near job site	visits on site and communication with local authorities	Once per every two days by the LGU for maintenance reasons	For aesthetical reasons	Lack of waste on the ground, empty waste bins	Should be part of the regularly scheduled activities by the LGU		LGU	LGU
a)Disease prevention and health examinations *b)Creation of additional workplaces* *c)Workforce accommodation* *d)Workers safety on site*	1) Health examinations for workers, 2) training on disease prevention, including STD 1)Informing of local population on vacancies 2)Involvement of local labour 1)Accommodation needs will be asessed 2)standard for accomodation 1)safety instructions and protective equipment (glasses, masks, helmets, boots, etc); safe 2)organization of bypassing traffic 3)Availability of grievance mechanism and grievance focal point	At or near job site	visits on site and communication with workers and community	Once a week by ADF	To ensure proper implementation of health and safety requirements	Knowledgeable workforce on procedures, Equipped with safety equipment	Should be part of the regularly scheduled activities	Minimal	ADF, supervisor, contractor	supervisor, contractor