



**ENVIRONMENTAL IMPACT ASSESSMENT**  
**Building Resilient Bridges (BRB) Program - P174595**  
**CONSTRUCTION OF THE VIROI BRIDGE, GJIROKASTËR**  
**MUNICIPALITY**



Law no. 10440 "On Environmental Impact Assessment" amended.

Appendix 2; point 10/letter (d)

**Acronyms:**

ARA	Albanian Road Authority
CHMP	Cultural Heritage Management Plan
EIA	Environmental Impact Assessment
EHSG	Environmental Health and Safety Guidelines
ESMP	Environmental Management Plan
ESMF	Environmental Assessment and Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
ESF	Environmental and Social Framework
ESS	Environmental and Social Standards
GoA	Government of Albania
GIIP	Good International Industry Practice
GRM	Grievance Redress Mechanism
LMP	Labor-Management Procedures
OHSE	Occupation Health Safety Environment
NEA	National Environmental Agency
MTE	Ministry of Tourism and Environment
MoIE	Ministry of Infrastructure and Energy
MoLSA	Ministry of Labor and Social Affairs
MoHSP	Ministry of Health and Social Protection
WB	World Bank
SEA/SH	Sexual Exploitation and Abuse/Sexual Harassment
SEP	Stakeholder Engagement Plan

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## **EXECUTIVE SUMMARY**

The Government of Albania (GoA) through the Ministry of Finance and Economy (MoFE) and Ministry of Infrastructure and Energy (MoIE), seeks Funding for “Building Resilient Bridges” (BRB) Program, from the World Bank (the Bank). The proposed program is designed to enhance the overall performance of bridges in the Albanian NRN, while providing support to ARA to increase its capacity in managing road and bridge infrastructure through a robust RAMS and BMS. Bridges are identified as key-infrastructure, particularly vulnerable to climate events, and neglected due to the higher investments required for their improvement. In this context, the proposed program will finance the rehabilitation, upgrade, or reconstruction of priority bridges and structures of the NRN, to enhance their operational performance, safety and resilience to climate and geological hazards events exacerbated by climate change. In addition, to ensure sustainability of the investments, the program will finance technical assistance and capacity building activities to improve the capacity of ARA at managing the bridge and culvert assets while reducing the gender employment gap in the road construction sector. The program will have two phases (phase 1 up to 10 bridges and phase 2 up to 20 bridges) to be implemented at the overall period of the program of 8 years, and each phase will have a maximum length of 4 and 5 years respectively.

Based on ARA’s 2018 inspection survey, over 30 bridges have reached or approached the end of their useful life, are at immediate risk of failure, and require major rehabilitation, upgrade or full reconstruction. Albania’s bridge infrastructure is also highly vulnerable to climate change and natural disasters. Considering the long-term and complex engagement the GoA is pursuing, a Multiphase Programmatic Approach (MPA) is proposed as the most suitable vehicle for Bank support. Phasing under the MPA would provide for a structured approach, cascading through planning, prioritization, design, construction, and bridge asset management systems. It will provide a systematic approach to prioritize investments in bridge interventions and establish a methodology for planning and implementing periodic bridge maintenance that will continue to be used after the MPA closes

The rehabilitation/reconstruction of the 2 first-year bridges Beshiri and Viroi will be financed under phase 1, and will serve as a pilot. Knowledge and lessons learned from all related activities to the implementation of the two first-year bridges, will be incorporated into the rehabilitation/reconstruction of other bridges. This will allow the implementing agency, Albanian Road Authority (ARA), to learn by doing.

Since at this stage of phase one, exact locations and scope of the works are defined just for the pilot bridges Viroi and Beshiri, the borrower prepared the site-specific E&S instruments (ESIAs, ESMP, and RAP) for the first two bridges.

The document in hand represents the Environmental and Social Management Plan (ESMP) for the subproject under the BRB Program: “Construction of the Viroi Bridge, Gjirokastr Municipality.

The section of the road associated with the Viroi bridge has a length of L≈400m, and it is a part of the national road SH4 that connects Albania with Greece. In current conditions the traffic on this segment uncomfortable and unsafe. The traffic safety issue is increased by the fact that the road before, and after, this segment is wider. Additional problem with this segment is that it is often blocked for traffic during the rainy season, due to the small discharge capacity from the culvert adjacent to the main road, and also of the span of the existing bridge. During the heavy rainfall, the lake water level even rises above the road level and blocks the traffic.

Therefore, the government is interested in the reconstruction of this bridge in order to: Increases safety and comfort on the road; Solving the problem of flooding the road and blocking it; Creating conditions for entry and exit of cars in the lake area; Possibility of using the existing axis in function of the park of Lake Viro, creating the possibility of creating a promenade, ring road around the lake; and Landscape improvement.

The objectives of the Environmental Impact Assessment (EIA) for this sub project is: (i) to describe the proposed project and associated works together with the requirements for carrying out the proposed developments; (ii) to identify and describe elements of community and environment likely to be affected by the proposed developments and/or likely to cause adverse impacts to the proposed project, including natural and man-made environment; (iii) to identify and quantify emission sources and determine the significance of impacts on sensitive receivers and potential affected uses; (iv) to identify and quantify any potential losses or damage to flora, fauna and natural habitats; (v) to identify any negative impacts on sites of cultural heritage and to propose measures to mitigate these impacts; (vi) to identify, describe and quantify any potential landscape and visual impacts and evaluate the significance of impacts on sensitive receivers; (vii) to identify the negative impacts and propose the provision of infrastructure or mitigation measures so as to minimize pollution, environmental disturbance and nuisance during construction and operation of the developments arising from the sub-project;

### **Sub-Project Alternatives**

After reviewing the proposed alternatives, considering the environmental and social point of view, the alternative 3 was selected as the most appropriate.

variants and the project selected for implementation foresees that the whole route will run parallel to the existing road, on the side east of it (by the Drino River), leaving the existing bridge as a promenade panoramic overlooks the lake.

### **Sub-Project Area**

The project construction site is at the entrance of the city of Gjirokastra and the area where the “Viroi Bridge” will be built is south-east of Lake Viroi, at the entrance of the city of Gjirokastra. The area where the study was conducted represents the terrace of the Drini River, alluvial deposits are intertwined with the streams of the area. Deposits of small unconsolidated fractions which have organic matter content are also present in the area of Lake Viroi. Beneath these deposits are the Lower Oligocene rocks composed of clay and sandstone. Neogene deposits have a thickness of 100-250m. The square where the constructions will be carried out is flat with a small difference of quotas.

Geological structure of the area is along the eastern flank of the Mali i Gere anticline, which is connected to the western flank of the Drino syncline. The crest of the Mali Gjere Mountain is the natural water divide between the Drinos River basin located on the east, and the Bistrice River basin located on the west. Some sulphate springs recharge the Drinos River in Greek territory; the biggest of them is Rogozi Spring with the mean discharge of about 0.5 m<sup>3</sup>/s and with the sulphate ion concentration of about 700 mg/l.

The area near the sub project site is distinguished by a relatively high demographic intensity. The surrounding population is autochthonous and partly immigrant during the transition years. The site is located about 4 km from the center of Gjirokastra.

The bridge is adjacent to Viroi Park, which is considered as one of the most beautiful natural attractions near the city of Gjirokastra. It is seen at the entrance of Gjirokastra from the road Tepelena - Gjirokastra. Viroi is a karstic water source, which is full of water in winter and spring but dries up in summer. This is explained by the siphon phenomenon, when groundwater collects in a reservoir below the source.

The surface on which the building will be reconstructed, is part of a typical non-urban area, long modified by anthropic activity. The terrain is flat, without special morphological features.

This segment of the road, Viroi bridge, is part of the national road axis Gjirokastra - Tepelena with considerable traffic, as it is a segment that connects Albania with Greece

In the existing condition this Bridge does not meet the criteria of the road category, the function of which it performs and in cases of heavy rainfall occurs the rise of the lake water level above the level of road making traffic difficult or blocking it.

### **Environmental Impacts and their Mitigation**

The expected environmental and social impacts of the bridge construction and operation are small and may be easily mitigated.

Main impacts of the construction phase are expected from the works in the waterway which include temporary diversion of the water stream during placement of bridge supporting piles. River pollution and disturbance of the aquatic life may also be caused by borrowing construction materials from the watercourse and incidental or purposeful dumping of construction and household waste into the river bed. Finally, river may suffer from construction vehicles and machinery driving across it.

The main mitigation measures include minimizing the time of artificial diversion of the water flow by rapid conduct of pile installation works; well-organized waste management; and prohibition of material sourcing and vehicle entry in the waterway.

While for the Viroi Bridge the common environmental issues likely to be encountered are predominantly short-term, local and reversible and include changes in quality river/stream water, as well as typical construction-related disturbances such as dust, air pollution, waste generation, and soil erosion, disposal of excavated mineral materials and other construction waste, occupation and community health and safety risks, etc. In proportionate with the risks of the sub project the site specific Environmental and Social Management Plan has been prepared.

### **Stakeholder Consultation and Information Disclosure**

Present draft EIA report will be disclosed through the web page of ARA in Albanian and English languages and delivered to the local residents in Gjirokastra municipality through the medium and in the format most suitable for their easy access.

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

ESMP is developed based on the findings of the EIA. It consists of a table with environmental and social mitigation measures to be applied during construction and operation phases, and an environmental and social monitoring plan table. These tables list out prescribed mitigation measures, indicators of their adequate application, monitoring methodology, and parties responsible for various aspects of environmental management at the construction and operation phases.

The ESMP will be included into the tender documents and later – be attached to the contract for the provision of civil works.

### **Institutional Framework for Environmental Management**

Project implementation will be mainstreamed within the existing institutional structures. The Albanian Road Authority (ARA) will continue to be the primary Project Management Team (PMT) of the Project with responsibilities including fiduciary aspects, with financial management (FM) of loan proceeds and procurement of goods, works, and services for the project; compliance with social and environmental ESF; and ensuring citizen communication and consultation, as well as routine communication with the World Bank.

## **1. Introduction**

The project construction site is at the entrance of the city of Gjirokastra and the area where the “Viroi Bridge” will be built is south-east of Lake Viroi, at the entrance of the city of Gjirokastra. The area where the study was conducted represents the terrace of the Drini River, alluvial deposits are intertwined with the streams of the area. Deposits of small unconsolidated fractions which have organic matter content are also present in the area of Lake Viroi. Beneath these deposits are the Lower Oligocene rocks composed of clay and sandstone. Neogene deposits have a thickness of 100-250m. The square where the constructions will be carried out is flat with a small difference of quotas.

According to the legislation of Albania, the sub-project does require a simple Environmental Impact Assessment and environmental permitting. According to the World Bank Environmental and Social Framework (ESF) the overall project risk is rated Substantial given the civil works of rehabilitation or reconstruction of approximately up to 10 priority bridges and culverts for the first Phase and up to 20 bridges and culverts for the second Phase of the program across Albania, and as the project will be implemented at various (currently unknown) locations in Albania, and the uncertainties of potential impacts, the risk was rated as substantial.







Existing Viroi Bridge

## **Purpose, objectives and methodology used in developing the EIA**

Purpose and objectives of the EIA

The main objective of drafting the EIA is to identify potential negative environmental impacts during project development, taking into account:

- Analysis of alternatives and associated environmental impacts;
- Ensure that resources are used properly and efficiently;
- Identify appropriate measures to mitigate the potential impacts of the proposal;
- Establish conditions for construction;

This Environmental Impact Assessment report based on the purpose of the project has been drafted to:

- Provide information on the location of the project site and analyze environmental features;
- Provide information on the technical project for the preparatory phase, construction and rehabilitation.
- Assess the potential impacts on the surrounding environment and on the residents of the area where the project will take place.
- Describe measures to reduce or prevent the analyzed impacts;
- Develop an environmental monitoring plan to control impacts
- Inform local institutions, the community and other stakeholders about the implementation of the project;
- Draw conclusions and recommendations on the importance of the project in relation to its negative and positive impacts as well as its social significance.

The objectives of the Environmental Impact Assessment include identifying, describing and assessing the expected direct and indirect environmental impacts during the implementation or non-implementation of the project.

The methodology used in developing the EIA

The Environmental impact assessment has been based on DCM no. 686, dated 29.7.2015 ‘Adopting rules, responsibilities and deadlines for the conduct of the procedure Environmental Impact Assessment (EIA) and the procedure for transferring the decision of the environmental statement’’, as amended.

The methodology is part of the efforts to improve the environmental impact assessment procedures to ensure that the environmental assessment process is comprehensive and done in the most efficient way.

The most important aspects of the preliminary EIA process are the identification of impacts that the project may cause and recommendations for mitigation of impacts.

The checklist of issues discussed in the Environmental Impact Assessment report according to DCM 686 approved is as follows:

**Table 11: Checklist**

Preliminary EIA report including:	YES	YES
a) A brief description of the vegetation cover of the area where the project is proposed to be implemented, with images	YES	YES
B) Information on the presence of water resources in the area required by the project and in its vicinity	YES	YES
c) Identification of potential negative impacts on the project environment (including impacts on biodiversity, water, soil, air and health)	YES	YES
d) A brief description of possible discharges into the environment, such as wastewater, gases and dust, noise, and waste generation;	YES	YES
e) Information on the weight, evolution over time, cumulativeness and possible duration of identified adverse impacts	YES	YES
f) Data on the possible spatial extent of the negative impact on the environment, which means the physical distance from the project location and the impacted values	YES	YES
g) The possibility of rehabilitation of the affected environment and the possibility of restoring the affected environment of the are to its previous state, including agricultural land, as well as the approximate rehabilitation financial costs	YES	YES
h) Possible measures to avoid and mitigate the negative environmental impact	YES	YES
i) Potential impacts on the transboundary environment (if the project is of this nature)	YES	YES
j) Monitoring program for mitigation measures, cited in point “m” of this table	YES	YES
k) Information on the positive impacts that the development of the proposed project may bring	YES	YES
l) The preliminary EIA report must be signed by a natural/legal person licensed by the NLC	YES	YES
m) The preliminary EIA report must be accompanied by the license of the natural/legal person issued by the NLC and the certificate/certificates of the expert(s) certified by the Minister of Environment, based on which the NCL issued the license	YES	YES

## **2. Legal and Institutional Framework**

This chapter presents national and international policies and regulatory frameworks that are relevant in guiding the design and implementation of the project activities, and in managing the potential environmental and social impacts that may be caused by these activities. The first part of the Section reviews the applicable national and international E&S regulatory frameworks concerning project components and activities and the second part discusses the world bank's environmental and social standards (ESSs) that are relevant to the assessment and management of E&S risks and impacts of the project, including the ESS1 (Assessment and Management of Environmental and Social risks and impacts); ESS2 (Labor and Working Conditions); ESS3 (Resource Efficiency and Pollution Prevention and Management); ESS4 (Community Health and Safety); and ESS5 (Land Acquisition, Restrictions on Land Use and Involuntary Resettlement), ESS6 (Biodiversity Conservation and Sustainable Management of Living Natural Resources), ESS8 (Cultural Heritage) and ESS10 (Stakeholder Engagement and Information Disclosure). Moreover, the section also touches upon the international conventions and agreements signed/ratified in Albania gap analysis between the local regulation and World Bank ESS; gap analysis between Albanian framework on assessment and acquisition and WB standards (ESS5).

### **National Environmental Legal Framework**

In general terms, the Albanian Constitution that was adopted by Albanian Parliament in 1998 requires institutions to maintain a healthy environment, ecologically suitable for present and future generations. In the last decade and especially since 2001, number of laws and other legal acts on the environment have been drafted and approved. The Albania national legal framework is largely harmonized with EU legislation. The Albanian legal framework regarding environmental and socioeconomic issues is based on the Constitution of the Republic of Albania and consists of laws and regulatory acts, such as Decisions of the Council of Ministers (DCM), ministerial acts, regulations, guidelines and standards.

#### **Law on Environmental Protection**

Environmental legislation is governed by the Law on Environmental Protection No. 10431, dated June 9, 2011<sup>3</sup>. This Law sets out principles, requirements, responsibilities, rules and procedures to ensure a higher level of environmental protection and includes dispositions for environmental impact assessment as a tool for environmental protection, aiming to identify and define the possible direct and indirect effects on the environment mainly to prevent these effects.

Article 5 defines the principle of sustainable development: "Public authorities, through the development, adoption and implementation of normative acts, strategies, plans, programs and projects within their competence, promote sustainable economic and social development, using natural resources in order to meet current needs and preserve the environment, without prejudice the possibility of future generations to meet their own needs".

The Law on Environmental Protection establishes national and local policies on environmental protection, requirements for the preparation of environmental impact assessments and strategic environmental assessments, requirements for permitting activities that affect the environment, prevention and reduction of environmental pollution, environmental norms and standards, environmental monitoring and control, duties of the state bodies in relation to environmental issues, role of the public and sanctions imposed for violation of the Law.

#### **Law on Protected Areas and Biodiversity protection**

The law No. 8906, dated 06.06.2002 "on the Protected Areas" laid down the framework for the proclamation, administration, management and sustainable use of protected zones and natural biological resources. The law also provides the basis for the development and mitigation of environmental tourism" and other economic benefits and for the provision of information and

education to the general public. The primary goal of the law is to provide special protection of the most important components of natural reserves, biodiversity and in general nature, through the implementation of a protected areas network based on the International Union for Conservation of Nature (IUCN)<sup>4</sup> categories system. Furthermore, the law defines the priorities and strategic objectives for the management of each category of protected areas.

Protected Areas in Albania have been for the most part considered as forest areas and they have historically been administered by the Directorate General of Forestry and Pastures (GDFP) within the Ministry of Agriculture and Forestry. Within the law no 8906 /2002 “For the Protected Areas”, the Ministry of Environment has been given the primary supervisory role for protected areas in Albania and is responsible for:

- Proposing areas to be protected.
- Preparing the legal and managerial procedures to propose and declare a protected area.
- Compile management plans for protected areas.
- On-going monitoring / regulation of management.

The law “For the Protected Areas” states that whilst the primary administrative role lies with the Ministry of Tourism and Environment and GDFP, the interests of other ministries should be considered. The protected areas of Albania include 15 National Parks, 5 Protected Landscape Areas, 4 Strict Nature Reserves, 26 Managed Nature Reserves, and other protected areas. Main protected areas are being equipped with trail markings, while reforms in administration such as the building of information centers are being gradually implemented<sup>5</sup>. National Agency of Protected Areas (NAPA) is created by the Council of Ministers decision. No. 102, dated 04.02.2015, aimed management, protection, development, expansion and operation of the surfaces of protected areas, which today account about 16% of the territory of Albania. NAPA manages the network of protected areas and other natural networks as Natura 2000.

The Ministry of Environment, through the Directorate of Biodiversity and Protected Areas within the General Directorate of Environmental Policy and Delivery of Priorities, covers issues related to the drafting of policies on nature protection as well as strategic documents development in this field. Cooperation is extended with other departments of the Ministry and with the following implementing institutions:

- National Agency of Protected Areas (NAPA);
- National Environmental Agency (NEA);
- The Regional Forestry Service Directorates;
- State Inspectorate of the Environment and Forestry.

Albanian legislation for the protection of biodiversity relevant to the Project is summarized in Table 1 below.

**Table 1 Albanian Legislation on Biodiversity Relevant to the Project**

<b>Legislation</b>	<b>Overview</b>
<b>Law No. 9587 (20.07.2006)</b>	“On the Protection of Biodiversity” (as amended) – This law establishes requirements for the preservation and protection of biological diversity, including protected areas, sensitive habitats and species. The law requires a biological assessment as part of the environmental assessment and collection of all relevant data for the decision-making process.

<b>Legislation</b>	<b>Overview</b>
<b>Law No. 81/2017, dated 04.07.2017</b>	“On Protected Areas” – This law governs all matters related to Protected Areas in Albania. It determines the categories of the protected areas in Albania, management rules and roles on the decision-making process. It requires compliance with the specific rules when accessing, working and performing any other related activities nearby and/or within the protected areas.
<b>Ordinance No. 1280, dated 20.11.2013</b>	“On the approval of the Red List of Wild Flora and Fauna” (as amended) - This ordinance lists the status of the conservation of flora and fauna species in Albania.

Law No. 81/2017 “On Protected Areas” defines the different categories of the PA’s in Albania, and their management prescriptions. Albanian Law No. 81/2017 on PA’s defines 7 categories of PA, each with varying degrees of protection that have been found to be present in the study area:

- Strict Nature Reserve (Category I)
- National Park (Category II)
- Natural Monument (Category III)
- Municipal Natural Park (Category IV)
- Protected Landscape (Category V)
- Protected Area of Managed Resource (Category VI)
- Protected areas of international interest (no specific protection category).

Key laws related to the protection of the environment and protected areas include

- Law No. 5/2016 dated 4.2.2016 On the announcement of the moratorium on forests in the Republic of Albania.
- Law No. 11/2015 dated 19.2.2015 On the accession of the Republic of Albania in the multilateral agreement among Eastern Europe countries for the implementation of the Convention “On Environmental Impact Assessment in a Transboundary Context”.
- Law No 68/2014 for some amendments to the Law 9587, dated 20.07.2006 “On the protection of the biodiversity”
- Law No 7/2014 “On the announcement of the moratorium on hunting in the Republic of Albania”
- Law No.10234, dated 18.2.2010 on the accession of the Republic of Albania in the Protocol “On integrated management of coastal zone in the Mediterranean”, the Barcelona Convention “On the Protection of the Mediterranean Sea Against Pollution”.
- Law No. 9867 dated 31.01.2008 “On establishing the rules and procedures for the international trading of endangered wildlife species”
- Law No. 10 006 dated 23.10.2008 “On the protection of the wildlife”
- Law No. 9587 dated 20.07.2006 “On the protection of the biodiversity”
- Law No 8905 dated 06.06.2002 “On the protection of marine environment from pollution and damage” • Law No. 8906 dated 06.06.2002 “On protected Areas”
- Law No. 8294 dated 02.03.1998 On the ratification of Bern Convention “On the conservation of European wildlife and Natural Habitats”
- DCM No. 31, dated 20.1.2016 “On the approval of the Strategic Policy Document for Biodiversity Protection”.
- DCM No. 102, dated 4.2 2015 “On the establishment and the organization and functioning of the National Agency of Protected Areas”.

### **Protection of Physical Environment Framework**

Albania has developed legislation for the protection of the physical environment, including guidelines, thresholds and limits for emissions. Legislation related to water, air, noise, vehicle and equipment emissions, fuel quality, waste and wastewater is summarised in the Table below.

**Table 2: Legislation related to protection of the physical environment**

<b>Legislation</b>	<b>Overview</b>
<b>Law No. 111/2012, amended with Law No. 6/2018</b>	“On integrated management of water resources” amended with Law No. 6/2018 “On integrated management of water resources” based on Directive 2000/60/EC Water Framework. The aim of the law focuses on: (i) environmental protection and improvement of water, surface water, either temporary or permanent, internal sea waters, territorial waters, exclusive economic zones, continental shelf, trans-boundary waters, groundwater, and their status; (ii) security, protection, development and rational utilization of water resources, protection of water resources from pollution etc. This law provides the definition of water bodies and sets some protection and usage restrictions, and requires others to be approved by several by-laws. The law defines the banks of the water resources, restriction of certain harmful construction activities on the banks <sup>1</sup> / shores and water protection areas.
<b>DCM No. 177 (31.3.2005)</b>	“On the allowed norms of liquid discharges and host water environmental criteria” - provides the allowed norms for effluent discharges on the environment, for the protection water resources.
<b>DCM No. 379 (25.5.2016)</b>	“On the approval of the regulation <sup>2</sup> on Drinking Water Quality” - Its objective is to protect human health from the adverse effects of any contamination of water intended for human consumption, by ensuring that it is wholesome and clean. Regulates several issues related to testing of drinking water and protection zones around the water well or community ground water deposit. The regulation sets three protection zones (buffer zones) from ground water well or water deposit places on the ground. The immediate zone of protection ranges from 15 to 100 m from the axe of the well or the deposit. The precise distance is set based on the evaluation of the geological formations by the hydrogeological expert. The second and third buffer zone are circling the first one. For those zones, the regulation does not set any distance criteria, but restricts the activities that can impact the water quality such as disposal or burial of waste, mining, etc.
<b>DCM 416 dated 15/03/2015 (ANNEX C)</b>	"On the approval of general and special conditions, accompanying documents, validity period, application forms for authorization and permit, review and decision-making procedures and authorization and permit formats for the use of water resources"
<b>Law No. 162 (04.12.2014)</b>	“On protection of ambient air quality”, fully transpose Directive 2008/50/EC on ambient air quality and cleaner air for Europe, as well as Directive 2004/107/EC relating to arsenic, cadmium, mercury, nickel and polycyclic

1 Banks<sup>1</sup> are strips of land adjoining seas, lakes, reservoirs, lagoons, ponds, rivers and streams which comprise a minimum of two areas of land: i. 5 meters at a right angle upper edge of the natural banks on steep banks and 20 meters from the maximum water level over a period of 25 years on flat banks, which can be used, on the basis of special provisions, for public purposes, ii. 100 meters at a right angle from the upper edge of the natural banks on the steep banks, and 200 meters from the maximum water level over a period of 25 years on flat banks, where every activity undertaken will be determined by the water authorities.

2 Based on Council Directive 98/83/EC of 3 November 1998 on the quality of water intended for human consumption) concerns the quality of water intended for human consumption.

Legislation	Overview
<b>enforced by the January 2018)</b>	aromatic hydrocarbons in ambient air. This Law entered into force on 1 <sup>st</sup> of January 2018 and provides the institutional framework, regulations, roles and penalties to ensure compliance. The law stipulates that natural and legal persons, public or private, native or foreign, have a duty to keep the air clean and protect it from pollution caused by the activities they conduct in the territory of the Republic of Albania.
<b>Guideline No. 6527 (24.12.2004)</b>	Minister of Environment and Minister of Transport “Over the permissible values of the elements of air pollutants from the environment and noise emissions caused through road vehicles and methods to control them” amended by Guideline No. 12, dated 15.6.2010 “On amendments and addenda to Guidelines No. 6527, of 24.12.2004 accompanied by the Manual of Vehicles Control.
<b>Order of Minister of Transport and Infrastructure No. 149 (07.04.2014)</b>	“On the approval of the rules for implementing the airworthiness and environmental certification of aircraft and related products, parts and appliances, as well as for the certification of design and production organizations”, fully aligned with the EU Regulation No. 748/2012 of 3 <sup>rd</sup> August 2012, laying down implementing rules for the airworthiness and environmental certification of aircraft and related products, parts and appliances, as well as for the certification of design and production organizations.
<b>Instruction No. 6527 (24.12.2004)</b>	“On allowed vehicle air emission, noise generation levels, and control methods” amended - This instruction includes requirements for annual vehicle inspections and allowed air emissions. All vehicles must comply with these norms.
<b>DCM No. 613 (07.9.2011)</b>	“Approval of the technical rules for the assessment of the noise conformity for the equipment installed in open spaces or environment”. Sets noise release norms for certain equipment generating noise, such as electricity generators, tractors, compressors, etc. The regulation lists set thresholds.
<b>Guidance No.10 (30.5.2015)</b>	“Relating to the type-approval of agricultural or forestry tractors, their trailers and interchangeable towed machinery, together with their systems, components and separate technical units” based on EU Directive 2003/37/EC dated 26.05.2003.
<b>Law No. 9774, dated 12.07.2007, amended by Law No. 39/2013</b>	“On the assessment and administration of ambient noise” – defines the requirements for environmental protection from noise, how to avoid and prevent, reduce and eliminate the harmful effects of exposure to them, including inconvenience from noise. This Law aims to protect human health and the environment from adverse effects caused by noise emissions and sets general rules, authorities, inspection etc.
<b>DCM No. 587, dated 07.07.2010</b>	“On monitoring and control of noise levels in urban and touristic areas” – sets the rules and regulations on the protection from noise generation and noise level administration in urban and touristic areas.
<b>DCM No. 1063 (23.12.2015)</b>	“On the Approval of the technical rules for the assessment of the noise conformity for the equipment installed in open spaces or environment” sets the noise release norms for certain equipment noise generation such as electricity generators, tractors, compressors etc.

Legislation	Overview
<b>Instruction No. 8 (27.11.2007)</b>	Ministry of Environment and Ministry of Health on “Noise levels in different media”, sets the numerical values of noise in specific zones and aims to ensure adequate noise exposure protection for human health.
<b>Instruction No. 6527 (24.12.2004)</b>	“On allowed vehicle air emission, noise generation levels, and control methods” amended - This includes requirements for annual vehicle inspections and allowed air emissions. All vehicles must comply with these norms.
<b>DCM No. 147 (21.03.2007)</b>	“On the quality of petrol and diesel fuels”.
<b>DCM No. 781 (14.11.2012)</b>	“On the quality of certain liquid fuels for thermal, civil, industrial and water transport use (sea, river and lake)”.
<b>Law No. 10463 (22.09.2011) amended</b>	"On the integrated waste management" (as amended) - aims to protect human health and the environment, and to ensure environmental sound management of waste through integrated management.
<b>DMC No. 99 (18.02.2005) amended</b>	“Albanian waste catalogue” (as amended) - which makes the classification of the waste, based on industry types, and the criteria to assess the hazardousness of the waste. The regulation codifies the waste types based on the European Waste Catalogue.
<b>DCM No. 229 (23.04.2014)</b>	“On the approval of the rules for non-hazardous waste transfer and the data to register in the transferring document” - The newly enforced regulation requires transferring the waste at licensed companies and ensuring final disposal in approved facilities. This act requires documenting the waste transfers and providing the final disposal certificate to the NEA. The regulation requires for all waste generating companies to be registered at NEA and obtain a personal waste generation number.
<b>DCM No. 371 (11.06.2014)</b>	“On the approval of the rules for transferring the hazardous waste and the data to register in the transferring document” - The newly enforced regulation requires transferring the waste at the licensed company and ensuring final disposal in approved facilities. This act requires documenting the waste transfer and delivering the final disposal certificate at the NEA. The regulation requires for all waste generating companies to be registered at NEA and obtain a personal waste generation number.
<b>Law No. 9115/2003 (24/07/2003)</b>	<p>“On the Treatment of polluted water” provides regulations that state the need for treatment of polluted water before it is discharged. Article 6 sets the obligations of physical and legal entities that discharge polluted waters. Physical and legal entities, the activity of which discharges polluted waters, are obligated to take measures to:</p> <p>a) Continuously reduce the amount of used waters they discharge in the receiving environment; b) reduce the degree of pollution in discharging waters, especially such pollution as caused by hazardous substances and waste; c) manage and treat polluted waters. To comply with these obligations, the physical and legal entities whose activities discharge polluted waters must design a program of technical, technological and organizational measures. This program is subject to control by the Environmental Inspectorate, the licensing authority and the local government structures.</p>



### **Law on Environmental Impact Assessment and EIA procedure**

All projects associated with potential impacts on the environment, shall be subjected to an EIA prior to starting the implementation. The EIA report and other necessary documents will be submitted to the Ministry of Tourism and Environment (MoTE) who will transfer the project files to the NEA for review. The project shall be approved with Environmental Decision/ Declaration of the NEA and MoTE. The procedure of EIA is detailed in the DCM No. 686 dated 29.07.2015 “On the rules, responsibilities, timelines for the EIA procedure and the transfer procedure of the decision for the environmental declaration” amended.

The EIA procedure flowchart is illustrated in Figure 1 below. Based on the legal requirements of Law No.10440/ 2011, “On Environmental Impact Assessment” amended, Annex II Point 10. Infrastructure Projects, b) Urban development projects, including the construction of shopping centers and car parks.

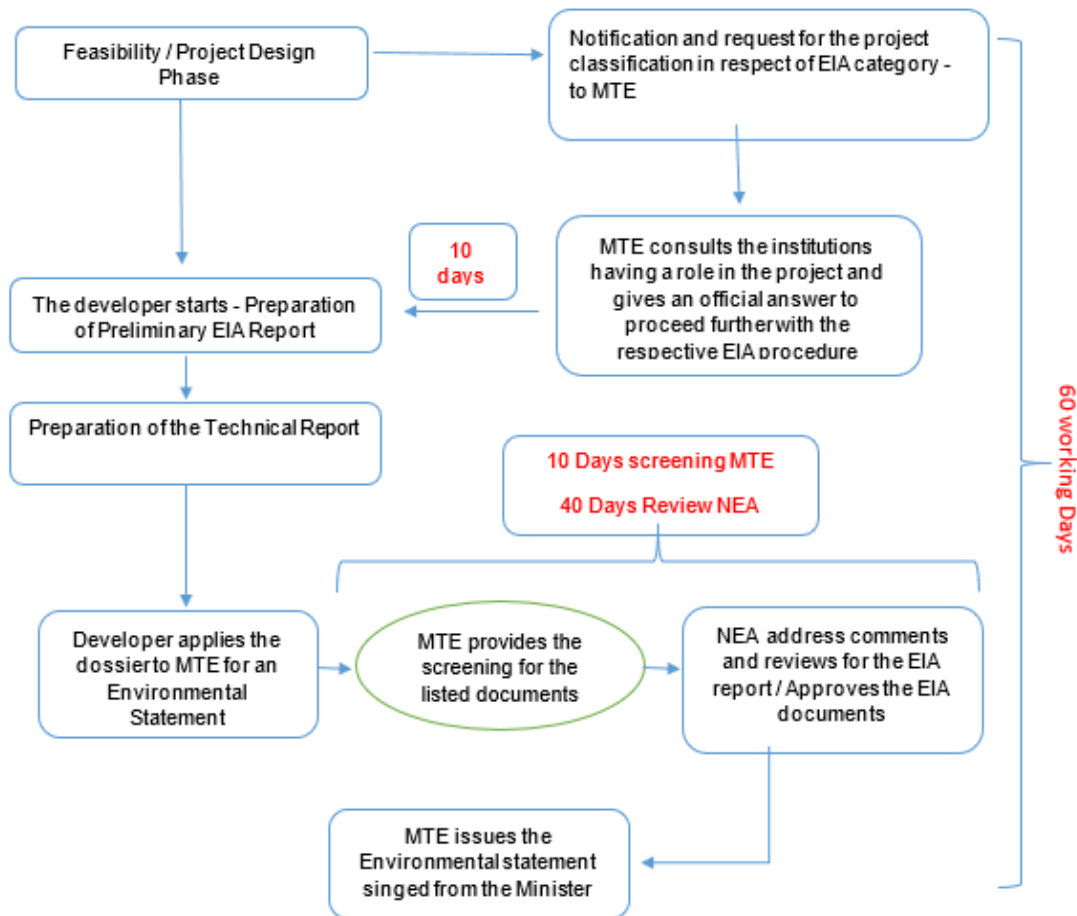
According to Law No.10440/ 2011 (Article 11), at the conclusion of the EIA process, NEA will decide if an Environmental Declaration will be issued or if further studies are required (i.e. and ‘in depth’ EIA is required). It has been anticipated that at the end of the EIA process, an Environmental Declaration will be issued by the MoTE, through an online application process; hence an application to MoTE will be made for an Environmental Declaration. The main documents required by the legal framework to be submitted to MTE to obtain the Environmental Declaration consist of:

- Preliminary EIA report (digitally Signed from a licensed Environmental Expert)
- Technical Summary and DWG (Digitally signed from the licensed Architect);
- Legal documentation regarding the property status of the project area
- Full dossier of official documents of the licensed Environmental Expert engaged to conduct the procedure of EIA
- A scanned copy of the service fee, as defined in the respective legislation.

National, Regional and Municipal unit and agencies representing a role during the EIA process consist of:

- The Ministry of Tourism and Environment
- The National Environmental Agency
- Regional Directory of Environment
- National Agency of Protected Areas (NAPA)
- Regional Administration of Protected Areas
- Municipalities

In addition to the legislation specifically pertaining to the need for an EIA, there are national policies, laws, and regulations applicable to the proposed Project and its environmental and social aspects. Furthermore, Albania has developed environmental standards that are mainly based on the European Commission Directives. Existing standards include protection of the biodiversity, cultural heritage, air emissions, noise levels, water quality and discharge, and waste management.



**EIA Procedure and Timeline according to Albanian Legislation**

### Laws and Regulations in the Field of Cultural Heritage and Chance Finds

Projects for all types of building above ground and underground and engineering infrastructure projects across the entire country are based on standards and technical requirements of legal acts in force. Law No. 10119/09 "On Territory Planning," amended by Law No. 10258, dated 21.04.2010 and Law No. 10315 dated 16.09.2010, is the main legislative tool in Albania relating to urban planning, and aims to integrate the urban planning legislative framework into a single law.

Law No. 10119/09 entered into force on 30 September 2011. The main purpose of this law is to provide a sustainable development of the territory through the rational use of land and natural resources. This law includes the concepts of natural and cultural heritage protection and of the community's health and safety protection. Additionally, the law mentions integrated planning instruments to be designed for Coastal areas, for cultural, natural and environmental heritage and landscapes, as well as for other areas of common importance or interest.

The protection of cultural heritage in Albania is addressed by the Ministry of Tourism, Culture, Youth and Sports and several specialized institutions within the Ministry of Education and Science. Within the Ministry, the Department of Cultural Heritage oversees the Institute of Monuments, the nine National Museums, and the Centre of Registration of Cultural Property. Cultural heritage includes archaeological sites, historic buildings (isolated and in districts), graveyards and places invested with traditional meaning of a historical, cultural or religious nature.

Law 9048 (“Cultural Heritage Act”) approved on April 7th, 2003 (as amended by Law No. 9592, dated 27.07.2006; Law No. 9882, dated 28.02.2008) is the primary legal framework governing the management of tangible and intangible cultural heritage in Albania. Law 9048 represents the first effort to extend legal protection to material within the field of intangible cultural heritage. Its contents include: Categories of Albanian cultural heritage to be protected (i.e. tangible, intangible, movable, immovable); definitions and examples of tangible and intangible heritage; responsibilities of relevant institutions and government bodies; penalties for those who damage cultural heritage; and mitigation procedures.

Article 4 lists the tangible, immovable values that are to be protected, which include, but are not limited to: Archaeological sites; Historic structures (including places of worship); Historic towns and neighborhoods; Cemeteries and graves; and Historic landscapes. Law 9048 was amended by Law 9592 dated 27.07.2006. Amendments included 1) the introduction of the National Committee of National Heritage as an advisory body and 2) the creation of the National Committee for Intangible Heritage (NCIH). Law 9048 was amended again by Law No. 9882, dated 28.02.2008. The 2008 amendments incorporated articles reconstructing the network of specialized cultural heritage institutions and articles dealing with the creation of the National Council of Archaeology and specialized institutions such as the Albanian Archaeological Service.

According to the law, if anything unusual will be found during the digging and excavation process the contractor must stop works immediately, urgently inform the local authorities, the Culture Monuments Institute and, also the Ministry of Culture. They will send archaeologists and field specialists in order to check and evaluate the supposed archaeological objects and the works will restart only after the official permit given by the Culture Monuments Institute. Also, Albania respects the international obligations provided under international conventions and agreements ratified by Albania in the framework of cultural heritage.

**Table 3 . Legislation for the protection of cultural heritage**

Legislation	Overview
Cultural Heritage	
Law 27/2018 (17.05.2018)	“On Cultural Heritage and Museums” - All matters relating to cultural heritage in Albania are governed by this law”. The law defines the preservation and chance finds procedures (archaeological objects or items of cultural heritage value which are discovered by chance) to be used during Project implementation.
Article 146	Requires and obliges any person who discovers or excavates objects of cultural heritage value, by chance during construction works, to suspend work immediately and inform the relevant local authorities within three days. The relevant local authorities consist of the local government office (municipality), the Police Department and the Regional Directory of Cultural Heritage (RDCH). The RDCH verifies the situation/findings and reports to the Institute of Cultural Monuments (IoCM). These institutions are responsible for assessing the archaeological value of the objects found, and determining whether work may continue or whether it must remain suspended until further ground investigations have been undertaken.
Article 5, paragraph 64	Defines the conservation of non-material cultural heritage by measures that aim of long-lasting preservation of such cultural assets.

and article 31	
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**Table 4. Laws adopted after the ratification of international conventions by the Republic of Albania**

Convention name	Ratified by Albania
Law no. 9490, dated 13.03.2006 "On the Ratification of the Convention for the Safeguarding of the Intangible Cultural Heritage",	2006
Law nr.9806, dated 17.09.2007 On the Ratification of the European Convention "On Protection of the Archaeological Heritage"	2007
Law No. 10 027, dated 11.12.2008 "On accession of the Republic of Albania to the Convention on the Protection of Underwater Cultural Heritage", Paris 2001	2008

Source: <http://www.kultura.gov.al/al/baza-ligjore>

### Health and Safety Framework

Law No. 10237/2010 "On safety and health at work" ensures the security and protection of health through prevention of professional risks, eliminating the factors that constitute risk and accidents, inform, advice, balanced participation, in accordance with the law. The present law applies the following:

- The Directive of the European Council 89/391/EEC, dated 12 July 1989 "On the introduction of measures to encourage improvements in the safety and health of workers at work";
- The Directive of the European Council 94/33 EEC, dated 22 July 1994 "On the protection of young people at work," article 6; and
- The Directive of the European Council 92/85 EEC "On the introduction of measures to encourage improvements in the safety and health at work of pregnant workers and workers who have recently given birth or are breastfeeding".

Albanian legislation on health and safety and the relevance to the project are highlighted in the table below.

**Table 5 Legislation on health and safety**

Legislation	Overview
Law No. 10237/2010 (18/02/2010)	"On Safety and Health at Work" - This law regulates the framework of health and safety in the workplace and determines the roles of each party subject to the law.
Law No. 9863/2008	The State Sanitary Inspectorate aims to protect workers from the impacts of adverse working conditions, such as exposure to toxic substances, radiation, unworkable noise, vibrations, unfavorable microclimate, and controls the level of occupational diseases and accidents as a result of adverse conditions.
Law No. 9863/2008 (28/01/2008)	"On food" specifies the rules of food safety in Albania

Legislation	Overview
Law No. 10433/2011 (16/06/2011)	“On Inspection in the Republic of Albania”
DCM No. 562/2013 (3/07/2013)	Decision of the Council of Ministers concerning the approval of the regulation on minimum safety and health requirements for the workplace.
DCM No. 312/2010 (5/5/2010)	“On safety in site construction” sets the rules of safety for construction activities.
Decision No. 692/2001 (13/12/2001)	“On special measures on safety and health protection at work”
DCM No. 842/2014 (3/12/2014)	“For the health and safety and protection of the employee from noise risks in the working places” requires the employer to assess the noise levels at the working place and ensure the protection of its workers

### **Other relevant legislation**

Other national regulations relevant to the BRB is presented in Table 6 below.

**Table 6. Other Relevant National Legislation**

Legislation	Overview
Law No. 107/2014	“On Territory Planning and Development” -  The law aims to integrate the urban planning legislative framework into a single law, and includes the concept of the protection of natural and cultural heritage, and community’s health and safety for territory planning.
DCM No. 408 (13.5.2015 amended by DCM 231/2017)	The regulation for territorial development.
Law No. 8752/2001 (26/03/2001) amended several times	"On the establishment and functioning of the structures for land administration and protection", amended by Law No. 10257/2010 regulates land uses issues, and their compatibility with Regional Planning.

### **International Convention and agreements**

Albania is signatory to several international conventions and agreements on biodiversity conservation, environmental protection, and sustainable development. The major conventions and agreements that are relevant to the project are the following:

**Table 7: International Conventions and Agreements Signed/Ratified in Albania**

Convention/Agreement	Overview	Ratified
<b>Aarhus Convention on Access to Information, Public Participation in decision-making and Access to Justice in Environmental Matters (1998)</b>	The Convention establishes a number of rights to the public, with regard to the environment; including access to environmental information; public participation in environmental decision-making and access to justice <sup>3</sup> .	26 October 2000
<b>UN Framework Convention on Climate Change (UNFCCC) (1992) entered into force in 1994</b>	The United Nations Framework Convention on Climate Change (UNFCCC) has been crucial in addressing climate change and the need for a reduction of emissions of greenhouse gases. The ultimate objective of the Convention is to stabilize greenhouse gas (GHG) concentrations in the atmosphere at a level that would prevent dangerous human interference with the climate system.	01 December 1994
<b><u><a href="#">Paris Agreement</a></u> at the <u><a href="#">COP21 in Paris</a></u> on 12 December 2015, entered into force on 4 November 2016</b>	The Paris Agreement builds on the Climate Change Convention to combat climate change <sup>4</sup> .	21 September 2016
<b>Kyoto Protocol</b>	The Kyoto Protocol is an international agreement linked to the United Nations Framework Convention on Climate Change; signatories commit to setting internationally binding emission reduction targets <sup>5</sup> .	01 April 2005
<b>Convention on the Protection and Use of Trans boundary Watercourses and International Lakes (1992)</b>	Avoid or minimize adverse effects on water resources and water quality.	5 January 1994
<b>Convention on Biological Diversity (CBD) (1992)</b>	Avoid or minimize adverse effects on important habitats and species, internationally and naturally designated nature conservation sites; conservation, sustainable and equitable use of biodiversity.	5 April 1994
<b>Convention on the Protection of Wild Flora and Fauna and Natural Habitats in Europe (Bern Convention) (1976)</b>	The Convention aims to ensure the conservation of wild flora and fauna species and their habitats. Special attention is given to endangered and vulnerable species, including endangered and	2 March 1998

<sup>3</sup> <http://ec.europa.eu/environment/aarhus/index.htm>

<sup>4</sup> [http://unfccc.int/files/paris\\_agreement/application/pdf/qa\\_paris\\_agreement\\_entry\\_into\\_force.pdf](http://unfccc.int/files/paris_agreement/application/pdf/qa_paris_agreement_entry_into_force.pdf)

<sup>5</sup> <https://unfccc.int/process-and-meetings/the-kyoto-protocol/what-is-the-kyoto-protocol>

Convention/Agreement	Overview	Ratified
	vulnerable migratory species <sup>6</sup> ; to avoid or minimize adverse effects upon important habitats and species, internationally and naturally designated nature conservation sites.	
<b>Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention) (1979)</b>	Avoid or minimize adverse effects upon migratory species	1 September 2001
<b>Agreement on the Conservation of African-Eurasian Migratory Water birds (1995)</b>	African-Eurasian Migratory Water birds Agreement (AEWA) covers 254 species of birds ecologically dependent on wetlands for at least part of their annual cycle. All AEWA species cross international boundaries during their migrations and require good quality habitat for breeding as well as a network of suitable sites to support their annual journeys <sup>7</sup> . Avoid or minimize adverse effects upon migratory water bird species.	1 September 2001
<b>Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) (1975)</b>	CITES is an international agreement between governments. Its aim is to ensure that international trade in specimens of wild animals and plants does not threaten their survival <sup>8</sup> .	27 June 2003
<b>Convention on the Protection of the World Cultural and Natural Heritage (1989)</b>	Avoid adverse effects upon Albanian and World Cultural Heritage sites; minimize adverse effects on unknown and intangible cultural heritage sites, material assets and other infrastructure.	10 July 1989
<b>ILO Convention 29 Forced Labour Convention (1930) and ILO 105 Abolition of Forced Labour Convention (1957)</b>	Its object and purpose are to suppress the use of forced labour in all its forms, irrespective of the nature of the work or the sector of activity in which it may be performed.	25 June 1957 27 February 1997
<b>ILO Convention 87 Freedom of Association and Protection of the Right to Organize (1948)</b>	Protects the rights of workers and employers to join organizations of their own choosing without previous authorization.	3 June 1957
<b>ILO Convention 98 Right to Organize and Collective Bargaining</b>	The convention provides for workers to be able to join unions and engage in collective bargaining.	3 June 1957

<sup>6</sup> <https://www.coe.int/en/web/conventions/full-list/-/conventions/treaty/104>

<sup>7</sup> <https://www.cms.int/en/legalinstrument/aewa>

<sup>8</sup> <https://www.cites.org/eng/disc/what.php>

Convention/Agreement	Overview	Ratified
<b>ILO Convention 100 Equal Remuneration Convention (1951)</b>	Each member shall, by means appropriate to the methods in operation for determining rates of remuneration, promote and, in so far as is consistent with such methods, ensure the application to all workers of the principle of equal remuneration for men and women workers for work of equal value.	03 Jun 1957

### World Bank Environmental and Social Framework

As a condition of WB financing the BRB Program, ARA has committed to implementing the Program in a manner consistent with the WB Environmental and Social Framework 2018 (ESF). Matters to be addressed include environmental, health and safety, gender, labor, social, land and cultural heritage laws and policies as a minimum.

Based on the present evaluation, these are the ESF Standards which are considered relevant: ESS1, ESS2, ESS3, ESS4, ESS5, ESS6, ESS8, and ESS10

- ESS1 – Assessment and Management of Environmental and Social Risks and Impacts.
- ESS2 – Labor and Working Conditions.
- ESS3 – Resource Efficiency and Pollution Prevention and Management
- ESS4 – Community Health and Safety.
- ESS5 – Land Acquisition, Restrictions on Land Use and Involuntary Resettlement
- ESS6 – Biodiversity Conservation and Sustainable Management of Living Natural Resources.
- ESS8 – Cultural Heritage.
- ESS10 – Stakeholder Engagement.

### ESS1 Assessment and Management of Environmental and Social Risks and Impacts

#### *Overview of the relevance of the Standard for the Program:*

The Program supports the rehabilitation of bridges and culverts while a smaller portion of the financing will be invested in significant upgrade/replacement of bridges (with changed design and dimensions) and new supporting infrastructure (for protection of bridges). The program will have two phases (phase 1 up to 10 bridges and phase 2 up to 20 bridges) to be implemented at the overall period of the program of 8 years, and each phase will have a maximum length of 4 and 5 years respectively. The rehabilitation/reconstruction of two priority bridges to be funded under phase 1, will serve as a pilot and knowledge and lessons learned will be incorporated into the rehabilitation/reconstruction of other bridges.

The nature of rehabilitation interventions is as such that heavy machinery will be used and thus about 10 to 20 workers per working site for each sub-project will be needed. In rare cases, approximately two



to three proposed bridges from the long list of 100 bridges, the number of workers on the site could be up to 50-100. The proposed locations are both outside and inside inhabited rural and urban areas all over Albania.

The rehabilitation types of works likely to be financed will be e.g. road/bridge widening for the sidewalks, bridge replacement, culvert replacement, removal of the road surface, waterproofing the superstructure, removal of the loose concrete surface, reprofiling the structural concrete, construction of the parapet and/or traffic barriers, rainwater drainage etc.

As exact locations and scope of the works are not yet defined for all the bridges with certainty, the Borrower prepared a draft Environmental and Social Management Framework (ESMF). Draft ESMF is prepared and is publicly consulted prior to the appraisal and will be finalized before the conclusion of appraisal.

Proportional to the site-specific risks, the borrower will prepare the:

- ESMP Checklists for typical rehabilitation activities
- ESMP for reconstruction
- ESIA - full-fledged or partial will be required for significant upgrades/replacements of bridges, with changes in design and dimensions as well as for the construction of new bridges and supporting infrastructure.
- Stand-alone Cultural Heritage Management Plan (CHMP) or annexed to ESA, will be prepared for site-specific works that might have an impact on cultural heritage.
- Biodiversity protection measures will be carried out as a part of site-specific ESIA and ESMP.
- Site-specific management plans for waste management, hazardous materials management, and pollution prevention as a part of the contractor ESMP, ESMP Checklist, or ESIA
- Traffic Management Plan prior to work commencement
- Community health and safety impacts will be addressed in site-specific ESIA and ESMPs

Management of E&S impacts will take into, the WBG Environmental Health and Safety Guidelines (EHSG) and Good International Industry Practice (GIIP) and relevant Albanian regulations.

At this stage, the specific E&S instruments (ESIAs, ESMP, and RAP) are prepared for the two bridges (Viroi and Beshiri) selected as priorities from GoA, and the feasibility studies are under preparation for the other bridges (up to 8) to be rehabilitated/reconstructed in the first phase. In parallel during the implementation of the first phase the Borrower will do the selection and preparation of the E&S instruments for part of the bridges (up to 20) to be reconstructed/rehabilitated in the second phase of the Program.

Potential environmental impacts will be mostly substantial for the upgrade/replacement of the bridges but with local impacts and for the others moderate, local, typical for civil works such as (e.g. generation of significant amounts of construction waste, smaller amounts of hazardous waste, emission of dust and noise, Occupation Health and Safety (OHS) and traffic safety-related risks, water quality, etc.). All

impacts are expected to be addressed in the Environmental & Social due diligence appropriate to the project and site-specific risks. High-risk activities, as defined in the WB E&S Directive and ESF, will not be financed under the Program, this will be set forth in a detailed procedure and exclusion criteria/list within the ESMF (list of activities as ineligible for financing under the Program are included in the Annex 8). Given the scale and geographic scope of the program, contractor/subcontractor performance management could present a significant challenge (e.g. with regards to waste management, community safety, OHS...) therefore the borrower will engage the third-party monitoring/supervision engineers to support the implementation of the works and environmental and social risk management aspects of the program.

The most probable social risks for the program will be potential disruptions to community (ESS4) in the traffic due to rehabilitation of the bridges, which will be managed through the social sections of the ESMFs/ESIA by proposing temporary alternative routes or temporary new regimes of the traffic. Social risks related to labor and working conditions (ESS2) will be managed by applying the requirements of Labor-Management Procedures (LMP). Draft LMP has been prepared, consulted, and disclosed before the appraisal. For the majority of the bridges, for which the precise location of works that may require land acquisition, resettlement, or lead to livelihood disruption, will not be known prior to the appraisal, but will be identified during the implementation of the project, a draft Resettlement Policy Framework (RPF) is prepared consulted and in country disclosed prior to the appraisal. While, for Beshiri bridge, selected by the Government as one of the priority bridges for the first year of implementation, during the ESA was identified, that will have the social impact on economic displacement, therefore the draft ESMP and draft ARAP are prepared satisfactory to the Bank, consulted, and disclosed prior to the appraisal. Following the identification of specific sites during implementation, the project will screen out the site-specific works that will require significant land acquisition and significant resettlement. However, if the minor acquisition or minor amounts of land and land affixed assets will be required, the Resettlement Plans (RPs) will be prepared as required in compliance with the national requirements and ESSs of the Bank's ESF. However, land acquisition is expected to be limited, because the program focusses mainly on rehabilitation works.

### **ESS2 Labor and Working Conditions**

The standard is relevant. Most of the works would be done with heavy machinery, with about 10 to 20 workers per working site and, in a maximum of two cases, there might be labor-intensive works with about 50-100 workers per site. There would be no cases of labor influx situations in the localities, as the project is engaging local workers. Albanian OHS legislation is harmonized with ILO conventions, while the country is making continuous efforts to align with the relevant EU requirements and standards. Nevertheless, given moderate to substantial OHS risks (including working at height, working under water, working with heavy machinery, etc.), in addition to national regulation, OHS impacts will be mitigated by the application of relevant provisions in the ESIA's, as defined in ESF, WB Environmental, Health and Safety Guidelines, and good international industry practice. The project workers will be both direct project workers and contracted workers. Direct project workers will be PIU employees and consultants, whereas contracted workers are going to be hired by the contractors and subcontractors to carry out the rehabilitation of the selected bridges. The draft Labor-Management Procedures (LMP) is prepared and will be part of the consultation package before the Appraisal and address the envisaged risks, including Grievance Mechanisms for Project Workers, and define other principles on the employment of Project Workers, so that all requirements of the ESS2 are adequately reflected in tender

documents. LMP will manage and oversee the compliance of the project works. The Project Workers GRM will be separate from the project-related GRM. The LMP will also address working terms and conditions, equality of opportunity, workers' associations, and grievance redress. The project will not engage forced or child labor. The LMP will include robust measures to address OHS and SEA/SH risks (though the latter are expected to be low).

### **ESS3 Resource Efficiency and Pollution Prevention and Management**

The program implementation phases, will produce a significant amount of construction waste from the removal of asphalt, works on superstructure and substructure, removal of deposits, earthworks, etc. Waste management will focus on seeking options for reuse and recycling of removed materials while waste disposal will be considered the last resort. Waste streams, quantities, management procedures, and final disposal/processing will be identified in Waste Management Plans which will be integral parts of ESAs. All envisaged infrastructure works (bridge construction and reconstruction that may require dredging and underwater works, painting, and rehabilitation, works on the substructure, installation, and repair of culverts, etc.) can cause impacts to water such as turbidity, water quality degradation, etc. as well as soil erosion, changes in deposition patterns, etc. Ideally, impacts to water will be avoided/minimized through sub-project design and design of works, while the remaining risks addressed by the application of WBG EHS and GIIPs. Each sub-project site with bridge or culvert rehabilitation will develop site-specific management plans for waste management, hazardous materials management, and pollution prevention as a part of ESMP, ESMP Checklist, or ESIA.

Extensive consumption of energy and water is not expected under this program. A large amount of mineral resources (sand, gravel, etc.) may be used in construction. While there will be no quarrying at sites, and sourcing of such materials often raises significant environmental and/or social risks, therefore the ESMF will provide specific requirements for avoiding and mitigating impacts associated with excavation from riverbeds/riverbanks. As part of preparing the Program/ESMF will also be reviewed the adequacy and effectiveness/enforcement of the licensing procedures for quarries/suppliers in Albania.

### **ESS4 Community Health and Safety**

The Standard is relevant. The Project designs will include necessary measures for the adaptation of climate changes and natural hazards considering safety risks to the community. The community health and safety impacts will be addressed in site-specific ESAs and ESMPs, in line with the guidelines provided in the ESMF. Project implementation will require the use of heavy vehicles, machinery, frequent transport of people and goods, which can create risks to road safety and pedestrian safety. Mitigation of resulting potential impacts will be defined in the ESMF General Traffic Management Plan. Site-specific Traffic Management Plans (TMP) will be developed based on the General TMP making an integral part of E&S due diligence. As many of the activities are likely to be carried out in populated areas, the ESMF will require contractors' ESMPs and OHS plans to include specific measures for properly restricting public access from work sites. All waste management activities need to also include adequate mitigation and rehabilitation practices, as appropriate. Application and relevance of the standard for the security personnel will be defined during the implementation. Other relevant issues in addition to project-related traffic are 1) interruption of the passage over the bridge because of the rehabilitation activities 2) potential for SEA/SH, though there is a low-level risk of this, and 3) community awareness and safety including for children. For 1), once the sub-project is defined, the bridge to be rehabilitated will be selected; part of the preparation activities between concept designs and the final designs will be analysis, consultation, and selection of the most optimal alternative for passing over the bridge (or rerouting) during the rehabilitation works. This will be especially important

if for the selected bridge the rehabilitation works are as such that there should be a temporary closure of the bridge. For 2), to address the potential SEA/SH issues the contractors will be required to ask the employees to sign the code of conduct; the project will also strengthen the project related GRM to process in a confidential and sensitive manner any SEA/SH complaints from the communities using the bridge or the nearby areas. For 3), the project will have ongoing stakeholder engagement to ensure there is community awareness, especially by children using the bridge.

#### **ESS5 Land Acquisition, Restrictions on Land Use and Involuntary Resettlement**

Although most of the works will be done on the respective bridges, In case there is a need for land acquisition the implementing agency will prepare an RPF which will guide potential Land Acquisition, Restriction on Land Use, and Involuntary Resettlement during project implementation. The RPF will cover also situations of potential impacts of resettlement of illegal structures. If for a particular sub-project, there will be a need for land acquisition, site-specific Resettlement Action Plans will be prepared.

#### **ESS6 Biodiversity Conservation and Sustainable Management of Living Natural Resources**

ESS6 is likely to be relevant given that there will be work in and around rivers, which typically involves risks of disturbing natural habitats in riverbeds and riverbanks, runoff/ increased sedimentation which can affect fish and aquatic invertebrates. Therefore, the ESMF should call for preliminary baseline studies particularly of aquatic habitats and species for any such sub-projects, so that appropriate measures can be taken in project design and implementation to avoid and minimize impacts to the extent possible. Likewise, it can already be noted that while some activities may take place in the protected areas, therefore any subprojects located in or near a protected area or sensitive natural habitat will require the preparation of a Biodiversity Management Plan. Depending upon the bridge site locations minor implications on the existing vegetation cover (limited to the bridge abutments locations) need to be given due attention from the natural environmental perspective. The ESMF will integrate provisions of this standard in the development of site-specific due diligence to address particular risks to biodiversity, habitats, and species. Site restoration will also be very important. All construction zones and facilities and any other area used/affected due to the project operations will be left clean and tidy, as per the site restoration plan required by site-specific ESMP.

#### **ESS7 Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities**

The standard is not relevant. There are no Indigenous Peoples, as defined by ESS 7, in Albania.

#### **ESS8 Cultural Heritage**

The relevance of this ESS will be further assessed during Project preparation as part of the ESA process. In any case, the ESMF and the site-specific ESIA/ESMPs will include precautionary provisions for chance finds.

#### **ESS9 Financial Intermediaries**

The standard is not relevant. No intermediary financing will be used.

### **ESS10 Stakeholder Engagement and Information Disclosure**

The SEP will be prepared by the implementing agency, proportionate to the nature and scale of the Project and its potential risks and impacts. It will describe the different interested and affected parties but also those who are vulnerable. The SEP will provide a strategic framework for the engagement of different stakeholders for each particular bridge and it will propose concrete action plans for stakeholder engagement in Project activities. For every category of the stakeholders, an appropriate method of engagement will be developed. Important issues that will be communicated and for which feedback is sought will be: (i) informing the wider public about the works, timing, forecasts for rehabilitation works for each bridge; (ii) engagement with the stakeholders, from concept design to final technical designs, in the analysis and selection of alternatives for temporary use of the bridge (or other routes) during the rehabilitation of each bridge. The most important stakeholders in the project are the particular users (passengers) of each bridge. The users would be analyzed, according to car users and public transport. Other stakeholders would be institutions in charge of maintenance (depending on the size of the bridge, different institutions would be in charge of bridge maintenance). The SEP also will pay particular attention to community level awareness of traffic and safety, including for schoolchildren using the bridges to walk to school.

#### **World Bank Group EHS Guidelines**

The Environmental, Health, and Safety (EHS) Guidelines are technical reference documents with general and industry-specific examples of Good International Industry Practice (GIIP). When one or more members of the World Bank Group are involved in a project, these EHS Guidelines are applied as required by their respective policies and standards. These General EHS Guidelines are designed to be used together with the relevant Industry Sector EHS Guidelines which provide guidance to users on EHS issues in specific industry sectors. For complex projects, use of multiple industry-sector guidelines may be necessary. The EHS Guidelines contain the performance levels and measures that are generally considered to be achievable in new facilities by existing technology at reasonable costs. Some relevant World Bank Group Environmental Health and Safety Guidelines that are applicable to this project are Air Emissions and Ambient Air Quality, Hazardous Materials Management, Waste Management, Noise, Worker Health and Safety, Community Health and Safety, Construction Materials Extraction

#### *Environmental - Air Emissions and Ambient Air Quality*

This guideline applies to projects that generate emissions to air and provides an approach to the management of significant sources of emissions including specific guidance for assessment and monitoring of impacts. The key potential source of air emissions associated with the BRB Program is in relation to potential cement or asphalt plant or dust pollutants emissions generated from construction activities and/or machinery usage. Projects with significant sources of air emissions and potential for significant impacts to ambient air quality should prevent or minimize impacts by ensuring that:

- Emissions do not result in pollutant concentrations that exceed relevant ambient quality guidelines and standards by applying national legislated standards, or in their absence, the current WHO Air Quality Guidelines (see Table below); and
- Emissions do not contribute a significant portion to the attainment of relevant ambient air quality guidelines or standards. As a general rule, this Guideline suggests 25 percent of the applicable air quality standards to allow additional, future sustainable development in the same airshed.

**Table 8: WHO ambient air quality guidelines (WHO 2005)**

Parameter	Averaging Period	Guideline Period in $\mu\text{g}/\text{m}^3$
Sulfur dioxide (SO <sub>2</sub> )	24-hour	125 (Interim target-1) 50 (Interim target-2) 20 (guideline)
	10 minutes	500 (guideline)
Nitrogen dioxide (NO <sub>2</sub> )	1-year	40 (guideline)
	1 hour	200 (guideline)
Particular Matter PM <sub>10</sub>	1-year	70 (Interim target-1) 50 (Interim target-2) 30 (Interim target-3) 20 (guideline) 150 (Interim target-1)
	24-hour	100 (Interim target-2) 75 (Interim target-3) 50 (guideline)
Particular Matter PM <sub>2.5</sub>	1-year	35 (Interim target-1) 25 (Interim target-2) 15 (Interim target-3) 10 (guideline) 75 (Interim target-1)
	24-hour	50 (Interim target-2) 37.5 (Interim target-3) 25 (guideline)
Ozone	8-hour daily maximum	160 (Interim target-1) 100 (guideline)

*Notes: PM 24-hour value is the 99th percentile. Interim targets are provided in recognition of the need for a staged approach to achieving the recommended guidelines.*

Point sources are characterized by the release of air pollutants typically associated with the combustion of fossil fuels such as nitrogen oxides (NO<sub>x</sub>), sulfur dioxide (SO<sub>2</sub>), carbon monoxide (CO), and particulate matter (PM) as well as other air pollutants including certain volatile organic compounds (VOCs). Emissions from point sources should be avoided and controlled according to good international industry practice (GIIP) through the combined application of process modifications and emissions controls, such as regular engine maintenance and repair, use of modern vehicle fleet with emissions control devices such as catalytic converters and driver education programs.

Fugitive source air emissions refer to emissions that are distributed spatially over a wide area and not confined to a specific discharge point. The most common pollutant involved in fugitive emissions is dust or particulate matter (PM). This is released during certain operations such as transport and open storage of solid materials and from exposed soil surfaces including unpaved roads. Recommended prevention and control of these emissions sources include:

- Use of dust control methods such as covers, water suppression, or increased moisture content for open materials storage piles; and
- Use of water suppression for control of loose materials on paved or unpaved road surfaces.

Consideration to both point source (from an asphalt or cement plants) and fugitive (e.g. dust from stockpiles, exposed soils) will need to be given for the BRB Program

#### *Environmental - Hazardous Materials Management*

This guideline applies to projects that use, store, or handle any quantity of hazardous materials defined as materials that represent a risk to human health, property or the environment due to their physical or chemical characteristics.

The guideline provides guidance in relation to both General Hazardous Materials Management: (where hazardous materials are handled or stored) and Management of Major Hazards (storage or handling hazardous materials at, or above, threshold quantities thus requiring special treatment to prevent accidents such as fire, explosions, leaks or spills and to prepare and respond to emergencies).

The overall objective of hazardous materials management is to avoid or, when avoidance is not feasible, minimize uncontrolled releases of hazardous materials or accidents during handling, storage and use. This objective can be achieved by:

- Establishing hazardous materials management priorities based on hazard analysis of risky operations identified through ESA;
- Where practicable, avoiding or minimizing the use of hazardous materials;
- Preventing uncontrolled releases of hazardous materials to the environment or uncontrolled reactions that might result in fire or explosion; ·
- Using engineering controls (containment, automatic alarms and shut-off systems) commensurate with the nature of hazard; and
- Implementing management controls (procedures, inspections, communications, training, and drills) to address residual risks that have not been prevented or controlled through engineering measures.

A Waste Minimization and Management Plan (WMMP) and Spill Management Plan (SMP) are to be prepared by the Contractor which sets out strategies and actions required to reduce potential health and environmental risks associated with waste generation and disposal, including hazardous materials, management to avoid spills and other environmental releases, and identify opportunities for construction waste reuse.

#### *Environmental - Waste Management*

These guidelines apply to projects that generate, store, or handle any quantity of waste. Solid (non-hazardous) wastes generally include any garbage, refuse. Hazardous waste shares the properties of a hazardous material (e.g. ignitability, corrosivity, reactivity, or toxicity), or other physical, chemical, or biological characteristics that may pose a potential risk to human health or the environment if improperly managed.

Waste management should be addressed through a Waste management system that addresses issues linked to waste minimization, generation, transport, disposal, and monitoring.

BRB Program will generate a range of solid waste types including non-hazardous and potentially hazardous wastes including waste material generated from removal of existing road surfaces, bridges, causeways etc. Consideration to the management of hazardous materials will be required for the BRB Program,

A WMMP is to be prepared by the Contractor which sets out strategies and actions required to reduce potential health and environmental risks associated with waste generation and disposal, as well as identify opportunities for material recycling or reuse.

#### *Environmental - Noise*

Noise prevention and mitigation measures should be applied where there is the potential for noise levels to exceed applicable guidelines at sensitive receptors.

The preferred method for controlling noise from stationary sources is to implement noise control measures at source. Methods for prevention and control of sources of noise emissions depend on the source and proximity of receptors. Noise reduction options that should be considered include: Selecting equipment with lower sound power levels; mandatory mufflers on engine exhausts and compressor components; limiting hours of operation for specific pieces of equipment or operations, especially mobile sources operating through community areas; Re-locating noise sources to less sensitive areas to take advantage of distance and shielding; Taking advantage of the natural topography as a noise buffer during facility design; and developing a mechanism to record and respond to complaints through the Grievance Mechanism (GM) established for the BRB Program.

Noise impacts should not exceed the levels presented in [Table below](#), or result in a maximum increase in background levels of 3 dB at the nearest receptor location off-site.

**Table 9: WHO noise level guidelines (WHO 1999)**

Receptor	One Hour LAeq (dBA)	
	Daytime (07:00 – 22:00)	Daytime (22:00 – 07:00)
Residential; industrial; educational	55	45
Industrial; commercial	70	70

***Worker Health and Safety***

The fundamental premise for OHS under the EHS Guidelines is that “Employers and supervisors are obliged to implement all reasonable precautions to protect the health and safety of workers” and that “Companies should hire contractors that have the technical capability to manage the occupational health and safety issues of their employees...”.

The OHS philosophy in the EHS Guidelines is that preventive and protective measures should be introduced according to the following order of priority:

- a. Eliminating the hazard by removing the activity from the work process.
- b. Controlling the hazard at its source through use of engineering controls.
- c. Minimizing the hazard through design of safe work systems and administrative or institutional control measures.
- d. Providing appropriate personal protective equipment (PPE) in conjunction with training, use, and maintenance of the PPE.

All workers engaged in the BRB Program will need to be covered under the terms of the EHS Guidelines. The Contractor will be required to provide a Worker H&S Plan that addresses key project requirements in relation to worker health and safety. All other Project workers will work under the OHS controls to be prepared in the LMP.

***Community Health and Safety***

This guidance specifically addresses some aspects of project activities taking place outside of the traditional project boundaries but nonetheless related to the project operations. These issues may arise at any stage of a project life cycle and can have an impact beyond the life of the project and includes issues such as:

- Water Quality - Groundwater and surface water represent essential sources of drinking water which may be impacted by project activities involving discharges.



- Traffic Safety - Prevention and control of traffic related injuries and fatalities should include the adoption of safety measures that protect project workers and road users.

Road safety initiatives proportional to the scope and nature of project activities should include measures such as:

- Adoption of best transport safety practices (e.g., emphasizing safety aspects among drivers, improving driving skills);
- Use of speed control devices (governors) on trucks;
- Regular maintenance of vehicles;
- Employing safe traffic control measures, including road signs and flag persons to warn of dangerous conditions; and
- Planning and timing of road use for Project activities (such as delivery of equipment or material).
- Disease prevention - Health hazards typically include those relating to poor sanitation and living conditions, sexual transmission and vector-borne infections associated with imported labor. Communicable diseases of most concern are sexually-transmitted diseases (STDs) such as HIV/AIDS. Recommended interventions include: Providing surveillance and active screening and treatment of workers; Undertaking health awareness and education initiatives.

Consideration to community health and safety will be required for the BRB Program in relation to water quality, traffic safety, SEA/SH and disease prevention, will also be required, particularly if imported labor is used. The Generic ESMP and works specific ESMP will include controls to protect the community from road works incidents and nuisances, vehicle incidents and nuisances and harm from workers. A Community Health and Safety Plan is to be prepared by the Contractor which sets out strategies and actions required to prevent and/or minimize any negative health or safety impacts on the community arising from the physical works).

#### *Construction Materials Extraction*

The construction materials extraction guidance document includes information relevant to construction materials extraction activities such as aggregates, sand, gravel, etc. It addresses stand-alone projects and extraction activities supporting construction, civil works, and cement projects.

Potential issues during the operational, construction, and decommissioning phases of construction materials extraction primarily include the following:

- **Environmental issues** – including air emissions, noise and vibrations, water, waste and land conversion.
- **Occupational health and safety hazards** – including respiratory hazards, noise and physical hazards
- **Community health and safety issues** – including land instability, water, explosives safety and decommissioning.

**Table 10: GAP ANALYSIS BETWEEN EIA LOCAL REGULATION AND WORLD BANK ESS**

ESS No	GAP	Measures for Bridging the Gaps
ESS 1 Assessment and Management of Environmental and Social Risks and Impacts;	EIA according to National Standards, needs some additional clarifications to bring data and analysis in line with international standards. ESMP and ESMS according to National Standards – Major Gap. National Legislation requires only Rehabilitation Plans at the end of the project but no ESMP or ESMS is required. Need to be created/developed to fulfil ESS requirements. Identification of Risks and Significance of Impacts according to National Standards – Major Gap. National Legislation has a list of parameters to be monitored but it requires upgrading, in documentation but also in baseline data analysis. Particularly important for the process waste areas, residues, tailing and spoil areas. Management processes and definitions for the ESMP need to be developed to meet ESS requirements.	Specific ESMP will be prepared for each Project under the Project in line with the requirements of the present ESMF
ESS 2 Labor and Working Conditions;	Existing legal framework and Labor Inspectorate of Albanian Authorities provide foundation of assurance for this ESS. It has ratified 53 International Labour Organization (ILO) Conventions, of which 48 are in force, including the eight fundamental Conventions.	Not applicable
ESS 3 Resource Efficiency and Pollution Prevention and Management	Current Permits and Approvals underpin the response to this ESS. Permits create a valid and robust base for anticipated development under future implementation of EU requirements. Some technical details and modelling and analysis will need to be in line with ESS requirements in line with what is appropriate for the Projects sites with particular reference to process emissions and waste residues, tailings and spoil areas.	Following the indications of the present ESMF, specific Project ESIA and ESMP will assess the impacts generated by the Project on the main environmental components and will identify measures for reducing or avoiding such impacts
ESS 4 Community Health and Safety	Existing legal framework, including Labor and Environment Inspectorate of Albanian Authorities, provides foundation for some basic consideration on this ESS. Need to define approach and integrate it within respective ESMP and ESIA. Elements need to be defined and documented in the Projects Social Management Plan.	the present ESMF defines the approach for Community health and safety which shall be integrated within respective ESMP and ESIA.

<p>ESS 5 Land Acquisition, Restrictions on Land Use and Involuntary Resettlement</p>	<p>National Legal Framework only recognizes affected persons who have formal legal rights. Major Gap. The key gap is that Albanian legislation does not recognize loss of livelihoods associated to land acquisition. Restrictions that result in people experiencing loss of access to physical assets or natural resources are not addressed explicitly by Albanian legislation.</p>	<p>the Present ESMF - along with the RPF -includes requirements for land acquisition and compensation process. Specific ESIA and ESMP shall be aligned with these documents.</p>
<p>ESS 6 Biodiversity Conservation and Sustainable Management of Living Natural Resources</p>	<p>Existing legal framework, provide foundation for some basic consideration on this ESS. Major Gap. Usually there is a lack of data to create a proper baseline and some extra investigation effort is required to meet ESS requirements. The needed data should support the proper assessment of impact and significance.</p>	<p>Although impacts generated by the Project on biodiversity may be considered as negligible in consideration that most of the works will be constructed in urban areas, however a proper baseline study shall be prepared within each ESMP/ESIA indicating any protected areas in the vicinity, presence of sensitive habitats and terrestrial biodiversity, ecosystem, etc. This will allow to better assess the impacts and identify relevant mitigation measures.</p>
<p>ESS 7 Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities</p>	<p>Not applicable</p>	<p>Not Applicable</p>
<p>ESS 8 Cultural Heritage</p>	<p>existing Approval and Permit from the Albanian Authorities provide foundation of assurance for this ESS.</p>	<p>Not applicable</p>
<p>ESS 10 Stakeholder Engagement and Information Disclosure</p>	<p>Existing legal framework provide foundation of assurance for this ESS. It has ratified Aarhus Convention Conventions, which is in force and there are several laws and institutions that monitor the right for information.</p>	<p>Not applicable</p>

**Table 10.1. Gap Analysis between Albanian Framework and WB Standards (ESS 5)**

Topic / Issue	WB International Standards	Albanian Law Provisions	Gaps	Measures for bridging the gaps
Involuntary resettlement – Physical and economic displacement	“Involuntary resettlement” as per the ESS5 refers to resettlement, physical displacement (loss of shelter) and economic displacement (loss of livelihood). The ESS5 covers both: 1. Land acquisition, which includes: (a) resettlement of PAPs (b) purchases of property; (c) purchases of property rights (i.e. easements; rights of way) 2. Imposition of restrictions that result in people experiencing loss of access to physical assets or natural resources.	Albanian legislation, including the Expropriation Law, does not recognize “involuntary resettlement”. Issues related to land acquisition in the public interest are regulated by Expropriation Law. The law regulates the right of the state to expropriate properties of natural or juridical persons in the public interest versus compensation. In addition, compensation is to be provided for the devaluation of properties which are not the object of expropriation. The law regulates temporary occupation of land (e.g. for construction works, setting up construction sites, etc.), for up to 2 years, against compensation.	The key gap is that Albanian legislation does not recognize resettlement or loss of livelihoods associated to land acquisition. The law recognizes affected persons who have formal legal rights only. Restrictions that result in people experiencing loss of access to physical assets or natural resources are not addressed explicitly by Albanian legislation.	Conducting, site specific RAP/ARAP which shall include measures and design adequate support and assistance commensurate to the impact, as a way to bridge the gap. PAPs informal owners of buildings shall receive cash compensation. PAP is entitled to cash compensation at replacement cost for construction of similar quality construction with additional moving and transitional allowances
Planning process	Standards requires to prepare a Resettlement Action Plan (or Livelihood Restoration Framework if no physical displacement is anticipated). The RAP includes a census	The application for expropriation in the public interest should include a detailed list of properties to be expropriated, based on the ACA register. However, it	No requirement for any participatory planning process as per Albanian legislation.	RAPs, Census Survey and Socio-economic impact assessments shall be prepared in addition to national requirements

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	and detailed socioeconomic baseline. Affected persons are to be informed and consulted during the planning process. Special provisions have to be made in respect of consultation with vulnerable groups.	does not deal with socioeconomic issues. Affected owners are to be notified of the application for expropriation	Albanian legislation does not set out any requirements for the preparation of resettlement or livelihood restoration plans. In addition, there are no requirements in respect of consultation with persons affected or for special attention to vulnerable groups.	
Public consultations	Meaningful consultations with affected persons and communities, local authorities, and, as appropriate, non-governmental organizations needs to be carried out	The PAPs are contacted in the very process of expropriation, but there is no public discussion.	<p>Consultation and disclosure process is not defined and there are no specific requirements in the Albanian legislation;</p> <p>National legislation does not require public consultation with affected persons and communities.</p>	The Project promoter shall consult publicly on this and every other individual resettlement instrument
Cut-off date	in the absence of national government procedures, the date of completion of the census and assets inventory represents the cut-off date for eligibility. Individuals who move into the project affected area after the cut-off date are not eligible for compensation and other types of assistance. Information	It is understood that the date of the Council of Ministers decision on expropriation is the cutoff date.	No gap	The Project promoter shall consult publicly on this topic and explain its importance.

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	regarding the cut-off date should be well-documented and disseminated throughout the project area.			
Negotiated settlements	Negotiated settlements are encouraged to help avoid expropriation and eliminate the need to use governmental authority to remove people forcibly.	Negotiated settlements are encouraged by the Expropriation Law. Art. 6 of the Expropriation Law provides that when the owner agrees to transfer his/her property to the state, under conditions (compensation) offered by the competent ministry, expropriation is considered completed. The owner has to inform the competent ministry within 15 days from being notified (publication) whether accepts the offer (art.16). If an agreement is not reached, after a decision on expropriation is passed by the Council of Ministers, the affected owner has the right to appeal to the court regarding the amount of compensation (art.24)	No gap	
Compensation Value and Timing	Compensation for lost assets to be provided at replacement cost, usually calculated as the market value of the assets	Per Expropriation Law, compensation value to be based on assessment of affected properties by the	Compensation value during expropriation is not defined according to a specific study on compensation	The Project promoter shall calculate the transaction cost in the total budget

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	<p>plus transaction costs related to restoring such assets (registration and transfer taxes). Depreciation of structures and assets should not be taken into account. Compensation (alternative housing and/or cash compensation) has to be provided prior to relocation.</p>	<p>Expropriation Committee and confirmed by COM Decision. This provision explicitly states that depreciation of structures and assets is to be taken into account. If agreement on compensation is reached, transfer of property and payment of compensation to take place within 15 days from notification by affected owner that he/she accepts the offer (art.16). If not, compensation is provided based on a decision on expropriation of the Council of Ministers, within a period of three months, or after the court decision (art.23).</p>	<p>values that takes into account the replacement cost at market value;</p> <p>Albanian legislation does not take account of transaction cost, and provides that depreciation is to be taken into account, which does not meet the Standards “replacement value” requirement</p>	
<p>Provision of adequate housing / shelter with security of tenure</p>	<p>Adequate housing is measured by quality, safety, affordability, habitability, cultural appropriateness, accessibility and location characteristics, including access to infrastructure and services. Security of tenure means that resettled persons are protected from forced evictions, to the greatest extent possible. New resettlement sites built for</p>	<p>Law on Social Programmes for the Housing of Inhabitants of Urban Zones sets out the criteria for housing requirements (minimum living areas in sqm/person)</p>	<p>The Expropriation Law does not foresee compensation in kind and therefore there are no provisions of adequate housing with security of tenure. The Expropriation Law does not include any provisions about resettlement requirements.</p>	<p>Physical displacement is not anticipated, and this requirement is therefore unlikely to apply. However, for each individual RAP, refereeing to the specific project, this shall be take in consideration if there will be foreseen physical displacement.</p>

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	displaced persons should offer improved living conditions with security of tenure.			
Vulnerable groups	Specific assistance for vulnerable groups.	According to law no. 9355, dated 10.03.2005 “On social assistance and services”, vulnerable persons are entitled to various forms of social welfare payments or a range of community-based services.	Specific assistance for vulnerable groups is not part of the expropriation process in Albania. However, legal tools exist outside of the expropriation process to provide assistance.	The Project promoter shall provide legal and resettlement assistance
Eligibility for compensation / resettlement and entitlements in case of physical displacement	ESS5 distinguishes three main categories of affected people: 1- those who have formal legal rights to affected assets are eligible to full compensation at replacement cost for land and structures as applicable; 2- those who have no formal rights to affected assets at the time of the census, but who have a claim to land that is recognized or recognizable under national laws, are eligible to similar compensation as those in Category 1; 3- those who have no recognizable legal right or claim to the land they occupy are not necessarily	The Expropriation Law addresses people in Category 1. The Cadaster Law addresses people in Category 2. The law no. 9232, dated 13.05.2004 “On social programs for the housing of inhabitants of urban areas” establishes a legal framework for the development of social housing programs in Albanian municipalities, which may apply to people in Category 3. The law defines the administrative regulations and procedures that will ensure the planning, management and distribution of social housing to vulnerable people,	Informal or unregistered ownership and usufruct rights - legislation does not recognize the rights of informal possessors, owners/users therefore not eligible for resettlement and livelihood restoration support.	Specific measures to be devised in RAPs



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	<p>eligible to compensation for land but should receive: (i) compensation for structures that they own and occupy and for any other improvements to land at full replacement cost; and (ii) in case of physical displacement, a choice of options for adequate housing with security of tenure and resettlement assistance.</p>	<p>in line with their income and the level of state support.</p>		
<p>Grievance mechanism</p>	<p>A grievance mechanism should be set up as early as possible in the process, to receive and address in a timely fashion specific concerns about compensation and relocation that are raised by displaced persons and/or members of host communities, including a recourse mechanism designed to resolve disputes in an impartial manner. The grievance mechanism, process, or procedure should address concerns promptly and effectively, using an understandable and transparent process that is culturally appropriate and readily accessible to all</p>	<p>Expropriation Law provides for the right of the affected persons to bring actions before the courts for seeking higher compensation from that defined in the decision on expropriation enacted by the Council of Ministers, but affected people cannot challenge the expropriation process per se. Claims do not cause suspension of the expropriation process, though they may result in a higher compensation to be paid if so decided by the competent court.</p>	<p>Grievance management and resolution is applicable only during the two-week public notice of the expropriated file.</p> <p>While there is no requirement in Albanian law to establish an extra-judicial grievance mechanism, this does not contradict the process outlined in Albanian law as long as affected people can keep on enjoying their constitutional right to address any claim to the competent court as they see fit.</p>	<p>The Project promoter shall set up a grievance mechanism for two tiers, including internal one and external, before PAPs resort to Justice, the last resort of the grievance mechanism.</p>

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	segments of the affected communities, at no cost and without retribution.			
Additional assistance to PAPs	It is necessary to provide assistance either during construction. Particular attention is to be paid to the needs of poor and vulnerable individuals and groups. Either for the expropriated PAPs the client should support technically the PAPs in order to take the compensation.	No particular legal provision	It is necessary to provide assistance either during construction. Particular attention to vulnerable individuals and groups	Support during construction. Support after expropriation
Information disclosure and public information	The client should summarize the information contained in the Resettlement Action Plan or Livelihood Restoration Framework for public disclosure to ensure that affected people understand the compensation procedures and know what to expect at the various stages of the project (for example, when an offer will be made to them, how long they will have to respond, grievance procedures, legal procedures to be followed if negotiations fail). Consultations will continue during the	The Expropriation Law obliges the Ministry to notify persons affected directly (either by registered mail or other means of notification having confirmation that notice is received by the addressee; in case the addressee resides abroad, the notification will be made through publication in the administrative unit/municipality where the land subject to expropriation is located) and to publish during an entire week the application for expropriation in the Official Journal as well	Apart from notifications to affected people, there is no requirement in Albanian law to consult and to disclose documentation publicly. However, such consultation and disclosure are not prohibited and can be accommodated as a specific measure.	Such consultation and disclosure are not prohibited and can/should be accommodated as a specific measure.

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	implementation, monitoring and evaluation of compensation payment and resettlement	as in national and local newspapers. Within fifteen days after the last date of the publication, the persons subject to expropriation should inform the ministry on their claims related to the properties affected by the expropriation.		
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### 3. Project Description

This chapter describes project objectives, components, phases and project beneficiaries. The components of the program are the following: Component 1: Bridge Infrastructure (estimated total cost: US\$ 81 million); Component 2: Institutional capacity building (estimated total cost: US\$ 12 million); Component 3: Project management (estimated total cost: US\$ 7 million); Component 4: Contingency Emergency Response Component (CERC) (estimated total cost: US\$0)

#### Project Objectives, Phases and Components

The main aspect of this program focuses on a learning agenda that will enable the implementing agency to maintain its existing bridge stock and rehabilitate/rebuild them in the most efficient way possible. The MPA will provide the framework to prioritize investments in bridge interventions and establish a methodology for planning and implementing periodic bridge maintenance that will continue to be used after the MPA closes. The program will also address sustainability through the establishment of Road and Bridge Assets Management Systems (RAMS/BMS). Bridges to be funded under this program will serve as pilots and will allow the implementing agency to learn by doing. Phasing under the MPA would provide for a structured approach, cascading through planning, prioritization, design, construction, and bridge asset management systems. The program will feature a strong apprenticeship.

The proposed Program Development Objective (PrDO) is to improve operational performance and resilience to climate change and natural hazards of Albania's critical bridge infrastructure. The project development objective (PDO) of Phase 1 is the same: to improve operational performance and resilience to climate change and natural hazards of Albania's critical bridge infrastructure

The MPA will provide a deeper opportunity to focus on results. The key impacts will be: improved mobility, improved competitiveness of Albania road transportation and more resilient supply chains, in addition to enhanced institutional capacity in the transport sector. These will be measured through the proposed PrDO outcome indicators, which will include:

- Resilient Bridges
  - Reduction of disruption to road-users as a result of weather events and natural disasters
  - Number of bridges reconstructed or rehabilitated over the program period (25-30)
- Bridge Operations
  - Multi-year bridge maintenance and renewal program

The MPA's phasing has been determined in consultation with the Borrower. The overall period of the program will be 8 years and each phase will have a maximum length of 4 and 5 years respectively.. Based on the nature of the development challenge and reduced capacity of ARA to undertake the activities to be financed under this programmed, it has been considered that this period is optimal for setting up the platform during the first phase for all main activities and start the bridge infrastructure pilots. This will enable the program to combine in both phases physical interventions and capacity building for all key program areas which includes Road/Bridge Asset Management Systems, resilience to climate change and disaster risk management, road safety and gender inclusion in the construction sector.

**Phase 1 of the program amounts to US\$55 million.** This phase will focus in building institutional capacity within MoIE and ARA, along with the reconstruction or rehabilitation of up to 10 bridges, which will serve as a pilot for the next phase. The first two bridges have been designed and have been audited for resilience,

in readiness for the first year of the program and will be audited also for road safety. This Phase will also include TA designed to launch activities under each component; including the learning needed to mainstream resilience to climate change and road safety into bridge designs; initiate the RAMS/BMS; develop the internship for women engineers and pilot the first interns. The main intermediary results under this phase include the (i) Reconstruction or rehabilitation of up to 10 bridges, (ii) Design of the BMS, (iii) Design of the Service Level Agreement (SLA), (iv) Data collected for Pavement and Bridge Management Systems (v) Implementation of a female engineer internship pilot program.

**Phase 2 of the program amounts to US\$45 million.** This phase will incorporate lessons learned from the first phase bridge investments, providing a more mature approach for the selection, design and packaging of the next phase bridge investments. The RAMS/BMS and the SLA, both designed under Phase 1, will be developed and start to become operational in phase 2. The main intermediary results under phase 2 will include: (i) Rehabilitation or reconstruction of up to 20 bridges, (ii) BMS in use and trained staff maintaining and inputting data, (iii) a defined process for funding and maintenance of bridges (through the SLA and BMS), (iv) Development of prioritized plan for future bridge renewals, and (v) Continuation of the female engineer's internship program.

The project consists of the four following components:

**Component 1: Bridge Infrastructure (estimated total cost: US\$ 81 million).** This component will finance: (i) the rehabilitation or reconstruction of priority bridges and culverts on the NRN, including design studies and supervision of works, and equipment for data collection and monitoring; and (ii) road safety and resilience audits. Rehabilitation includes replacement in-situ of the existing bridges' deteriorated parts, such as (but not limited to) the substructure or superstructure, adjacent protection structures (retaining walls, breakwater, gabions, etc.), other protection measures (rock fall nets, debris flow retention actuators, slope stabilization solutions, etc), and access and exit roads to and from the bridge. Rehabilitation includes the upgrade or retrofit in-situ of the existing bridges to accommodate new operational requirements such as increased road capacity and traffic levels, enhancing road safety, and improving resilience to changes in climate conditions (by increasing headroom and flow capacity) and to natural disasters (earthquakes). Reconstruction is considered in the cases of fully depreciated existent bridges. Construction of new bridges and access and exit lines is envisaged when bridge rehabilitation or in-situ reconstruction is not technically possible, or the dimensions of the bridge would not suffice for the climate adaptation. In all cases, the provision of safe passage for pedestrians and non-motorized vehicles will be considered and can be financed by the subcomponent

- **Component 2: Institutional capacity building (estimated total cost: US\$ 12 million).** To ensure sustainability of the investments under Component 1, this component will finance: (i) technical assistance activities and training aimed at strengthening the capacity of ARA at managing the bridge and culvert assets, including, aligning the Albanian bridge design codes, construction and maintenance, with those of the EU (Eurocodes) and international practices with specific focus on resilience to climate change and natural disasters, and road safety; (ii) equipment and software to support the upgrade of the bridge management system (BMS) module and of the umbrella Road Asset Management System (RAMS); (iii) the training of ARA's staff to properly use the RAMS, and BMS as part of it, for future monitoring and the maintenance planning of the assets; (iv) capacity building for ARA to develop an internship program and training for women students or graduates to reduce the gender gap in the construction sector; and (v) technical assistance for supporting ARA to develop with the MoIE a Service Level Agreement with Key Performance

indicators (KPIs) to improve budget planning for maintenance.

- **Component 3: Project management (estimated total cost: US\$ 7 million).** This component will finance incremental operating costs for project implementation in ARA and its Project Management Team (PMT). Incremental operating costs include overall project administration and management, financial management, including financial audits, procurement, contract administration, and management of social and environmental safeguards. In addition, this component will finance the collection and analysis of project data for the project monitoring and evaluation including to report on the progress of the project indicators in the results framework. This component will also finance equipment to sustain and facilitate PMT to complete its functions, including but not limited to transportation means, information technology (IT), and office equipment.
- **Component 4: Contingency Emergency Response Component (CERC) (estimated total cost: US\$0).** This zero-dollar component is designed to provide a rapid response in the event of an eligible crisis or emergency, by enabling the GoA to request the World Bank to reallocate project funds to support emergency response and reconstruction where needed. A Contingent Emergency Response Component (CERC) annex will be included in the Project Operations Manual (POM), specifying the implementation arrangements for the component, including its activation process, roles and responsibilities of implementing agencies, positive list of activities that may be financed, environmental and social aspects, and fiduciary arrangements. When the Government has determined that an eligible crisis or emergency has occurred, it can request and seek agreement of the Bank to include relevant activities under the Project. In such situations, all environmental and social instruments as may be required for the added activities need to be prepared, disclosed and approved by the Bank.

## **Project Beneficiaries**

The main project beneficiaries are road users, including users by individual vehicles, cyclists, pedestrians, non-motorized transport, and the road freight operators at the national level. Since the bridge interventions under the project will be in several points of the NRN throughout the country, the improvement in the conditions, safety, and the climate and disaster resilience of bridges in the NRN in Albania will enhance the reliability of road transport at all times in the country. Climate resilient bridges will increase mobility and traffic demand particularly in the areas of the country that are most prone to climate change and natural disasters. The beneficiaries of safer bridges will include a large part of the Albanian population as not only vehicles circulating in the NRN, but also pedestrians and people living in the vicinity of the bridges to be rehabilitated and upgraded. However, direct project beneficiaries have been estimated to be around 300,000 people.

The enhanced climate resilience, reliability and safety of the bridges in the NRN will benefit the economy and the nation as a whole. Improved mobility in the NRN due to the rehabilitated and upgraded bridges will encourage more trade and investment in Albania. Also, the current disruption of traffic and isolation of entire regions every year due to extreme weather or earthquakes cause substantial losses to the Albanian economy and encourage rural populations to migrate to cities and abandon the agriculture activities, resulting in severe labor shortage. This is in addition of the total cost incurred by the government and the economy to restore the damaged

infrastructure and other damages caused by its collapse.

ARA will benefit from the enhancement of its capacity in managing bridge infrastructure with the upgraded BMS. Enhanced capacity includes capacity for planning, designing, implementing, supervising and maintaining safer and more climate- and disaster-resilient road bridge infrastructure. Through the remote sensing and modernized equipment, ARA will also be able to continuously monitor the bridge and culvert assets' conditions and deterioration patterns, preempt climate induced disasters and intervene in a timely manner to avoid or limit impacts.

Within the activities under Component 2, women engineers and technicians will benefit from increased opportunities for jobs and training in the bridge design, construction and management sub-sector.

### **Sub-Project Description**

#### Site Location/ geographic context

The project construction site is at the entrance of the city of Gjirokastra and the area where the “Viroi Bridge” will be built is south-east of Lake Viroi, at the entrance of the city of Gjirokastra. The area where the study was conducted represents the terrace of the Drini River, alluvial deposits are intertwined with the streams of the area. Deposits of small unconsolidated fractions which have organic matter content are also present in the area of Lake Viroi. Beneath these deposits are the Lower Oligocene rocks composed of clay and sandstone. Neogene deposits have a thickness of 100-250m. The square where the constructions will be carried out is flat with a small difference of quotas.



**Location of existing bridge and the proposed project.**

The existing bridge arch of 6.7m and serves to remove the water of the stream that lies along the side of Lake Viroi, as well as to discharge the water of the Lake itself. As a result of numerous inflows, at the exit

of the bridge, the river / stream bed is eroded, exposing the foundation of the bridge. Also, the condition of the bridge is extremely depreciated, where there are exposures and rust of steel reinforcement. At a distance of  $L = 220$  m, there is an arch bridge with, arch = 20m, which is out of order, as it is filled with material deposits.



Figure 2 Existing Bridge

The main problems from the functional point of view of this bridge are:

The bridge has two crossing lines with width,  $b = 3$ m and general width,  $B = 6$ m but there are no sidewalks, but it is limited by wall parapets on both sides of it, which makes it difficult for vehicles to move, especially during their exchange and other issue is in cases of heavy rainfall the lake water level rises above the road level making it difficult to circulate or blocking it.

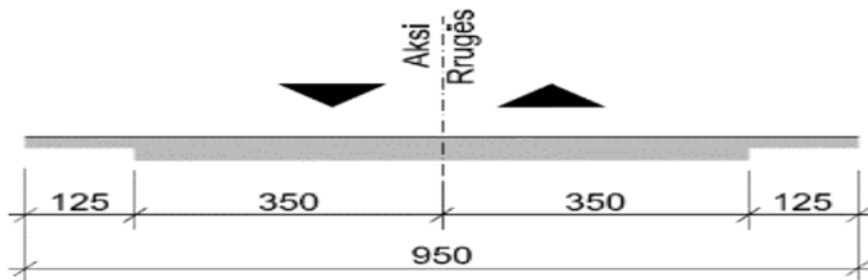
#### **Parameters of the Bridge and Access Roads**

The sub-project will finance construction of the bridge as well as of the access roads to it.



Based on this alternative, the road footprint will be parallel to the existing bridge on the Drino river, to the east side of dam Lake Viroi. The object is inspected by consultants, in cooperation with specialists of the Municipality of Gjirokastra, and ARA specialists.

Transverse section of the road, the road is category "C2" (Secondary interurban) with main parameters as follows: Secondary interurban Category C2; Lane capacity 600 vehicles units / 24hours; Speed limit 90 km / h



Section of road

The project area is under the administration of the Municipality of Gjirokastra. From a functional point of view, this area is classified as a non-urban area, therefore based on Law on Environmental Impact Assessment", Annex II this project is subject to the preliminary environmental impact assessment procedure.

As exact locations and scope of the works for construction of the bridge are defined, the Borrower will prepare an Environmental Impact Assessment that will define 1) potential impacts on the environment and social impacts and mitigation measures; 2) eligible list of activities and social and environmental review (including screening, assessment, GRM, etc.) procedure for the proposed rehabilitation and (re)construction works; 3) will prepare an Environmental and Social Management Plan (ESMP) subproject; 4) Institutional arrangements for the implementation of the EIA requirements. Draft EIA and ESMP will be prepared and publicly consulted prior to the appraisal and finalized before Project negotiations. Stand-alone CHMP, or will be prepared for all installations protected as cultural heritage. Activities in nature-protected areas cannot be ruled out at this point, however, significant and long-term impact on biodiversity is unlikely, therefore, biodiversity protection measures will be carried out as a part of sub-project regular environmental mitigation. Management of environmental impacts will take into consideration relevant Albanian regulations, in particular those tackling issues of waste management, water protection, traffic safety, and OHS, through the application of WBG Environmental Health and Safety Guidelines (EHSG) and Good International Industry Practice (GIIP) in these areas. These provisions will be integrated into relevant ESAs in accordance with ESS2 and ESS3.

The most probable social risks for the project will be potential disruptions (ESS4) in the traffic due to reconstruction of the bridge. Another risk under this standard would relate to community-level awareness-raising for safety especially for pedestrians, community, tourist using the new bridges. The social sections of the ESMP among other social risks will address the disruptions and will propose temporary alternative routes or temporary new regimes of the traffic. Other risks are those related to (ESS2) labor and working conditions and thus the implementing agency will be prepared Labor-Management Procedures to manage labor and working conditions for the project workers. The risks related to Land Acquisition, Restrictions

on Land Use, and Involuntary Resettlement (ESS5) are unlikely given that works will be carried in the bridges state own property.

The nature of rehabilitation interventions is as such that heavy machinery will be used and thus about 10 to 20 workers for sub-project will be needed. The proposed locations is outside inhabited rural and urban areas. SH/SEA risk could be envisaged, and based on the country assessment tool it is low. However, the project will establish a GRM that will be able to accept and address properly complaints of the SH nature. All the contractors as a part of the contractual obligations will have to ask their employees to sign a code of conduct.

#### **4. Analysis of Alternatives**

##### **Alternative 1: No project alternative**

Now in the project area, there is only the old, damaged existing bridge, that does not meet the criteria of the road category, the function of which it performs. The road over bridge is narrow, as presented above, which makes it difficult for vehicles to move, especially during their exchange. Because of the lack of sidewalks on both sides also causes the driver to lose concentration and consequently significantly reduces its safety; the road on both sides of it is connected by Gjirokastra and Tepelena, it is connected with roads that have different sections and its change is not realized with a reconciling length, this turns this segment into a point of danger; the road is blocked in rainy season as result of heavy rainfall, the lake water level rises above the road level, making traffic difficult or blocking it.

As a result of this situation, the existing bridge where the discharges, has eroded the riverbed which has endangered the collapse of the bridge structure. The existing bridge is built with prefabricated elements and at the foundation is exposed to corrosion of steel.

##### **Alternative 2: bridge construction in same location**

The existing bridge is adjacent to Lake Viroi which has been declared an area of natural monument, due to the natural source of water. This spring has created Lake Viro, which is considered to be one of the most beautiful lakes in Albania, visited by many local and foreign tourists.

The construction of the Bridge in this location will have an adverse Environmental and Social impacts, such as pollution of Lake Viroi, there will be a disconnection of existing traffic, fragmentation of the landscape, etc. Therefore, this alternative was ignored

##### **Alternative 3: bridge construction in a different location**

The alternative 3 is the implementation of the proposed project The option of selecting another location for the bridge construction was discussed and agreed with local community, the municipality of Gjirokastra, Environmental Agency, the Road Authority.

This alternative has the following advantages:

- Increasing the safety and comfort of traffic;
- Solving the problem of flooding the road and blocking it;
- Creating conditions for entry and exit of cars in the lake area;
- Possibility of using the existing axis in function of the park of Lake Viro, creating the possibility of creating a promenade, ring road around the lake;
- Landscape improvement.

Conclusion

After reviewing the proposed alternatives, considering the environmental and social point of view, the alternative 3 was selected as the most appropriate.

variants and the project selected for implementation foresees that the whole route will run parallel to the existing road, on the side east of it (by the Drino River), leaving the existing bridge as a promenade panoramic overlooks the lake.

## **5. Social, Physical and Natural Environment**

### **5.1 Social and Economic Conditions of the Region**

Gjirokastra Prefecture is located in south east of Albania and it has a central position in the southeastern Albania. The area of interest is the Drino river valley and the Hosi resource.

Gjirokastra prefecture has a population of 169.908 inhabitants and surface 2880 km<sup>2</sup> and average population density 59 inh/km<sup>2</sup>, that's to say half of the population is concentrated in the hilly relief especially on the lower hilly relief 300-500m above sea level, than the other heights of 100-300m. 60% of prefecture population lives in villages or rural areas and the rest in the urban areas or towns. In its administrative division Gjirokastra Prefecture has 3 districts (Gjirokaster, Tepelene, Permet), 6 municipalities (Gjirokastra, Libohova, Permeti, Kelcyre, Tepelena and MeMalliaj), 26 Commune and 271 villages. The south east borders mainly of Gjirokastra and Permeti district are political borders with Greece, whereas all the other border is an administrative one and it goes in the west and southwest with the district of Saranda and Delvina, in the northwest with that of Ballshi, in the North with Berat and in the northeast and east with the districts of Skrapari and Kolonja. Gjirokastra Prefecture has a favorable geographical position. It is situated in the center of southern Albania and it is passed through by the two most important valleys of southern Albania, the valley of Upper Vjosa and the valley of Drino River. Here, in these valleys is concentrated the greatest part of Gjirokastra Prefecture population and at the same time these are the main economic and industrial parts of the region, in which are concentrated the main agricultural crops, industrial and administrative centers.

The most important economic activity in the villages is agriculture. Much of the agriculture is subsistent farming but a large portion of the agricultural activity gives some income. Livestock is the most important money earner. 55% of the farmers have livestock, 40% deals only with crops while 5% are dealing with various other farming activities. There are about 7,800 cows from which milk and meat are sold locally. There are about 145,000 sheep and 40,000 goats in the district. A substantial amount of sheep meat is probably sold to Greece (smuggled) and the milk is used for cheese production. The cheese is sold in the domestic market and Gjirokaster Prefecture is famous for its dairy products. The other parts of the agriculture are rather underdeveloped due to lack of equipment and irrigation systems.

The area where the project is developed according to the administrative division is located in the district of Gjirokastra. It connects the two cities, that of Tepelena and Gjirokastra, these cities with traditions and some of the oldest in the country. A city is in UNESCO World Heritage List since 2005, as one of the few surviving examples in the Balkans of Ottoman-style trading cities.

### **Architectural and Historical Heritage**

Viroi Park is one of the most beautiful natural attractions near the city of Gjirokastra. Viroi is a karstic water source, which is full of water in winter and spring but dries up in summer. This is explained by the siphon phenomenon, when groundwater collects in a reservoir below the source.

The source of the cave is about 6 ÷ 8m long and 3 ÷ 4 m wide, with a depth of up to 22 m. The water temperature is about, 13 ÷ 14 ° C. Near the spring there is a rich vegetation. Many divers are curious to explore the underwater world of Viro. Due to the considerable depth, the clear lake of Viroi offers stunning views. Viroi Lake was declared a protected area in 1982. Viroi Underground Cave is 249 m deep and is surrounded by wild pine trees.

### **Landscape and Topography data**

The surface on which the building will be erected, is part of a typical non-urban area, long modified by anthropic activity. The terrain is flat, without special morphological features.

## **5.2 Biophysical Environment**

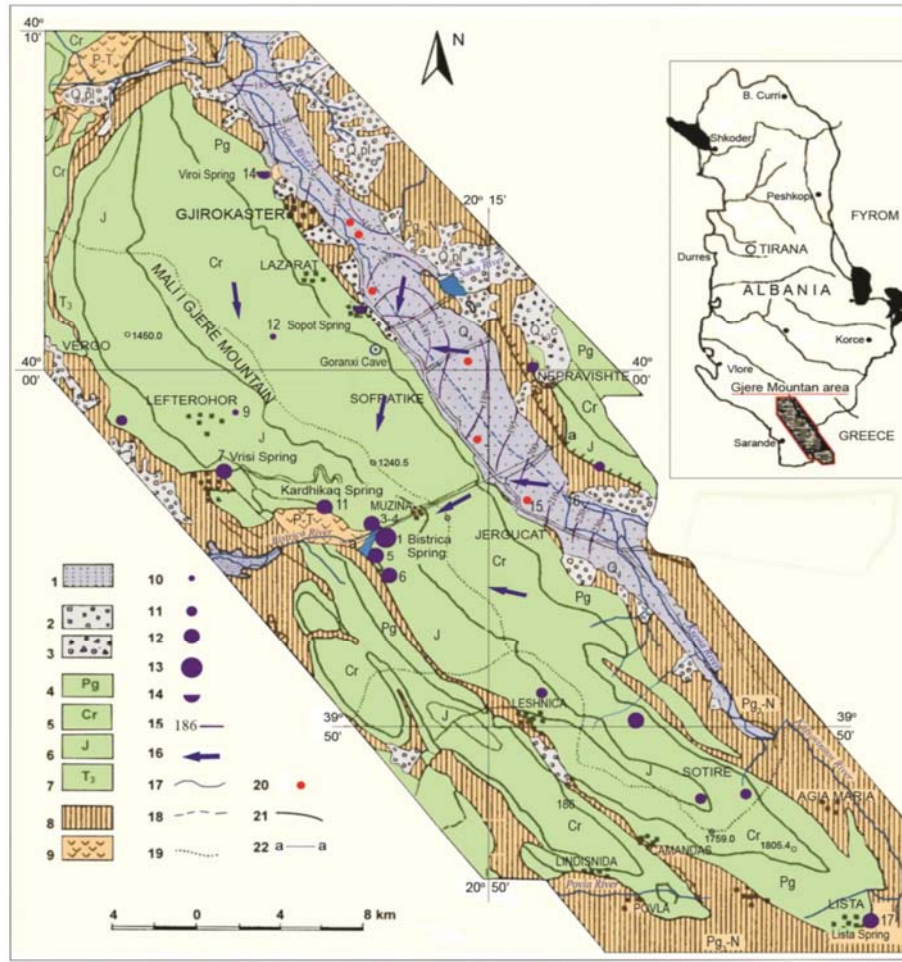
### **Geology**

The region of Gjirokastra is located south of the Shkoda-Peja fault, which divides the Dinaric Mountains from the Hellenides Montains, within the territory of which the region falls. The Hellenides Mountains, which in turn can be divided in internal and external, are part of the Dinaric-Albanian-Hellenic thrustbelt, which was formed during the Alpine orogeny. The external Hellenides, in particular, include the tectonic-sedimentary domains Krasta-Cukali, Kruja, Ionian, Sazani and Durres. The region of Gjirokastra falls into the Ionian zone. This zone includes areas characterized by synclines and anticlines with NW-SE orientation, which from east to west are: Permeti syncline, anticline of Berat, the syncline of Memaliaj, anticline of Kurveleshi, syncline of Shushica and Cika anticline. The historic center of Gjirokastra is located, from a geological point of view, along the eastern flank of the Mali i Gere anticline, which is connected to the western flank of the Drino syncline. The terrigenous portion of the geological substrate, which houses the castle and much of the historic city center, lies in unconformity above the underlying carbonate units.

### **Hydrogeological characteristics**

The Mali Gjere karst massif is located in south Albania on the border with Greece (Figure 20); its total surface area is 440 km<sup>2</sup>, mostly located in Albanian territory (54 km<sup>2</sup> in Greek territory). The highest point of the massif is at 1798 m a.s.l., whereas the mean altitude is about 900 m a.s.l. The crest of the Mali Gjere Mountain is the natural water divide between the Drinos River basin located on the east, and the Bistrica River basin located on the west. Some sulphate springs recharge the Drinos River in Greek territory; the biggest of them is Rogozi Spring with the mean discharge of about 0.5 m<sup>3</sup>/s and with the sulphate ion concentration of about 700 mg/l.

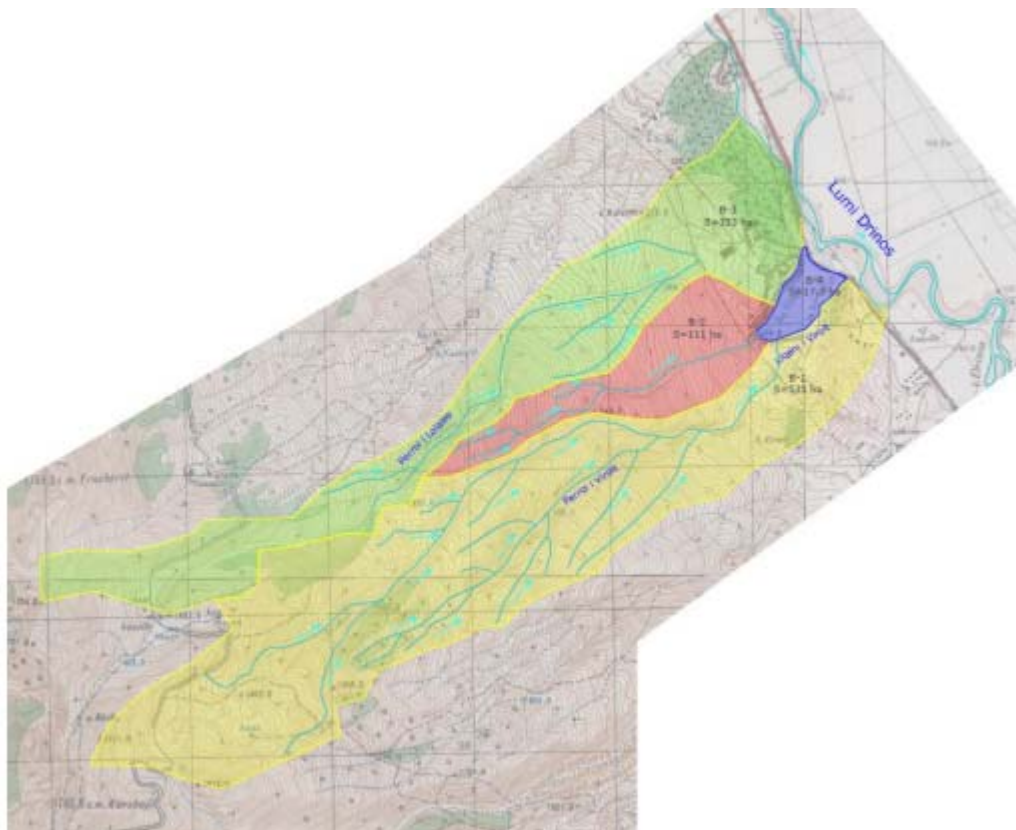
Most of the karst water drains to the western side of the Mali Gjere massif where the Blue Eye Spring (mean discharge 18.4 m<sup>3</sup>/s) issues at an elevation of about 45 m lower than that of the Drinos Valley. Also some springs, each with a discharge of less than 0.1 m<sup>3</sup>/s, issue from this side of the massif. The biggest spring of the eastern side of the massif is the Viroi ephemeral spring (maximal discharge more than 40 m<sup>3</sup>/s). The total discharge of all the springs of Mali Gjere karst massif results about 743\*10<sup>6</sup> m<sup>3</sup>/year, (23.6 m<sup>3</sup>/s). By the balance calculations results that the total discharge of the springs of studied karst massif is about 30-35 % bigger than the calculated mean efficient precipitation of the massif, which corresponds to a water quantity of about 226\*10<sup>6</sup> m<sup>3</sup>/year (7.17 m<sup>3</sup>/s).



**Hydrogeological map of the project area (Source: Efthimi et al., 2007)**

**Hydrology**

The project area is situated in the Vjosa River watershed basin. The largest tributary of the Vjosa River is Drinos, the second largest river within the project area, flowing on the north-eastern flank of the Gjerë Mountains. It originates from Greece and after crossing Albanian border, is joined by Kseria stream which flows from the mountain of Murgones (1806 m). As it flows towards Gjirokastrë, it extends its valley even more, forming the Dropulli plain. Near Lazarat, Suha River originating from Nemerçka Mountain joins Drinos downstream of the Palokaster village Babica River which also drains into Drinos.



**Map of the water basin in the project area**

### **Drinking water sources in the project area**

There are no drinking water sources in and near the project site. There is no source of drinking water in the vicinity of the project area which could be affected by the construction phase or later.

### **Water quality**

The Bridge will be constructed over the Drino river which is a branch of Vjosa River, one of the main rivers in Albania with a total length of 272 kilometers of which the first 80 kilometers are in Greece, and the remaining 192 kilometers are in Albania.

Its source is in Greece in the Pindus mountains. It enters Albania near Çarshovë and continues northwest through cities of Përmet, Këlcyrë, Tepelenë, Memaliaj, Selenicë and Novoselë. It flows into the Adriatic Sea, northwest of Vlorë.

The total area of the basin is 6,710 km<sup>2</sup>. The Albanian catchment area of the Vjosa River covers 4,365 km<sup>2</sup> or about two-thirds of the entire catchment area. The rest is situated in Greece. The largest tributary of the Vjosa River is the Drino. It has a catchment area of 1,320 km<sup>2</sup>, of which 256 km<sup>2</sup> are located in Greece.

Chemical analyses of samples taken from the Vjosa show that water quality is generally good. Some high values have been observed for iron or hardness in the Vjosa, and for chlorine in the Langarica. River Vjosa has the best water quality in the country, adequate for all uses. Based on the biotic index, the water quality is good with the exception of two places: near a mine and at a bitumen and oil reservoir.

However, there is of concern the level of pollution in the course of the Drino River, where the sewage collectors of the city of Gjirokastra are discharged. Drino pollution has become a problem over the years.

8 sewage disposal points that are under the administration of the Water Supply and Sewerage Company in Gjirokastra are dumping their waste every day in the Drino riverbed. Wastewater treatment plants are needed as the only suitable solution, but such an investment is unaffordable for the Water Supply and Sewerage Company.

#### Waste management

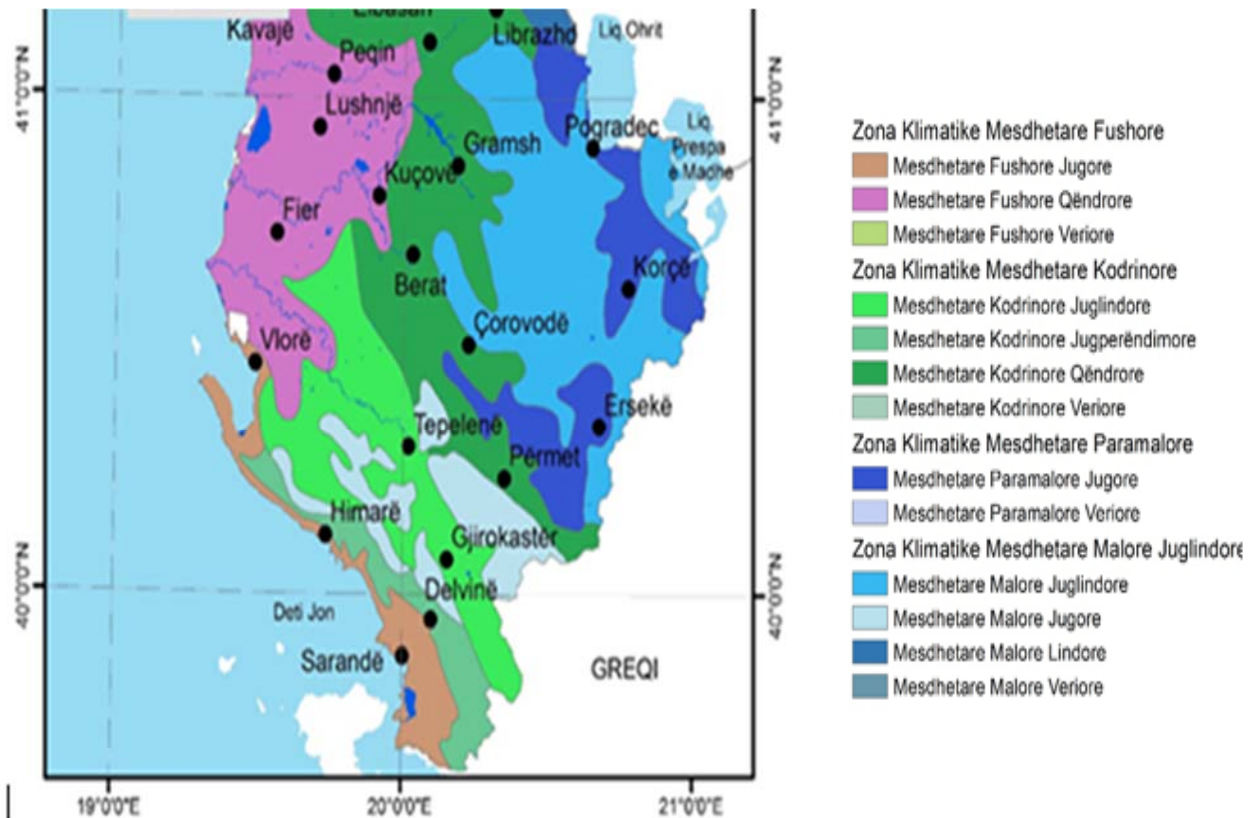
Local government is direct responsible for management of urban waste and construction and demolition waste in Gjirokastra, Tepelena and Permet, all this municipalities in the project area. In this municipalities waste is collected and transported through municipality service companies to, or private companies contracted by municipalities. The generated waste is collected without any preliminary separation. There is no recycling process for the different waste categories, as e-waste, hazardous waste, C&D, plastics, and the medical waste, so all waste collected goes to the same municipal landfill. Each municipality have their landfill, and therefore it is expected that the waste generated by the project will need to manage at the designated municipal landfill.

Gjirokastra municipality has a non-sanitary landfill, located in the north-west of the town, easily accessible (1.6 km away), used for urban waste disposal.

The non-sanitary landfill is also the Municipal dumping location for construction waste, but the contractor will remain in continuous communication with the Municipality for viable solutions of this issue. We hope that a large quantity of the material will be used for other purposes by the municipality or private citizens.

#### **Climate features and meteorology conditions**

Albania is located within the Mediterranean climatic belt characterized by hot dry summers and mild rainy winters. The climate varies with the topography: hot and dry summers with frequent thunderstorms, wet and mild winters are common in the coastal plains; higher precipitation and colder winters with heavy snow in the mountains. The annual mean temperatures in the country vary from 7°C in the highest zones up to 15°C in the coastal zone although maximum temperatures can be as high as 21.8°C in the mountains. January is typically the coldest month with mean temperatures ranging between 3°C and 10°C depending on the altitude and winter conditions. July is the warmest month with a mean temperature of around 25-26°C. 66 The total mean annual precipitation in Albania is approximately 1,485 mm/year and varies substantially across the country. The southeast part of the country receives the least amount of precipitation (up to 600 mm/year). The highest level of precipitation (2800-3000 mm/year) is recorded in the Albanian Alps; followed by the mountainous southwest zone, with a precipitation up to 2,200 mm/year. The highest amount of precipitation (about 70%) is recorded during the cold months peaking in November<sup>67</sup> with the lowest rainfall in July-August. During the winter snow is characteristic for inland mountainous regions, i.e. the Albanian Alps, and the Central and Southern Mountainous regions.



**Climate zones**

According to the climatic division of Albania, the study area is part of the South Mediterranean Mountain Sub-Zone.

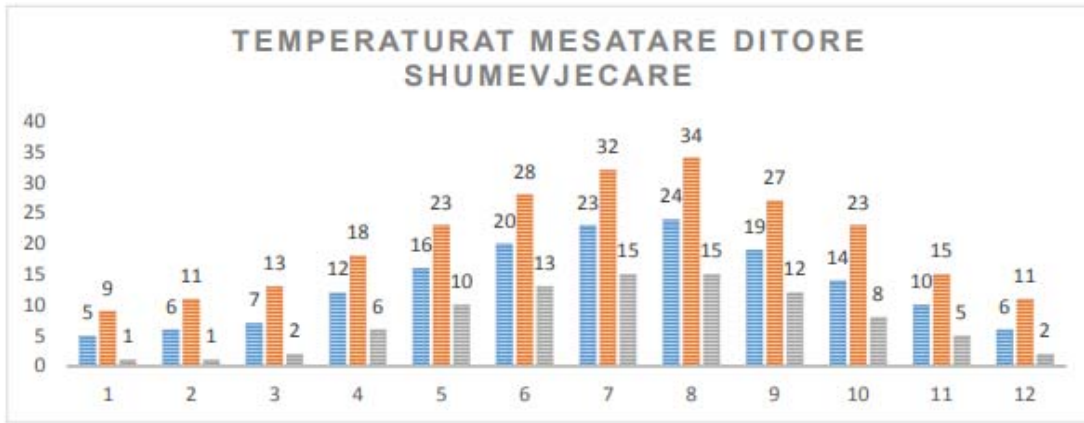
**Air temperatures**

Below are the multi-year average air temperatures for the Gjirokaster station.

**Table 02: Average, maximum and minimum daily multi-year air temperature in Gjirokaster**

Stacioni metereologjik Gjirokaster													
	Muajt												
Temperaturat	10	11	12	1	2	3	4	5	6	7	8	9	Vjetore
Mesatare ditore	14	10	6	5	6	7	12	16	20	23	24	19	14
Mesatare maksimale ditore	23	15	11	9	11	13	18	23	28	32	34	27	20
Mesatare minimale ditore	8	5	2	1	1	2	6	10	13	15	15	12	8





Multi-year average air temperatures in Gjirokastra

**Relative humidity.**

The daily performance of the average values is a curve with the maximum in the morning and evening hours and with lower values than in the noon hours. While the annual value curve is with lower values in the summer months and higher in the winter months. The relative humidity values for this meteorological station are presented in tabular form below.

**Table 13: Average Relative Humidity for Gjirokastra station**

Meteorological station in Gjirokastra													
	Months												
Relative Humidity	10	11	12	1	2	3	4	5	6	7	8	9	Annually
Multi-year average	67	75	73	71	69	68	69	70	62	57	57	64	67

**Atmospheric precipitation**

Below is the multi-year average precipitation for the Gjirokastra station.

**Table 14: Multi-year average precipitation in Gjirokastra**

Meteorological station in Gjirokastra													
	Months												
Precipitation	10	11	12	1	2	3	4	5	6	7	8	9	Annual
Multi-year average	180	400	320	290	230	190	90	50	40	10	10	60	156



Multi-year average precipitation in Gjirokastra

The 24-hour maximum precipitation for this meteorological station are presented in tabular form below various security.

**Table 15: Maximum 24-hour precipitation with various security for Gjirokaster station**

Meteorological station in Gjirokastra						
Safety (%)	1	2	5	10	20	50
Precipitation	393	353	298	257	213	148

### **Fauna**

The sub-project area is not rich in fauna species. Common insects, birds and small mammals species are frequently found, which populate the scattered vegetation of the area.

There are no endangered or protected species of flora and fauna at the subproject site. However, there is a variety of species but not near the project site.

Four Albanian endemic taxa are reported in Gjirokastra municipality, in altitudes from 300 m to 2480 m above sea level. Three of these endemic species do not have any conservation status, mainly because of their late discovery and limited knowledge about their distribution. One of these species is included in the Albanian species red list.

*Nocca cika* F.K.Meyer. Endemic species of Southwestern Albania. Usually its population are small and limited.

*Hypericum haplophyloides* Halascy et Baldacci subsp. *haplophyloides*. Endemic species of Southwestern Albania. It grows mainly on limestone substrates or karst conglomerates. It is considered endangered species with the status R (rare species).

*Viola acrocerauniensis* Erben. Endemic species of Southern Albania which grows mainly on limestone substrates or karst conglomerates in altitudes above 800 m above sea level.

*Stachys sericophylla* Halascy grows in karstic environment in altitudes from 1800 m to 2300 m above sea level in Nemërçka Mountain

The project area, is not characterized by pristine or natural habitats, landscapes with important scenic values or biodiversity (flora and fauna) of conservation interest. There are several trees and shrubs growing. Most important tree and shrubs growing in the area are: Sorb tree (*Sorbus domestica*), black locust (*Robinia pseudoacacia*), Tree of heaven (*Ailanthus altissima*); *Ilex aquifolium* (common holly), oak species etc. Among the shrubs in the territory of project area are found: common myrtle (*Myrtus communis* L.), tree heather (*Erica arborea* L.), Mastic tree (*Pistacia lentiscus* L.); Smoke bush (*Cotinus coggygia*, syn. *Rhus cotinus*).

Grasses (annual or bianuall) are represented by *Viola alba* bess, *Cyclamen hederifolium* Ait, *Linum bienne* Miller, *Briza maxima* L. etj. *Erica herbacea* L.), *Melica uniflora* Retz, *Brachypodium sylvaticum* Beauv, *Helleborus odoratus* waldst. Kit, *Digitalis grandiflora* Miller, *Rhamnus fallax* Boiss etj. On the walls of the Castle there are several climbing plants such a European ivy (*Hedera helix*) and (*Pyrostegia venusta*),). In addition several fruit trees such as common fig (*Ficus carica*), grape vine (*Vitis vinifera*) etc. can be found in the yards of many families.

The fauna at the site included butterflies, birds of different species and which are not endangered species. Among the birds found in the area, there are species of genus *Alauda*, species of sparrows (order

Passeriformes); ducks and geese from the order Anseriformes); some birds from the order of wild pigeons (Columbiformes); whistles (*Lucinia megarhyncha*), species of genus *Sylvia*, etc. None of the birds found nest on site, rather use the area for feeding and resting.

### **Description of Protected Areas and Natural Monuments**

The Network of Protected Areas, within Albania, contains several categories, which can be defined as follows:

Category I: Reserves for Natural Purposes Only/ Reserves for Scientific Purposes

Category II: National Park

Category III: Natural Monument

Category IV: Administered Nature Reserves/Administered Area of Species and Habitats

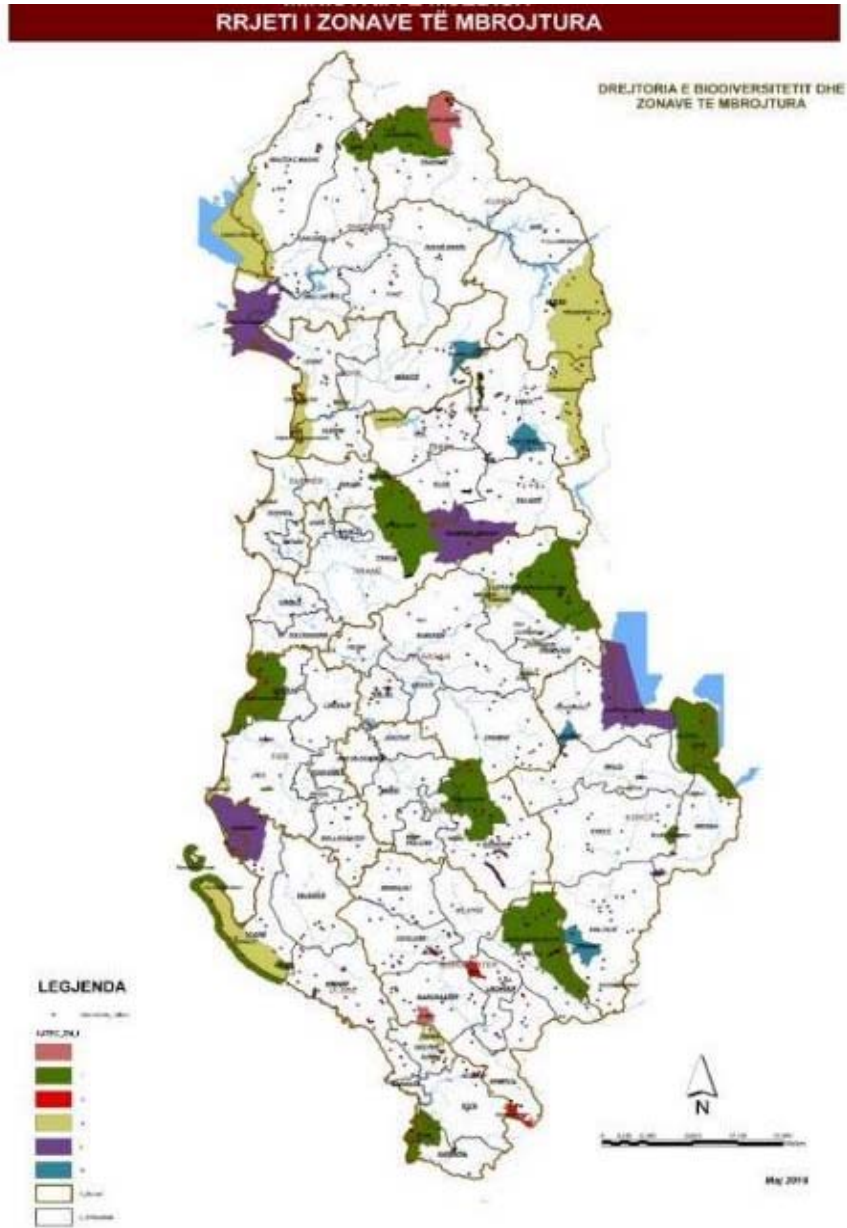
Category V: Protected Landscape Area

Category VI: Multipurpose Protected Area.

Referring to the Map of Protected Areas published by AKZM

([http://akzm.gov.al/index.php?option=com\\_k2&view=item&layout=item&id=68&Itemid=368&lang=en](http://akzm.gov.al/index.php?option=com_k2&view=item&layout=item&id=68&Itemid=368&lang=en)),

it turns out that the project area does not intersect with protected areas and natural monuments



Map of Albanian protected areas

There are several nature monuments and one protected area within the territory of Gjirokastra. Of particular interest is Kardhiqi, which has the status of "Strict natural reserves \ scientific reserves (Category I of protected areas based on the International Union for Conservation of Nature (IUCN) categorisation. The current surface is 1,800.00 ha. Represents a rugged slope, with steep cliffs, steep cliffs and canyons. The combination of rocky, forest and pasture landscape gives this region a special beauty. The area represent high biodiversity of both habitats and species. The existence of virgin or almost virgin forests significantly increases its natural values. Area is covered mainly with oak forests accompanied by other trees such as *Fraxinus ornus*, *Acer campestre*, *Acer obturatum*, rare trees of *Tilia platyphyllos* and *Tilia tomentosa*. The most important and best-preserved forest formation remains that of *Abies borisii-regis*, which occupies

even the steepest terrains. Pure forest of *Acer pseudoplatanus*, a rare phenomenon in Albanian forest, adds even more the values of this territory. Some of the endangered plants species listed at Albanian Red List book, such as: *Aesculus hippocastanum*, *Taxus baccata*, *Achillea grandifolia*, etc. are also found in the area. There are bird and mammal communities associated with forest, aquatic and rocky environments.

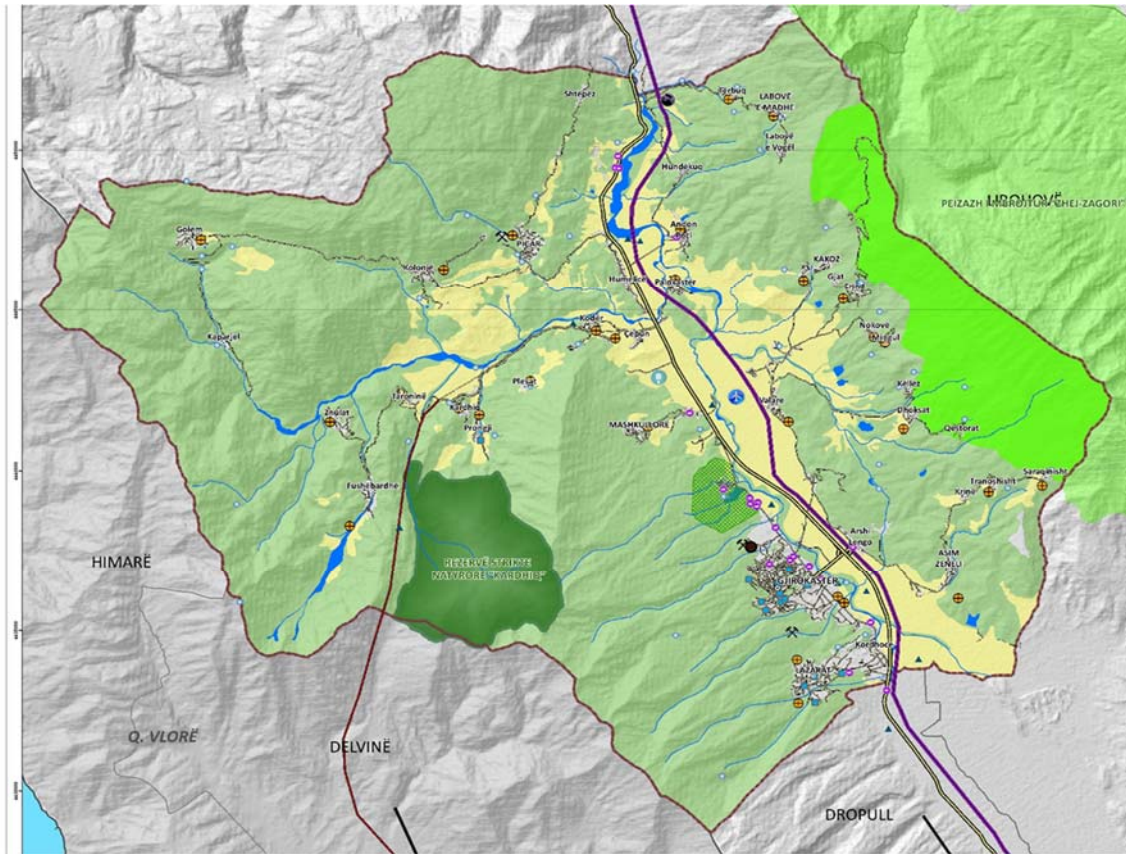
The municipality of Gjirokastra has a large number of nature monuments (Category III of Protected area as per IUCN Categorization). The list includes: Viroi (Mema e ujit), Plane tree of Fushë-Bardha; Plane tree of Zhulati; Plane trees of School in Sheper; Oak trees of Çarroku – Sheper; Oak trees of Monastery – Nivan; Plane trees of Nivani; Plane tree of Ndëranit; Oak trees of Skoresë; Plane trees of Çatista; Cypress trees of Hllomo; Plane tree of Poliçani; Oak trees of Poliçani; Plane trees of Koshovica; Oak tree of Tërbuqi; Plane trees of Selo; Pine trees of Kërre; Oak tree of Bodrishtë; Chestnut tree of Nepravishtë; Plane trees of Tranoshishtë; Plane trees of Monastery- Stegopul; Plane tree of Dhoksati; Plane trees of Këllezi; Plane tree of Mashkullorë (No longer exists); Plane tree of Libohovë; Plane tree of Derviciani; Vënjat of Konckë; Plane tree of Topovë; Canyon of Piksi; Terrace of Ndërani; Stone “forest” of Ndëran; Pass of Çajupi; Stone of Zheji; “Naked” stones of Muzinë; Magmatic rocks on Karst substrates near Picari; Shembja e Zhulalit; Landslides of Këllezi; Landslides of Kaparieli mountain; Vithimat e Buretos; Holes of Konckë; Cave of Vanistrë (Skotinia); Gorge of Selckë; Circus of Lunxhërisë; long stones in Fushë-Bardhe; Pass of Dhëmbeli, etc.

The project site is located in an urban area, outside any protected area, away from natural monuments or natural resources.

Only the nature monument Viroi (Mema e ujit) is related to the project Area. Anyway, based on the preliminary evaluation and assessment of the distance between the water source which owns the status of nature monument and the proposed project footprint, it results that the project doesn't affect the water source due to its distance and elevation. Apart the ARA expert's evaluation, this will be also officially checked with responsible authorities (NAPA), during the national process of EIA application to obtain the environmental consent for project implementation.

The study area is not part of the protected areas of special interest protected by international conventions such as: Convention on Wetlands of International Importance especially as waterfowl habitats (Ramsar Convention); Convention for the Conservation of European Wildlife and Natural Habitats (Berne Convention), etc.

The following is a map of protected areas in relation to the project area which clearly shows that the project area does not affect any of the natural monuments or protected areas both during the construction phase and during the exploitation phase.

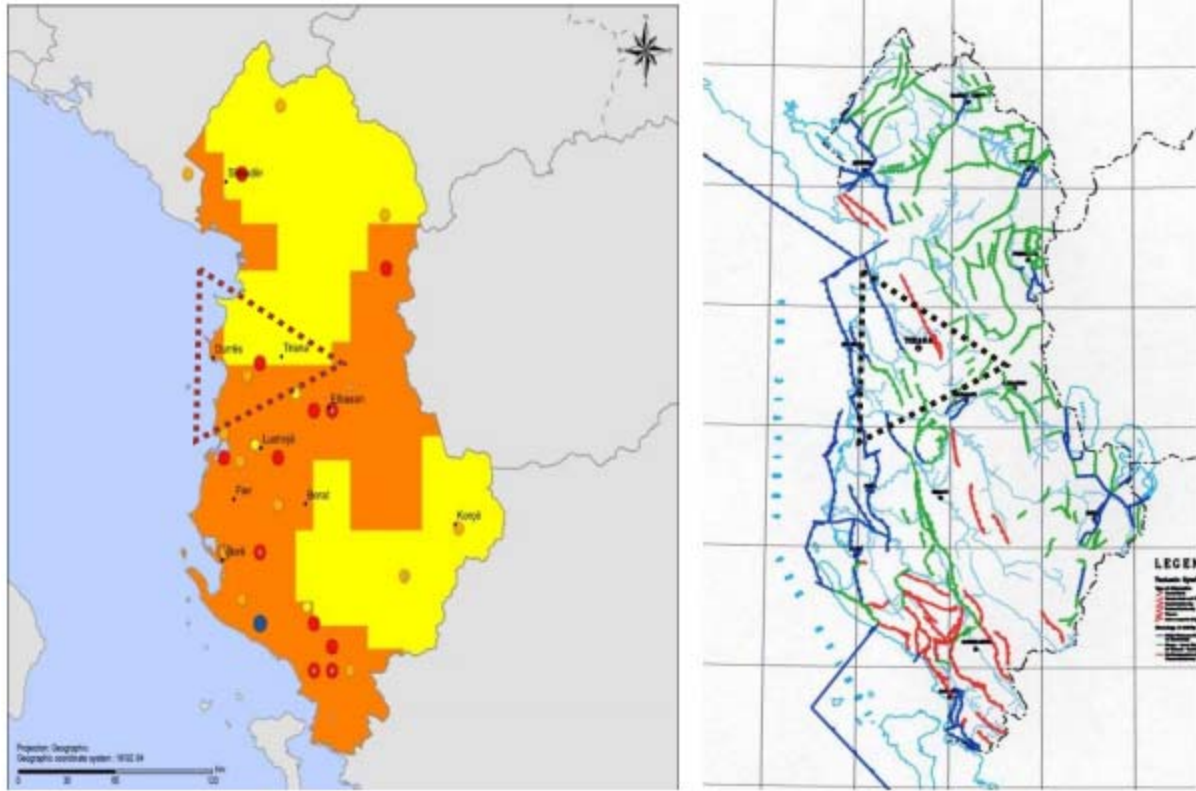


Map of Protected area Municipality of Gjirokastra (Source: GLP Gjirokaster)

**Seismicity**

In our country, the areas of seismic sources are defined as terrains that have a distinct seismic activity. Albania is one of the most seismically active countries in Europe. Seismicity of Albania is characterized by an intense seismic microactivity ( $1.0 < M < 3.0$ ), by many small earthquakes ( $3.0 < M < 5.0$ ), by rare medium-sized earthquakes ( $5.0 < M < 7$ ) and very rarely by strong earthquakes ( $M > 7.0$ ). Most strong earthquakes occur in 3 well-defined seismic belts, as follows:

- Ionian-Adriatic quake belt, on the eastern edge of the Adriatic microplate stretching northwest-southeast
- Earthquake belt Peshkopi - Korca, with north-south stretch
- Earthquake belt Elbasan - Diber, with northeastern stretch



Seismic Hazard Map and Main Seismic Arches

But, high risk areas can also result in other regions of the country that are characterized by weak, unstable soils (loamy, silt, peat, water saturated soils, soils on slippery and steep terrain, lands near active tectonic faults, etc.) which significantly increase the seismic effect even when smaller “magnitude” earthquakes occur. According to seismic regionalization map, the municipality of Gjirokastra is included in the zone where within the next 100 years, for the average land conditions, earthquakes with intensity  $I_0 = 7$  degree (MSK-64) can be expected.

## 6. Environmental and Social Risks and Impacts

### 6.1. Expected Impacts and Mitigation Measures

The construction of the public infrastructure for the construction of the Viroi bridge, like any other activity that takes place in the environment, is accompanied by positive and negative consequences and impacts that are part of the compromise that our society has chosen to develop.

The potential environmental impacts of the proposed project is assessed by judging on the factors related to the nature of the activity, the technology used, the mode of operation, the raw materials used and the waste generated, all in the context of the physical environment, biological and socio-economic. The identification of potential impacts on the environment is analyzed according to the stages of the activity as follows:

By nature impacts are classified into two major groups:

- Reversible impacts;
- Irreversible impacts;

The assessed impact on the environment can be minimized in relative terms where the main goal is to maintain the impact within the area of the project zone, create conditions for the rehabilitation of the affected area and minimize as much as possible the impacts in time and spatial extent.

The nature of the proposed activity dictates temporary impacts and effects on the character of the environment for the mitigation of which concrete measures are proposed.

### **Applied Methods for Predicting Negative Impacts on the Environment**

To predict the impact on the environment, the design team is based on:

- Creating a database with answers to questions related to environmental issues and their analysis
- Project implementation analysis
- The topics of the questions formulated in order to identify the impacts and assessment of this program on the environment are:
- Is the project fully compliant with relevant laws and regulations?
- Will the project affect the socio-economic conditions of the host community and the health of the inhabitants?
- Will they have any long-term or permanent impact on the ecological systems or natural resources of the local area or those of national or regional interest?
- Will the different components of the area ecosystem be affected?

### **Project implementation analysis:**

This takes into account the equipment, machinery, ancillary materials, the way the project is implemented, the time, deadlines and the team needed to carry it out.

Factors and Criteria applied to the Potential Impact Assessment:

To determine whether a negative impact on the environment should be reduced or mitigated during project implementation, one or more of the following factors will be considered:

- Comparison with laws, regulations or accepted standards (national and international guidelines and standards)
- Consultation with relevant decision makers and environmental agencies, etc.
- Preference of preset criteria, such as protected areas or areas with high environmental sensitivity
- Compliance with government policy objectives;
- Acceptability of the program implementation by the local community and by the residents of the area where the program will be implemented.
- Gather as much information and knowledge as possible about the implementation of the project.
- Better knowledge and assessment of the quality of the environment and the existing values of the ecosystem.



### **Environment Impact Assessment**

Out of the proposed project assessment, the quality of the environment in the project area and its surroundings, the discharges into the environment as a result of the project and the duration of impacts, in general we would single out the following potential negative and positive impacts on the environment:

- Impact on land
- Impact on surface water (rainwater)
- Impact on air quality
- Biodiversity
- Visual impact
- Noise emission
- Impact on Road Traffic
- Impact on Work Environment and Human Health
- Social impact
- Waste generation

#### **6.1.1. Construction Phase**

##### **Site cleaning and earth works**

###### **Impact:**

Construction works will commence with clearing of vegetation. This will imply removal of shrubs and grass. There is no need for tree-cutting. Top soil will be removed and stored for the reinstatement of the work site upon completion of works. Associated risks are unnecessary tree cutting by works contractor and mixing up the top soil with subsoil.

###### **Mitigation:**

Site preparation shall imply removal of the upper layer of soil and its storage in a designated location. Topsoil must be backfilled and spread out for creating enabling environment for natural regeneration of vegetative cover upon completion of earth works. Construction contractor shall be instructed to ban tree cutting and other unnecessary damage to vegetation by the personnel.

To prevent contamination of the soil from any spills, hydrocarbons dripping from machinery, moving vehicles, containers holding chemicals, hydrocarbons, oils, etc., they will be provided with an extra container, placed in contact with the ground to prevent direct contact of containers, oil cans, hydrocarbons or various chemicals with soil.

A spill kit with all the necessary tools to clean every drop, eventual accidental leakage of these chemicals, will be found on site, ready for use in case of a contamination incident.

##### **Works in the waterway**

###### **Impact:**

Bridge construction will imply works near and within the Drino River. Diversion of the water flow will be required while installing bridge supporting piles in the river bed. This will cause temporary increase of water turbidity and disturbance to the aquatic life.

River may be polluted with improperly stored construction material and waste; dumping of household waste, construction waste, and excess material into the river bed; leakage of fuel, oils and lubricants from

the improperly parked/serviced machinery. Likelihood of construction vehicles and machinery moving in the river bed may not be excluded either.

**Mitigation:**

Diversion of the water flow should last the shortest period possible. Towards this end, installation of lines must be well prepared and undertaken quickly. Special attention will be paid to the preventive measures regarding the impact on aquatic biodiversity. Reversion should not block free movement of fish.

Specific locations in a decent distance from the river banks must be selected for temporary on-site storage of construction materials and waste. Arrangements shall be made for organized storage and removal of household waste. Its dropping into the river and open-air burning must be prohibited.

Construction vehicles and machinery shall be restricted from entering the water flow. Their washing and servicing, if conducted on-site, must be done in a specifically allocated location away from the river banks. Technical condition of vehicles and machinery shall be checked on daily basis to avoid operation spillage of fuel and lubricants.

**Extraction of natural construction materials**

**Impact:**

Bridge construction will require the use of natural construction materials, such as stone, gravel and sand. Borrowing of material may cause degradation of landscape, triggering of erosion, and worsening visual appearance of a natural landscape. Borrowing from the watercourse is not prohibited by the national legislation

**Mitigation:**

Opening of new quarries should be avoided to the extent possible. Contractor will be advised to purchase material from the existing licensed quarries. In case contractor wishes to open an own quarry, Borrower must ensure that contractor obtains license according to the national legislation and applies good environmental practice in quarry operation. This will include terracing and compacting of quarry slopes, backfilling excess material, providing adequate drainage as required, facilitating natural regeneration of vegetation on the reinstated areas, etc. Material extraction from the watercourse shall be prohibited.

**General construction works**

**Impact:**

Common types of impacts from the medium-sized general construction works include generation of dust and noise from the operation of machinery, processing of natural construction materials (stone crushing) and earth works. Because construction of the bridge will take place in a rural setting, generated noise may cause disturbance of fauna.

Improper behavior of construction workers may cause unnecessary damage to the natural environment through unauthorized hunting, fishing, making fire, dumping waste, driving outside access roads, etc.

**Mitigation:**

Noise impacts will be modest and could be mitigated by keeping vehicles and machinery in good technical condition. The same measure will allow to minimize vehicle emissions. In exceptionally dry conditions, work site shall be sprinkled to reduce dust. Transportation of construction materials and waste should be undertaken under covered hoods of vehicles. Vehicle speed must be limited.

Construction contractor shall be instructed to prohibit its personnel from hunting, fishing, entering the natural area around the work site without need, and from driving outside the access roads.

Prevention of impacts from dust during the construction works; Excavation works will be carried out by wetting the surface with water to reduce the emission of dust particles, as well as the separation or removal of all solid waste resulting during the excavation process. Wetting the roads and areas affected by construction, water spraying to minimize dust emission. Spraying will be carried out when necessary, for example when dry weather conditions and/or strong winds. Reduce the speed of movement to a level where the rise of dust is minimal.

All trucks or machinery that remove dirt from the square should have containers (boxes) covered with canvas to prevent stones and dirt from falling on road surfaces or causing disturbance to people in the vicinity.

Vehicles are not allowed to move to asphalted roads with mud tires. They must be cleaned inside the construction site before moving in the city's paved roads. The vehicles will be washed and cleaned inside the construction site before going out on the city streets.

Potential air pollution as a result of construction; Efficient use of fuel consuming machines to reduce unnecessary fuel consumption and consequently reduce the amount of CO<sub>2</sub>, SO<sub>2</sub>, NO<sub>x</sub>, VOC emissions emitted by combustion of fuels. Potential air pollution as a result of construction operations is estimated not to exceed the air quality norms for residential areas defined in DCM no. 803 dated 04.12.2003 "On air quality norms".

Allowed noise level<sup>9</sup>

According to the Standards of Albanian legislation, the allowed level of noise is as follows:

Industrial zone

Daylight hours (07:00 - 22:00) 70 dBA

Night hours (22:00 - 07:00) 70 dBA

Residential areas and educational institutions

Daylight hours (07:00 - 22:00) 55 dBA

Night hours (22:00 - 07:00) 45 dBA

### **Works near cultural heritage and natural monument site**

#### **Impact:**

Bridge construction will be undertaken in the close Viroi Lake, which is declared as natural monument. Construction works may cause deterioration of the aesthetic appearance of the area around the Viroi Lake and cause nuisance to the community and tourists.

Due to high density of historic monuments cultural, historical and architectonic heritage, in the greater area around the sub-project site, likelihood of chance finds during excavation works may be considered higher than average.

#### **Mitigation:**

Adherence to the general good construction practice and mitigation measures formulated above will allow to keep sub-project impacts on the natural landscape to the minimum and to avoid nuisance to the

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<sup>9</sup> MINISTRY OF ENVIRONMENT, FORESTRY; MINISTRY OF HEALTH AND WATER ADMINISTRATION  
INSTRUCTION (No.8, dated 27.11.2007) "ON THE NOISE LEVELS IN CERTAIN ENVIRONMENTS"

communities, tourists, etc. The construction area will be fenced, thus obstructing the view from passersby and reducing to some extent the negative impact.

Collation of materials inside the work site and removal of inert waste generated to the final destination are other mitigation measures to reduce the visual impact.

Preventive measures for cultural heritage: Execution of construction operations shall follow all legal requirements and respective approvals based on the Law No. 9048 dated 07.04.2003 “On cultural heritage” amended by the Law No. 9885 dated 28.02.2008 “On cultural heritage” (updated).

When, after the beginning of the works, traces or objects with archeological-ethnological values are discovered by chance (during the underground works for the opening of canals) the works will stop immediately. The supervisor of the works notifies, within three days, the local government bodies, the Agency of Cultural Monuments, who make the relevant control, report on the found values and make the relevant proposals for the continuation or not of the works.

If the findings are of significant value, the work started may be subject to change or may be terminated. The decision in this case is taken by the body that has authorized the start of works

### **Work site management**

#### **Impact:**

Based on the scope and nature of works, no influx of workers to the sub-project site is expected from abroad or from the distant regions. Most likely the work camp will not be used as a residence for workers, as they are expected to come to work from their permanent residences or from rented lodging in the vicinity of the works site. Nonetheless, poor sanitation at the work camp may negatively affect health of workers.

Poor organization of the works camp, including unregulated parking of machinery and storage of construction materials/waste may cause work-site accidents. The same may result from the lack of personal protection gear or failure of workers to use it.

#### **Mitigation:**

Construction contractor will be obligated to provide safe drinking water and adequate sanitation facilities at the work camp.

Workers using various construction technologies shall be adequately trained and licensed if required. Health and life insurance of workers is mandatory.

All personnel of works contractor must possess uniforms and adequate personal protection gear. Use of personal protection means must be enforced by the management of construction contractor.

Storage of construction materials and waste, and parking lots for machinery must be specifically allocated and signed. Work site and work base shall be demarcated and fence as necessary. Contact information of works contractor and ARA shall be placed on the information boards as a mandatory element of grievance redress mechanism.

Contact information for emergency response service and the first medical aid must be posted at the work camp.

## **6.1.2. Operation Phase**

### **Bridge operation**

#### **Impact:**

Solid waste will be generated during operation of the bridge from regular road maintenance works and from littering by bridge users.

There will be impact of air pollution due to increase vehicle movement across the bridge.

Improved connectivity will have positive social impacts on the local population, and visitors of Viroi Lake, increasing the safety and comfort of traffic, landscape improvement, however increased occurrence of vandalism is also possible as common in case of increased tourist visitation.

The visual appearance of the area after the construction will significantly improve according to contemporary standards.

#### **Mitigation Measures:**

Gjirokastra municipality will be responsible for road maintenance and shall not dump or leave unattended at the roadside small amounts of waste that may remain from pothole patching, cleaning of drainage systems, trimming of vegetation or any other type of activity along the road. Waste must be disposed to a formal landfill in agreement with the Solid Waste Management Company. Periodic collection of roadside trash should be part of routine road maintenance service.

Adequate signage of the bridge access roads will be instrumental in preventing accidents and damaging the bridge from driving of large vehicles exceeding allowed weight and parameters.

## **7. Stakeholder Consultation and Information Publicity**

Present draft EIA report will be disclosed through the web page of ARA in Albanian and English languages and delivered to the local residents in Gjirokastra municipality through the medium and in the format most suitable for their easy access. The public consultation with the affected community and other interested parties will take place in the designated municipality premises and feedback on the draft EIA report will be sought from the sub-project-affected communities and other interested parties. Upon incorporation of the public feedback, EIA report will be finalized, and minutes of public consultation process will be attached. The final EIA report will be re-disclosed through the ARA's web page and will be disclosed to the World Bank.

## **8 Environmental Management Plan**

### **8.1. Environmental management framework**

Standalone ESMP is developed based on the findings of the EIA. It consists of a table with environmental and social mitigation measures to be applied during construction and operation phases, and an environmental and social monitoring plan table. These tables list out prescribed mitigation measures, indicators of their adequate application, monitoring methodology, and parties responsible for various aspects of environmental management at the construction and operation phases.

The ESMP will be included into the tender documents and later – be attached to the contract for the provision of civil works.

### **8.2 Institutional arrangements of EMP implementation**

The ARA is responsible for the control over the environmental compliance of works carried out under the sub-project. ARAs environmental and social specialists will undertake monthly environmental monitoring of work and produce respective reports. In case of deviations from the ESMP requirements, ARA representatives will provide instruction for the corrective actions and will follow up on their implementation. Monthly field environmental monitoring reports (prepared using the template attached to the Environmental and Social Management Framework for BRB) will be stored on file at the ARA office and be made available for the World Bank upon demand.

## 9. ENVIRONMENTAL AND SOCIALMANAGEMENT PLAN

Subject/Indicator	Potential impact	Mitigation Measures	Responsibility	Supervisor party
<b>CONSTRUCTION PHASE</b>				
		<b>Mitigation Measures</b>		
Site cleaning and earth work	Excessive damage to vegetation Loss of topsoil	<ul style="list-style-type: none"> <li>• Prohibit tree cutting</li> <li>• Prohibit movement of vehicles and machinery outside the access roads</li> <li>• Strip topsoil and stockpile it separately</li> <li>• Backfill topsoil and spread it for site reinstatement upon completion of earth works</li> </ul>	Contractor	ARA
Works in the waterway	Pollution of water and river bed Disturbance of aquatic life	<ul style="list-style-type: none"> <li>• Allocate construction materials and waste storage sites away from the river banks</li> <li>• Prohibit dumping of construction and household waste into the river</li> <li>• Prohibit extraction of sand and gravel from the watercourse</li> <li>• Prohibit entry of waterway by construction vehicles and machinery</li> <li>• Prohibit washing of vehicles in the river</li> <li>• Revert water stream in the river bed without blocking passage for fish</li> <li>• Complete works in the waterway in the minimal time technologically possible</li> </ul>	Contractor	ARA
Extraction of natural construction materials	Landscape degradation Soil erosion	<ul style="list-style-type: none"> <li>• Purchase of natural construction materials from existing quarries whenever feasible</li> <li>• Obtaining formal license for quarrying if performed by contractor</li> <li>• Reinstatement of used-up sections of quarries through terracing, backfilling, compacting, arrangement of drainage and providing enabling environment for natural regeneration of vegetation</li> <li>• Prohibition of material extraction from watercourse</li> </ul>	Contractor	ARA National Environment Agency Department of Environmental Supervision, Ministry of Environment
General construction works	Nuisance to people and disturbance of wildlife	<ul style="list-style-type: none"> <li>• Keep vehicles and machinery in adequate technical condition; avoid engine idling</li> <li>• Limit vehicles speed; allow driving only along the designated access roads; transport</li> </ul>	Contractor	ARA

Subject/Indicator	Potential impact	Mitigation Measures	Responsibility	Supervisor party
	with generated dust and noise Disturbance of wildlife by improper behavior of workers Pollution with construction and household waste	construction materials and waste under covered hood <ul style="list-style-type: none"> <li>• Sprinkle work site in excessively dry conditions and during works generating much dust</li> <li>• Prohibit entry of natural area around the work site by workers without need; ban hunting and fishing</li> <li>• Dispose construction waste in the locations designated by Bolnisi municipality in written</li> <li>• Make advance arrangements for household waste disposal from the construction camp and adhere to these arrangements; prohibit dumping and burning of any type of waste</li> </ul>		
Health Human	Potential health and safety risks from construction operations Work-related accidents during construction operations.	<ul style="list-style-type: none"> <li>• Engagement of contractors with experience in the construction phase works</li> <li>• Providing information on occupational safety and warning measures;</li> <li>• Fencing the work site</li> <li>• Design, correct implementation of security procedures</li> <li>• Rigorous implementation of best work practices during the construction phase</li> <li>• Monitoring and controlling the levels of air emissions, control of soil contamination and waste generated from this phase.</li> <li>• Health care for employees operating during the operational construction phase</li> <li>• Implementation of technical security rules in every workplace.</li> <li>• Collection of inert waste in the respective landfills to avoid the risk of damage by leaving them in inappropriate places</li> <li>• Drafting and implementing emergency management plan.</li> <li>• Continuous capacity building to emphasize the need for a safe working environment, good supervision,</li> <li>• Apply a strict policy for all workers to wear safety equipment, hats, gloves.</li> </ul>	Contractor	ARA

**Albanian Road Authority**  
**EIA VIROI BRIDGE, GJIROKASTËR MUNICIPALITY**

Subject/Indicator	Potential impact	Mitigation Measures	Responsibility	Supervisor party
Increased traffic due to increased vehicle traffic.	Potential for road accidents due to increased traffic from construction operations.	<ul style="list-style-type: none"> <li>• Implement the traffic management plan</li> <li>• Notify the Community on any change in the construction plan which also determines the movement of vehicles</li> </ul>	Contractor	ARA
Health (Noise, vibrations)	Possible disturbance from the noise of machinery due to construction works	<ul style="list-style-type: none"> <li>• Prepare noise barriers to reduce noise levels.</li> <li>• Use of machinery and equipment that have noise emission levels within the permitted norms (according to the patent from the manufacturer).</li> <li>• Maintenance of machinery and equipment that emit noise, their regular service</li> <li>• Noise monitoring</li> <li>• Keeping the public informed of activities that may cause distress</li> <li>• Installation of shock absorbers on mechanical equipment (generators, compressors, etc.) that emit vibrations or significant noise levels, (when the level of emitted noise is higher than the allowed norms)</li> </ul>	Contractor	ARA
Health - (Dust)	Increased level of Dust in the atmosphere caused by construction works	<ul style="list-style-type: none"> <li>• Use of dust level reduction techniques (site wetting) during construction hours.</li> <li>• Use of protective equipment (masks) by operating staff in special operations resulting in high dust levels</li> <li>• Efficient use of fuel consuming machinery</li> <li>• Neighborhood of the construction site and other areas distressed by construction</li> <li>• Minimize some activities such as digging and moving of vehicles during strong winds.</li> <li>• Irrigation (using a hose) of the aggregate and pile of materials during strong winds.</li> <li>• It is recommended that the load of all transport vehicles be covered with waterproof canvas.</li> <li>• All trucks or machinery removing soil from the site should have their</li> </ul>	Contractor	ARA



**Albanian Road Authority**  
**EIA VIROI BRIDGE, GJIROKASTËR MUNICIPALITY**

Subject/Indicator	Potential impact	Mitigation Measures	Responsibility	Supervisor party
		containers (boxes) covered with canvas;		
Public Relations	Employment Increasing number of employees who contribute to the construction phase	<ul style="list-style-type: none"> <li>Maximize/provide local employment opportunities to people in need, also suggested by the Municipality (list of most needy citizens).</li> <li>Increase local tax revenues for all services provided.</li> </ul>	Contractor	ARA
<b>ENVIRONMENTAL FACTORS</b>				
Land pollution	Possibility for soil contamination from the construction phase processes	<ul style="list-style-type: none"> <li>Fuel, oils or other materials required to be temporarily stored on site must be equipped with an extra container to avoid their direct contact with the ground.</li> <li>Provision of spill kit set to clean every eventual drop, accidental leakage of these chemicals in any case of possible occurrence of a contamination incident.</li> <li>Drafting and implementation of management plan on depositing, storage of fuel/chemicals/oil as well as response plan in case of pollution/contamination incident.</li> </ul>	Contractor	ARA
Waste generation	Soil generated during the excavation works as well as inerts generated by the construction process and the demolition of buildings damaged by the earthquake.	<ul style="list-style-type: none"> <li>Separation at source of soil generated from inert material Preservation of vegetable soils for rehabilitation and greening.</li> <li>Disposal of residual material generated from excavations at landfills approved by the municipality.</li> <li>Deposition of aggregates in approved landfills. Separation of waste at source.</li> <li>Periodic monitoring of the amount of waste generated.</li> <li>Construction workers will be properly informed on the disposal of generated waste and environmental protection.</li> <li>Drafting and implementing a waste management plan.</li> </ul>	Contractor	ARA
Biodiversity	Damage to the vegetative layer and the current green surface.	The greening of an area that will be defined in the project is a rehabilitation measure of the area that will be affected by the project. Possibility of replanting displaced trees.	Contractor	ARA

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Subject/Indicator	Potential impact	Mitigation Measures	Responsibility	Supervisor party
Air quality Air pollution (CO <sub>2</sub> , NO <sub>x</sub> , SO <sub>2</sub> , solid particles)	Increasing air emissions for gases and solid particles during the construction phase	<ul style="list-style-type: none"> <li>• Monitoring of gas emission sources in the construction phase</li> <li>• Maintenance of equipment and machinery that are sources of emissions</li> <li>• Use of machinery and equipment with low noise emission levels within the permitted norms according to the state and EU standards.</li> <li>• Wetting the site especially in dry weather to lower the level of solid particles in the air</li> <li>• Covering vehicles transporting materials which can be easily dispersed in the air during transport</li> <li>• Drafting and implementing environment emergency management plan by the company</li> </ul>	Contractor	ARA
Surface Water Quality	Potential for increasing sediments in water if proper mitigation measures are not implemented	<ul style="list-style-type: none"> <li>• Implementation of best work practices during the construction phase to avoid concentrations of solid material and their wash off from rainwater.</li> <li>• Selection of works in dry weather, to avoid the growth of solids in the water from rain wash off</li> <li>• Design and Implementation of Environmental Management Plans (Service Area/Washing; Rainwater Management, Generated Soil Management)</li> <li>• Drafting and implementing environment emergency management plan by the company</li> </ul>	Contractor	ARA
Surface Water Quality	Potential for Contamination/Pollution of Water Bodies due to any possible drip or leakage of oils or hydrocarbons into the work area	<ul style="list-style-type: none"> <li>• Cleaning of vehicles and construction machinery only in the designated areas for this purpose where any possible contamination (from leaks) will not affect the quality of water bodies.</li> <li>• Wastewater generated by the company's human activity will be collected and managed by licensed subcontractors via portable mini toilets.</li> <li>• All vehicles must be cleaned before entering the city roads.</li> <li>• Design and Implementation of Environmental Management Plans (Service Area/Washing; Rainwater Management)</li> <li>• Drafting and implementing environment emergency management plan by the</li> </ul>	Contractor	ARA

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Subject/Indicator	Potential impact	Mitigation Measures	Responsibility	Supervisor party
		company		
Visual impact	Distorted actual appearance in the construction phase, loaded with machinery and construction sites	<ul style="list-style-type: none"> <li>The construction area will be fenced</li> <li>After the completion of the works - the rehabilitation of each damaged site.</li> <li>Arranging the materials inside the construction site and removing the inert mass to the final destination.</li> <li>Removal of unnecessary soil materials or masses to their final destination.</li> </ul>	Contractor	ARA
Cultural Heritage	Potential impact on cultural heritage	<ul style="list-style-type: none"> <li>The construction works do not affect or damage any of the cultural heritage values of the city.</li> <li>However, during the construction phase of ground excavations, unknown archeological values may appear, which may be endangered in cases of carelessness.</li> <li>Interruption of works and notification of the relevant Institutions if objects of archaeological or museum value not previously identified are discovered during various construction works.</li> <li>Recording objects that are thought to have significant value which includes photographs and footage of details of the object found</li> <li>Modify the proposed works if the found objects are not movable</li> </ul>	Contractor	ARA
Road traffic	Increasing confusion in vehicle traffic is expected in the construction phase.	<ul style="list-style-type: none"> <li>Community notice on work schedule and traffic changes.</li> <li>Placement of signboards on the road axes, squares where work is done regarding the works carried out on the road.</li> <li>Transportation of materials by the company off the rush hour traffic.</li> <li>Design and implementation of a traffic management plan by the company.</li> </ul>	Contractor	ARA
<b>OPERATION PHASE</b>				
	River pollution	<ul style="list-style-type: none"> <li>Organize collection and disposal of waste from the maintenance works on the bridge and access roads</li> </ul>	Gjirokastra municipality	

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Subject/Indicator	Potential impact	Mitigation Measures	Responsibility	Supervisor party
		<ul style="list-style-type: none"> <li>• Provide for regular collection of trash from the surface of the bridge</li> </ul>		
	Traffic accidents	<ul style="list-style-type: none"> <li>• Provide and maintain adequate signage on the access roads to regulate vehicle speed and give relevant warning signals</li> </ul>	Traffic Police	
	Compromised integrity of the bridge	<ul style="list-style-type: none"> <li>• Limit weight and other parameters of vehicles entering the bridge established in the design</li> </ul>	Traffic Police	

## 10. Monitoring program

### Purpose of the environmental monitoring

Monitoring is done through repeated measurements, taken in an appropriate frequency, to enable the assessment of the state of the environment and its changes over time.

The purpose of the environmental monitoring of the project “Construction of the Viroi Bridge” is to provide data to assess whether the execution of the activity is in accordance with environmental laws and related standards, to assess the degree of impact (if any), as well as to assess the environmental performance of its management in the context of continuous improvement.

Monitoring objectives:

- Compare the quality and condition of the environment before the start of the activity during and at its closure.
- Monitor emissions at all stages of project execution in accordance with the norms and legal standards of Albania and the EU.
- Determine whether possible environmental changes are as a result of developments in activities carried out in the project area and whether there are cumulative links and impacts with the proposed project.
- Determine the effectiveness of remedial measures implemented by project development actors in the region.
- Determine long-term impacts (if any).
- Determine the duration of the return to normalcy of environmental quality in the project region, in cases of assessed impact.
- Create an environmental quality archive, a database that can be used in the future.
- To guarantee the suitability of an environmental facility to be used for a specific purpose.

Monitoring legal basis

Environmental monitoring is a legal obligation, the way, frequency and elements of monitoring are different for different activities.

Legal requirements for monitoring:

- Law No. 10431 dated 09.06.2013 “On environmental protection”, chapter VI “monitoring of the state of the environment”, the entity shall conduct periodic monitoring according to the requirements set out in the terms of the relevant environmental permit.

**Table 16: The basic legislation on which the monitoring is based are:**

Law No. 10266, dated 15.4.2010		On protection of the air from pollution
Law No. 9774 dated 12.07.2007		On assessing and administration of noise in the environment
Law 162/2014”		On protection of ambient air quality
DCM no. 1189, dated 18.11.2009		On the Rules and Procedures for the Design and Implementation of the

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		National Environmental Monitoring Program
DCM No. 435 dated 12.09.2002		Adopting of air emission norms in the Republic of Albania.
DCM No. 803 dated 04.12.2003		Adopting the air quality norms.
Instruction no. 8, dated 27.11.2007		For noise limit levels in certain environments
Instruction no. 6527 dated 24.12.2004		On the permissible values of the elements of air pollutants in the environment from emissions and noise caused by road vehicles and methods of their control.  Amended by: Instruction no. 12 dated 15.06.2010
DCM No. 177 dated 31.3.2005		On discharge of liquid wastes and the criteria for zoning water environments.
Law No. 10463 dt. 22.09.2011 “On integrated waste management”		This law aims to protect the environment and human health and to ensure proper environmental waste management through: a) prevention and minimization of waste or reduction of negative impacts from integrated waste generation and management; b) improving the efficiency of their use; c) reducing the overall negative impacts from resource use.

In accordance with the characteristics of the project and in accordance with the legal basis on monitoring, we recommend monitoring the following elements:

**Table 17: Monitoring Program**

No	Monitored indicators	What parameter is to be monitored?	Monitoring time	Monitoring frequency?	Responsibility
1	Materials, inert waste generated by the demolition process of earthquake-damaged buildings including damaged asphalts	Quantity, type of material (generated waste), disposal in the disposal site approved by the municipality/local unit	During the construction phase/during the demolition phase of damaged buildings and during the construction phase of the project.	Regularly following the frequency of waste generation	Contractor
2	Soil waste generated by the excavation process	Quantity, type of material (generated waste), disposal on site disposal approved by the municipality/local unit or its reuse for refilling/leveling of sites for project purposes	During the excavation phase, at any time we will have generation of waste	Regularly following the frequency of waste generation	Contractor
3	Noise emission in dB	Emitted noise level in dB	Construction phase - Noise measurement using accredited contractors (including accredited noise parameter)	According to the conditions set in the Decision for Preliminary Environmental Impact Assessment (by Environmental Institutions)	Contractor

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4	Dust Emissions - Dusts	Levels of PM10; PM2.5; TSP  In the work environment and on the outskirts of the construction site	Field observations on dust level.  Measurement of Total Dust in the working environment and PM10 & TSP in the suburbs using accredited contractors (according to the conditions set in the Decision for Preliminary Environmental Impact Assessment)	According to the conditions set in the Decision for Preliminary Environmental Impact Assessment (by Environmental Institutions)	Contractor
5	Urban waste from the activity of employees operating in this project	Amount/type of waste generated, the amount of those recycled by subcontractors.	During the construction phase	Periodically - Whenever sufficient quantities are created for a load;	Contractor
6	Cases, potential accidents/incidents associated with soil contamination	Record/manage and respond to any possible contamination/incident that occurred as well as the consequences caused by the incident.	Construction phase	As needed, if we will have such incidents	Contractor
7	Monitoring of conditions as per the Decision for Preliminary Environmental Impact Assessment (by Environmental Institutions)	Monitored Recorded Reported According to the conditions set in the Decision for Preliminary Environmental Impact Assessment (by Environmental Institutions)	Construction phase	According to the conditions set in the Decision for Preliminary Environmental Impact Assessment (by Environmental Institutions)	Contractor