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Project Preparation Facility

PPF8

*Notification to an affected party of
a proposed activity under Article 3
of the ESPOO Convention*

**Upgrade of the Iron Gate I
Navigational Lock**

July 2017.



Louis Berger | giz | MWH | epcco








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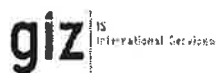
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DOCUMENT CONTROL SHEET

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Submission of Notification to an affected party of a proposed activity under Article 3 of the ESPOO Convention - Upgrade of the Iron Gate I Navigational Lock				
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Submission of Notification to an affected party of a proposed activity under Article 3 of the ESPOO Convention - Upgrade of the Iron Gate I Navigational Lock				
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**Upgrade of the Iron I Gate Navigational Lock
Notification to an affected party of a proposed activity under
Article 3 of the ESPOO Convention**



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1. INTRODUCTION

1.1. The main project concerns

The Iron Gate I Hydro Power Plant (HPP Djerdap I) and the navigational lock system are located on the Danube River, km 943, at joint Serbian-Romanian sector, being part of the Core TEN-T network (Rhine – Danube Corridor). The Serbian navigational lock has been in constant exploitation as of 1970 without a major overhaul operation. Proposed overhauling includes works related to the hydro-mechanical equipment, electrohydraulic installations and equipment and civil structures.

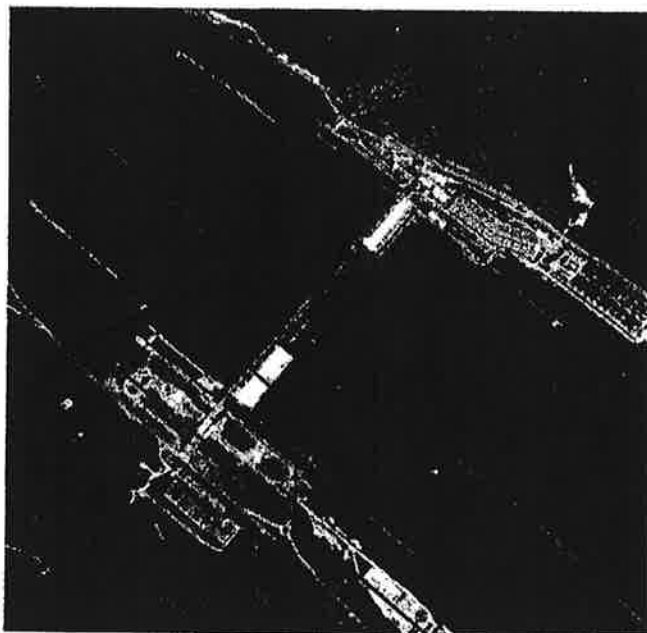


Figure 1 - HPP Djerdap I - spillway dam with power plants and navigational locks (Serbian one is red marked)

Initially installed equipment of the navigational lock was of the state-of-the-art design and it was maintained with extreme care. This resulted in multiple operating life extensions and only few outages. Nonetheless, in recent years, the state of the equipment has rapidly deteriorated. For this reason, the entire equipment will be replaced without delay. Anticipated volume of the navigational lock revitalisation works includes construction works necessary to repair the identified defects, as well as the dismantling of existing and procurement, design, installation, testing and commissioning of new equipment and systems (electrical and mechanical equipment) subject to reconstruction or replacement.



2. ESPOO NOTIFICATION FORM

1. INFORMATION ON THE PROPOSED ACTIVITY
(I) Information on the nature of the proposed activity
<p>Type of activity proposed:</p> <p>Upgrade of the navigation lock at Djerdap 1 (owned and operated by Djerdap d.o.o. Kladovo) and creation reliability in the operation of the lock for the future and ensure reliable and efficient shipping on the Danube during next 25 years</p>
<p>Is the proposed activity listed in appendix I to the Convention?</p> <p>The Project of Upgrade of the Iron Gate I Navigational Lock (Hereinafter the Project) is classified within the Espoo Convention under Appendix I, item 9 referenced as Trading ports and also inland waterways and ports for inland-waterway traffic which permit the passage of vessels of over 1,350 metric tons and partially under the item 11 referenced as large dams and reservoirs, considering that the Iron Gate I Navigational Lock is an integral part of Hydropower and navigation system Djerdap 1.</p>
<p>Scope of proposed activity (e.g. main activity and any/all peripheral activities requiring assessment):</p> <p>The proposed activities include repair of concrete structures, repair and upgrade of mechanical installations, modernization and refurbishment of electrical-hydraulic installations, upgrade of lightning and signal system, repair and upgrade of other auxiliary systems, like the oil and air pipes</p>
<p>Scale of proposed activity:</p> <p>Project includes:</p> <ul style="list-style-type: none"> ▪ The revitalization of civil structures of the navigation lock. ▪ The revitalization of mechanical installations and equipment of the navigation lock includes the following equipment and works: <ul style="list-style-type: none"> ➢ Hydromechanical equipment; ➢ Electro-hydraulic equipment of gates; ➢ Auxiliary equipment. ▪ The revitalization of electrical installations and equipment.
<p>Description of proposed activity (e.g. technology used):</p> <p>1. Revitalization of civil structures</p> <p>1.1 Civil-architectural works on the control tower gondola</p> <ul style="list-style-type: none"> ▪ Repair or replacement of the steel grating sections and new corrosion protection; ▪ Repair or replacement of the telecommunications equipment metal supports, ▪ Repair of the upper gondola slab concrete, incl. the lift house; ▪ Replacement of the metal fence on the gondola's roof terrace; <p>1.2 Civil-architectural works in technological rooms</p> <ul style="list-style-type: none"> ▪ Repair of the damaged concrete surfaces in shiplock rooms; ▪ Repair of the joints where leakages occur; ▪ Final repair works will be performed in shiplock rooms, such as floor and wall tiles installation, joinery





works, painting, etc.;

1.3 Reconstruction of cables and pipe ducting along shiplock chambers

Reconstruction and rehabilitation of the cable ducting along shiplock chambers and at the pipe inlet/outlet to/from (C&I) rooms.

1.4 Refilling of sediment at the downstream fore-dock

- Multi beam or single beam surveying of the Danube's riverbed morphological conditions;
- Bringing the Danube riverbed bottom along the downstream fore-dock to the design level enabling navigation;
- Handling method of the material deposited along the downstream fore-dock.

2. Replacement and reconstruction of electrical and mechanical equipment

2.1 Reconstruction of electrohydraulic drive equipment

Reconstruction of the electrohydraulic drive equipment of the door and gate incl. the control system, comprises the following:

- Electrohydraulic drives;
- Transformation and distribution of electricity;
- Power, control and communication cabinets of electrohydraulic drives;
- Auxiliary systems (level measurement, vessel detection, weather station, etc.).

The shiplock rooms will be revitalized, while the power supply of the new electrohydraulic drives will be upgraded. This will be followed by the replacement of the actual electrohydraulic drives.

Reconstruction of the electrohydraulic drive equipment of the door and gate incl. the control system, comprises the following works installation of hydraulic cylinders with locking units with built-in position measuring systems and piston protection and associated connecting elements; installation of the main hydraulic circuit equipment; installation of the auxiliary hydraulic circuit equipment etc.

2.2 Reconstruction of electrohydraulic drive equipment of crane rails

Reconstruction of electrohydraulic drive equipment of crane rails includes installation of hydraulic cylinders with position measuring systems, hydraulic cylinders' pistons movement synchronization system, piston protection and associated elements (lugs) connections with supports and brackets; installation of electrohydraulic equipment etc.

2.3 Replacement and reconstruction of hydromechanical equipment

2.3.1 Replacement of sector gates

Operating gates on galleries of the middle shiplock head have been designed as sector gates. They are used to regulate the water discharge from the upstream to the downstream chamber of the shiplock. There is a total of two sector gates installed on the middle head of the shiplock - one on the gallery in the river and one on the gallery in the bank wall of the middle head concrete structure.

Revitalization of the sector gates will include installation of two completely new sector gates and servomotor connection.

2.3.2 Reconstruction of outage double doors

Outage (double) doors on the lower head have been designed to close the 34x12.69 m opening. Outage double doors have been designed for static water pressure on the 12.69 mVS threshold.

Outage double doors revitalization works include corrosion protection works; repair of any damage; rehabilitation and repair of bearings; complete replacement of door opening and closing mechanism etc.

3. Replacement or reconstruction of auxiliary systems





3.1 Reconstruction of traffic light signaling

Traffic light signaling will, similar to other auxiliary control and instrumentation systems, be integrated with the shiplock's control system. All traffic lights, cables, cable ducts and racks will be replaced.

Reconstruction of traffic light signaling include development of columns, supports and installation of new traffic light signaling; Adaptation/reconstruction of existing and partial development of new ducting along critically damaged sections; Development of protective earthing and lightning protection installation of traffic light signaling.

3.2 Reconstruction of heating and air conditioning of operating rooms and the control tower

Air conditioning of operating rooms is outdated and should no longer be used.

Heating and air conditioning of the tower will be upgraded; heating from the Technical Division heating system will be recommissioned and new stand-by heating systems of the tower installed, when the Technical Division heating is not in operation.

Shiplock's heating control system will also be integrated with the control system of the shiplock. All cabling, piping and ductwork of the air conditioning system will to be replaced.

3.3 Reconstruction of the exterior and interior lighting

The entire interior and exterior lighting of the shiplock will be replaced. Cable ducting running through water and connecting the towers of the upstream fore-dock will be replaced. All electrical lighting cabinets and lighting cables will be replaced, any identified damages to the cable ducting repaired. Exterior lighting and lighting of shiplock rooms will be designed with LED lighting.

3.4 Reconstruction of the fixed firefighting system equipment

Equipment of the fixed firefighting system of the shiplock should prevent the supply of air, i.e. oxygen to burning surfaces by using foam to prevent fire spreading over the entire shiplock area.

Reconstruction of a fixed firefighting system will involve the mixing station equipment and control system development. Firefighting control system will be integrated with the single control system of the shiplock.

3.5 Reconstruction of hydraulic pressure pliers

Hydraulic pressure pliers for outage and operating gallery gates handling have been foreseen for the load bearing capacity of 630kN and a range of 6m, on the upper head - bank and river sides, middle head - bank and river sides and lower head - river side.

Entire automation and electric drive of the hydraulic pressure pliers will be replaced and aligned with the replaced drive and control system of external cranes.

3.6 Reconstruction of external cranes

External shiplock cranes are completely outdated and require complete reconstruction of electromechanical equipment. After the crane structure has been examined, all the crane drives will be replaced with modern technical solutions.

Reconstruction of cranes used for outage double doors lifting includes repair of fixed crane installations for lifting and lowering of outage double doors, on the bank and river sides, incl. repair of support structure from any damage, deformation and cracks, replacement of steel ropes and entire electrical installations etc.

Description of purpose of proposed activity:

Implementation of the project would create a long-term perspective for the future development of inland waterway transport on the whole Danube River. Full utilization of results is closely in relation to improvement of navigation conditions on the Danube River in all countries, both upstream and downstream of the Serbian stretch. Only that way, the Danube River will become fully competitive on the Pan-European transportation market and could greatly contribute to social and economic development of the whole Danube region, including Republic of Serbia.

In view of the role and importance of the navigation lock on the Serbian side, it is necessary to carry out the reconstruction of the damaged parts as well as the modernization of the entire electrical and mechanical





equipment and installations to guarantee a continuous and reliable operation for another 30 years. A partial replacement only of the existing equipment might cause more stoppage in future of the lock operations.

Rationale for proposed activity (e.g. socio-economic basis, physical geographic basis):

This project will improve navigation along the Serbian reaches of the Danube. The Danube is an international waterway and inevitably the successful completion of the project will increase use of the waterway and reduce transit times.

The river traffic on the Serbian part of the Danube is mainly transit from the Black sea to Hungary, Austria and Germany; therefore, the implementation of this project will have a positive impact on the cost level of transport, which will contribute to economic development.

Socio economic context for this project has an angle of political, river transport and geostrategic importance that the Navigational lock has for Serbia. Any scenario in which navigational lock on Serbian side would be out of operation for a longer period without clear strategy, action plan and concrete efforts invested in resolving such situation can create negative consequences of further postponing of the revitalization of navigational lock.

Mindful of the role and importance of the navigation lock, it is necessary to perform revitalization of damaged parts of the lock, and to revitalize complete electro-mechanical equipment to enable its reliable and uninterrupted operation during the next 30 years.

Additional information/comments:

There are no additional information's/comments.

(II) INFORMATION ON THE SPATIAL AND TEMPORAL BOUNDARIES OF THE PROPOSED ACTIVITY

Location:

The hydropower and navigation system Djerdap 1 is located at 943 km from the Danube confluence near Sulina, or 9 km upstream of Kladovo, and consists of a dam located in the middle of the river, two plants located in the dam extension toward the banks and two double-stage navigation locks located next to the Serbian and Romanian bank of the Danube River.

Spatial plan of special purpose of international waterway E 80 – Danube River (Pan-European Corridor VII) adopted by the Serbian Government in 2015 (compliant to Articles 21 and 22 of the Law on Planning and Construction), provides environment for further actions toward final goal – rehabilitation of Iron Gate I navigational lock.

Project is compliant with Strategic Environmental Assessment of Spatial plan of special purpose of international waterway E 80 – Danube River (Pan-European Corridor VII).

Description of the location:

The hydropower and navigation system Djerdap 1 belongs to the territory of the national park Djerdap. The national park is an area of special natural values and features, and is of ecological, scientific, educational and health-recreational importance. It has been, taken under governmental protection as a value of public interest.

The National Park Djerdap is situated in the north-east of the Republic of Serbia, along the international border with Rumania. The Park stretches along the right bank of Danube, from km 1040 to km 942, from Golubac to Karatas near Kladovo, covering a narrow strip of forested hills, which is about 2-8 km wide and in altitude ranges from 50 to 800 meters. The Total surface of the National Park is 63,608 ha, and the protective area surrounding the Park has a surface of 93,968 ha.

The region of the Djerdap gorge was proclaimed national park in 1974. Protection, development and management of the national park is regulated by the Law on National Parks (Official Gazette of RS, no. 84/2015), The park has and international status of protection (IUCN – II, IBA – YU 34 SE).

Its most characteristic features are forests (covering more than 64% of total surface) and an exceptional wealth and diversity of flora, fauna, geomorphologic objects and cultural monuments from various historical periods. The part of the river Danube that belongs to Republic of Serbia accounts for about 9% of surface of the





National Park, i.e. 5,500 ha.

Rationale for location of proposed activity:

Shiplock belonging to the Djerdap 1 system has been in continuous operation since 1970 and so far, it performed some 76,000 locking operations, with around about 400,000 vessels passing through the shiplock carrying some 210 million tons of goods.

Hydro-energy and waterway system "Djerdap 1" is a complex multipurpose facility, constructed on the Danube, on the 943 km from confluence of the Danube into the Black sea. According to the Construction and Operation Agreement signed between the former Yugoslavia and the Federal Republic of Romania, the main structure of the Djerdap 1 HPP was designed and built in such a way that one plant belongs to each side, together with one shiplock, one half of the spillway dam and one non-spillway dam, with supporting structures.

Final position of the main structure on the Sip Gura Vail profile, determined through extensive studies and exploratory works, topographic, hydraulic, geological, hydrogeological, geomechanical and geotechnical, has provided for the most optimal usage of the hydro-energy potential of the Danube with the condition for maintaining the river traffic through the construction period.

Time frame for proposed activity:

Design stage: July 2017 until December 2017

Construction: /



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Maps and other pictorial documents connected with the information on the proposed activity:

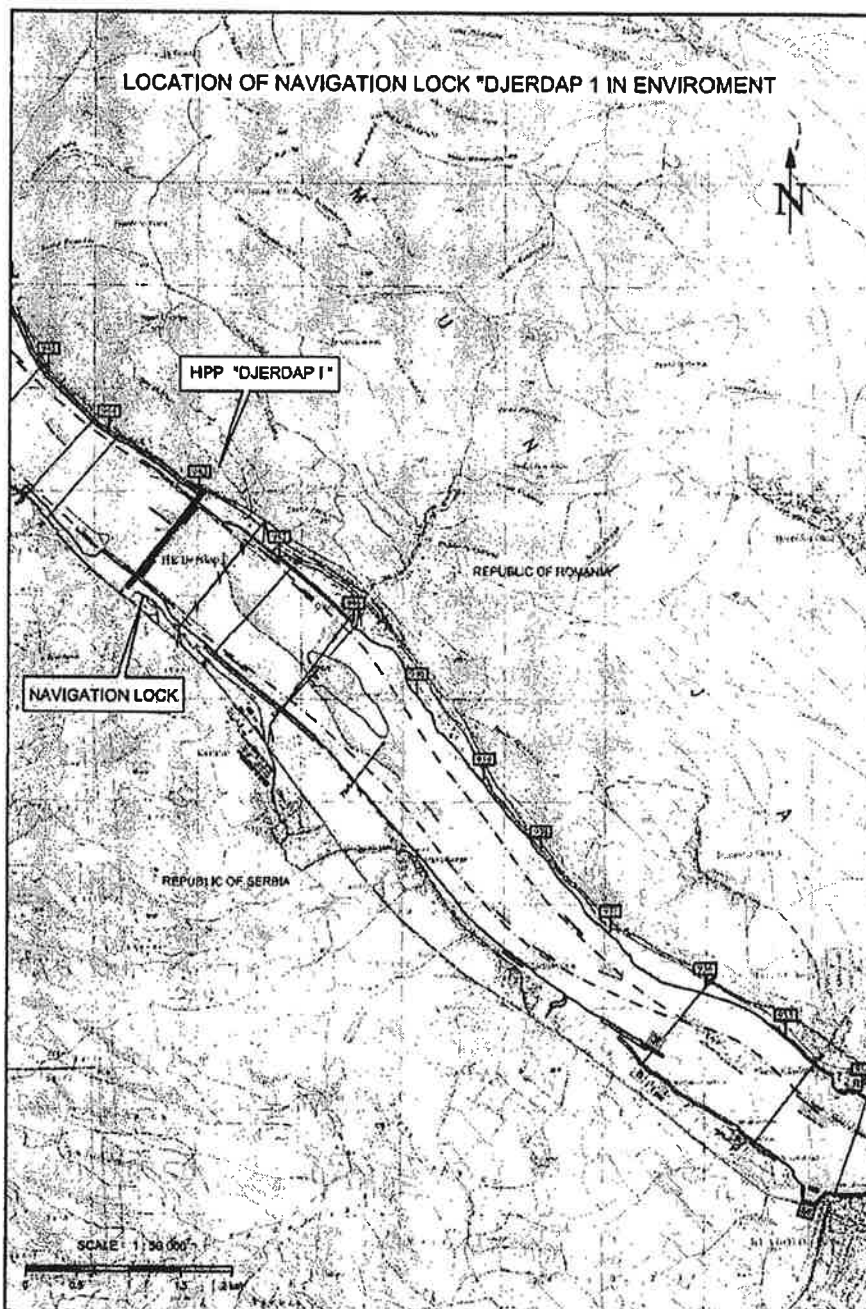


Figure 2 - Location of navigation lock Djerdap 1

Additional information/comments:

There are no additional information's/comments.



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(III) INFORMATION ON EXPECTED ENVIRONMENTAL IMPACTS AND PROPOSED MITIGATION MEASURES
Scope of assessment (e.g. consideration of: cumulative impacts, evaluation of alternatives, sustainable development issues, impact of peripheral activities):

The EIA process considers possible impacts and risks of the Project on the different components of the physical, biological and human environment. Impacts, including any residual impacts, will be assessed in terms of their direction (positive or negative), magnitude or significance, likelihood, duration and reversibility. A simple matrix will present the significance of the impacts depend on the alternative. The terms used for describing the significance (not significant, minor, medium, moderate, major) of an impact will be defined separately for each factor (e.g. soil, water, fauna, etc.).

Where possible, a quantitative assessment of impacts will be made based on available information and experience. The assessment of significance, in all cases, will take into account the impact's deviation from established baseline conditions and the sensitivity of the environment. The aim of socioeconomic impacts assessment is to evaluate the temporary and permanent impact of the Project on the socioeconomic environment in the target area.

During the Design stage the following identification, analysis and evaluation of potential impacts during preparation, construction and operation of the Project will be undertaken:

- Field visits and detailed studies along the proposed railway route, the existing railway section, on the impacts on air, soil, flora and fauna, surface and ground water, nature protected areas, cultural goods, impacts of noise and vibration, waste, etc., as well as social impacts, land acquisition, resettlement;
- Analysis of threats, encompassing the identification of all sensitive resources around the complex, i.e. people, material and natural goods;
- Review of existing information and data;
- Modeling for prediction of noise levels (a noise model will predict the magnitude and extent of noise produced during operation of the railway);
- Expert judgment;
- Consultations with beneficiaries and stakeholders.

Social and economic impact assessment will include the processes of analyzing the intended and unintended social consequences, both positive and negative, of planned project and any social change processes invoked by it. It will cover in addition:

- The social impacts, focusing on community well-being, include public health and safety, the living environment, landscape aesthetics, land acquisition, resettlement.
- Occupational health and safety of workers and contractors, giving special attention to accidents.
- For those impacts that are considered to be significant, a number of mitigation measures will be proposed.

Expected environmental impacts of proposed activity (e.g. types, locations, magnitudes):

The proposed works do not include any expansion of the lock system. Upon completion of the activities, the function of the lock will therefore be unchanged, compared to the existing situation. No permanent environmental changes are expected to occur. However, temporarily environmental impacts may occur during the construction phase. In this period, waste will be produced, as the existing equipment of the locks is to be changed and other physical structures will be repaired.

The waste will consist of concrete, metal and electronic parts as well as mechanical and hydraulic elements. This waste may contain environmental harmful substances such as heavy metals, organic substances including spilled oil. Handling of these substances constitutes a risk of polluting the environment. Furthermore, noise and vibrations may occur during the construction phase, leading to increased exposures to these





disturbances nearby the works.

Changes and Impacts during the construction phase

Pollution in the stage of execution of works on navigation lock revitalization are of temporary character, limited in terms of scope and intensity, although they can cause serious consequences in case of accident. The possible environmental impacts of the revitalization of the navigation lock will probably be temporary and spatially limited to immediate vicinity of the site, i.e. to the navigation lock itself, car pool, traffic lines used for transport of materials and equipment, as well as locations of disposal areas.

1. Air quality

Air quality changes are influenced by:

- Dust emission: during backfilling of rip-rap protection in upstream jetty, during excavation and handling of earth material for reparation of crane path and during expansion of access road curve;
- Emissions from construction machines and vehicles, used for execution of works on reparation of civil structures:
 - emission of exhaust gases (CO₂, NO_x, SO₂, soot) from construction machines and vehicles;
 - emission from volatile organic substances contained in agents for corrosion protection;
 - components related to incomplete combustion: CO, unburnt hydrocarbons, aldehydes, poly-aromatic hydrocarbons etc.;
 - inorganic components, like heavy metals;
 - odor nuisance.

During execution of the civil works, the effect of the dust emissions will depend on the actual meteorological conditions. The concentration of polluted matters declines with distance from the point of pollution emission, so that a short-term adverse impact may be expected only in the area of works and closest surroundings, meaning that there will not occur deterioration of environment quality to a broader extent.

The utilization of construction machinery causes emissions of exhaust gases depending on the quality of the fuel, the operating regime and the engine load. Emissions of exhaust gases also depend on the type of used machinery, which must be in line with schedule of works, the condition/maintenance of the equipment and the fuel type.

During utilization of paints for corrosion protection of metal structures, organic vapors are expected which might have an adverse effect on contractors of works.

2. Surface water quality

Changes in water quality in the Danube and the chambers of navigation lock may be caused by the following factors:

- Utilization of special high strength concrete, epoxy resin, penetrating material for crystallization and contemporary materials based on polyurethane;
- Leakage of hazardous waste matters (engine oil, fuel) from floating construction machinery;
- Evacuation of communal waste and wastewater from vessels which perform works on revitalization of civil structures (foul water, ballast water and bilge water);
- Cleaning of metal surfaces and concrete parts from remains of paint and corrosion;
- Utilization of synthetic pastes for repair of concrete parts of structure before incorporation of metal parts;
- Utilization of sandblasting of metal surfaces for better adhesion of protective coats;
- Utilization of paints for corrosion protection of metal surfaces (prime coat and corrosion protection) and finishing paints;



- Leakage of hydraulic oil from replaced elements of electric hydraulic equipment of gate and valve drives;
- Replacement of complete oil from the system of electric hydraulic drive of gates and valves
- Cleaning of upper head service gate niche;
- Rainwater collected from concrete and asphalt surfaces, saturated with oil and fuel from machinery;
- Dredging of river bottom in lower chamber and downstream jetty, which may cause disturbance of deposits with high contents of organic matters, pollutants and heavy metals.

Due to malfunctioning of construction machines and negligence of personnel, surface and ground water may be polluted with hazardous and dangerous matters (engine oil, fuel, etc.) from construction machines and vehicles, which causes changes of temporary and permanent character.

In the works execution period, there might occur pollution of surface water of the Danube due to generation of wastewater and solid waste from vessels of construction machinery and pollution of ground water in the site area on the right Danube bank, intended for accommodation of construction capacities.

One of the main segments in capital overhaul of mechanical equipment is the complete cleaning of metal surfaces and multi-layer protection of the revitalized equipment surface by protective coats and final paint, which might expose water area of navigation lock to hazardous impacts. Depending on the type of substances used for protection and painting of equipment, there is also a risk of pollution by various organic compounds. An advantageous circumstance is that the complete procedure of cleaning and painting is performed in an empty chamber of navigation lock, so that generated waste from cleaning and paints may be removed without disturbance of water quality.

Also, during replacement of an element of mechanical equipment, there might occur leakage of hydraulic oil used for gate and valve drives. Complete replacement of hydraulic oil shall be conducted according to rulebooks effective within hydropower and navigation system Djerdap 1, which has a designed and functional central oil system for clean and waste oil. Each risk of possible oil leakage is covered by existing technical concept, which is already applied in the whole system.

During execution of backfilling and disposal of earth and rock material, as well as appurtenant traffic lines, certain quantities of earth, i.e. suspended matters may reach the ground and surface water. Increased concentration of dry material during the activities on rip-rap protection in the upstream fore dock area is about 10 mg/l, which is an immaterial increase compared to the measured concentration of suspended material in this part of the Danube (for class II 10-30 mg/l, for class III 30-80 mg/l) and it has local character. Presence of hazardous materials and materials that are detrimental to the environment is not expected.

In recesses of upper head service gate during normal operation of the lock there are deposits of tree branches, plastic bottles, various packaging waste and other bulky waste, while at the bottom there are layers of fine deposits. During the opening and closing of the upper chamber gate, coarse waste material is compacted and as such is occasionally being removed manually. Manual removal of floating coarse waste is also planned as a part of the revitalization, and after that evacuation of deposits by means of mammoth pumps into the upstream Danube. Quantity of this deposit is a couple of cubic meters, which cannot significantly disturb the quality of the Danube.

Rain water from pavement structures and platforms flows freely and does not seriously endanger the quality of surface and ground water, given the negligible contents of oil matters on the surfaces.

3. Soil quality

Changes in soil quality may be caused by the following factors:

- Generation of the following waste, resulting from executed revitalization of civil structures:
 - construction material: clay plugs from vertical expansion joints, damaged concrete from surfaces of lateral spillway, wearing course, top soil and objects from the access road area, reinforced concrete cable ducts, supports of mechanical equipment in technological rooms, reinforced concrete foundation beams of crane path, ceramic tiles, debris from control tower and technological rooms, and other waste;





- scrap iron: damaged parts of metal fence, complete metalwork from control tower, steel rails of crane path;
- generation of communal waste;
- leakage of hazardous matters: oil and fuel from construction machinery, which operates on the bank;
- occupation of space for site needs;
- disposal and storage of removed earth for construction of foundation slab of crane path and expanded access road base;
- disposal of dredged material from riverbed on a bank location.
- leakage of hazardous matters: oils and fuels from vehicles which transport mechanical equipment to the point of assembly, or replaced equipment to adequate disposal area.

Mechanical equipment and installations envisaged for replacement are a large quantity of waste material which might become corroded, to a minor extent spoiled by grease and oil for lubrication. Scrap iron must be disposed of in an open disposal area intended for disposal of mechanical equipment.

During possible spilling of oil and fuel from construction machinery, due to the presence of hazardous matters (oil, grease and petrol or toxic fuel additives, heavy metals and/or organic matters) soil might become unusable over long period of time.

During execution of works, it is reasonable to expect increased waste quantities, including communal waste, which might have adverse impact on hygienic conditions at the complex and on appearance of the environment. For evacuation of communal waste, it is assumed that a proper strategy of collection and removal will be used.

In the stage of execution of works which assume utilization of numerous machinery and larger quantity of excessive material and equipment, terrain will be occupied by appurtenant structures and utilities for the site. There is also occupation of areas for disposal of construction material from excavation and dismantled equipment, thus changing the intended purpose of the soil.

Before commencement of revitalization, existing vegetation shall be removed from the land area intended for site organization, and from access roads. At the same time, there are adverse effects due to intensified and heavy traffic, which might be expected on the route from disposal area for waste to the navigation lock, and there is also spoiling of traffic surfaces.

4. Quality of River Sediments

The quality of river sediments could deteriorate as a result of the following:

- Accumulation of construction material remains (special concretes, epoxy resins, penetrating agents and polyurethane-based material) and steel material (parts of metal structures and steel waste produced during work execution) used during revitalization of civil structures;
- Leakage of harmful waste (mechanical oil and hydraulic oil, fuel) from floating civil machinery.
- Cleaning of metal surfaces from paint remains and corrosion, utilization of synthetic pastes for concrete structures, sandblasting and application of corrosion protection agents on metal surfaces;
- Revitalization of mechanical equipment and installations could produce waste material which could end up in river sediments if not removed from the navigation lock. Danger to the quality of river sediments could be reduced to the minimum by performing strictly controlled operations during work execution.

Waste formed in the navigation lock as a result of revitalization of civil structures could be washed off and it could accumulate in the river sediments. Additional danger to the quality of river sediments could be prevented by careful implementation of the envisaged works.

5. Noise and vibrations





Noise due to operation of construction machines and vehicles for road traffic, as well as construction machinery within water traffic, is an inevitable companion of works execution and represents a significant disturbance in the works area. Adverse effects affect contractor of works. Spatially, noise has the largest adverse effects at the navigation lock site, and in its immediate vicinity, and it is of temporary character.

Construction and transport machinery which is used during revitalization of navigation lock represents a source of noise which reaches 70 dB(A) to 85 dB(A), depending on the type of machine, the degree of engine damage, the quality of asphalt surface, the technical correctness and method of operation, the speed and the age of vehicles. A favorable circumstance is that noise duration is limited, and the Kladovo center as well as the riparian settlements are at large distance from the noise source. Noise seems in that respect more an issue for occupational health.

6. Impacts on public health

Since the location of the navigation lock and site is out of the inhabited area, except for intensified road traffic, no direct impacts of lock revitalization work execution on public health are expected.

7. Impacts on ecosystems

Before commencement of the revitalization for the requirements of site opening, existing vegetation and reproduction soil cover shall be removed from large surfaces of land in the designed boundaries of construction lot, including offices, warehouses, disposal areas for construction material and disposed equipment and access roads.

During dredging of the river bottom in the lower chamber and downstream jetty, it is possible to encounter disturbance of ecosystem in water, due to scattering of earth material in river, increased contents of suspended matters, and movement of various hazardous matters, stationed at the river bottom. These activities may cause significant disturbance to natural conditions for the life of wild animals and plants, only of temporary character.

8. Impacts on cultural monuments

The Roman fort Diana that is in immediate vicinity of Karatas, about 2 km downstream of hydropower plant Djerdap 1, is an immobile value of special importance.

In the belt between the main road to Kladovo and the right Danube bank, it is planned to locate the site, i.e. all facilities necessary for execution of planned works on navigation lock revitalization. In this area, there is an existing location that is already used by Djerdap for disposal of steel materials, about 200 m away from the location of the cultural monument Diana. At this location, it is allowed to perform prolonged disposal of scrap metal. All other site facilities shall be located in the section between this location of disposal area for scrap metal and administrative building Djerdap 1, so that the ambient of immobile cultural monument shall not be disturbed. The designated location for disposal of debris is about 400 m away from the archeological site.

Inputs (e.g. raw material, power sources):

Key inputs for revitalization of the navigation lock are expected to include the following:

- Steel;
- Concrete;
- Backfill material;
- Welding material;
- Water;
- Fuel for power generators for construction plant in the landfall section; construction, support and supply vessels; and land based construction vehicles;
- Rubber;
- Epoxy and/or PU;





- Asphalt;
- Crystalline waterproofing material;
- Joint filling material.

The Contractors will be obliged to prepare Design for work management where will be defined quality, sources for supplying of raw material.

Outputs (e.g. amounts and types of: emissions into the atmosphere, discharges into the water system, solid waste):

The forecast of the expected harmful impact on the environment will be considered during the development of the EIA.

No point sources of emissions into the atmosphere are foreseen. There is expected air pollution from unorganized sources, such as construction mechanization and transportation vehicles, during the period of construction.

Solid wastes during the periods of construction and exploitation: mixed construction wastes, wastes from lubricants and fuels, mixed domestic wastes, and scrap will be collected and transported outside the project site, in regulated for such purpose places.

Transboundary impacts (e.g. types, locations, magnitudes):

From the standpoint of the localized and temporary nature of the environmental impacts associated with the construction and pre-commissioning activities of the Project, it is unlikely that there will be significant adverse transboundary environmental impacts resulting from planned activities for the Project.

Proposed mitigation measures (e.g. if known, mitigation measures to prevent, eliminate, minimize, and compensate for environmental effects):

The identified changes and effects that the revitalized Djerdap 1 navigation lock may have on the environment represent a base for presenting environmental protection measures, which protect the environment from possible negative effects of the revitalization of this facility. It is necessary to comply with all general environmental protection norms, as well as all technical and technological standards and regulations governed by other laws, which are related to environmental protection during construction works, the use of the navigation lock, as well as cases of possible accidents.

For the environmental protection during construction works it is necessary to implement the following environmental protection measures:

- consistently implement the designed scope and types of works on the revitalization of the navigation lock, according to the design documents based on which the construction permit was issued, or according to technical norms, regulations and standards applicable for similar facilities;
- comply with requirements prescribed by competent bodies and institutions;
- establish an adequate revitalization work organization, in order to achieve control of the activities that may result in disturbing the environment.

Furthermore, the sections below describe mitigation measures that could be applied during and after the revitalization activities.

1. Air quality protection measures

- Proper selection of construction machinery and vehicles in order to purchase modern devices with the lowest emission levels.
- Control of engines and construction machinery in order to eliminate excessive levels of exhaust gasses emissions.
- Maintenance and regular moistening of access and construction roads, in order to reduce dust levels.





2. Water quality protection measures

- Controlled disposal of waste from vessels used for navigation lock revitalization activities:
 - collecting and treating sanitary, ballast and bilge waste water from vessels;
 - prevention of uncontrolled disposal of solid waste from vessels and collection in local containers, and subsequent disposal of their content in communal waste containers on the bank;
 - implementation of the Danube Committee recommendations for the reduction of pollution created by vessels;
 - monitoring and maintenance of functionality of vessels and their engines, in order to prevent oil and fuel leaks from vessels;
- Regular maintenance and control of functionality of construction machinery and engines, in order to eliminate the possibility of infiltration of crude oil, oil products and machine oil into surface and underground waters;
- Controlled use of special materials for the repair of concrete structures (high-grade concretes, epoxy resins, penetrating materials and modern polyurethane based materials) in all aspects according to the requirements of the manufacturer of these materials and technical requirements for construction;
- The use of high quality crushed stone without ground material impurities, in order to reduce concentration of suspended matters in the river environment;
- Controlled use of construction machinery, in order to reduce leaks of oil products on concrete surfaces of the navigation lock and oiling of rainwaters;
- Implementation of appropriate machinery for the removal deposits from the downstream fore dock area and lower lock chamber in order to reduce the spreading of river deposits through the water environment which contain heavy metal concentrations exceeding the maximum allowable ones;
- Removal of waste created during sand blasting/cleaving of metal structure and surfaces and embedded parts from the residual paint and corrosion;
- Controlled use of the ecologically most favorable primers and paints for anti-corrosion protection of metal surfaces according to manufacturers of these materials and technical requirements for construction;

3. Soil quality protection measures

- Regular maintenance and control of functionality of construction machinery and engines, in order to eliminate the possibility of infiltration of crude oil, oil products and machine oil into the soil;
- Implementation of remedial measures for contaminated soil (biochemical, electro-chemical or other reaction of decomposition of present contaminants) in drastic cases of accidental damages and spills of material quantities of hazardous waste material which come from crude oil and oil products;
- Physical removal of the layer of contaminated soil and transporting it to the appropriate dump area, according to the requirements of the competent communal service, together with the replacement of soil taken from another location, in case the remedial measures for the contaminated soil cannot ensure satisfactory results;
- Storing of oil products and gas in watertight double tanks with the external tank volume that is appropriate to the stored quantity of oil and gas;
- Reloading and storing of oil products: fuels, oils and lubricants, as well as servicing of construction machinery and vehicles exclusively on concrete non-permeable surfaces, with a controlled draining system for evacuation of waste and waste waters with oil separator;
- Proper selection of locations for permanent dumping of construction waste and steel waste, created during the revitalization of the navigation lock upon agreement with competent communal services and





the final anti-erosion and bioengineering rearrangement of dump areas;

- Applying concrete on the substrate surface of the dump area for steel waste in order to prevent oil leaks from discarded machinery and electric equipment into the underground environment;
- Providing sufficient number of special, mobile containers, according to the number of permanent and temporary work force for the collection of solid communal waste from the location where the revitalization activities take place and transport to the communal dump area upon agreement with the competent communal city authorities;

4. Measures for Protection of River Sediments Quality

- Controlled use of special materials for the repair of civil structures and abiding by the technical specifications for work execution;
- Controlled cleaning of metal surfaces;
- Utilization of environment friendly corrosion protection agents.

5. Protective measures related to noise and vibrations

- Proper selection of construction machinery and vehicles in order to purchase modern devices with the lowest noise mission levels and lowest level of vibrations;
- Regular maintenance of machinery, in order to reduce noise and vibration to the lowest possible levels.

6. Protective measures related to ecosystems

- Dredging of the river bottom at the exit from the navigation lock outside the spawning season, i.e. in period September - March;
- Prohibition of unnecessary removal of vegetation and cutting of trees in the area surrounding the construction site;
- Repair of the navigation lock location and location of the construction site at the bank of the Danube after the works have been finished, including removal of temporary structures, objects and materials from surfaces used for the purposes of construction activities, etc.;

7. Protective measures related to cultural monuments

- Compliance with the existing concept of spatial organization around cultural monument "Diana";
- Designation of archaeological site, protection of archaeological objects from damages and notifying the representatives of the competent Institute for the Protection of Cultural Monuments, in case new archaeological sites are discovered during the ground works on the bank of the Danube.

8. Other protective measures

- Preparatory works, securing the location of the lock and bank area of the construction site and executing other work activities to protect immediate environment, life and health of people and safe traffic prior commencement of works;
- Securing the facility, construction site on the bank of the Danube and the surrounding area in case of work interruption for any reason;
- Notifying the Nature Protection Institute of the Republic of Serbia and taking measures to protect natural goods, if a natural good is encountered on the Danube bank which is assumed to have characteristics of natural monument.

9. Environmental protection measures during the operation of the navigation lock

Basic environmental protection measures during the operation of the navigation lock are:

- Ensuring permanent functionality of the facility;





- Regular maintenance of the facility in order to prevent possible damages;
- Implementing functionality control of installations of entire installed equipment;
- Monitoring of all environmental parameters which can be disturbed as the result of existence and functioning of the facility.

The civil construction, mechanical equipment and installations and electrical equipment revitalization project includes reconstruction of damaged parts of the lock, as well as revitalization of complete electro-mechanical equipment so that this equipment could operate reliably and without obstructions in the next design period of 30 years. Implementation of a modern lock control system has also been foreseen. The applied technical solutions have provided maximum improvement of the functioning of the existing navigation lock, so that exploitation of the revitalized facility would not cause increased negative effects on the environment in comparison with the existing facility. On the contrary, installation of modern mechanical and electrical equipment eliminates negative effects that the lock has on the environment. This is also the case with accidental effects on the environment.

Mitigation options will be elaborated taking into consideration the hierarchy of mitigation, their actual feasibility and cost, to ensure that the effects of mitigation were proportional to the effort. Wherever possible, measures will be incorporated in the Project design.

During the preparation of technical documentation (designs), as well as during preparation of the EIA study, the consultations with the relevant institutions will be organized. Conditions and opinions, protection measures prescribed by the relevant institutions will be implemented in all chapters of the EIA study, such as conditions from the Institute for Nature Protection and from the Institute for Cultural Heritage Protection.

Additional information/comments:

There are no additional information's/comments.

(IV) Proponent/developer

Name, address, telephone and fax numbers:

Ministry of construction, transport and infrastructure

Department for waterborne transport and safety of navigation

Nemanjina street 22-26, 11000 Belgrade, Serbia

Headquarters: + 381 11 3621 698; + 381 11 3619 491

(V) EIA DOCUMENTATION

Is the EIA documentation (e.g. EIA report or EIS) included in the notification?

No.

If the answer to the above is no or partially, description of additional documentation to be forwarded and (approximate) date(s) when documentation will be available:

Additional information on the notification for the investment proposal will be provided upon request.

In accordance with the Law on Environmental Impact Assessment ("Official Gazette RS", no. 135/2004, 36/2009) the competent authority shall provide for a review the complete documentation relating to the impact assessment procedure to the authorities, organizations, and public concerned within 15 days from the date of receipt of their written request.

Additional information/comments:

There are no additional information's/comments.





2. POINTS OF CONTACT

(I) Points of contact for the possible affected Party or Parties

Authority responsible for coordinating activities relating to the EIA (refer to decision I/3, appendix) - Name, address, telephone and fax numbers:

Ministry of Environment

12th Libertatii Blvd. 5 District, Bucharest, Romania 040129

Telephone: +4 021 408 9642

Fax: +4 021 408 9615

E-mail: cabinet.ministru@mmediu.ro

List of affected Parties to which notification is being sent

Republic of Romania.

(II) Points of contact for the Party of origin

Authority responsible for coordinating activities relating to the EIA (refer to decision I/3, appendix) - Name, address, telephone and fax numbers:

Ministry of Environmental Protection

Department for the assessment of the impact of projects and activities on the environment

Omladinskih brigada 1, 11070 New Belgrade

Telephone: +381 11 311 04 63

Fax: +381 11 313 13 61

Decision-making authority if different than authority responsible for coordinating activities relating to the EIA:

The same as responsible authority for activities relating to the EIA.

3. INFORMATION ON THE EIA PROCESS IN THE COUNTRY WHERE THE PROPOSED ACTIVITY IS LOCATED

(I) Information on the EIA process that will be applied to the proposed activity

Time schedule:

The Project expects to deliver the EIA Study to the Ministry of Environmental Protection in December 2017. In accordance with the Law on Environmental Impact Assessment ("Official Gazette of RS", No. 135/2004, 36/2009) the Decision on the EIA Study is expected to be passed within the 4 months from the date of receipt of the application for the EIA Study approval.

Opportunities for the affected Party or Parties to be involved in the EIA process:

Yes.

Opportunities for the affected Party or Parties to review and comment on the notification and the EIA documentation:

Yes, such opportunities are available.





The potentially affected Parties will have the opportunity to review the following documentation:

- Notification Stage – Espoo Notification Form and Espoo Notification Document;
- Screening and Scoping Stage – Application on determining the scope and content of the EIA Study;
- EIA Study Disclosure and Public Hearing Stage – Draft EIA Report.

Parties potentially affected by the Project, authorities, organizations and public concerned can view the content of the Impact Assessment documentation on the website of the competent authority Ministry of Environmental Protection and submit their comments within the 15 days on Applications i.e. 30 days on EIA study disclosure, from the day of the announcement.

Nature and timing of the possible decision:

In accordance with the Law on Environmental Impact Assessment ("Official Gazette of RS", No. 135/2004, 36/2009) the Decision on the EIA Study is expected to be passed by the Ministry of Environmental Protection within 4 months from the date of receipt of the application for the EIA Study approval.

Process for approval of the proposed activity:

Submission of the EIA Study to the Technical Commission

The Ministry of Environmental Protection shall submit the EIA Study to the Technical Commission, established for the purpose of the EIA Study evaluation, within 3 days upon the establishment thereof.

Upon the conducted public hearing, i.e. public presentation and consultations, the competent authority shall submit to the Technical Commission a report containing opinions from stakeholders and interested organisations and public.

The EIA Study evaluation procedure

The Technical Commission, shall evaluate the EIA Study, together with the systematized report on the consultations of the authorities, organizations and the public concerned and the report on the completed impact assessment procedure, and evaluate the suitability of the measures envisaged to prevent, reduce or eliminate the likely harmful effects of the project on the environment at the specific site and its vicinity during the construction and operation of the project, in cases of accidents, and upon the termination of the project operation.

The Chairman may invite to the session of the Commission the project developer, those who elaborated the EIA Study as well as the representatives of the competent authorities and organizations that issued the conditions, authorizations and opinions in the previous procedure. The Technical Commission may demand that the project developer make certain modifications and amendments to the submitted EIA Study within a certain time limit.

The Technical Commission shall submit the report with the evaluation of the EIA Study and the proposed decision to the competent authority within 30 days from the date of receipt of the documentation from the competent authority.

Decision on the EIA Study approval

The competent authority shall adopt the decision granting the approval of the EIA Study or the refusal of the application for approval of the EIA Study, based on the completed EIA procedure and the report of the Technical Commission. The decision shall be delivered to the project developer within ten days from the date of receipt of the report.

The decision granting the approval of the EIA Study shall set out specifically the conditions and measures, which should be undertaken to prevent, reduce or eliminate the adverse effects on the environment.

Information for the authorities, organizations and the public concerned

The competent authority shall inform the authorities, organizations and the public concerned about its decision to grant the approval for the EIA Study or to refuse the application for approval for the EIA Study within 10 days from the date of adoption of the decision.





Additional information/comments:

Presented EIA approval procedure is in accordance with the provisions prescribed by the Law on Environmental Impact Assessment ("Official Gazette of RS", no. 135/2004, 36/2009).

4. INFORMATION ON THE PUBLIC PARTICIPATION PROCESS IN THE COUNTRY OF ORIGIN

Public participation procedures:

The competent authority shall make the EIA Study available to public and arrange for a public presentation and debate on the Study.

Within seven days from the date of receipt of the application for the EIA Study approval, the competent authority shall inform the project developer, the authorities, organizations and the public concerned about the time and venue for public consultation, presentation and debate on the EIA Study.

Public debate may not be held sooner than 20 days from the date when the public was informed.

The project developer shall participate in the public presentation and debate on the EIA Study.

The Minister in charge for environmental protection shall prescribe more precisely the procedure for public consultation, presentation and debate.

The competent authority shall inform the authorities, organizations and the public concerned about its decision to grant the approval for the EIA Study or to refuse the application for approval for the EIA Study within ten days from the date of adoption of the decision.

The competent authority shall inform the public about its decisions referred to Decision on the application for a decision on the need for an impact assessment, Decision on the scope and content of the EIA Study, Public consultation, presentation and debate on the EIA Study and Information for the authorities, organizations and the public concerned, by publishing it in at least one local paper in each of the official languages in use in the territory that will be affected by the planned project or activity.

The competent authority shall inform the authorities and organizations concerned in the written form.

The notices and information may also be distributed through the electronic media.

Expected start and duration of public consultation

The start and duration of the public consultations will be agreed later on.

Additional information/comments:

There are no additional information's/comments.

5. DEADLINE FOR RESPONSE

Date:

30 days

ATTACHMENTS TO ESPOO NOTIFICATION

1. /

2. /

