

Port of Brcko, Bosnia and Herzegovina

ENVIRONMENTAL AND SOCIAL ASSESSMENT FOR EBRD



Non-Technical Summary

October 2016

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| Project: | Port of Brcko, Bosnia and Herzegovina – Environmental and Social Assessment for EBRD |
| Report: | Non-Technical Summary |
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1 INTRODUCTION

The European Bank for Reconstruction and Development (the “EBRD” or the “Bank”) is considering providing finance to the state of Bosnia and Herzegovina for financing the upgrade of road and railway access to the Port of Brcko and modernization of facilities within Port of Brcko. The Project will be implemented by the Government of Brcko District (“BD”).

The Project is categorised “B” in accordance with the EBRD Environmental and Social Policy (ESP) (2014).

This Non-Technical Summary (NTS) provides a summary of the Project settings in terms of environmental and social baseline conditions, environmental and social impacts and recommended mitigation and enhancement measures in order to meet the EBRD Environmental and Social Policy and associated Performance Requirements (PRs) (2014).

2 PROJECT DESCRIPTION

The Project consists of five components:

- **Component A: Construction of railway track to Brcko harbour on the section of harbour crane path:** This component includes the extension of the existing 2,500 m of the railway within the Port for the length of 263 m. The aim and purpose of this component is to provide direct links to the quay of the Port from the direction Railroad Station Brcko Novo. The construction of this connection will enable avoiding unnecessary switching operations at the Port to significantly reduce the time to set up loading / unloading of railway cars at the quay and reception and dispatch of trains to the Railroad Station Brcko Novo. This would reduce the duration of one cycle of delivery / dispatch of railway car between the Port and Railroad Station Brcko Novo.
- **Component B: Reconstruction of industrial railway track on the line from the Port of Brcko to the Train station Brcko Novo and reconstruction of connections to industrial zone:** This component includes removal of 400 m of double track and construction/ reconstruction of 4,500 m of railway tracks that connect the Port with the Railroad Station Brcko Novo. This will allow significant improvement of mobility, safety and transport cost and time. The Railroad Station Brcko Novo is connected to the industrial zone via railway.
- **Component C: Construction of the asphalt plateau with drainage of rainfall:** This component includes construction of asphalt plateau and rainfall drainage system in the harbour crane area, which will enable improved vehicle manipulation over railway tracks in the harbour crane path. The bearing structure of the asphalt plateau is made up of reinforced concrete slab with a thickness of 55 cm, laid directly over 39 piles with a diameter of 800 mm. The total length of the plateau will be approx. 85 m, and the width will vary between 10.72 m and 14.04 m.
- **Component D: Reconstruction of the access road from Bijeljinska cesta to the Port of Brcko:** This component includes reconstruction of the existing connecting road which is 900 m long and connects the Brcko Port with the network of public roads of BiH.
- **Component E: Supply and installation of portal (harbour) crane:** This component includes purchase and installation of a portal crane of the capacity of 16.0 / 27.5 tonnes. The Port of Brcko has two portal (harbour) cranes with load capacity 6.5 tonnes and over 50 years old. The reason for the purchase of new crane is the age of existing cranes and requirements for handling larger loads in relation to the capacity of existing cranes.
(the “Project”).

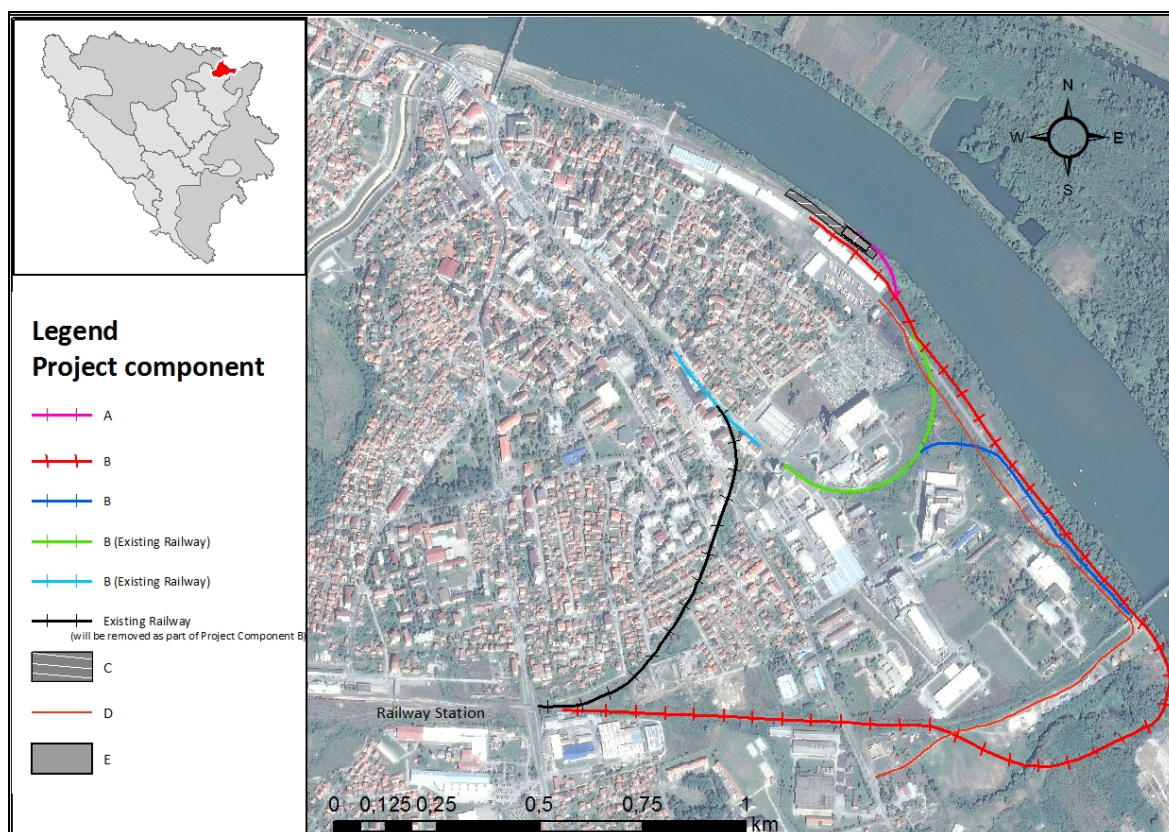


Figure 1: Overview of Project Components (source: ENOVA)

Upon implementation of the Project, the Port of Brcko will play a central role in providing interconnectivity with the land-based transport modes (road, rail) and will be an essential transit point for cargo traffic flows to and from the heavy industries in Bosnia and Herzegovina increasing multimodality.

The Port of Brcko is located in the north-eastern part of BiH, on the right riverbank of the Sava River waterway, with class IV navigability, average navigation period of 260 days/year. As of September 2006, Brcko Port has the status of an international port. Through the Port, it is possible to achieve direct trade flow on the Sava River with the Danube ports of Western and Eastern Europe, as well as ports in the North and Black Sea. The core activities of the Port of Brcko are handling and storage of goods.

The company Port of Brcko was founded by the BD Government to provide services in the field of river, river and railroad and other combined transport to legal entities and natural persons from BiH and abroad.

The Project possesses an Environmental Permit for:

- construction of railway rack to Brcko harbour on the section of harbour crane path,
- construction of industrial railway track on the line from the train station Brcko Novo to the Port,
- construction of the asphalt plateau with drainage of rainfall, and
- reconstruction of the access road from *Bijeljinska cesta* to the Port, as required by local legislation.

The Environmental Permit was issued by the Department of Spatial Planning and Property Affairs of the BD Government to the Department of Economic Development, Sports and Culture of the BD Government in November 2012. .

3 LEGAL REQUIREMENTS

National Requirements

Brcko District has its own legislation in almost all domains of governance. The Statute of BD prescribes that the Constitution of BiH, like other laws and decisions of the BiH institutions that are in force, are directly applicable on the whole territory of Brcko District. Furthermore, any legislation or decisions passed by the District authorities must be compatible with the laws and decisions of the institutions of BiH.

The environmental permitting procedure in BD is regulated by:

- *Law on Environmental Protection*¹, and
- *Regulation on Facilities Subject to Obligatory Environmental Impact Assessment and Facilities Which May be Constructed and Operated Only with a Valid Environmental Permit*².

Inland waterways and ports for inland-waterway traffic which permit the passage of vessels of over 1,350 tonnes, trading ports, piers for loading and unloading connected to land and outside ports which can take vessels of over 1,350 tonnes are subject to mandatory EIA and permitting procedures.

For the construction of railways and intermodal transshipment facilities and of intermodal terminals, EIA depends on the evaluation of the Department of Spatial Planning and Property Affairs. If the Department assesses that it is not necessary to conduct an EIA, only an Application for the Environmental Permit is submitted; otherwise, an EIA becomes mandatory.

The water permitting procedure in BD is regulated by:

- *Law on Waters Protection of BD*³ - regulates the issuance of Water Protection Consent, which is issued in cases of water use. Construction of ports is listed among the activities which require the Water Protection Consent.
- *Law on Waters of RS*⁴ - regulates the issuance of Water Management Consent and Permit, which have to be issued for the construction of new and reconstruction of existing facilities and plants which can change the established water regime or on which water regime has impacts.

Issuance of Location Permits, Construction Permits and Use Permits is regulated by the *Law on Spatial Planning and Construction of BD*⁵.

A Location Permit, Construction Permit and Use Permit at the level of BD are mandatory for the construction of railway track to Brcko harbour on the section of harbour crane path, relocation/construction of industrial railway track on the line from the train station Brcko Novo to the Port, construction of the asphalt plateau with drainage of rainfall and reconstruction of the access road from Bijeljinska cesta to the Port. According to the abovementioned Law, Location Permits are issued by the Department of Spatial Planning and Property Affairs, whereas the Construction and Use Permits are issued by the Department for Public Safety.

EBRD Requirements

Bank-financed projects are expected to meet the following Performance Requirements (PR): PR 1: Assessment and Management of Environmental and Social Impacts and Issues; PR 2: Labour and Working Conditions; PR 3: Resource Efficiency and Pollution Prevention and Control; PR 4: Health and Safety; PR 5: Land Acquisition, Involuntary Resettlement and Economic Displacement; PR 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources; PR 7: Indigenous Peoples; PR 8: Cultural Heritage; PR 9: Financial Intermediaries; PR 10: Information Disclosure and Stakeholder Engagement.

EU requirements

Bank-financed projects are expected to meet the following EU requirements in the field of environment and protection of health and safety: Directive 2011/92/EU on the Assessment of the Effects of Certain Public and

¹ Official Gazette of BD, No. 24/04, 01/05, 19/07, 09/09

² Official Gazette of BD, No. 30/06

³ Official Gazette of BD, No. 25/04, 01/05 and 19/07

⁴ Official Gazette of RS, No. 10/98 and 51/01

⁵ Official Gazette of BD, No. 17/08

Private Projects on the Environment (as amended by Directive 2014/52/EU) (EIA Directive); Directive 2000/60/EC establishing a Framework for Community Action in the Field of Water Policy (Water Framework Directive); Directive 89/391/EEC Introducing the Measures to Encourage Improvements in the Safety and Health of Workers at Work; Directive 89/654/EEC concerning the Minimum Safety and Health Requirements for the Workplace; and Directive 92/57/EEC on the Implementation of Minimum Safety and Health Requirements at Temporary or Mobile Construction Sites.

EU and other international standards

The following EU and international standards are applicable to the Project: ISO 14001:2004 Environmental Management System; ISO 9001:2008 Quality Management Standard, and OHSAS 18001 Occupational Health and Safety Management Systems.

Compliance assessment

BD Government is compliant with national requirements in the area of environmental, social, health and safety requirements, and broadly compliant with EBRD/EU requirements. The company Port of Brcko, where parts of the Project are to be carried out, is not fully compliant with OHS regulations.

4 BASELINE CONDITIONS

The table below summarises the key findings regarding the environmental and social baseline conditions for the Project sites.

Table 1: Environmental and Social Baseline Conditions

| Issue | Baseline Conditions |
|--|--|
| Climatic Factors and Climate Change | The climate of the area of Brcko District is moderate-continental. Average air temperature: 11.5 °C. Average precipitation: 785 mm. ⁶ No additional detailed data on climate features are available. |
| Air Quality | Available data on air quality in Brcko District refer to the analysis of the most recent data on air quality in the area of Brcko District, collected in the period from 01.08. - 31.08.2012 from the official monitoring station of Brcko District for the following pollutants: CO (8h and 24h values), NO ₂ (1h and 24h values) and PM ₁₀ (1h and 24h values). According to the available data ⁷ , measured concentrations of CO, NO ₂ and PM ₁₀ were below the threshold values, maximum permissible value and alert values prescribed by the legal framework for air quality ⁸ which indicates good air quality. The company Port of Brcko conducts its own testing of air quality (once in 3 years ⁹) in accordance with Environmental Permit ¹⁰ and Environmental Action Plan ¹¹ . Measurements of pollutant immissions carried out in March 2014 indicate that measured concentrations of PM ₁₀ , NO ₂ , CO and O ₃ were below the threshold values and maximum permissible values. |
| Noise | No data on ambient noise are available in BiH, since monitoring of noise is not carried out on a regular basis and therefore no data on ambient noise are available for Project components located in urban area of Brcko. According to the Environmental Permit and Environmental Action Plan, the Port of Brcko performs measurement of ambient noise levels within the Port once in a year at five locations within the industrial area of Port. The Port is located in zone VI - industrial, warehouse and service area and transport terminals without housing. Permissible noise levels for zone VI are: 70 dB(a) both during the day and night, while peak levels are L ₁₀ = 80 dB(a) and L ₁ = 85 dB(a). |

⁶ Based on meteorological data from the satellite tracking available at <http://en.climate-data.org/location/26031/> (accessed on: July 31, 2016)

⁷ BD Government - Department of Spatial Planning and Property Affairs, *Analysis of Collected Data on Air Quality in the area of BD for the period 01.08.-31.08.2012*, September, 2012

⁸ Regulation on Limit and Target Values of Air Quality, Information on Thresholds and Alerts in BD (Official Gazette of BD of the BiH, no. 18/11)

⁹ The last measurement of air quality was carried out in March 2014 including the following pollutants: PM₁₀, NO₂, CO and O₃

¹⁰ Issued by the Department of Spatial Planning and Property Affairs on 16 April 2014 and valid for 5 years.

¹¹ Developed by EnergoSistem d.o.o. Brcko, dated 01 April 2016 and

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| Issue | Baseline Conditions |
|---|---|
| | <p>Noise levels measurements carried out in April 2016 were in range 45 – 69.7 70 dB(a) and below the permissible noise levels.</p> <p>Residential areas were identified during the site visit (conducted on August 3, 2016) that may be affected by increased ambient noise during construction phase related to reconstruction, rehabilitation and modernization of Port of Brcko.</p> |
| Hydrogeology and Water Resources | <p>Hydrogeological features of Brcko are characterized by a region of permeable water bodies of inter-granular and fracture porosity.</p> <p>The majority of the terrain belonging to the Port consists of alluvial sediments such as sand and gravel of different grain size and some clay lenses/intrusions. Alluvial sand deposits are highly permeable (spills of hazardous liquids are difficult to handle). The hazardous liquid waste can rapidly penetrate through the sand and can easily find the way to the underground aquifer and the Sava River flow (Project component C will bring benefits to the present drainage of surface water and water quality management).</p> <p>The main watercourse is the River Sava.</p> <p>The Company premises are supplied with water from the local water supply system of Brcko.</p> <p>There is no WWT plant in Brcko. The Company conducts no wastewater treatment of run-off wastewater (infiltrates into the soil and drains into the River Sava) and municipal wastewater (drains into the sewage system of Brcko).</p> <p>According to the Environmental Permit¹², Water Consent¹³ and Environmental Action Plan¹⁴ the Company performs measurement of quality of wastewaters once in a year.</p> <p>Measurements carried out in April 2016 showed that the analysed parameters were below the limit values stipulated by the <i>Regulation on Conditions for Discharging Wastewater into Public Sewers</i> (Official Gazette of RS, no. 44/01)¹⁵. The water in Sava River around the area designed for berthing the vessels may contain traces of anti-fouling paints that contain heavy metals or organometallic biocides to minimise growth of aquatic organisms on vessels hulls and oils, fats, other paints, solvents etc.</p> |
| Geology and Terrain Stability | <p>Geological features of the project area are characterized by (Quaternary Holocene and Pleistocene alluvial deposits and wetland sediments: gravels, sands and clay).</p> <p>As foundation material, the properly compacted sand can develop a few problems influenced by the natural impacts:</p> <ul style="list-style-type: none"> • Influence of surface water can cause the washout of the sand creating the voids under the constructed area (roads, concrete slabs, storages). • Influence of the earthquake can cause the liquefaction of the sand causing similar problems as washout of the sand. <p>According to the information received from the Port staff and visual inspection, there are minor washouts of the sand at the Port area but they are easily repairable.</p> <p>In terms of terrain stability the Brcko and the Port area are considered as stable terrain. There are no curves in the river flow in the Port area so the river erosion of the bank is relatively low, which indicates the bank stability. The concrete platform supporting two Port cranes is founded on deep concrete piles. According to the visual inspection the platform is in good condition. Having in mind big flood that occurred in May 2014, the Port was flooded with no structural damage on the platform which indicates that the crane area stable. However, the visual inspection of the Port surface area and the steep slopes (both natural and manmade) is recommended after every torrent rain, snow melting, flood, sudden change of the river level and earthquake.</p> |
| Land Use | <p>The area envisaged by the Project components A-E currently consists of the urban surfaces, constructed industrial area, warehouses and other facilities of the Port of Brcko, classified as constructed land.</p> |
| Soil | <p>The entire Project area is characterized by deep alluvial soils, so-called hydromorphic gley-soils.</p> <p>There are no baseline data on soil quality in area of Brcko.</p> <p>According to Environmental Permit¹⁶ and Environmental Action Plan¹⁷ the Company is obliged to perform good waste management practices to avoid soil contamination. The Company does not manage the hazardous waste in adequate way since it disposed and treated as municipal waste.</p> |

¹² Issued by the Department of Spatial Planning and Property Affairs on 16 April 2014 and valid for five years.

¹³ Issued by the Department of Agriculture, Forestry and Water Management on June, 26 2015 and valid until December 31, 2016

¹⁴ Developed by EnergoSistem d.o.o. Brcko, dated 01 April 2016 and

¹⁵ *Regulation on Conditions for Discharging Wastewater into Public Sewers* (Official Gazette of RS, no. 44/01) is in force in Brcko District

¹⁶ Issued by the Department of Spatial Planning and Property Affairs on 16 April 2014 and valid for five years.

¹⁷ Developed by EnergoSistem d.o.o. Brcko, dated 01 April 2016

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| Issue | Baseline Conditions |
|--|---|
| | Based on the findings during site visits and visual inspection of the Port area, the soil in the Port area is likely polluted with hydrocarbons, oils, fats, chemicals, solvents, etc. (relevant for the present state of the manipulative plateau) originating from the activities of the Port since manipulative surfaces lack water impermeable surfaces, proper drainage system and run-off wastewater treatment. The company does not manage hazardous waste in an adequate manner since such waste is disposed of and treated as municipal waste. |
| Biological and Ecological Resources | <p>Regarding the biological and ecological resources, the project area is represented by degraded area of modified/artificial surfaces of the urban area of Brcko and industrial area Port of Brcko (asphalt street, industrial area etc.).</p> <p>During the site visit, flora species adapted to degraded habitats were identified, such as, <i>Cichorium intybus</i> (chicory), <i>Ambrosia artemisiifolia</i> (ragweed), species from the genus Equisetum (puzzlegrass) and species from the family Poaceae (grass). The various cultivars plants in parks in urban area were also identified (<i>Prunus spinosa purpurea</i> - purple-leaf sand cherry) along with the species from the family Poaceae (grass).</p> <p>Project component E, C and A are located near the Sava River with its living world (approximate distance is 20-50 m). River Sava is rich in fish. The fish fund in those waters in very rich and diverse, and comprises all types of fish that live in rivers in the plains. The most frequently found fish varieties are: carp, catfish, pike, perch, bream, pomfret, grass carp, grass perch, barbel, and frogfish.</p> |
| Protected Areas | No protected areas were identified within the Project area based on site visits and desk research. |
| Landscape and Visual Aspects | <p>The area envisaged by Project components A-E is represented by lowland area (elevation: approx. 80-95 m a.s.l.) of the Pannonia – the area of the north-north eastern area of BiH in the region of Posavina (Sava River terrace).</p> <p>The surrounding area of the Port of Brcko is represented by:</p> <ul style="list-style-type: none"> • urban area of Brcko – relevant for part of the Project component B • industrial area (facilities of the cooking oil processing industry “Bimal”, grain industry “Žitopromet” Jsc Brcko and “Studen-Agrana” - the Sugar Refinery Ltd. Brcko) – relevant for Project components B and D, • modified / industrial area in Port of Brcko – relevant for Project components A, C and E • natural environment – Sava River and its shoreline with riparian vegetation – near the Project components C and E. |
| Public and / or Site Specific Transportation System | <p>The public transportation system consists of busses and individual vehicles in the urban area of Brcko. The present state of Project component B is that the industrial railway intersects the local roads with vehicular traffic and passenger transport.</p> <p>On the other hand, in the industrial area of the Port, there is no passenger transport (only cargo). Internal transportation system takes place in the industrial area of the Port and is represented by vehicular traffic (heavy trucks and light vehicles for transport of material and cargo). According to the systematization of jobs, there is one employee that supervises loading/offloading of cargo and materials as well as the movement of vehicles at the customs terminal. The company Port of Brcko does not have an internal Traffic Management Plan.</p> <p>There is no additional area for pedestrians and no secured pedestrian road crossings. There are visible speed limit signs (speed limit restricted to 40 km/h and other traffic signs (limitation of the height for high heavy vehicles, stop sign at the entrance gate, traffic sign for railway crossing over the access road etc.).</p> |
| Cultural Heritage | No cultural heritage in the Project area was identified. |
| Socio-economic Status of the Population | According to observations from site visits, the living standard of the population in the Project area fall within the middle class in Bosnia and Herzegovina. There are no official statistical data on the socio-economic status of population in the Project area. |
| Vulnerable Groups | No particular vulnerable groups were identified to date. |
| Stakeholder engagement and community issues | <p>A public hearing for presentation of the application for the Environmental Permit was held on 3 October 2012. The public hearing was attended by representatives of the Government of the BD, Brcko Port and Institute for Protection, Ecology and IT Banja Luka, the inspector for environmental protection and the interested public.</p> <p>The Government of the BD publishes information about the project and meetings held on its website (http://www.bdcentral.net/)</p> |

5 IDENTIFICATION AND CHARACTERIZATION OF IMPACTS

The E&S impacts likely to occur are elaborated in Table 2 below. The duration of impacts has been characterized as temporary or permanent, whereas the significance of impacts has been characterized as minor, moderate or major.

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Table 2: Analysis of E&S Impacts

| Issue | Phase relevant for issue | Impact | Duration of impact (temporary / permanent) | Significance (minor, moderate, major) |
|--|--|--|--|---------------------------------------|
| Climatic Factors and Climate Change | Construction / Operation and Maintenance | The proposed Project has no potential to cause climate change nor will it affect the local microclimate. | - | - |
| Air Quality | Construction | Air emissions are expected during the construction phase, as a result of the combustion of fossil fuels which will lead to emission of exhaust gases from mechanization (rippers, bulldozers, excavators and trucks). Within the emissions during the construction phase, pollutants such as sulphur dioxide (SO ₂), carbon dioxide (CO ₂), carbon monoxide (CO), nitrogen oxides ¹⁸ (NO _x), volatile organic compound (VOC) etc. may be generated. In cases when the motors are not functioning properly (due to poor maintenance or age of machinery and vehicles), potential harmful emissions may be released. Quantities of released pollutants will depend on the length of the work of machinery and combusted fuel. Dust will also be generated as a result of site preparation activities (excavation of earth material, trenching) and during unloading of construction materials (i.e. fine granulated construction materials). Fast dispersion and settlement of these pollutants is expected within areas of Brcko where the Project will be implemented, leading to short-term air pollution, which will mostly impact the residents of the urban area of Brcko (part of the Project component B). | Temporary | Moderate |
| | Operation and Maintenance | The most significant sources of air pollutants from port operations include combustion emissions from ships' propulsion and auxiliary engines and boilers, mainly consisting of SO ₂ , NO _x , CO ₂ , CO, PM and VOC. Activities related to operation phase of the Port (cargo and material handling, vehicular traffic, vessel / ship traffic, loading / offloading of materials and containers) are already present and are characterized by exhaust gases from the diesel or coal engines. However, the Project component B will lead to redirection of the transport from one part of the urban zone, which will reflect in positive air impacts. Activities during the maintenance phase may include minor repairs or periodical check-ups of the constructed facilities, which may lead to the emission of exhaust gases from vehicles due to transport, or dust emission (i.e. due to necessary earth works during maintenance phase). It is more likely to affect the urban populated parts of Brcko (part of the Project component B). | Permanent Temporary | Moderate Minor |
| Noise Levels and Vibration | Construction | Increased levels of noise and vibration are expected as a consequence of use of tools and machinery for the reconstruction and construction activities that might impact residential areas that were identified during the site visit. | Temporary | Moderate |
| | Operation and Maintenance | Noise sources in ports include cargo handling, vehicular traffic, and loading / unloading containers and ships. Atmospheric conditions that may affect noise levels include humidity, wind direction, and wind speed. | Permanent | Moderate |

¹⁸NO_x is a generic term for the mono-nitrogen oxides (NO) and nitrogen dioxide (NO₂). They are produced from the reaction of nitrogen and oxygen gases in the air during combustion, particularly at high temperatures

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| Issue | Phase relevant for issue | Impact | Duration of impact (temporary / permanent) | Significance (minor, moderate, major) |
|---|---------------------------|--|--|---------------------------------------|
| | | Activities related to operation phase (include cargo handling, vehicular traffic, vessel / ship traffic, loading / offloading containers) are already present at the Port and the proposed Project has no potential to increase the present noise in Port's area. As for the railway transport through the urban zone of Brcko, the frequency of transportation trains will increase. However, Proposed Project is likely to result in decrease of the present ambient noise due to planned modernization of the railways and access roads and procurement of the new port crane. Increased levels of noise are expected during maintenance works. | | |
| Surface and Ground Water Quality | Construction | Contamination of surface and groundwater is possible due to general construction activities and possible mishandling of equipment which may lead to leakage of lubricants and fuel. Water demand - will be used for mixing concrete and for wetting construction site surfaces in order to avoid dust generation. Water will also be used by workers at the sites for their sanitary needs (toilets). However, this demand will not cause increased pressure on existing water sources. | Temporary | Minor |
| | Operation and Maintenance | The water in Sava River around the area designed for berthing the vessels in operation phase may contain traces of anti-fouling paints that contain heavy metals or organometallic biocides to minimise growth of aquatic organisms on vessels hulls and oils, fats, other paints, solvents etc. and thus result in changes of physical and chemical characteristics of water in River Sava. On the other hand, Project component C (construction of asphalt plateau with proper drainage system and wastewater treatment) will result in improved surface and groundwater quality. Maintenance phase envisaged activities similar to those in construction phase but with smaller scale (contamination of surface and groundwater is possible due to general construction activities and possible mishandling of equipment which may lead to leakage of lubricants and fuel). | Permanent | Moderate |
| Geomorphology, geology and terrain stability | Construction | During the construction phase, the following impacts on geomorphology may be expected: Removal of top soil will arise due to performing of necessary earth works, trenching and excavation activities for construction and reconstruction activities and may cause changes in the geomorphological characteristics, cause gravel areas and different appearance of the area. | Permanent | Moderate |
| | Operation and Maintenance | As foundation material, the properly compacted sand can develop a few problems influenced by the natural impacts of greater scale: Influence of the surface water can cause the washout of the sand creating the voids under the constructed area (roads, concrete slabs, storages). Influence of the earthquake can cause the liquefaction of the sand causing similar problems as washout of the sand. | Temporary | Moderate |

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| Issue | Phase relevant for issue | Impact | Duration of impact (temporary / permanent) | Significance (minor, moderate, major) |
|--|---------------------------|--|--|---------------------------------------|
| Soil Quality | Construction | In areas where industrial railway and access road will be positioned, the soil will be removed, compressed and levelled. It will cause loss of aeration in the soil and loss of subterranean living organisms in the surface level of the soil. The soil quality might also be under impact from spilled hazardous substances such as oils from machinery. | Permanent | Moderate |
| | Operation and Maintenance | The soil is likely polluted with hydrocarbons, oils, fats, chemicals, solvents, etc. originating from the activities of the port since the manipulative surfaces are lacking the water impermeable surfaces, proper drainage system and run-off wastewater treatment. The implementation of the Project component C will result in benefits to soil preservation and will stop the further soil degradation. | Permanent | Major |
| Biological and Ecological Resources | Construction | Non-critical habitats and cosmopolitan species may be affected during the construction phase. Vegetation cover will be lost during the preparation for the construction of industrial railway and access road. Surrounding vegetation cover will be covered with dust. Due to the relatively small size of area impacted by construction and reconstruction activities, this impact is considered to be minor. Construction works may have a temporary effect on animal species, since the noise produced by construction works may disturb some animal species who will seek temporary shelter outside the construction site zone. | Temporary | Minor |
| | | The construction of new access road and industrial railway will cause permanent removal of upper green layer in terms of cutting, clearing, and removal of shrubs or trees (Project components B and D). | Permanent | Minor |
| | | The implementation of the Project component C will result in benefits to the Sava River and its living world since it will stop further negative impacts caused by present wastewater discharge. | Permanent | Major |
| | Operation and Maintenance | Impacts on living organisms during the operation and maintenance phase are expected to be minor. Grass will be periodically cut near the constructed / reconstructed infrastructure and facilities. Impacts may be caused by vibrations and noise from approaching trains and vehicles. | Temporary | Minor |
| Landscape and Visual Aspects | Construction | Partial alternation of landscape and visual aspects may be expected due to construction of new infrastructure and reconstruction activities in Port area with minor disturbance to landscape and visual impact. | Permanent | Minor |
| Waste Management | Construction | The Project will include generation of construction waste (inert earth material and soil) during construction activities of the new infrastructure (access road and industrial railway). Waste oils and lubricants will also be generated as a consequence of machinery operation. | Temporary | Moderate |
| | Operation and Maintenance | Material from activities of cleaning of the coastline will be generated during operation phase of the Port. ¹⁹ Waste oils and lubricants will be generated during maintenance activities (lubrication of metal parts), as well as all other types of waste usually generated during the Port operations. | Temporary | Moderate |

¹⁹ The Company Porto f Brcko conducts no typical dredging so the dredging material is not generated. The Company conducts cleaning of the coastline by using the vessel and the hook for removing solid waste

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| Issue | Phase relevant for issue | Impact | Duration of impact (temporary / permanent) | Significance (minor, moderate, major) |
|---|---------------------------|---|--|---------------------------------------|
| Road Safety and Local Traffic | Construction | Occurrence of trenches and slopes is likely to be experienced during construction activities such as trenching and temporary storage of construction material, which may endanger pedestrian and road safety (particularly in urban areas of Brcko where local transport takes place). Traffic congestion and obstructions on road (increased traffic flow, leading to congestion and obstruction) are likely to be experienced during construction of new access road and the new industrial railway, particularly during the delivery of construction material to sites and collection of waste from construction activities. Local traffic will not be affected during implementation of activities within the Port area. | Temporary | Minor |
| | Maintenance | Certain maintenance activities, e.g. repairs on industrial railway or access road are likely to lead to slowing down of the industrial and vehicular traffic. | Temporary | Minor |
| Occupational Health and Safety | Construction | OHS-related impacts during construction works within and outside of the Port area may be: physical hazards, chemical hazards, confined spaces, exposure to organic and inorganic dust and exposure to noise. | Temporary | Moderate to major |
| | Operation and Maintenance | OHS issues during operation and maintenance are limited to the continuous operations of the Port, and include physical hazards, chemical hazards, confined spaces, exposure to organic and inorganic dust and exposure to the noise. | Permanent | Moderate |
| Community Health and Safety | Construction | Construction works at the sites outside of the Port area (railway and road construction) will be carried out in urban and semi urban areas, thus potentially affecting community health and safety. The major community health and safety risks are physical hazards, confined spaces, exposure to dust and exposure to noise. | Temporary | Moderate to major |
| | Operation and Maintenance | Communities may be impacted during the continuous operations of the Port of Brcko, which is located in an area separated from private houses only with the metal wire fence. This proximity makes the Port highly responsible for proper management of traffic, air emissions, noise emissions, potential fires and spills which could affect community health and safety. Such impacts include physical hazards, chemical hazards, exposure to organic and inorganic dust and exposure to noise. | Permanent | Moderate |
| Land Acquisition | Pre-construction | The Project requires the acquisition of a number of land plots (with no structures) for needs of component B of the Project – reconstruction of industrial railway track on the line from the Port of Brcko to the Train station Brcko Novo and reconstruction of the connection to industrial zone. No estimates on the number of such land plots have been provided to date. Land acquisition activities have not been officially initiated. Preparatory activities were initiated in March 2016 by a proposal for obtaining authorization to perform preparatory activities submitted by Public Attorney's Office of BD to the Department of Spatial Planning, Property and Legal Relations, pursuant to the <i>Law on Expropriation of Real Estate of BD</i> . In July 2016, the process was suspended due to lengthy and complex procedures involving land plot division and the existence of mortgages on certain land plots. | Permanent | Major |
| Living Conditions of Local Communities | Construction | These impacts are expected to be temporary and refer to disturbances to surrounding communities related to temporary access restrictions, increased noise due to machinery operation, increased dust, etc., as described above in more detail under impacts regarding Air Quality, Noise Levels and Vibration. | Temporary | Moderate |

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The implementation of the Project will contribute to both environmental and socio-economic improvements, and will have positive impacts – benefits for the transportation and development of Brcko and BiH. The key environmental and social opportunities of the Project include:

- Project component C (construction of asphalt plateau with proper drainage system and wastewater treatment) will result in positive surface and groundwater quality and will result in benefits to soil preservation and will stop the further soil degradation (pollution prevention)
- relocation of the part of the railway transport from the urban zone (relevant for removal of railway in Project component B)
- reconstruction/ rehabilitation of industrial railway will improve connections and will contribute to faster transportation between Brcko and Port of Brcko with other communities at national and regional level (this will stimulate socio-economic development of the area)
- more efficient and safe railway transport system through reduced transport times
- improved rail transport system, accessibility and communication
- developed necessary infrastructure within the industrial area of the Port of Brcko
- benefits for the industrial sector and development of industrial activity due to improved connections and reliability associated with a decrease in cargo waiting and reduces transport times and capacity delivered by the industrial railway
- noise reduction
- reduction in air emissions

6 MANAGEMENT OF IMPACTS AND ISSUES, MONITORING AND SUPERVISION

Mitigation measures have been developed on the basis of the principles of mitigation hierarchy, i.e. measures have been developed to avoid creating lasting E&S impacts from the outset of development activities, and where this is not possible, to implement additional measures that would minimise, mitigate and, as a last resort, offset and/or compensate for any potential residual adverse impacts (Table 3).

Construction activities related to this Project are to be performed by third parties (Contractors); therefore, appropriate measures defined by this Report will need to be applied by the BD Government (through the involvement of the Project Implementation Team - PIT) / the Contractor in order to reduce the impacts that are likely to occur during implementation of the Project. The Contractors will be responsible for implementation of the mitigation measures during construction, whereas the PIT will be in charge of supervising the implementation of such measures.

Mitigation measures need to be applied during the pre-construction phase, construction phase and operation and maintenance phase, as specified in Table 3 below.

The following management plans will need to be developed in the pre-construction phase, and implemented by the Contractors during the construction phase:

- **Construction Site Organization Plan (CSOP)**²⁰ which defines the organization of preliminary works, organization of sites during and after construction, and the project scheme, and includes measures for mandatory equipment for OHS, preliminary medical assistance, identification of project hazards, site-related risks that need to be taken into consideration and organization of construction site management. It covers OHS measures and fire and explosion measures, as well as preliminary fire-fighting activities in case of fires.

This Plan contains also measures related to construction waste management and disposal, with special emphasis on management of hazardous waste.

CSOP also includes measures for mitigation of the following environmental and social issues: air quality, noise and vibration management, soil and water management, hazardous material management, spill response management, emergency preparedness and response, traffic management, grievance management for external stakeholders, security personnel requirements, community health and safety management, cultural relics management, traffic management which defines traffic flow during construction works with an emphasis on traffic safety.

In addition, the Contractor engaged for project designs will also be required to develop the **Fire and Explosion Protection Plan** and **Construction Waste Management Plan** in case of waste for which disposal measures are prescribed by special laws²¹. Measures contained in these two Plans will be transposed into the CSOP.

Prior to the operation and maintenance phase, BD Government will ensure the development of the **Operation Environmental and Social Management Plan (OESMP)**, which includes mitigation measures for the following aspects: waste management, air quality management, noise management, spill response management, emergency preparedness and response, traffic management and health and safety management.

Monitoring will ensure that the Project activities are adequately monitored and reported.

²⁰ Required by the *Law on Safety and Health of Workers at Work* (Official Gazette of BD, No. 20/13), *Regulation on Occupational Safety at Construction Site* (Official Gazette of SFRY, No. 42/68 and 45/68) and *Law on Spatial Planning and Construction of BD* (Official Gazette of BD, No. 17/08)

²¹ Article 77 of the *Law on Spatial Planning and Construction of BD* (Official Gazette of BD, No. 17/08)

Table 3: Environmental and Social Mitigation Measures

| No. | Issue | Mitigation measures |
|---|---|--|
| MEASURES IN PRE-CONSTRUCTION PHASE | | |
| 1. | Impacts on Air Quality | <ul style="list-style-type: none"> Development of Construction Site Organisation Plan (CSOP) that is to include mitigation measures in the construction phase |
| 2. | Impacts on Noise Levels and Vibration | |
| 3. | Impacts on Surface and Ground Water Quality and Quantity | |
| 4. | Impacts on Geomorphology | |
| 5. | Impacts on Soil Quality | |
| 6. | Impacts on Land Use | |
| 7. | Impacts on Biological and Ecological Resources | |
| 8. | Impacts on Landscape and Visual Aspects | |
| 9. | Impacts on Road Safety and Local Traffic | |
| 10. | Impacts from Inadequate Waste Management | <ul style="list-style-type: none"> Development of Construction Waste Management Plan (CWMP) as part of the CSOP |
| 11. | Land Acquisition | <ul style="list-style-type: none"> Development and implementation of Land Acquisition Plan (LAP) in line with BD legal requirements as well as EBRD PR 5 |
| 12. | Living Conditions of Local Communities | <ul style="list-style-type: none"> Informing the local communities in advance on the extent, duration and timing of works prior to the commencement of construction works in line with the Stakeholder Engagement Plan (SEP) Development of CSOP covering measures on community health and safety measures |
| 13. | Impacts on Health and Safety | <ul style="list-style-type: none"> Development of CSOP containing measures on OHS, fire and explosion management, emergency preparedness and response etc. |
| MEASURES IN CONSTRUCTION PHASE | | |
| 1. | Impacts on Air Quality | <ul style="list-style-type: none"> Implementation of CSOP and mitigation measures from the Environmental Permit which include measures of air quality management Machines and vehicles to be used in construction activities must have use/operation permits Machines and vehicles must have installed filters to reduce soot emission Vehicles need to be regularly maintained The equipment and machinery need to be shut down when not in use High quality fossil fuels (with low percentage of sulphur and lead) need to be used as motor fuel for machinery and equipment Sand and gravel materials need to be transported in covered trucks |
| 2. | Impacts on Noise Levels and Vibration | <ul style="list-style-type: none"> Implementation of CSOP and mitigation measures from the Environmental Permit which include measures for noise and vibration management Restriction of works to day time only in residential zones Equipment and machinery need to be shut down when not in use Minimise the duration of clearance works Machinery must have use/operation permits In case of noise complaints by local residents, limit the simultaneous use of machines that generate noise over 70 dB Machines and vehicles to be used in construction activities must have use/operation permits |
| 3. | Impacts on Geomorphology | <ul style="list-style-type: none"> Implementation of CSOP and mitigation measures from the Environmental Permit which include measures for soil management, hazardous materials management and spill response management Control during earthworks (excavation and sloping formation) to prevent maintain terrain stability is required Topsoil from borrow pit areas should be saved and reused in re- |

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| No. | Issue | Mitigation measures |
|-----|---|--|
| | | vegetating the pits <ul style="list-style-type: none"> Excavation and restoration of the borrow areas and their surroundings should be performed in an environmentally sound manner Installation of drainage structures for proper drainage of water is required (in particular for Project component C) |
| 4. | Impacts on Surface and Ground Water Quality and Quantity | <ul style="list-style-type: none"> Implementation of CSOP and mitigation measures from the Environmental Permit which include measures for hazardous materials management Vehicles and machines need to be regularly maintained to prevent leakage Rational use of water resources Monitoring of water consumption |
| 5. | Impacts on Soil Quality | <ul style="list-style-type: none"> Implementation of CSOP and mitigation measures from the Environmental Permit which include measures for soil management, hazardous materials management and spill response management Vehicles and machines need to be regularly maintained to prevent leakage The removed soil should be reused for the restoration of site areas after completion of construction / reconstruction activities Installation of drainage structures for proper drainage of run-off water is required for Project component C |
| 6. | Impacts on Biological and Ecological Resources | <ul style="list-style-type: none"> Implementation of CSOP and mitigation measures from the Environmental Permit which include measures for adequate construction waste management (CWMP should prohibit the disposal of construction waste on the banks of the Sava River), measures for hazardous materials management and spill response management Prevent and control oil, fuel, and chemical spillages Movement of machinery and equipment on area surrounding the regional road should be performed in an environmentally sound manner and without unnecessary movement on the surrounding areas Clean the surrounding vegetation from residual dust and mud Recultivation and restoration of surrounding areas near construction sites in terms of restoration of upper green layer, in particular for Project component B and D |
| 7. | Impacts on Landscape and Visual Aspects | <ul style="list-style-type: none"> Implementation of CSOP and mitigation measures from the Environmental Permit Restoration of excavated area with indigenous plant species |
| 8. | Impacts from Inadequate Waste Management | <ul style="list-style-type: none"> Implementation of CSOP and mitigation measures from the Environmental Permit which include measures for adequate construction waste management (CWMP should prohibit the disposal of construction waste on the banks of the Sava River) and proper management and disposal of other waste, in particular hazardous waste, to ensure appropriate waste separation, temporary storage of waste and final disposal by engagement of authorized company |
| 9. | Accidental Situations | <ul style="list-style-type: none"> Implementation of COSP which includes the mandatory equipment for OHS, preliminary medical assistance identification of project hazards and site related risks. It covers both occupational safety and health measures, fire and explosion measures and preliminary fire-fighting activities in case of fires, measures for spill response management, emergency preparedness and response management to ensure appropriate storage and handling of dangerous substances including hydrocarbons, paint etc. |
| 10. | Impacts on Road Safety and Local Traffic | <ul style="list-style-type: none"> Implementation of CSOP which includes measures for traffic management Levelling of ground to reduce the occurrence of trenches and slopes Installation of proper warning signs is required during construction works, in particular in urban areas (Project component B) Implementation of SEP, in particular the provisions on providing timely information to citizens through the media about upcoming construction |

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| No. | Issue | Mitigation measures |
|---|---|--|
| | | works, expected duration of the works, alternative routes, etc. |
| 11. | Impacts on Health and Safety | <ul style="list-style-type: none"> Implementation of CSOP covering measures on OHS and community health and safety measures |
| 12. | Living Conditions of Local Communities | <ul style="list-style-type: none"> Implementation of CSOP covering measures on traffic management, dust/noise management and community health and safety measures Providing timely information to citizens on any expected disruptions and inconveniences in line with SEP |
| MEASURES IN OPERATION/ MAINTENANCE PHASE | | |
| 1. | Management of Environmental and Social Issues in Operation and Maintenance | <ul style="list-style-type: none"> Development and implementation of OESMP which includes mitigation measures for the following issues: waste management, air management, noise management, spill response and emergency preparedness management, traffic management and health and safety management |
| 2. | Impacts on Air Quality | <ul style="list-style-type: none"> Implementation of OESMP which includes mitigation measures for air management Machines and vehicles to be used in maintenance activities must have use/operation permits Machines and vehicles to be used in maintenance activities must have installed filters to reduce soot emission High quality fossil fuels (with low percentage of sulphur and lead) need to be used as motor fuel for machinery and equipment |
| 3. | Impacts on Noise Levels and Vibration | <ul style="list-style-type: none"> Implementation of OESMP |
| 4. | Impacts on Biological and Ecological Resources | <ul style="list-style-type: none"> Implementation of OESMP |
| 5. | Accidental Situations | <ul style="list-style-type: none"> Implementation of OESMP which includes HS measures |
| 6. | Impacts on Road Safety | <ul style="list-style-type: none"> Implementation of OESMP which includes measures for traffic management Installation of proper traffic signs is required during maintenance activities particularly in urban areas (Project component B) |
| 7. | Impacts on Health and Safety | <ul style="list-style-type: none"> Implementation of OESMP which includes HS measures |

7 CONCLUSION

During the implementation of this Project, the Government of BD should meet the requirements set down by relevant national, EBRD and EU environmental, social, health and safety legislation and standards, as defined in the Environmental and Social Action Plan (ESAP) to be fully implemented by the Government of BD. The most stringent regulations and/or requirements (whether national, EBRD or EU) will be applied, in order to ensure environmental protection and community health and safety.

8 COMMUNICATIONS

Contact information for enquiries and grievances related to the Project:

Contact information for enquiries and grievances:

Project Implementation Team, the BD Government

Address: Bulevar mira 1, 76100 Visoko

Tel.: +387 49 240-600

E-mail: www.bdcentral.net

The BD Government intends to disclose the following documentation and information regarding the Project:

- This Non-technical Summary (NTS)
- Stakeholder Engagement Plan (SEP)
- Environmental and Social Action Plan (ESAP)
- Summaries of Monitoring Reports and summaries of Annual Environmental and Social Reports
- Information on community health and safety risks and impacts and updates regarding the implementation progress of the Project
- Project Grievance Form and Information Request Form
- Land Acquisition Plan.

The documents will be available in local languages (as well as English where available) immediately upon the commencement of the Project on the website of the BD Government (<http://www.bdcentral.net/>), as well as in printed copies in the BD Government at the following address:

Brcko District Government

Address: Bulevar mira 1,

Address: Street Lučka bb, 76100