Bosnia and Herzegovina

Sava Waterway Rehabilitation Project (P108000)

Environmental and Social Management Framework

Executive Summary

August 2013

AECOM, Hydro Engineering Institute, Prism Research and Projekt
and
Bosnia And Herzegovina Ministry Of Communications and Transport
<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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<tbody>
<tr>
<td>DC</td>
<td>Danube Commission</td>
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<tr>
<td>ADN</td>
<td>Agreement Concerning the International Carriage of Dangerous Goods by Inland Waterways</td>
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<tr>
<td>BD</td>
<td>Brčko District</td>
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<td>BiH</td>
<td>Bosnia and Herzegovina</td>
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<td>BP</td>
<td>Bank Procedures</td>
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<td>CCNR</td>
<td>Central Commission for the Navigation on the Rhine</td>
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<td>CFC</td>
<td>Chlorofluorocarbon</td>
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<td>ECZ</td>
<td>Extreme Caution Zone</td>
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<tr>
<td>EIA</td>
<td>Environmental Impact Assessment</td>
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<td>EPR</td>
<td>Environmental Performance Review</td>
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<td>ESA</td>
<td>Environmental and Social Assessment</td>
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<td>ESIA</td>
<td>Environmental Impact Assessment</td>
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<td>ESIA</td>
<td>Environmental and Social Impact Assessment</td>
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<td>ESMF</td>
<td>Environmental and Social Management Framework</td>
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<td>ESMP</td>
<td>Environmental and Social Management Plan</td>
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<td>EU</td>
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<td>Framework Agreement on the Sava River Basin</td>
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<td>FS</td>
<td>Feasibility Study</td>
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<td>IBA</td>
<td>Important Birds Area</td>
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<td>ICPDR</td>
<td>International Commission for the Protection of the Danube River</td>
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<td>IED</td>
<td>Industrial Emissions Directive</td>
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<td>ISRBC</td>
<td>International Sava River Basin Commission</td>
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<td>Moderate Caution Zone</td>
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<td>Official Gazette</td>
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<td>Operational Policies</td>
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<td>Public Consultation</td>
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<td>PEIA</td>
<td>Preliminary Environmental Impact Assessment</td>
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<td>Project Implementation Unit</td>
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<td>PIU</td>
<td>Project Implementation Unit</td>
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<td>RoS</td>
<td>Republic of Serbia</td>
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<td>RPF</td>
<td>Resettlement policy Framework</td>
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<td>RS</td>
<td>Republica Sprska</td>
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<td>Strategic Environmental Assessment</td>
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<td>Sava Waterway Rehabilitation</td>
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<td>TOR</td>
<td>Terms of Reference</td>
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<td>UNECE</td>
<td>United Nations Economic Commission for Europe</td>
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<td>WB</td>
<td>World Bank</td>
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<td>WFD</td>
<td>Water Framework Directive</td>
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1 INTRODUCTION

The River Sava is 945 km long and drains 95,719 km² of surface area. It is the second largest tributary to the Danube River. The Sava River basin hosts the largest complex of alluvial floodplain wetlands and lowland forests. The River Sava from Sisak to Belgrade is categorized as an International Waterway, forming the border between Bosnia and Herzegovina (BiH) and Serbia for 32.8 km, and between BiH and Croatia for 304 km. In BiH, the River Sava flows through two entities, the Federation of Bosnia and Herzegovina (Posavski Canton) and the Republic of Srpska (regions of Banja Luka, Doboj and Bijeljina), as well as Brčko Administrative District. In the Republic of Serbia, the River Sava flows nearby cities of Sremska Mitrovica and Sabac, and passes through the Belgrade urban area where it joins the Danube River.

The total amount of freight carried on the River Sava reached 5.2 million tons in 1990, primarily comprising the movement of bulk freight. Since 1995, the River Sava has been neglected – with little or no maintenance expenditure or transport infrastructure investment. Until recently, traffic volumes had been very modest, amounting to less than 400,000 tons annually reflecting in part the limitations in navigability for much of the year.

The proposed Sava Waterways Rehabilitation Project concerning the river section from Brčko to Belgrade (the Project) is located in the geographical area of the Sava River in BiH and Republic of Serbia including the river section from Brčko (town in northern BiH on the country’s border along the Sava river across from Croatia), following through the territory of Republic of Srpska (the green area marked in Figure 0-1), and up to the confluence with the Danube River at Belgrade, Serbia; the total length of this river section is 234 km counted from Brcko to Belgrade (0 Km), which in Republic of Serbia flows also nearby cities of Sremska Mitrovica and Sabac (Figure 0-1).

The Project funded by the World Bank (WB) includes two main components with specific activities as follows:

- river rehabilitation works to be performed on selected river profiles in BiH (Republika Srpska) and Serbia including civil works, involving river dredging and training works, riverbank protection and where necessary land acquisition, site clearance, and filing of rock, braced blocks, or geotextile material required to return the Sava River to Class Va status on the section between Brčko and Belgrade;

- Specific investments to improve the operational performance of Brčko port located in Brčko District (BiH) including works for (i) completion of the port quay wall reconstruction; (ii)
connection of the main rail track with other service tracks within the port; (iii) rerouting the rail tracks away from the city center, including asphalting of approximately 2.5 km of the road access to the port and the procurement of forklifts and new bucket grabs for the gantry cranes.

The project also includes a third component related to demining works on the south bank of the Sava River in BiH (Republika Srpska) between Brčko and the international border with Serbia at the confluence of the Drina River; this component is financed by the EC (IPA funds) and administered by WB, with relevant civil works following the Standard Operational Procedures (SOP) for demining activities.

2 THE REGIONAL DIMENSION

The International Sava River Basin Commission (ISRBC), was established by the Framework Agreement on the Sava River Basin (FASRB) signed by the four riparian countries (Republic of Slovenia, Republic of Croatia, Bosnia and Herzegovina and Republic of Serbia) in Kranjska Gora (Slovenia) in December 2002. The ISRBC was established to implement the Framework Agreement and realize the goals mutually agreed amongst the riparian countries:

- The establishment of the international navigation regime on the Sava River and its navigable tributaries;
- The establishment of sustainable water management; and
- The undertaking of measures to prevent or limit hazards, such as floods, ice hazards, droughts and accidents involving substances hazardous to water, and to reduce or eliminate their adverse consequences.

Additionally, the ISRBC is continuously involved in discussions with a variety of stakeholder from navigation and environmental sectors on the process of development and implementation of the Joint Statement on Guiding Principles for the Development of Inland Navigation and Environmental Protection in the Danube River Basin, led jointly by the ICPDR, Danube Commission and the ISRBC. This Joint Statement is a guiding document that reflects the common understanding of main stakeholders about the need to protect the Danube river and its tributaries' environment and to develop the necessary conditions for sustainable inland navigation in an intact riverine landscape. This includes how to maintain the existing infrastructure such as the navigation channel, sluices and ports and how to improve navigation without causing conflicts. It further recognizes the need to abide by the Water Framework Directive, in particular the River Basin Management Plans developed for the Danube and Sava basins.

Furthermore, in order to foster cooperation and assure synergy in achieving its goals, the Sava Commission is entitled to establish permanent and ad-hoc expert groups, composed of delegated experts from each Party. Permanent expert groups (PEGs) cover the key issues in the Sava River Basin, while the ad-hoc expert groups (AH EGs) deal with more specific issues and tasks. The Permanent Expert Group for Accident Prevention and Control (PEG APC) has been established with purpose of implementation of FASRB and among other task they are responsible for:

- Notification of areas where dangerous substances are present;
- Identification of the status of the national emergency systems and procedures in the field of floods, ice hazards, droughts and incidents involving hazardous substances, with respect to accidents and natural disasters in the Sava River Basin;
- Development and implementation of policies and strategies for reducing the risks of extraordinary impact on the water and aquatic eco-system and improve measures for prevention, preparedness and response, including restoration measures;

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1 http://www.savacommission.org/
2 The Joint Statement and its Annexes can be downloaded www.icpdr.org/navigation-ecology-process
Establishment of a coordinated or joint system of measures, activities, warnings and alarms in the Sava River Basin for extraordinary impacts on the water and aquatic eco-system, such as sudden and accidental pollution, discharge of artificial accumulations and retentions caused by collapsing or inappropriate handling, flood, ice, droughts, water shortage, and obstruction of navigation;

Signatory parties of the FASRB agreed to undertake all necessary measures for maintenance of the waterways in their territory to guarantee a navigable state-of-condition as well as to undertake measures on improvement of the navigation conditions, and commit to remove any obstacles to navigation. The Parties also agreed to regulate, by a separate Protocol on the Regime of Navigation, all issues regarding navigation, such as institutional arrangements (rules of navigation, technical rules for vessels, marking and maintaining of navigable waterways etc.) and expenses relating to the maintenance of the navigable waterways and the regime of navigation.

3 THE 2008 FEASIBILITY STUDY

Different documents mention transport policy and development of transport in Serbia, the Balkans and Europe, of which worth mentioning are the Transport Policy of the EU for 2010; the White Book, Study on Infrastructure for Balkan Region (2003) and the Transport Policy and Strategy of Republic of Serbia (2003). The first documentation on feasibility assessment of Sava River waterway rehabilitation has been developed in 2006 when the Master Plan and Feasibility Study for Inland Waterway Transports for Serbia was prepared. This Master Plan covered 1,600 km of waterways on Danube, Sava, Tisa, Tamiš and the hydrosystem DTD in Vojvodina.

Further, the ISRBC commissioned several technical documents funded by the Riparian states including: (i) the Pre-Feasibility Study for Rehabilitation and Development of the Sava River Waterway from Sisak to Belgrade (2007), and (ii) the Feasibility Study (FS), Project Documentation and related preliminary EIA study for the Rehabilitation and Development of Transport and Navigation on the Sava River Waterway (2008) (from Sisak to Belgrade).3

The FS (2008) identified many sections of the river along the stretch km 0.0 (Belgrade) – km 579.5 (Sisak) that do not fulfill the minimum requirements for navigation. These sections are identified as “bottlenecks” mainly because of limited draft during large periods and width of the waterway, and sharp river bends that are limiting the length and width of vessels and convoys that could navigate on Sava.

The 2008 FS also provided estimated costs for the necessary engineering interventions in the waterway in order to provide Class Va and/or Class IV on the River Sava, depending on the sector. The classification Class IV (provided in compliance with the United Nations Economic Commission for Europe's European Agreement on Main Inland Waterways of International Importance) means that the river course between Sisak and Belgrade is navigable to ships of the maximum length of 80 to 85 meters (260 to 279 feet), the maximum beam of 9.5 meters (31 feet), the maximum draught of 2.5 meters (8 feet 2 inches) and tonnage up to 1,500 tons (1,500 long tons; 1,700 short tons). Class Va status requires a draught of between 2.5 to 2.8 meters and allows navigation of vessels weighing between 1,500 to 3,000 tons.

A final decision regarding the class of navigation and the phasing of the infrastructure works has been made by the ISRBC and the Riparian Countries in the Decisions no. 13/09, May 2009 and no. 21/09, August 2009. The Decision no. 13/09 also provides detailed parameters for Inland Waterway Classification according to UN/ECE, GENEVA 1996.

3 A copy is available for download at http://www.savacommission.org/project_detail/11/1.
In The Decision no. 21/09 established that the Detailed Design of the Sava River Waterway rehabilitation will be developed in accordance with the parameters for the class Va on the sector from Belgrade (rkm 0) to Brcko (rkm 234) only. Also, it was agreed that the Republic of Croatia will be responsible for the development of the Detailed Design for the Sava River Waterway rehabilitation on the sector from Brcko (rkm 234) to Sisak (rkm 579.5) while BiH and Republic of Serbia should mutually agree on the development of the Detailed Design of the Sava River Waterway rehabilitation on the sector from Belgrade (rkm 0) to Brcko (rkm 234).

Republic of Croatia has already taken the responsibility for preparation of the ESIA for the section of the River Sava from Sisak (rkm 594) to Račinovi (rkm 211) and of the detailed design from Sisak (rkm 594) to Brčko (rkm 234). Preparation of these documents is funded out of available IPA sources (IPA 2007). The ESIA was completed in late 2010 but it is currently being revised with information developed in parallel with the detail design and in line with suggestions received from various stakeholders (including NGOs); the detailed design for section Sisak to Brcko for the navigation IV class has been awarded and is currently at the inception phase, while the Detail Design for section Brcko – Belgrade is in contract negotiation phase.

In that respect, BiH and Croatia have signed an agreement for the financing and preparation of the main design and issuing of all necessary permits prior to execution of the works. This agreement acknowledges that BiH will prepare the main design for the section from Brčko to Belgrade for the navigation Va class, while Croatia will prepare the detailed design for the section Sisak to Brčko for the navigation IV class.

4 CONSULTANT’S ASSIGNMENT

The aim of this assignment is to assist BiH and Republic of Serbia in integrating environmental and social factors into the proposed investments for the rehabilitation works to class Va status between Belgrade and Brcko. The final objective of the assignment is the development of (i) an Environmental and Social Management Framework (ESMF) prepared in line with the ISRBC Joint Statement on Guiding Principles for the Development of Inland Navigation and Environmental Protection in the Danube River Basin, together with the relevant Resettlement Policy Framework (RPF) for the project appraisal stage by the WB, and (ii) an Environmental and Social Impact Assessment (ESIA) including an ESMP linked to the detail design of the planned works for Sava river waterway rehabilitation to the Class Va status from Brčko to Belgrade.

As the detailed design for the main works proposed along the Sava River banks from Brčko to Belgrade under the Project will not be completed by the date of the project’s appraisal by the World Bank, the preparation of the Environmental and Social Management Framework (ESMF) and a Resettlement Policy Framework (RPF) is required to describe: (i) the environmental and social assessment (ESIA) processes to be undertaken during project implementation once the respective technical details elaborated at the level of detailed design are available; (ii) the existing baseline information in the area impacted by the project, including potentially impacted downstream aquatic and water-dependent ecosystems; a general discussion of potential project impacts (to be refined in the ESIA based on proposed detailed design and additional data collection as required); and (again at a general level) the appropriate mitigation measures to avoid or reduce impacts and a related monitoring plan.

The ESMF document that will describe the EA and SA processes for all investments financed by the Bank and covered by the proposed project specifically include: (a) the ESIA process for the river works; (b) the EA analysis (summary of EIA report) for the Brcko port investments (covering the four agreed specific investments), (c) the EA process for the proposed demining works (funded by the EU TF) managed as per the SOP provisions, (d) the summary of the EIA status developed for the river works and financed by Croatia, and (e) the RPF. As highlighted in the ToRs, the ESMF (including the RPF) will review relevant legislation and consequential procedures, including the WB safeguards
procedures applicable to the project, will highlight the main environmental impacts of the works and the operation of the rehabilitated waterway, and will propose feasible mitigation measures and monitoring actions. The Consultant will also assist the Client in carrying-out the public consultations and disclosure process for this ESMF.

The full ESIA (including the ESMP) that will be prepared in this assignment as a follow-up to the present ESMF development will complement the analysis provided in the Environmental Assessment (EA) given at the Feasibility Study level prepared by ISRBC in 2008. The purpose of the full ESIA is to ensure that the proposed investments implemented through the Project comply with the existing environmental protection laws, regulations and standards in BiH, and in Serbia, as well as with the World Bank’s Operation Policies and Practices and relevant Environmental, Health and Safety IFC WB Guidelines; and will not have a lasting adverse impact on the country’s population and their livelihood, the natural environment or assets of particular cultural heritage value. The full ESIA will among other aspects (i) determine the environmental and social baseline condition at project site as well as area of impact and downstream; (ii) assess the environmental and social impacts of the construction and operation of the selected infrastructure investments related to the project, including pre-assessment of environmental impacts in accordance with the decision of relevant institutions in Bosnia and Herzegovina (Republika Srpska, Federation of Bosnia and Herzegovina and Brčko District) and in the Republic of Serbia; and (iii) identify cost related mitigation measures and monitoring activities, and undertake public consultations, focusing particularly on the project affected people, if any, and other main stakeholders to discuss any environmental and social impacts, as well as key project benefits.

The ESMP will be prepared in such a manner that environmental and social requirements (mitigation measures and monitoring, technical specifications) related to the construction phase can be incorporated in the bidding/contract documents. The draft and final ESIA (with ESMP) report will be revised in consideration of the comments of the relevant stakeholders including NGOs, authorities in Bosnia and Herzegovina (Republika Srpska, Federation of Bosnia and Herzegovina and Brčko District), Republic of Serbia and the World Bank.

5 OVERVIEW OF APPLICABLE INTERNATIONAL ENVIRONMENTAL REQUIREMENTS

The overall environmental assessment process of the project will comply with the environmental assessment policies, laws, regulations and procedures for the two Countries involved (BiH and Serbia), and specifically in BiH it will comply with the EA policies for the two affected entities (Republika Srpska and Brčko District).

Further, the EA will comply with the Operational Policies and Bank procedures of the World Bank, and with other applicable International legal frameworks. The Bank’s safeguard policies and procedures triggered for the proposed Project according to the Terms of Reference (ToR) include: OP/BP 4.01 (Environmental Assessment); OP/BP 4.04 (Natural Habitats); OP/BP 4.11 (Physical Cultural Resources); OP/BP 4.12 (Involuntary Resettlement); OP/BP 7-50 (Projects on International Waterways) and Bank Policy on Disclosure of Information. Gaps between the national environmental legislation and the Bank procedures (including implementation) have been identified based on a thorough review of current regulations and summarized later in Chapter 8. The main gaps focus on the need to provide cumulative impacts assessment, project alternatives and the analysis of their linked environmental impacts, specific monitoring activities including feasible parameters and estimated costs, and a thorough public consultation process. The more stringent environmental rules and standards will prevail during project implementation.

There are other International Regulations, Conventions and EU Directives that have to be taken into account, among which are notable the following:

- Joint Statement on Guiding Principles for the Development of Inland Navigation and Environmental Protection in the Danube River Basin (launched in 2007 by ICPDR in
cooperation with Danube Commission and ISRBC; adopted by ICPDR and Danube Commission in 2007 and by ISRBC in 2008);

- Environmental Protection in the Danube River Basin and Convention for the Protection of the Danube River, which forms the overall legal instrument for co-operation on transboundary water management in the Danube River Basin (signed in 1994 in Sofia, Bulgaria by eleven of the Danube Riparian States – Austria, Bulgaria, Croatia, the Czech Republic, Germany, Hungary, Moldova, Romania, Slovakia, Slovenia and Ukraine – and the European Community; came into force in 1998);

- Framework Agreement on the Sava River Basin (signed by all Sava Basin countries in 2002; ratified by all parties in 2003, and entered into force in 2004);

- Decision on manifestation of the Law on Ratification of the Agreement between the Croatian Government and the Council of Ministers of Bosnia and Herzegovina on the navigation of Inland Waterways, marking and maintenance (NN 9/09).

- Convention on Environmental Impact Assessment in a Transboundary Context, Espoo 1991 (Bosnia and Herzegovina is not yet a party to this Convention).

Republic of Croatia has taken responsibility for preparation of the ESIA for the section of the River Sava from Sisak (rkm 594) to Račinovci (rkm 211), and of the detailed design from Sisak (rkm 594) to Brčko (rkm 234). Preparation of these documents is funded out of available IPA sources (IPA 2007).

6 THE PROJECT ALTERNATIVES

According to the TOR, all available technical documents must be reviewed to summarize alternatives proposed during the project development and compare them in terms of potential environmental and social impacts, cost and benefits, and also emphasize upstream analysis of cumulative and secondary/induced impacts and potential conflicts.

In the absence of detailed design information, the following two main possible project technical alternatives have been acknowledged and reviewed: (i) the rehabilitation of the river to class IV versus Va level, and (ii) the river bend alignment versus river traffic control

1. River rehabilitation works upgrading to Class Va level versus Class IV

The current physical parameters of the Sava river cause unfavorable navigation conditions due to limited draft and waterway width during large periods of time; and sharp river bends limiting the length and width of vessels. Therefore, there was need to consider options for improving the navigability of various river sections, either to Class IV or to higher Class Va status. The differences for navigation between both classes include technical details such as the depth of the fairway (2.4 m for Class Va versus 2.3 m for Class IV at low navigable water level); the width of the waterway in bends (90 m for Class Va versus 75 m for Class IV), and the horizontal clearance below bridges (55 m for Class Va and 45 m for Class IV).

In the framework of the development of the Feasibility Study and Project Documentation for the Rehabilitation and Development of Transport and Navigation on the Sava River Waterway that was undertaken in 2008/2009, the waterway rehabilitation from Sisak to Belgrade (594 rkm)to Class IV and/or Class Va level has been considered and analyzed. On the basis of the investigation, the feasibility study recommended the rehabilitation of the entire sector from Sisak to Belgrade to class Va as the best solution taking into account economic cost benefit analysis. However, analysis including consideration of costs and environmental improvement benefits for both options concluded that while the section from Brčko-Belgrade should be upgraded to Class Va, the section from Sisak-Brčko should be upgraded only to Class IV. For the Brčko-Belgrade section, rehabilitation to class Va rather than class IV can be achieved mainly through additional well-managed dredging and will not require a significant increase in the number of engineering interventions groins, sills and bank protection) which
can generate more negative environmental impacts that require mitigation). By contrast, upgrading the Sisak-Brčko to class Va status would require significant engineering interventions in comparison with rehabilitation to class IV.

Based on the above assessment, ISRBC decided on the rehabilitation of the Sisak-Brčko sector to class IV and the rehabilitation of the Brčko-Belgrade sector to class Va (Decision 21/09 adopted in written procedure on the June 29, 2009).

2. Alternative considering river bend alignment versus traffic control (e.g. the one way versus two-way traffic on certain sections where river band is smaller than 360 m)

There are 8 river bends on the Sava River in the Sisak to Brčko sector with a radius less than 240 m but less than 360 m (240 m < R < 360 m). The minimum for class IV is 360 m. During the development of the preliminary design and feasibility study, two options were considered: river bend cutting or the use of one way traffic with vessel waiting areas. The option of river bend cutting to enable 2-way traffic throughout would require higher costs and larger undesirable environmental impacts including the possibility to cause border changes between BiH and Croatia. The alternative of establishing one-way-navigation in these areas where the natural radius is smaller than 360m, with proper signalization, was selected as a better solution from both a cost and environmental perspective.

3. Detail design level alternative – management of dredged sediments

The ESIA at the level of detail design will evaluate and assess the possible impacts generated during dredging activities required to bring the Sava river bed to Va level on the Brčko-Belgrade sector. Specific alternatives related to various types of dredging methods, disposal site selection, and transportation of dredged materials will be evaluated as part of the detail design.

Construction and maintenance dredging, and dredge spoil disposal, may impact habitats and pose a significant hazard to human health and the environment, particularly if the sediments are contaminated by historical deposition and accumulation of hazardous materials, whether due to on-site or off-site activities. Excavation and dredging methods should be selected to minimize suspension of sediments, minimize destruction of benthic habitat, increase the accuracy of the operation, and maintain the density of the dredge material, especially if the dredge material includes contaminated areas.

There are several dredging methods (summarized below) which are commonly used depending on the depth of the sediments and environmental concerns such as the need to minimize sediment suspension and increase dredging accuracy. The disposal of dredged material should be analyzed in order to select appropriate disposal options (e.g. land reclamation, open water discharge, or contained disposal). Further, beneficial reuse of uncontaminated, dredged material should be considered (e.g. for wetland creation or enhancements, habitat restoration, or creation of public access / recreational facilities).

Various alternatives on dredged sediment management should be evaluated during detail design development as follows:

- consideration of submerged discharges for hydraulic disposal of dredged material;
- Use of lateral containment in open water disposal (also, use of borrow pits or dikes reduces the spread of sediments and effects on benthic organisms);
- Use of cap containment sediments with clean materials; as level bottom capping or a combination of borrow pits / dikes with capping reduces the underwater spread of contaminated material;
- Confined disposal facilities should be used, either nearshore or upland, when open water disposal is not feasible or desirable. If dredge spoil is contaminated, confined disposal facilities should include liners or other hydraulic containment design options to prevent leaching of
contaminants into adjacent surface or groundwater bodies. Treatment of dewatering liquids (e.g. metals and persistent organic pollutants) may be required prior to discharge. Site-specific discharge quality standards should be established depending on the type and toxicity of the effluents and the discharge location;

Finally, since much sediment contamination originates from land use practices in the surrounding watershed, port managers should work with national and local authorities, as well as facility owners and operators in the watershed, to reduce sources of key contaminants. This may involve informing the authorities about the difficulties in disposal of dredged material; actively participating in watershed protection programs sponsored by local or state agencies or in surface water discharge permitting efforts, if any, for sources in the port’s watershed; and actively participating in zoning procedures.

7 ENVIRONMENTAL ASSESSMENT FRAMEWORK FOR THE PROJECT

The relevant activities that are subject of environmental assessment and permitting according to the national regulations in BIH and Republic of Serbia are given in Table 8-1.

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<tr>
<th>LOCATION</th>
<th>REGULATION</th>
<th>ACTIVITY TYPE</th>
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<tr>
<td>Bosnia and Herzegovina: Republika Srpska</td>
<td>Regulation on projects, requiring the EIA, and the criteria deciding on the required implementation and scope of the EIA (O.G. RS 124/12).</td>
<td>Inland waterways and ports for inland-waterway traffic which permit the passage of vessels of over 1 350 tons.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Trading ports, piers for loading and unloading connected to land and outside ports (excluding ferry piers) which can take vessels of over 1 350 tons.</td>
</tr>
<tr>
<td></td>
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<td>Coastal work to combat erosion and works capable of altering the coast through the construction, for example, of dykes, mole, jetties and other defense works, excluding the maintenance and reconstruction of such works.</td>
</tr>
<tr>
<td></td>
<td>Regulation on plants allowed to be constructed and commissioned only if provided with the Environmental Permit (O.G. RS124/12).</td>
<td>No installations identified.</td>
</tr>
<tr>
<td>Bosnia and Herzegovina: Brčko Distrikt</td>
<td>Regulation of plants and facilities requiring environmental impact assessment and plants and facilities allowed to be constructed and commission only if provided with the environmental permit (O.G. BD 19/04).</td>
<td>Inland waterways and ports for inland-waterway traffic which permit the passage of vessels of over 1 350 tonne.</td>
</tr>
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</tr>
<tr>
<td>Republic of Serbia</td>
<td>Regulation on setting up the list of project requiring the EIA and projects for which EIA might be required (O.G. RoS 114/08)</td>
<td>Inland waterways managed under international or interstate navigation regime as well as ports and piers on inland waterways managed under international and interstate navigation regime, and regulation works on inland waterways which permit the passage of vessels of over 1 350 tonne.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Inland waterways not managed under international or interstate navigation regime as well as ports and piers on inland waterways not managed under international and interstate navigation regime, including ports and piers for loading and unloading of passengers and goods.</td>
</tr>
<tr>
<td></td>
<td>Rulebook on type of activities and installations that require integrated permit (O.G. RoS 84/05)</td>
<td>No activities identified.</td>
</tr>
</tbody>
</table>

Considering the national environmental regulation and above listed facts, the following conclusions are drawn in relation to national environmental assessment requirements in subject countries:

- the sub-project (1) - the necessary river rehabilitation works in Bosnia and Herzegovina (Republika Srpska entity) and Republic of Serbia are found on the list of projects that require
Environmental Impact Assessment (EIA). Accordingly, they need to follow requirements of national environmental laws and regulations on EIA followed by requirements for environmental permitting. It is to be noted that river works in Brčko District (B&H) are addressed through Croatian EIA Study for Rehabilitation of Sava Waterway from Sisak to Racinovci and that this part of the sub-project 1 has undergone environmental permitting process and has already obtained the environmental permit by the responsible department of Government of Brčko District.

- **the sub-project (2)** - investments to improve the operational performance of Brčko port is found on the list of projects that needs to obtain environmental permit. It is to be noted that Brčko port investment project has undergone environmental permitting process and has already obtained the environmental permit by the responsible department of Government of Brčko District.

- **the sub-project (3)** - demining works are not subject of environmental assessment.

According to the assessment of the World Bank, the overall project is considered Environmental Assessment Category A and thus needs to satisfy environmental requirements of the Operational policy OP/BP 4.01 on Environmental Assessment and other related policies including: OP/BP 4.04 on Natural Habitats, OP/BP 4.11 Physical Cultural Resources, OP/BP 4.12 on Involuntary Resettlement, OP/BP 7.50 on Projects on International Waterways, and BP 17.50 on Bank Disclosure.

**Table 7-2 Summary of Triggered World Bank Safeguards Policies**

<table>
<thead>
<tr>
<th>SAFEGUARD POLICY</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>OP/BP 4.01 on Environmental Assessment</strong></td>
<td>Ensure the environmental and social soundness and sustainability of investment projects, as well as support integration of environmental and social aspects of projects in the decision-making process. The SWR project is considered EA Category A, EA is required by national regulations.</td>
</tr>
<tr>
<td><strong>OP/BP 4.04 on Natural Habitats</strong></td>
<td>Promote environmentally sustainable development by supporting the protection, conservation, maintenance, and rehabilitation of natural habitats and their functions. The Bank supports, and expects borrowers to apply, a precautionary approach to natural resources management to ensure opportunities for environmentally sustainable development. SWR project interventions are located in/neighboring with protected areas, for which provisions of appropriate conservation and mitigation measures will be necessary during works. This has to be addressed by the ESIA.</td>
</tr>
<tr>
<td><strong>OP/BP 4.11 Physical Cultural Resources</strong></td>
<td>The Bank is sensitive about physical cultural properties that might potentially be impacted by project related activities or investments. Impacts produced over physical cultural resources should be avoided or mitigated. The EA at Feasibility Study stage determined the presence of the archaeological findings in the Sava riverbeds or river banks areas in RoS. The RoS Institute for protection of Monuments requests to be addressed during development of the project documentation in order to issue the list of requirements and consents. A PCR management plan will be prepared as part of the project EMP</td>
</tr>
<tr>
<td><strong>OP/BP 4.12 on Involuntary Resettlement</strong></td>
<td>Displaced people who lose their livelihood as a result of the project must be resettled, compensated for all of their losses and they must be provided with a situation that is at least as good as the one they had before the project, at least restoring their livelihoods and standards of living. For the SWR project, the RPF was prepared because the exact zone of impact of all Project components is not known and cannot be determined by the time of appraisal of the project. The RPF is prepared for B&amp;H only as this country has current access to the WB funds. For the sub-project (2) the social due diligence revealed some minor impacts on residential structures and land parcels. In order to mitigate these few impacts, an abbreviated RAP based on principles and provisions of the RPF will be prepared. In case of sub-project (1) implemented in B&amp;H, preparation of RAP is not possible by appraisal since the exact locations of the sites are not yet finalised. The RAP for the B&amp;H sub-component (1), if applicable, will be prepared prior to issue of bid documents for the corresponding civil works. The cross-border impacts will be mitigated by respective entities as appropriate.</td>
</tr>
</tbody>
</table>
The Bank pays specific attention to riparian’s by facilitating timely information on projects undertaken on international waterways. **Sava River is an international river and forms part of the Danube and the Black Sea.** The International Sava River Basin Commission (ISRBC) was established by the Framework Agreement on the Sava River Basin (FASRB) signed by the four riparian countries. The ISRBC was established to implement the Framework Agreement and realize the goals mutually agreed amongst the riparian countries. ISRBC informed these countries about the project goals (including the demining activities) during the 3rd Joint Statement Implementation Meeting that was held in Vienna in April 2011. A copy of the final announcement of this meeting, the agenda, the relevant presentation, and the Minutes of the discussion were sent to the Bank for its records in order to meet the provisions of the OP7.50.

**Bank Policy on Disclosure of Information** Requires that all those residing in the given areas of a project have the right to be informed of the proposed development project. **The environmental regulations in both countries require public participation in ESIA processes.**

The summary of procedure and documentation to be prepared for the project in the scope of national and the WB requirements is given in Table 8-3. The WB requires additional specific information (e.g., discussions of project alternatives and cumulative impacts, feasible environmental monitoring parameters, and minimum 2 meaningful public consultations) to be developed, highlighted and disclosed (timely to Board, in country, and in Infoshop) through the ESMF and the related Executive Summary; additionally, these documents and the RPF are prepared timely to meet project appraisal conditions.

**Table 7-3 Environmental Assessment Requirements**

<table>
<thead>
<tr>
<th>SUB-PROJECT</th>
<th>NATIONAL REQUIREMENTS</th>
<th>WORLD BANK REQUIREMENTS</th>
</tr>
</thead>
</table>
| River works in Republika Srpska (sub-project 1) | Step 1: Carry out Environmental Impact Assessment procedure and prepare documents in the following order:  
- Request for Preliminary EIA  
- Environmental Impact Assessment Study  
Step 2: Carry out Environmental Permitting procedure and prepare Request for Environmental permit | The OP/BP 4.01 for Category A project and all its sub-project require implementation of Environmental and Social Assessment policy and development of following documentation:  
- Environmental and Social Management Framework  
- Resettlement Policy Framework  
- Environmental and Social Impact Assessment Study (Environmental Assessment Report for A Category Projects with Environmental and Social Management Plan) |
| River works in Brcko District (sub-project 1) | Environmental impact assessment and environmental permitting procedures are completed by the responsible department of BD. The gap analysis determined that the Study based on which the permit is going to be issues does not meet the WB requirements and must be upgraded. | The OP/BP 4.12 for Category A project and all its sub-project require implementation of Resettlement policy and development of following documentation:  
- Resettlement policy framework  
- Abbreviated resettlement Action Plan for Brcko Port investment  
- Resettlement action plan (RAP) for river works, if necessary. |
| River works in Republic of Serbia (sub-project 1) | Carry out the Environmental Impact Assessment procedure and prepare documents in the following order:  
- Request for Determination of need for EIA  
- Request for Determination of Scope and Content of EIA Study  
- Environmental Impact Assessment Study | Note: for demining operation, the WB requirement is to follow Standard Operational Procedures (SOP) that are built on the fundamentals of International Standards for Mine Clearance Operations (IMAS) |
| Investments in Port Brcko (sub-project 2) | Environmental permit is issued by the responsible department of BD. | |
| Demining works (sub-project 3) | No requirements, the sub-project (3) will be assessed as a part of river works project in Republika Srpska | |
The details of the environmental assessment process for each sub-project that will satisfy both national and WB requirements are detailed in the chapter 3 of the current ESMF.

In order to inform all riparian countries about issues and activities on Sava River, the International Sava River Basin Commission organized a regular Steering Committee for supervision and coordination of project implementation: Rehabilitation and development of traffic and navigation on Sava river waterway.

In addition, MoTC of BiH together with the consultant organized the first consultation meeting on 24.01.2013, and sent the invitation to the Republic of Serbia, Croatia and Bosnia and Herzegovina and the Sava River Commission. During this first Consultation meeting, representatives of the Republic of Croatia committed to appoint its members. However, the representatives of the Republika Srpska and Serbia did not attend the meeting although they were invited.

In early February 2013, representatives of the MoTC of BiH had a meeting in Belgrade with representatives of the Republic of Serbia (Ministry of Transport and PLOVPUT), which discussed the interstate agreement on Sava River Waterway and organizing intergovernmental commission for monitoring the implementation of the agreement. Legal possibilities were also discussed (legal basis) for Serbia to appoint a member in Management Board, not only for monitoring the implementation of the ESIA Contract, but also of the entire project. A follow-up public meeting was held in April in Serbia (details are provided below in the chapter on overall public consultation process).

8 SOCIAL IMPACT ASSESSMENT FRAMEWORK FOR THE PROJECT

Social Impact Assessment Framework within Environmental and Social Management Framework (ESMF) describes the Social Assessment process for following investments financed by the Bank and covered by the proposed project: River works (Brčko-Belgrade), Brčko port investment and Demining works. Social Impact Assessment Framework is specifically related to a Resettlement Policy Framework.

The Social Impact Assessment Framework for these three investments checks compliance with the existing protection laws, regulations and standards in BiH, and in Serbia, as well as with the World Bank’s Operation Policies and Practices regarding possible and lasting adverse impact on the population living in projects areas and their livelihood.

The focus of the Social Impact Assessment Framework is to:

(i) determine the social baseline condition at project sites;

(ii) assess the social impacts of the construction and operation of the selected infrastructure investments related to the project, including pre-assessment of social impacts in accordance with the decision of relevant institutions in Bosnia and Herzegovina (Republica Srpska, Federation of Bosnia and Herzegovina and Brčko District) and in the Republic of Serbia;

(iii) identify cost related mitigation measures and monitoring activities, and undertake public consultations, focusing particularly on project affected people, if any, and other main stakeholders to discuss any social impacts, positive and negative as well as key project benefits.

(iv) assess different elements of possible mitigation plan that identifies and summarizes all expected potentially social impacts; describe each mitigation measure with technical details including the type of social impact to which it relates and the condition under which it is required; and provide linkages with any other mitigation plans (involuntary resettlement/land acquisition framework or action plan, if any) required for the Project; In relation to this Resettlement Policy Framework is going to be conducted separately, but some analysis, findings and recommendations from the Social Impact Assessment Framework will be connected with Resettlement Policy Framework.
(v) suggest appropriate elements of monitoring plan including a specific description of monitoring measures (affiliated with the mitigation measures proposed in the mitigation plan) with the parameters to be measured, methods to be used, sampling locations, frequency of measurements; specific description of institutional arrangements, and the reporting procedures; and

(vi) suggest an implementation schedule for mitigation and monitoring measures proposed in the above plans.

However, the main task of Social Impact Assessment Framework is to provide inputs for integrating social factors into all three major project investments once their technical details are known. One of main elements of these factors is related with possible land acquisition.

For this reason, during project implementation, it will be necessary to organize data collection through field visits for all three project investment locations to gather necessary information (for example, land use, land ownership, etc.) that could allow understanding of potential social impact related to all three major project investments. During this fieldwork particular attention will be paid to identification of local communities (affected people), their views on direct, indirect and induced environmental and social impacts during the project’s rehabilitation works.

The Social Impact Assessment will be carried out during project implementation in three phases:

- Phase 1 Review of the existing data and preparation of the instruments
- Phase 2 Qualitative research
- Phase 3 Quantitative research
- Phase 4 Analysis of the results and conclusions based on the research results.

9 PROJECT ENVIRONMENTAL AND SOCIAL BASELINE CONDITIONS

Physical environment

The project zone of interest for assessment of potential impacts on physical environment has been set as the Sava river and its surroundings including the alluvium 500 m from both sides of the river bed.

The area alongside the Sava River (Brčko-Belgrade) is composed of various types of Quaternary (Q), lithological units, such as: Alluvial deposits (a), Marsh sediments (b), Flood sediments (ap) and Oxbow lake sediments (am)/(b). The gravel-sandy aquifer is located between the Bosnian's mountains (preferably Majevica & Trebovac), the Serbia's mountains at the right side of Drina River and partly the Slavonia’s mountain (Dilj), but also the Srem's mountain (Fruška Gora).

A small thickness clay-pululent layer is found inside the overlaying sediments, and forms no obstacle to the immediate hydraulic connection between the River Sava surface water and the groundwater inside the alluvion, from its direct environment. The most significant infiltration recharge comes from the Sava River. The impact of works on the quality of water sources, which supply major urban areas (Brčko, Sremska Mitrovica and Šabac), is certainly an important aspect. Sava river bed deepening works may potentially have negative effects.

On Brčko, Sremska Mitrovica and Šabac sources, the waters are drawn from a depth of approximately 40-60 m. The average permeability of the aquifer in the Brčko area usually amounts to >1,0 m/dan. Areas in the vertical column mainly express low-permeable to impermeable sediments in overlying barriers, and in this respect represent an increased safety factor in terms of protecting the source from potential pollution caused by terrain surface works.

The impact of works on registered drinking water sources is not expected due to their position relative to the anticipated locations of works and hydro-geological characteristics (Table 9-1). However, during the ESIA development, once the specific locations of the rehabilitation sites are confirmed, these
impacts will be re-assessed including consideration of any other users that might be affected by the specific works.

<table>
<thead>
<tr>
<th>Location</th>
<th>Water supply source</th>
<th>Distance from the rehabilitation sites from FS</th>
<th>Potential impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brčko</td>
<td>Alluvium source of River Sava - Plazulje Source including Neogene limestones from the northern edge of Majevica mountain Groundwater within massive karstified and bank lime stones of Miocene (Thornton- M2 and Sarmatian M3) is pumped from wells, from 150 m of depth.</td>
<td>24 km away upstream from the nearest site S1.1, upstream position Overlying sediments of these aquifers are mainly represented by clay, marl and marly and sandy components, as well as by intercalations of sandstone and gravel, with a total thickness of up to 100 m, which ensures its good isolation from alluvial aquifers, i.e. prevents their hydraulic connections</td>
<td>No impact expected</td>
</tr>
<tr>
<td>Šabac</td>
<td>Alluvium source of River Sava Tabanovići and Mali Zabran Source is located at a position upstream of the construction zone (S1.4) on Sava River, approximately 3 km away from the zone. At the same time, the locality Mali Zabran represents a source, partly located in the immediate downstream area of the construction works on Sava river bed deepening. However, it is important to emphasize that the source itself is some 5 km away from the position of construction works, with an important remark that the city of Šabac has a barrier position, being located between the aforementioned construction site and this water source.</td>
<td>Tabanović source is located at a position upstream of the construction zone (S1.4) on Sava River, approximately 3 km away from the zone.</td>
<td>No impact expected</td>
</tr>
<tr>
<td>Sremska Mitrovica</td>
<td>Alluvium of the Sava River in Sremska Mitrovica, as well as alluvial aquifer in Martinici</td>
<td>The nearest site (S1.4) is located in 10 km downstream the Sava River flow.</td>
<td>No impact expected</td>
</tr>
</tbody>
</table>

On the section from Brčko to Belgrade Sava river is crossing several high density populated areas such as Brčko, Sremska Mitrovica, Šabac and Belgrade and low density places such as Gunja, Sremska Rača, Bosut, Ravnje, Jarak, Hrtkovci, Drenovac, Mrdenovac, Kupinovo, Obrenovac, Boljevci, Barič, Umka and Ostružnica. According to the physical plans of those municipalities, the above mentioned high density populated areas have partly constructed sewage networks mostly in urban areas. The rural areas have septic tanks. The physical plans for Šabac report on 21% of total population connected to the sewage system, while this percentage in Belgrade is much higher and rich the 80%. Waste water in all municipalities is discharged directly without treatment into the Sava River which is the main cause of the deterioration in quality of Sava river waters.

River constantly appertain to I/II class of quality during the period 2004-2012 (limit values for each class are shown in Annex 2, Table 1). On the locations of Sremska Mitrovica and Šabac there were occasional minor increases in the concentration of total phosphorus in the period 2005-2007, which determines water quality of II/III class. During the same period, no significant changes were recorded for oxygen saturation, as well for other parameters that could be indicators of organic load (COD and BOD5).

According to the ICPDR, the water quality constantly belonged to III class in link with heavy metals concentrations, except for mercury, whose concentrations were within II class. Occasionally (e.g., in 2008), higher concentrations of copper were recorded at existing monitoring stations, which categorized the water quality in those river sections as V class by threshold limit values according to ICPDR (Annex 2, Table 7). Further info on water quality and the class of water quality agreed for periods from 2003 – 2009 are shown in Table 36 and Figure 16.
On the territory of the Republic of Serbia, sediment analysis has been performed on four stations (Jamena, Sremska Mitrovica, Šabac and Ostružnica), which showed elevated concentrations of mercury and nickel (among the heavy metals tested in 2003) and no significant increased concentrations of lead. However, the increased mercury values were far below the value of intervention according to the “SQO Netherlands Value” (included in “Canadian Quality Sediment Guideline for the Protection of Aquatic Life”). Therefore, a significant effect on the water quality, caused by the movement of sediment due to river bed dredging at the bottlenecks (Jamena and Sremska Mitrovica) probably should not be expected. Specific assessment will be finalized for nickel concentrations in this project area as part of the ESIA development.

On the territory of BiH at the profile Rača, elevated concentrations of nickel in the sediment were recorded, while at the confluence point of Drina River in Sava River higher concentrations of nickel, lead and zinc were detected. Mentioned confluence point is also a bottleneck, and thus possible greater impact to the current water body status is most likely due to the proximity of lead and zinc mines. Intensive works on this profile could cause the movement of larger amount of suspended solids with significant content of lead, since the measured values exceed the PEL value considered for minimum toxic effects according to the “Canadian Quality Sediment Guideline for the Protection of Aquatic Life”.

The extent of impacts will depend on the type and technology of works to be performed. The close cooperation of consultant for the Final Design and ESIA consultant will be critical in order to jointly assess specific environmental impacts of analyzed alternatives versus the selected investments’ location and nature.

**Biological environment**

The Sava River Basin is of specific significance due to its exceptional landscape diversity. The area is characterized by the largest complex of alluvial floodplain wetlands in the Danube basin and extensive areas are covered by lowland forests. The Sava River has areas where the floodplains are still intact, especially in the central Sava basin. The central Sava is characterized by a mosaic of natural floodplains and cultural landscapes formed by traditional land-use patterns. The Sava River can be considered as one of the “crown jewels” of European nature and has been selected as a focal region in the Pan European Biological and Landscape Diversity Strategy (PEBLDS) of the Council of Europe (ref: Sava River Basin Management Plan-draft 2011). For the purpose of assessing the potential impact on biological environment, the project zone of interest is determined to be a 500 m corridor on the left and right side of the Sava river bank.

Locations with habitats of potential interest along the Sava River from Brčko downstream to Belgrade and within corridor of 500 m from left and right side of the bank are: Rača (BiH, RS) together with confluence of Drina River, Majzecova bašta (RoS) in complex with Vinična (RoS), Obesdská Bara (RoS) and Orlača (RoS).

Inside the above listed locations the following important habitat types can be found: freshwater vegetation, vegetation of floating plants, vegetation of swamp plants, coastline freshwater vegetation, vegetation of agricultural fields, vegetation of ash-oak, and alder forests. Some of these habitats’ are recognized as potential NATURA 2000 sites including freshwater vegetation (NATURA 2000 code 3130 and 3270), vegetation of floating plants (NATURA 2000 code 9180 and 91E0), and vegetation of ash-oak, and alder forests (NATURA 2000 code 91F0).

Of the above listed sites, 4 sites are designated as Nature Reserves: Majzecova Bašta Forest, Obesdská Pond, Ključ Pond and Gornje Njive Pond. Site of Vinična makes a complex of forests

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together with Majzecova bašta called Morovičko-Bosutske forest, although both sites are protected with separate decisions. However, the Vinična site is approximately 5 km from the left bank of Sava River and is not overlapping with the project zone of interest. Therefore, Sava River on the profile of Majzecova Bašta and Obedska bara is marked as Extreme Caution Zones (details presented in Annex 1-6). The Management Plan for Special Nature Reserve Obedska Bara does not prohibit works on the Sava River, but precautionary measures to avoid any possible downstream impacts on this protected area will be necessary.

According to estimation provided in the 2010 WWF report there are 28 other floodplain sites with potential for reconnection with the Sava River and its tributaries. Obedska Bara as part of the Sava’s floodplain in Serbia is at present the only officially planned project for floodplain reconnection in the entire Sava RB. The ESIA will review and provide an update on any existing linkage with the other 27 floodplain sites.

The latest research showed that several sensitive species live in the Sava River and nearby area, out of which none of them belongs to terrestrial or aquatic flora. Among registered sensitive fauna species are seven fish species (Danube salmon, Common carp, Balkan loach, Danubian bleak, barbel, spined loach, European mudminnow), and one mammal species (Eurasian beaver). It is worth noted that this species cannot be found in any section of Sava River as their natural habitats are Danube or Sava River tributaries.

At this ESMF process stage, the only identified significant spawning site on Sava is situated at 48-62 km from the mouth of Sava into Danube. However, the ESIA will closely assess and assure if the works on the selected sections of the river will impact in any way this known important spawning sites or other sensitive fish habitats not identified at this project stage.

It is expected that dredging process and river training works can influence the water regime in rivers and swamp areas in the wider Sava river catchment area. This is not an instantaneous impact but a slow process that is developing slowly over the years after completion of works. As a result of reduced water flow in the lateral branches and minor flooding, the changes in groundwater levels can be expected. This can potentially negatively affect the functioning of wetlands, which are important refuges, hatching grounds and habitats of plants, birds, fish, amphibians and other animals. Therefore, the full ESIA prepared in parallel with the detail design will have to include the results of the hydraulic modeling and must be engaged in the selection of the feasible alternatives with least environmental impact based on the modeling results.

Physical Cultural Resources

Due to its rich history, the whole Sava Riverbed can be observed as a big archaeological site. About 15 sites have been registered and many of them are in the Sava Riverbed. Out of these 15 registered archaeological sites, 10 are situated in the working area, specifically in the Sava riverbed (Annex 1-5).

During the works, if cultural property is found, the national laws on cultural heritage will be followed. Dredging processes and other works can potentially have negative impact on potential archaeological sites, but with careful prevention this can be avoided. A Physical Cultural Resources (PCR) Management Plan will be prepared at ESIA/detail design level and enforced during works.

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5 PU Vojvodinasune, Department of Forest Management Sremka Mitrovcica (2010): Special Nature Reserve „Obedska Bara” Management Plan, Sremka Mitrovcica
Social and economic aspects

As far as of community structure around the port Brčko area, inventory of community activities and production systems (e.g., fishing, industry, farming, small businesses), level of income, any public infrastructure and social services goods and services) and a description of any direct, indirect and induced impacts on livelihoods and shelter, will be identified during the site surveys during project implementation. There are no official statistics for community level in Brčko District, except estimates on number of household and business in specific area. This review will be finalized within the fieldwork and quantitative survey during the ESIA stage.

However, during two field visits and observations, we have identified 4 individual household units build in close vicinity of project area. We have identified only one household unit to be indirectly affected by the planned project activities. In addition to this, we expect that very small number of individual parcels of land will be affected as well one part of one land parcel owned by Brcko Gas Company. Based on currently available information from technical documentation, we do not expect any displacements as a result of the physical works.

As far as of situation with mining, mapping of areas under mines have been conducted by Mine Action Center. The major issue is to identify the size of area under mines and ownership of land affected by mines. It is natural that demining works will have positive effect just for the sake of increased security for local population and access to land. However, analysis on number and structure of households and businesses that will be affected by demining will be carried out through qualitative research phase during the ESIA stage.

10 FRAMEWORK OF COMMON ENVIRONMENTAL AND SOCIAL IMPACTS

Adverse and positive impact analysis of the Project has been carried out using typical, known project activities and how they interact with the environment. Impact analysis has involved impact identification and qualitative assessment using indicators.

General impacts have been analyzed during construction and operational phases. Site specific impacts will be analyzed during the detail design stage and included in the ESIA. After the initial analysis of the available information, the following adverse environmental impacts should be considered:

Table 10-1 Environmental Impacts during Construction Phase

<table>
<thead>
<tr>
<th>CONSTRUCTION PHASE</th>
<th>ENVIRONMENTAL TOPICS</th>
<th>EFFECTS / IMPACTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air quality</td>
<td>There is no significant impact during civil construction works.</td>
<td></td>
</tr>
</tbody>
</table>
CONSTRUCTION PHASE

ENVIRONMENTAL TOPICS   EFFECTS / IMPACTS

Water
Impacts caused by dredging, sediment transport is expected. Concentrations of mercury in sediments were far below the value of intervention according to “SQO Netherlands Value” in Serbia. Increased concentrations of lead were not observed on any measured profile on the territory of the Republic of Serbia in 2003. Therefore, a significant effect on the water quality caused by the movement of sediment due to river bed dredging at the bottlenecks (Jamena and Sremska Mitrovica) is not expected. The potential for impact on drinking water sources hydrologically connected with the Sava River will also need to be explored.

In BiH at the profile Rača, elevated concentrations of nickel in the sediment were recorded, while at the confluence point of Drina River in Sava River higher concentrations of nickel, lead and zinc were measured. Intensive works on this profile could cause a movement of larger amount of suspended solids with quite high content of lead, since the measured values exceed the PEL value - possibly toxic effects according to the "Canadian Quality Sediment Guideline for the Protection of Aquatic Life".

The scope of the impact will depend on the type of works at location and works technology. It will be necessary to coordinate between Detail design and the ESIA Consultants, to assess impact on environment from the options that were considered by the designer and to evaluate from environmental point of view.

Soil and Geology
The extent of impacts will depend on type of works and technology used to dig out and dispose extracted river material. Inadequate disposal of river sediment potentially contaminated by heavy metals may have negative impact on river banks.

Flora and Fauna Natural Heritage
Potential downstream influence of the change in water regime on rivers and coastline swamp areas in the wider Sava river catchment area. The extent of the impact will depend on the type and location of the works. The works will be carried out in vicinity of two protected sites, Obedska Bara and Majzecova Baštine which are considered Extreme Caution Zones (see Annex 1-6), and other potentially sensitive sites have also been identified within the project impact area.


Cultural Heritage
Dredging processes and other works might have negative impact on the following archaeological sites:

- Sremska Rača – archaeological findings in the riverbed from the early Roman Ages,
- Confluence of Drina – archaeological findings from the Neolithic period,
- Sava river bad under the railway bridge near Šabac – site in the riverbed dated from 14th century,
- Sava riverbed in Šabac – remains of the Roman villa rustica,
- Sava riverbed (95 – 96 km) – findings of the bronze sword from the Bronze age and
- Sava bank in Šabac – remains of the Roman villa rustica.

The preconstruction research of the above-mentioned sites should be conducted by the Republic Institute for Protection of Monuments of Culture in Belgrade at the investor's cost in line with an approved Physical Cultural Resources Management Plan.

Noise and vibration
There may be limited increased noise and vibrations in the river environment and the nearby areas during construction activities. Noise and vibrations could have negative impact on birds nesting and fish migration that is unfavorable during mating/spawning period.

Visual quality
Loss of, and damage to, geological and physiographic features, reduction in vegetation cover, change of plants composition, mainly in river bank.

Accidental situations
Constructions works and also Demining Works could harm people directly or indirectly. Physical accidents can occur during this phase. Possible incidental pollutions by spilling of mechanical oils from dragging machines.

Table 10-2 Environmental Impacts during Operational Phase

<table>
<thead>
<tr>
<th>OPERATIONAL PHASE</th>
<th>ENVIRONMENTAL TOPICS</th>
<th>EFFECTS / IMPACTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air quality</td>
<td>Increase of levels and effects of emissions during normal operation (movement of trade vessels). Using waterways is energetically more economical then roads or railways.</td>
<td></td>
</tr>
<tr>
<td>Water</td>
<td>Effects on water quality due to the navigation of vessels (accidental oil and chemical spills, water pollution by permanent and active source of fenol, heavy metal and other exhaust gas pollution, wastewater, and ballast waters)</td>
<td></td>
</tr>
<tr>
<td>Soil and Geology</td>
<td>Soil contamination, solid waste management, changes in fertility and suitability of hydromorphic soils out of the inundation zone.</td>
<td></td>
</tr>
</tbody>
</table>
## 11 CUMULATIVE IMPACTS

At this ESMF process stage, several foreseen cumulative impacts have been identified as guidance for assessment for potential cumulative impacts at the project site. The ESIA will provide a more thorough evaluation of possible cumulative impacts once the specific locations of the rehabilitation works will be provided to allow fair evaluation of these activities in link with other on-going investments, projects, urban development impacts that cumulatively could affect the downstream area of the project. The potential cumulative impacts should be evaluated in the context of existing, planned and proposed river regulation and water management projects affecting the Danube River and its major tributaries including the Sava River.

Types of project impacts which should be evaluated in the light of potential for cumulative impacts include:

### Abiotic elements:
- Loss of water quality and human health condition (due to earthmoving machinery accidental spills, all in synergy with area businesses, mainly paper, hydro and some metals manufacturing, beverages, ceramics, wood.
- Climate Change effects linked to the decrease of the water flow on the national level expected in forthcoming period (up to 2100) as per UNFCCC information; further, it is assumed that climate changes in the future will eventually cause droughts, low flow situations and water scarcity in the whole Sava River Basin.
- Impaired physical chemical and biological quality of the water system.
- Overwhelmed or illegal waste dumping sites and due to the disposal of Increasing Inappropriate Amounts of waste materials.
- Impacts downstream (sediments). Direct stream management can impact stream shading and temperature and can also remove trees so there are no large logs that can form pools and other structures necessary for stream and vegetation habitat. Moreover, during construction works toxic sediments can settle along the stream and produce the contamination of water.

### Biological elements:
- Loss of vegetation and wildlife movement (for increased dredging of the river, a greater depth and vegetation clearing);
- Impact on aquatic life (fish, aquatic mammals, amphibians and reptiles), noise, water movement, water shortages during construction;
• Impacts downstream (sediments). Surface erosion can deliver fine sediments that fill gravels and suffocate incubating fish eggs and could also harm fish habitat.

Social elements:
• Decrease or loss of recreational activities (for the major dredging that enables the movement of larger boats, making it impossible to carry out activities such as bathing, fishing or other recreational activities.)
• Attraction of Migrant populations to have successfully Communities That Improve Infrastructure river resulting in overcrowding, depletion of resources (eg space, supplies, water, etc.).

According to the level of impacts known at this project stage (before detail design assessment), the project environmental risks are expected primarily in link with the increase of water pollution (heavy metal and other wastewater) and noise due to river traffic and the planned dredging works. Cumulative impacts could affect downstream project areas including river hydrology and protected zones because of the sediment dredging activities (and the transport and disposal of dredged materials).

Every impact linked to the river and caused by this project or other, near the area of impact, will be studied in the ESIA in order to evaluate and confirm possible cumulative impacts listed above. This analysis will focus also on temporal and spatial scales thus the impact at short, medium and large scale can be estimated.

The following most common social impacts are envisaged of this project:

<table>
<thead>
<tr>
<th>SOCIAL IMPACT TOPIC</th>
<th>EFFECTS / IMPACTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resettlement of population</td>
<td>Based on information analyzed so far, we conclude that no resettlement of any population is expected to happen as result of this project.</td>
</tr>
<tr>
<td>Impact on the most vulnerable groups</td>
<td>Based on information analyzed so far, not any specific vulnerable group is identified to be directly affected by specific project activities.</td>
</tr>
<tr>
<td>Land acquisition</td>
<td>It is not clear that permanent or temporary land expropriation is expected to happen in some project sites. To be further clarified once all project activities are fully designed.</td>
</tr>
<tr>
<td>Economy</td>
<td>Potentially increased level of business activity and increased level of employment in some municipalities is expected to happen as result of implementation of project activities.</td>
</tr>
<tr>
<td>Security</td>
<td>Increased level of security of local population due to demining works.</td>
</tr>
</tbody>
</table>

However, all social impacts will be detailed during the fieldwork and once the works that will be implemented on the river are known.

12 ENVIRONMENTAL AND SOCIAL MITIGATION FRAMEWORK

There are three established strategies (and measures related) for impact mitigation: avoidance, reduction and remediation. Measures are selected trying to prioritize these three aspects.

Joint Statement gives “guidelines” for the future technical-ecological design. The environmental measures will be more precisely defined during the ESIA stage according to the regulations of each country (entity) involved in this project.

Following, there are proposed protection measures during construction and operation, including measures for possible ecological consequences prevention and mitigation.

Some of these measures might not be necessary and they will be finally defined in the EIA Stage when the approach of the Detail Design will be known.
<table>
<thead>
<tr>
<th>Environmental Component Impacted</th>
<th>Impact Mitigation Measures</th>
</tr>
</thead>
</table>
| **Air Quality**                 | - Conduct regular service for equipment and vehicles engines at the construction site to control quantity and quality of emissions  
- Transport the spilled load (e.g., construction materials) with adequate vehicles while keeping it moist and covered especially during windy days.  
- Wet paths within the construction site and working areas during dry season.  
- Limit transport vehicle speed up to 30 km/h |
| **Water Quality**               | - Area for fuel installation and for machinery service (area which is used for spilled oil collection and direction into collector through oil and grease separator) has to include special (impermeable and chemical proof material) canal. Maintenance of all equipment and repairs should be conducted on appropriate protected surface.  
- All repairs of mechanization an filling of transport means should be conducted outside of the intervention area (outside of the 3rd zone of water protection).  
- Insure sufficient number of chemical toilets during construction and provide regular discharge by authorized company.  
- Construction material/waste disposal and landfill creation is forbidden in inundation zone and river Sava riverbed (in the range of minimum 50 meters from riverbed).  
- Define all activities to be conducted in the inundation zone and river Sava riverbed in cooperation with an authorized water management company.  
- Place warning signs in the passage going through the zone of possible water source pollution. |
| **Soil and Geology**            | - In the course of performing earth works the “humus layer” should be deposited and after completion of the works it should be used for landscaping.  
- Construction materials are not allowed to be spread, stored or temporarily disposed on agricultural or forest land. If excavated material is to be reused, it is necessary to test the fertility and eventual level of pollution of the excavated material beforehand, after which the decision can be made on the possibility of its use in agricultural or forest land.  
- During construction the existing network of access paths is to be used. It is necessary to first test the state of the existing network of paths and rural roads and if needed renew or reconstruct them, taking into consideration the upcoming movements of heavy construction machinery on existing paths, which were not constructed for this purpose.  
- During access roads designing, crossing of larger agricultural areas shall be avoided, that is the roads shall follow up the plot borders of agricultural land wherever possible, in a way as not to endanger valuable and endangered hedgerow habitats (hedges, single trees, groups of trees, ponds and meadow strips).  
- Access roads shall be constructed for necessities of construction only if some sections of the route cannot be reached by existing traffic roads and paths. Where access roads or other ancillary infrastructure are needed, they will be covered by the ESIA/ESMP. Limit the movement of heavy machinery during the rehabilitation works so that the surface area of agricultural land and the path network devastated by works is the least possible.  
- Once finishing construction works the path network, i.e. the rural paths should absolutely be remediated.  
- It is necessary to conduct frequent and controlled disposal of waste in the proper manner, i.e. ban temporary or permanent disposal of priory listed waste on the surrounding soil.  
- All surplus construction material not used for construction work needs to be deposited in foreseen areas, and construction waste should be systematically removed.  
- Conduct soil analysis prior to the commencement of construction and subsequent analysis following remediation so that the needs for future monitoring can be met. |
<table>
<thead>
<tr>
<th>Environmental Component Impacted</th>
<th>Impact Mitigation Measures</th>
</tr>
</thead>
</table>
| Flora and Fauna                 | - Define roadways for construction mechanization upfront in order to protect vegetation, wetlands and protected areas.  
- Avoid trees and bushes cutting; to allow cutting the trees which directly obstruct construction; to protect all other plants which do not obstruct construction.  
- Define all activities to be conducted in the inundation zone and river Sava riverbed in cooperation with authorized water Management Company.  
- Damage to edge trees and their roots shall be avoided by careful work and observing prescribed measures and procedures during construction. Trees if cut shall be re-established and maintained, i.e. the stumps shall be removed, all cut wood mass shall be transported away. By establishing a forest order it will be provided for remaining trees, especially to those on newly created edges, to build a new protective edge of the community, which will protect the community from direct and indirect negative impacts.  
- Dredging is to be carried out with an absolute minimum amount of spill and in periods with low flow to avoid spreading of toxic substances. The disposal of dredged sediment has to be done under controlled conditions and in special prepared deposits.  
- Special attention should be paid to handling of light inflammable materials and open fire. In this respect all regulations and procedures on protection of forests against fire should be observed.  
- Develop a rulebook with norms on human conducting and activities on environment, place caution and prohibition signs, especially for activities that can cause fire (smoking, setting open fire, etc.).  
- If applicable, avoid works during fish spawning period,  
- Avoid dredging too close to the river banks  
- Dredging works should be carried out only after sediment analyses.  
- Regularly clean accumulated sediment before construction activities  
- Re-cultivate river banks with original plant communities.  
- Avoid excavation works closely to swamp ecosystems.  
- Carefully plan constructions in consultation with biological experts.  
- Disposal of waste from boats are prohibited by law; port managers should establish alternative facilities for proper boat waste disposal and ensure proper implementation.  
- Make an Operation Activity Plan for all type of accidents on water. |
| Natural Heritage                | - Workers are obliged to act in a way that causes limited harms to nature, and upon completion of the intervention is obligated to establish or approach the state nature was in prior to the intervention.  
- During the execution of the intervention in nature and the use of natural resources which affect habitats of wild taxa, measures, methods and technical resources are applied in order to contribute to the maintenance of a healthy state of species, i.e. where wild taxa or the habitats of their populations are hindered in the least possible way. Within internationally important areas for birds work on the waterway should be done outside the nesting period.  
- Findings of fossils and minerals which could represent protected natural values should be reported to the appropriate state administration body and take necessary measures for protection from destruction, damage or theft. |
<p>| Cultural Heritage               | - Prior to the beginning of earth works exploratory archaeological investigation shall be conducted at the sites of Sremska Rača – archaeological findings in riverbed from early Roman Ages; Confluence of Drina – archaeological findings from Neolithic period, archaeological sites; Sava river bed under railway bridge near Šabac – site in riverbed dated from 14th; Sava riverbed in Šabac – remains of Roman villa rustica, sava riverbed (95 – 96 km) – findings of bronze sword from Bronze age and Sava bank in Šabac – remains of Roman villa rustica. Scope of the research shall be defined by the Republic Institute for Protection of Monuments |</p>
<table>
<thead>
<tr>
<th>Environmental Component Impacted</th>
<th>Impact Mitigation Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>- of Culture in Belgrade.</td>
<td>- Hydro archaeological and archaeological supervision shall be provided at the beginning and in the course of all works in the areas of potential archaeological sites. Investor bears all the costs of research.</td>
</tr>
<tr>
<td>- Archaeological supervision can only be performed after mine clearance and vegetation removal that is prior to the beginning of earth works, when an archaeological reconnaissance of the operative section of the route must be conducted.</td>
<td>- If during earth works objects of archaeological interest are found, works must be stopped and the findings reported to the competent art-conservation department.</td>
</tr>
<tr>
<td>- Implement closely the Physical Cultural Resources Management Plan</td>
<td></td>
</tr>
<tr>
<td>Noise</td>
<td>- Only machines in good working order shall be used and their proper functioning shall be regularly checked.</td>
</tr>
<tr>
<td>- Works near residential buildings shall be performed only during daytime and evening hours (6-22).</td>
<td></td>
</tr>
<tr>
<td>Visual quality</td>
<td>Special attention is to be given to the possible river bend improvement works within the nature and landscape areas protected by law:</td>
</tr>
<tr>
<td>- The main design has to be prepared in collaboration with a landscape architect.</td>
<td>- Morphologic study is to be prepared together with the main design.</td>
</tr>
<tr>
<td>- Minimize the regulation of the waterbed.</td>
<td>- Define roadways for construction mechanization upfront in order to protect the existing landscape.</td>
</tr>
<tr>
<td>- Avoid trees, bushes, hedges cutting; to allow cutting the tries which directly obstruct construction; to protect all other plants which do not obstruct construction.</td>
<td>- All hydrotechnic objects are to be constructed in harmony with the surrounding landscape</td>
</tr>
<tr>
<td>- Once finishing construction works the path network, i.e. the rural paths should absolutely be remediated.</td>
<td>- Once finishing construction works all devastated areas (areas of destroyed vegetation, deforested areas) should absolutely be remediated.</td>
</tr>
<tr>
<td>Waste management (soil pollution)</td>
<td>- Wastes from construction activities will handled in accordance with laws, while land based waste will require appropriate waste management plans</td>
</tr>
<tr>
<td>- Provide sufficient number of containers for communal, construction and hazardous waste and organize regular unloading by authorized company.</td>
<td>- Conduct organized discharging of waste containers by authorized company, sorting out useful waste (glass, cardboard, plastic or metal packages and tires for example) and hazardous waste (mineral oils, grease and accumulators for example).</td>
</tr>
<tr>
<td>- Waste oil and grease from machines and vehicles (including rags and other material soaked with oil and grease), as well as other dangerous wastes shall be separately collected in appropriately marked containers, which, once they are full, shall be co-signed to a licensed dangerous waste collector.</td>
<td>- Conduct inquest register on liquid and hard waste disposal and other documentation required by regulations.</td>
</tr>
<tr>
<td>Accidental situations</td>
<td>- Limit all activities that could cause fire, set up fences around the construction site and place signs that forbid unauthorized entry</td>
</tr>
<tr>
<td>- Ensure undisturbed access for intervention vehicles in the case of fire by maintaining the fire ways</td>
<td>- Every machine has to be equipped with the fire extinguisher which does not have halones</td>
</tr>
</tbody>
</table>
| - Removal of pollutants after extinguishing a fire (extinguishing foam) by collecting the surface layer with tools – shovels and buckets or barrels, and further disposal appropriate for hazardous waste – delivering it further to a legal person registered and authorized for handling and collecting hazardous waste. | - It is necessary to have neutralizing substance for minimally 1000 l of fuel and hand
Environmental Component Impacted | Impact Mitigation Measures
--- | ---
Air Quality | - Tools for pollutant removal available at the construction site.
- Substances used during remediation of unexpected water pollution need to have a water usage license.
- Special remediation of the environment will be needed only following larger exceptional situations such as larger explosions, fires or earthquakes of greater intensity.
- Inform people regarding Mines fields areas.
- Establish a security zone around the foreseen demining areas.
- Marking of demining works areas.
- Develop of demining works according to proper security protocols.
- Ensure full personal protection and insurance for all demining workers as well as for local population that lives in impact zone of demining work.
- Ensure awareness and appropriate information dissemination about construction works, about possible dangers, with appropriate signs, warnings, rules of behaviour in construction zone for employees and local communities.

Water Quality | - Allow for financial compensation for temporary or permanent land expropriation in accordance with corresponding laws, procedures and policies.
- Sort and deposit safely the waste. Provide effective spill prevention, control measurements and secondary containment procedures to avoid accidental or intentional releases of contaminated fluids.
- Monitoring of surface water quality in Sava River should be undertaken regularly in line with national laws.
- Procure oil catchers in case of accidental spilling of oil.
- Provide safe disposal of sanitary waste water from ships in ports. The ships should undertake ballast water management measures in accordance with requirements of the International Convention for the Control and Management of Ships Ballast Water and Sediments.
- Oil, chemicals, heavy metals and other hazardous substances should be stored on ships in a way to minimise spilling and pollution.
- Provide appropriate procedures for managing chemical and fuel storage areas.
- Fuelling, loading and unloading activities on ships should be conducted by properly trained personnel according to pre-established formal procedures.

Soil and Geology | - Not considered at this stage (to be done during ESIA).

Flora and Fauna | - Prohibit river traffic on the known spawning places in line with recommendations provided during the ESIA development.
- Regular yearly monitoring of quality and quantity composition of river and terrestrial flora and fauna.
- Conduct analyses of potential mortality and injuries of wildlife caused by navigation.
- Carry out annual aquatic electro-fishing survey for at least 3 years after construction.
- Monitoring and review progress of re-vegetation and maintenance of re-vegetation Regular control of invasive river and terrestrial flora and fauna species (potentially introduced by boats and barges).
- Monitoring of fauna crossings (bird, mammal etc.).

Natural Heritage | - Prohibit recreational traffic and traffic of high-speed boats in the vicinity of bird protection areas, as well as the anchoring and berthing in special nature reserve during the period March – July.
- Prohibit boat traffic through resting areas for migrating birds.

Cultural Heritage | - Prohibit traffic of high-speed boats in the vicinity of known archaeological sites.

Table 12-2 Impact Mitigation Measures during Operational Phase
Regarding possible causes of impact and impact mitigation principles and measures for socio-economic elements during operation, the most important thing is to ensure participation mechanisms for local community to address any potential problems that might be related in operational phase.

In the case of demining works, negative impacts are not envisaged because demining will free land as well as life around areas that were not accessed so far. However, the local population should be ensured that the demined land is without any risks.

In the case of Brčko Port, important mitigation measures in operational phase are related with regulation of water, waste, noise and traffic management of Port as well as increased level of employment and business activity in local community due to increased traffic through Port Brcko.

For all suggested works on River Sava in Serbia, negative impacts are not expected during operation phase, once all issues regarding land expropriation are settled.

### 13 ENVIRONMENTAL AND SOCIAL MONITORING FRAMEWORK

Analyses of sediment quality should be performed before and during the construction to obtain specific information about possible accumulations of heavy metals in deeper layers of sediments. All monitoring activities should also obtained information about concentrations of nutrients and changes in concentrations of dissolved oxygen. If higher levels are found according to national or international standards, different measures could be adopted such as water filtration (cleaning provisional channels), or biological treatments. Some of these effects could need time to allow the river recover to previous status due to its natural flow.

There should be a constant monitoring of flora and fauna by continuous observations during execution of works and later during exploitation.

The following table includes an overview of possible monitoring activities that will be finalized during the detail design and ESIA:

<table>
<thead>
<tr>
<th>Environmental Component Impacted</th>
<th>Impact Mitigation Principles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Noise</td>
<td>- Noise measures near relevant sources to guarantee implementation of Legal Framework requirements</td>
</tr>
<tr>
<td>Visual quality</td>
<td>- Maintenance of vegetation in riverbanks and maintenance of floating vegetation on river.</td>
</tr>
<tr>
<td>Wastes</td>
<td>- Correct management of Wastes in works area following Legal Framework.</td>
</tr>
<tr>
<td>Accidental situations</td>
<td>- Allow passage of vessels that transport hazardous cargo and substances (chemical, oil, etc.) only with police entourage.</td>
</tr>
<tr>
<td>Land expropriation construction phase</td>
<td>- Allow for financial compensation for temporary or permanent land expropriation in accordance with corresponding laws, procedures and policies</td>
</tr>
<tr>
<td>Demining works – construction phase</td>
<td>- Ensure full personal protection and insurance for all demining workers as well as for local population that lives in impact zone of demining work</td>
</tr>
<tr>
<td>Construction works – construction phase</td>
<td>- Ensure awareness and disclose information about construction works, and possible dangers, with appropriate signs, warnings, rules of behaviour in construction zone for employees and local communities</td>
</tr>
</tbody>
</table>

For all suggested works on River Sava in Serbia, negative impacts are not expected during operation phase, once all issues regarding land expropriation are settled.
<table>
<thead>
<tr>
<th>Minimal parameters to monitor</th>
<th>Frequency of monitoring</th>
<th>Monitoring responsible body</th>
<th>Location of monitoring</th>
<th>Cost estimation/sample</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Water</strong></td>
<td>On monthly basis</td>
<td>Consultant nominated by responsible ministry</td>
<td>Along the whole river (specific locations to be established during ESIA)</td>
<td>30 -90 €*</td>
</tr>
<tr>
<td><strong>Air</strong></td>
<td>1 per year</td>
<td>Consultant nominated by responsible ministry</td>
<td>1 measuring station /40,000 m²</td>
<td>500 €*</td>
</tr>
<tr>
<td><strong>Soil</strong></td>
<td>if required based on site conditions</td>
<td>Consultant nominated by responsible ministry</td>
<td>~20 - 25 samples equally allocated on test area</td>
<td>50-100 €*</td>
</tr>
<tr>
<td><strong>Noise</strong></td>
<td>Just in the case of complains</td>
<td>Consultant nominated by responsible ministry</td>
<td>Locations close to the settlements</td>
<td>500 €*</td>
</tr>
<tr>
<td><strong>Wastewater</strong></td>
<td>---</td>
<td>Consultant nominated by responsible ministry</td>
<td>Close to the locations where is possible discharge of wastewater (e.g. factory, business etc.)</td>
<td>200 €*</td>
</tr>
</tbody>
</table>

* Depends on the number of test that will be performed on sample

Periodically survey the hydraulic structures and in the case of the need for their reconstruction, make the harmony with the surrounding landscape. During the exploitation is necessary to conduct monitoring and changes in the landscape as well as the accomplishment of planned landscaping.

In the event of any unusual occurrence in the impact area, such as excessive foaming or dead fish on the surface of the Sava River and its tributaries, the client should notify the competent institution for the protection of the environment in the area in accordance with the Plan for Accidental Pollution competent field.

14 **RESETTLEMENT POLICY FRAMEWORK**

All World Bank financed projects involving resettlement components are subject to the World Bank Operational Policy (WB OP) 4.12 Involuntary Resettlement, revision December 2001, and Bank Procedure (BP) 4.12 of December 2001, which describe instruments and procedures for eliminating negative economic, social and environmental issues that may arise. The policy is triggered not only with physical relocation, but any loss of land resulting in relocation or loss of shelter, loss of assets or access to assets and loss of income sources and means of livelihood.

For subprojects to be prepared during project implementation the Bank requires that resettlement policy framework consistent with this policy framework and Annex A on Involuntary Resettlement Instruments is prepared and submitted to the Bank for approval. The purpose of the resettlement policy framework is to clarify resettlement principles, organizational arrangements, and design criteria to be applied to subprojects to be prepared during project implementation.

The resettlement policy applicable to the project is a separate document than the ESMF based on the following main principles:

- displaced persons shall be informed about their options and rights pertaining to resettlement;
- displaced persons shall be consulted on, offered choices among, and provided with technically and economically feasible resettlement alternatives; and
displaced persons shall be provided prompt and effective compensation at full replacement cost for losses of assets attributable directly to the project. Preference is to be given to land-based resettlement strategies over payment of cash compensation, especially for displaced persons whose livelihoods are land-based.

- If the impacts include physical relocation, displaced persons shall be provided assistance (such as moving allowances) during relocation, provided with residential housing, or housing sites, or, as required, agricultural sites for which a combination of productive potential, locational advantages, and other factors is at least equivalent to the advantages of the old site.

- displaced persons shall be offered support after displacement, for a transition period, based on a reasonable estimate of the time likely to be needed to restore their livelihood and standards of living

- Displaced person shall be provided with grievance redress mechanism, i.e. affordable and accessible procedures for third-party settlement of disputes arising from resettlement.

- Resettlement activity shall be monitored by the implementing agency.

15 INSTITUTIONAL CAPACITIES FOR ESMF IMPLEMENTATION AND MONITORING

Role of different institutions during project implementation

Role of manager in the project implementation phase will be assumed by the Ministry of Transport and Communication of BiH and Ministry of Transport RoS.

For BiH the jurisdiction for the project might be sized down to RS Ministries for Transport and Communication and BD Department for Public Affairs.

The implementation of Environmental and Social Management Framework, Environmental Management Plan and Resettlement Policy Framework will be responsibility of the Borrower and project designer (in the planning phase); the Executors of civil works and supervision works (in the construction phase), and the Manager(s) of Sava Waterway System in each of the countries/entities (in the implementation phase).

Stakeholder involvement is an important element of the overall Environmental and Social Assessment process for the SWR Project, as stakeholder identification and analysis at an early stage of a project is critical in the assessment of interests, concerns, relationships, assumptions, their level of influence and the ways in which they affect project risks.

Stakeholder identification and engagement commenced during project conceptualization and will continue throughout the ESIA development.

<table>
<thead>
<tr>
<th>STAKEHOLDER</th>
<th>ROLES</th>
</tr>
</thead>
<tbody>
<tr>
<td>WORLD BANK</td>
<td>Provide funding and advisory services for aspects of the project implementation</td>
</tr>
<tr>
<td>TRANSPORT AUTHORITIES (Ministry of Transport and Communications of BiH and Ministry of Transport of Serbia)</td>
<td>Coordinate, monitor, and supervise all deliverables. Consult with relevant stakeholders on all activities. Manage all investments and will disseminate all the information.</td>
</tr>
<tr>
<td>ENVIRONMENTAL AUTHORITIES (Ministry of Environment and Tourism of BiH, Ministry of Spatial Planning, Civil Engineering and Ecology of RS; Government of Brčko District, Department for Agriculture, Forestry and Water Management; Ministry of Energy, Development and Environmental Protection of Republic of Serbia)</td>
<td>Issues Environmental permits (BiH, RS and Serbia), monitors the activities and advises the Transport Authorities on all activities in the protection of the environment and sustainable use of natural resources.</td>
</tr>
</tbody>
</table>
STAKEHOLDER | ROLES
--- | ---
WATER AUTHORITIES  
Water Agency for Sava River District in RS; Department for Agriculture, Forestry and Water Management in Brčko; Ministry Of Agriculture, Water-Management And Forestry of Serbia  
These authorities will supply Water Management Approval.

The International Sava River Basin Commission  
Their main goals are to establish an international regime of navigation; a sustainable water management and to undertake measures to prevent or limit hazards. Thus, Sava River Basin Commission will participate and supervise ESA within all process.

NON-GOVERNMENTAL ORGANIZATIONS  
(WWF Serbia; REC Co Serbia; Association of environmental organization Serbia; Ekos Šabac; Pro Vitae, Sremska Mitrovica; Center for Environmental Sustainable Development; REC B&H Country office for B&H; Center for environment Banja Luka)  
Helping to tackle environmental issues in project area

OTHER STAKEHOLDERS  
Ministry of Maritime Affairs, Transport and Infrastructure of Croatia  
Agency for the Sava River of BiH  
Ministry of Transport and Communications of RS  
Brčko Distric Government  
Public Company Luka Brčko  
Brčko District  
Others (NGOs, etc)  
Express concerns on project impacts and also provide suggestions on sustainable options.

PROJECT AFFECTED PEOPLE/LOCAL COMUNITIES  
Express problems and possible project impacts and also provide suggestions on sustainable options.

Assessment of the capacity of different institutions
A Project Implementation Unit (PIU) will be established in MoTC of BiH to manage project implementation in BiH and also in Serbia. It will include special staff, experts in different areas of concern and should be realized with ministry’s own resources and other consultants if necessary. Another PIT will be formed in link with the activities planned in Brcko (sub-project/component 2). Their obligations include project management and technical tasks such as detailed design of works or training of staff or project beneficiaries. They evaluate and monitor which project tasks can be completed in accordance with time limits, available resources, and quality standards.

The environmental authorities involved in this project will develop their assignments of supervising, issue environmental permits, and monitoring impacts, etc.

Capacity Building and Training Needs
Effective implementation of this ESMF will require technical capacity in the human resource base of implementing institutions as well as logistical facilitation. Implementers need to understand inherent social and environmental issues and values and be able to clearly identify indicators of these.

Sufficient understanding of the mechanisms for implementing the ESMF will need to be provided to the various stakeholders implementing SWR subprojects. This will be important to support the teams...
appreciate their role in providing supervision, monitoring and evaluation including environmental reporting on the projects activities.

The MoTC of BiH’s Organization Chart is shown below. The Department responsible for the implementation is the Department for roads, railways, waterways, ports and pipelines included in the Sector for transport infrastructure, preparation and implementation of projects. This Sector also includes the mentioned Project preparation and implementation unit with the expertise and capabilities to develop the works.

**Ministry of transport and communications B&H**

<table>
<thead>
<tr>
<th>Position</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minister</td>
<td>Head of cabinet, advisors</td>
</tr>
<tr>
<td>Deputy Minister</td>
<td>Deputy Minister, Head of cabinet, advisors</td>
</tr>
<tr>
<td>Secretary</td>
<td>Secretary</td>
</tr>
</tbody>
</table>

**Organization chart**

- **Sector for legal and financial affairs**
  - Department for normative affairs
  - Department for personal and general affairs
  - Department for financial – material affairs
- **Sector for transport**
  - Department for road and railway traffic
  - Department for air, water and pipeline transport

**Sector for transport infrastructure, preparation and implementation of projects**

- Department for roads, railways, waterways, ports and pipelines
- Project preparation and implementation unit

**Staffing arrangements for Implementation**

The implementation team should consider any additional staffing arrangements that may be needed to ensure project runs safely and effectively.

If any technical support or personnel with expertise in environmental management is needed during the process, then the Authorities involved will have to provide experience by hiring consulting support, adding new expert personnel or train their staff to enhance such capacity.

16 **OVERALL ESMF PUBLIC CONSULTATION PROCESS**

The Public Consultation process aims to improve the efficiency, transparency and public involvement, and guarantee stakeholders from BiH, Serbia and Croatia get involved during the whole process. According to Consultant’s ToR, the Public Consultation process will consist of minimum three main public consultation meetings: (i) The first meeting at the inception phase of the ESMF (First month); (ii) The Second meeting after the approval of the Draft ESMF and RPF by the World Bank and the Client; and (iii) the third meeting after Draft ESIA approval by the World Bank and the Client (ESIA is developed in parallel with the detail design).
These meetings shall be organized at locations and in a manner that is most convenient for all interested parties to participate. Efforts will be done for all stakeholders to be announced timely (via email notification, national/local newspapers, and other official venues) about the scope, and location of the respective meetings.

The First Consultation meeting on ESMF took place on Wednesday 24th January at 12:00pm at the Client’s premises (Ministry of Transports and Communications of BiH) in Sarajevo. The attendees were invited by the Ministry of Transport and communication as official organizer and host of First Public Consultation. The Consultant had help Ministry in organization of PC and presentation of the project. List of invited attendees is attached in Annex 3 – Consultation meetings, letters of invitation, minutes and presentations.

The main objective of the first Consultation meeting was to involve the relevant stakeholders in the development of the overall Environmental and Social Impact Assessment process of the Project from the beginning. First Public Consultation was organized in the Inception phase of the ESMF and it highlighted the fact that the ESIA scope is different than the ESMF scope.

To guarantee a proper disclosure of the information, the borrower previously published an announcement in three Newspapers. The announcement included invitation for all institutional stakeholders as well as for NGOs and ordinary people to come and express their opinion about project objectives and the tasks that will be performed in the future. In addition, invitation letters for the event were sent to certain number of institutions that previously were in some way involved in projects on Sava and its surrounding by the Ministry of Transports and Communications of BiH.

The meeting explained the Project goals, presented the Terms of Reference, defined the scope of works and introduced the Inception Report to the relevant involved agents in the Environmental and Social Impact Assessment, in order to get their suggestions and comments, and detect any peculiarity or aspect important for the correct development of the Assignment.

Annex 3 includes Minutes of the meeting, list of attendees, and the presentation (PPT) discussed at the meeting, as well as a copy of the invitation letter in English and the sent original ones in local language and the announcement published on the newspapers.

The meeting was helpful and discussions included the Project “Development of a full Environmental and Social Impact Assessment report, together with an Environmental and Social Management Plan” for the section from Brcko to Belgrade (hereinafter “the Study”) and the previous EIA prepared by Croatian Authorities and its gaps.

All attendees offered their support to the Consultant, to move the Study forward; some of their observations are listed below:

- The project documentation (ToR and the Study) should mention Croatian Regulations, and not only Serbian and Bosnian and also be agree with the “Joint Statement on Inland Navigation and Environmental Sustainability in the Danube River Basin”, document accepted by International Commission for the Protection of the Danube River, International Sava River Basin Committee and Danube Commission, because this statement aims to shift the interest of environmental protection and it’s relevant to this project. It was clarified by the client that it already exists in the Croatian EIA and this assignment covers BiH and Serbia. In addition and according to the ToR, the Consultant should address gaps in Croatian EIA based on WB regulations.

- The study should also have into consideration the “Sava River Basin Management Plan”.

- The attendees should be informed about the legal framework that will be followed during the project.
The study comprises three components: works on structure of the waterway, investment to improve the Brčko port capacity and last part related to demining works. Some of these activities will be in the territory of Republika Srpska, mainly demining works and waterway rehabilitation works and in the Brčko District also the waterway rehabilitation and activities in the port of Brčko.

According to the current information and based on contacts made with the authority, the project for the Brčko port rehabilitation is approved and accepted and the environmental permit is already obtained. This means that the project has satisfied environmental requirements given by Brčko District authorities.

In the Republika Srpska there will be demining works which don’t require environmental permit. Besides the environmental impacts analysis of social impact is also required by the WB and resettlements as a result of works have to be analyzed.

Some data was given about the investment in Brčko Port. With it, it is expected an increase up to a 60-70% of the total port capacity.

It was noted that, there are still environmental permits on going for the IPA 2008 project and that aspects should be considered as lesson learned for this project (time spent).

The Study done by Croatia covers the whole area of Brčko, and that the project was validated to obtain the environmental permit.

This study will be done in accordance with regulations of World Bank in local and English language, but will also consider local regulations and procedures.

The problems with different environmental procedures and its progress were discussed.

It was also mention the fact that the main design has not been awarded yet, and it could introduce some changes and amendments to the Preliminary Design.

The Sava commission will be involved in the study project and will be included in the Steering Committee that should meet after each Consultant’s report submission.

Even invited no representatives of Serbia and Republic Srpska attended the meeting. The consultant made some contacts with them in order to get information, but it would have been desirable their attendance.

These comments have been included in the Inception Report as well as in the ESMF Document.

The Second Public Consultation on ESMF took place on Tuesday 9th April at 12:00 pm at Queen Astoria Design Hotel in Belgrade (Serbia). The main objective of this second meeting was to involve the relevant stakeholders in the development of the ESIA and to explain the drafts ESMF and RPF to the relevant stakeholders and collect comment and suggestions to be included in the final version.

In order to guarantee a proper disclosure of the information, it was previously published in two Newspapers (one in BiH and one in Serbia). In addition, invitation letters for the event were sent to all involved institutions; including local communities/project affected people, NGO’s, universities or research institutes and private businesses and industries related to the project impact.

Minutes of the meeting, presentation, letter of invitation and announcement published in the newspapers are attached in Annex 3. The main conclusions developed based on the discussions during the second Public Consultation meeting are listed below:

- Since the main design is still pending, exact locations where the works are going to be performed are still unknown. As the period of execution of the ESIA is 12 months from December 2012, the Consultant is working with locations available in both Master Plan and Preliminary design;
- Since this project is overlapping with project done by Croatia in territory of Brčko, now authorities in Brčko District are worried that they will have to repeat whole procedure which is very tangled. The consultant and the MoTC explained that it is not necessary to repeat this procedure, and that environmental permit can be amended with new findings obtained in
project “Environmental and Social Impact Assessment for Sava Waterways Rehabilitation on section from Brcko to Belgrade”;

✔ The Consultant will take into consideration all previous experience especially from Brčko District in relation to process of validation of the study and issuance of environmental permits. Once again it was emphasized that the Consultant will submit the study in compliance with regulations of World Bank but also with regulations of Republika Srpska, Brcko District and Republic of Serbia. In this sense, the English version of the study will be translated in two ways. It was clarified by the consultant that a first version of the ESIA will follow WB’s Operational Procedures and will be both in English and Local Language. Additional local versions will be prepared following the laws and regulations of the Republika Srpska, Brcko District and Serbia respectively. Those will be mainly the same contents, organized with a different structure and some specific additional contents;

✔ All stakeholders once more offered their support and help in further phases of the project. And the meetings with them will continue during the ESIA preparation, when it is necessary.

Additional comments to the draft ESMF discussed during the 2nd public meeting were provided separately by WWF. They included primarily observation on overall scope and coverage of the analysis such as the need to strengthen the document with more information on the status of the Croatia ESIA; analysis of project alternatives and relevant impacts; transboundary and cumulative effects especially downstream project area, and the dissemination and public consultation process of the ESIA (to be prepared based on this ESMF). The revised ESMF addresses most of these comments at the level appropriate for a framework document and provides guidance for addressing them at a specific and substantive level in the ESIA.

The ESIA developed in parallel with the detail design will address all suggestions provided during public meetings or received separately as follow-up of the ESMF documentation disclosure (e.g., suggested by WWF). The public meeting on the ESIA findings will provide another opportunity for stakeholders, NGOs and other interested parties to include any further comments on the project interventions impacts and benefits.