

**Annex 5. Inland waterways transport - realizing the potential**

**Transport Sector Review: Bosnia and Herzegovina - the road to Europe.**

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## TABLE OF CONTENTS

<b>1. INTRODUCTION.....</b>	<b>3</b>
<b>2. REVIEW OF THE INSTITUTIONAL FRAMEWORK.....</b>	<b>5</b>
The European dimension .....	5
The regional dimension.....	7
<b>3. THE SUPPLY SIDE: RIVER AND PORT INFRASTRUCTURE.....</b>	<b>13</b>
The Sava river .....	13
Brčko port .....	14
Šamac port .....	18
<b>5. CONCLUSIONS AND RECOMMENDATIONS .....</b>	<b>30</b>
Necessary improvements to the institutional framework.....	30
Necessary improvements to the waterway.....	30
Necessary Improvements to the public ports .....	32

## 1. INTRODUCTION

1.1 **Before 1990, the Sava fulfilled an important role in the regional waterway transport network.** The Sava river enters the Danube at Belgrade and extends through Serbia, BH, Croatia and Slovenia. Navigation was possible for much of the year from the confluence with the Danube at Belgrade all the way up to Rugvica in Croatia for a total length of 683 river kilometers (rkm). The Sava river is now categorized as an international waterway, forming the border between Bosnia and Herzegovina and Serbia for some 27 rkm, and between Bosnia and Herzegovina and Croatia for some 305 rkm. Serbia and Croatia also have sole responsibility for 175 rkm and 72 rkm (as far as Sisak) respectively.

1.2 **The Sava river in Bosnia and Herzegovina runs for a length of 332.4 river kilometers (rkm).** The Bosnian section of the river runs from rkm 175 to rkm 507.4, through the Federation of Bosnia and Herzegovina (FBH), Republika Srpska (RS), and Brčko Administrative District (BAD).<sup>1</sup> The largest share is in the RS (61 percent), followed by the FBH (32 percent), with the remaining 7 percent or 24 km under the responsibility of Brčko Administrative District. Prior to the break-up of the former Yugoslavia, navigation on the Sava was possible from the river mouth on the Danube up to the Galdov and Rugvica for a length of 683 rkm. The total amount of freight carried on the Sava river in 1990 amounted to 5.2 million tons of primarily bulk freight. There are three inland ports on the Sava river in BH: Šamac port (rkm 306) and Brčko port (rkm 221/225), and Bosanski Brod (rkm 368).

1.3 **Šamac port was originally designed to handle 1 million tons per year, and had developed plans for further expansion before the war.** However, the maximum capacity was never achieved. The port was usable approximately 220 days per year due to draught restrictions. The main commodities using the port, primarily bulk cargo, were steel and semi-finished products. The major clients of Šamac port were Energoinvest and Zenica Iron & Steel Works (Zenica Steel) and due to its good hinterland connections both by road and rail, industrial clients in the wider hinterland of what is now the FBH and RS were served. For example, companies in Prijedor and Modriča also shipped goods through Šamac port.

1.4 **The original capacity of Brčko port was approximately 670,000-750,000 tons per year, and the port enjoyed an average operational period of 260 days per year.** The volume of bulk freight being carried through the port in 1990 was 500,000 tons. The main clients at that time were Zenica Iron & Steel Works (Zenica Steel) and the Koksno-

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<sup>1</sup> Brčko Administrative District was established by the Dayton Peace Accords as competing claims were difficult to overcome. The territories of the two entities overlapped in Brčko District and since agreement on the inter-entity line was not forthcoming, BAD was formed under the arbitration process established by the Dayton Peace Accords. The District is self-governing, under the supervision of an international supervisor, appointed by the Office of the High Representative (and the EU Special Representative). With the recent addenda to the DPA, BAD now enjoys the same status as the other two entities.

Hemijski Kombinat (KHK) coke factory in Lukavac, which together accounted for approximately ninety five (95) percent of the traffic in Brčko port. The cargo comprised primarily coal, coke, steel products and sand/gravel.<sup>2</sup> The Tuzla-Zenica region was the main hinterland for the port (50 percent coal/coke; 40 percent steel; 11 percent consumer coal and 3 percent of other goods).

**1.5 The conflict was particularly hard on the Sava river and its ports, as in many areas the river represented the front line and the infrastructure was devastated and the area heavily mined.** In addition, since the end of the conflict, the Sava river has been neglected—with little or no maintenance expenditure or investment—and until recently annual traffic volumes have been modest, amounting to less than 400,000 tons on the entire waterway. The modest volume reflecting the limitations in navigability and the associated unreliability in arrival/departure for consignments for much of the year, together with the lack of marking in the fairway for safe passage. In some upper sections of the river, navigability is only possible for 100 days per year. In addition, the dangers to navigation on the river are such that insurance companies are reluctant to provide coverage for vessels and cargoes.

**1.6 However, the reopening of many of the extractive and heavy industries, together with existing and planned new developments, has generated considerable potential for future traffic.** Zenica Iron & Steel Works (Zenica Steel) in Zenica and the Koksno-Hemijski Kombinat (KHK) coke factory in Lukavac accounted for approximately 95 percent of the traffic in Brčko port. These two plants have now reopened—as Mittal Steel (Zenica) and as Global Ispat Coke Industries (Lukavac)—and represent major potential clients. A recent feasibility study, funded by the International Sava river Basin Commission (ISRBC), forecast an annual freight volume of 3.5 million tons by 2012 in the lower case scenario, and 5.2 million tons in the middle scenario, assuming navigability of the waterway. While forecasting demand from the existing very low base is fraught with difficulty, even overlooking the current turbulence in the external environment, more recent studies have also found considerable evidence of significant potential traffic for the river ports.

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<sup>2</sup> Parsons Brinckerhoff in association with Manalytics International (USA) and Bosnaputevi d.d. Sarajevo (B&H), (Nov 2000), *Port of Brčko Facilities Feasibility Study*; Final Report.

## 2. REVIEW OF THE INSTITUTIONAL FRAMEWORK

### The European dimension

**2.1 The promotion of inland waterway transport (IWT) is a key element of European transport policy.** Together with rail and short sea shipping, the IWT sector is considered to be one mode that can both contribute to mobility and help improve the sustainability of the transport system. Per ton-kilometer moved, the IWT sector is one of the most environmentally-friendly, energy-efficient, and safest modes of transport. The EU has more than 35,000 km of inland waterways linking many towns and areas of industrial concentration. Despite its many attractions, the modal share of inland waterway transport currently stands at seven (7) percent of total inland transport in the EU. However, in the hinterland of the largest seaports, the modal share can reach forty-three (43) percent. In line with the objectives established in the 2009 Transport White Paper,<sup>3</sup> the EU intends to promote and improve the competitiveness of IWT, with a particular focus on integrating more environmentally-friendly modes of transport such as rail, inland waterway transport and short sea shipping into the transport chain.

**2.2 The EU's multi-annual inland navigation NAIADES program recommends action to be taken between 2006 and 2013 in order to exploit the market potential of IWT.** On October 1, 2008, the European Commission launched PLATINA to implement more efficiently actions and measures promoting IWT included in the NAIADES program. The project, which is bringing together 22 partners from 9 European countries, is funded with BAM 16.6 million (US\$12.4 million) from the Commission and has been designed as a platform for assisting the implementation of NAIADES. The NAIADES program provides for numerous legislative, coordination and support measures, and focuses on five strategic areas:

- (i) Creation of favorable conditions for services and the development of new markets. This includes a) testing and introduction of new logistical concepts, b) supporting scheduled services for intermodal transport, c) facilitating access to capital for SMEs, and d) improving the administrative and regulatory framework;
- (ii) Incentives for the modernization of the fleet, e.g., by developing and promoting the use of innovative concepts and technologies for the construction of new vessels;
- (iii) Measures to address the skills shortage, e.g., by improving working and social conditions, greater mutual recognition of qualifications, and securing the existence of education and training institutions;
- (iv) Promotion of inland navigation as a successful partner in business, e.g., through more intensive publicity work or by setting up and expanding a European IWT promotion and development network; and

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<sup>3</sup> European Commission (2009) "A sustainable future for transport: towards an integrated, technology led and user-friendly system" (COM(2009) 279 (final) of June 17, 2009).

(v) Provision of appropriate infrastructure through the improvement and maintenance of the European waterway network and development of transshipment facilities, and by supporting and coordinating the development and the introduction of a river information system (RIS).

#### **Box 1. Summary of relevant EU directives for the IWT sector**

Since January 1, 2000, the IWT market has been regarded as fully liberalized within the EU. The main part of EU law for IWT focuses on (i) market access and competition; and (ii) harmonization of legal provisions among EU member states, as summarized below:

- (i) *Market access for international goods transport.* Council Regulation (EC) No. 1356/96 of July 8, 1996 aims to ensure that any operator is allowed to transport goods or passengers by inland waterway between member states and in transit through them without discrimination provided that he is properly established in a member state. The regulation does not affect the rights of third-country operators under the Revised Convention for the Navigation of the Rhine (Mannheim Convention) and the Convention on Navigation on the Danube (Belgrade Convention).
- (ii) *Freedom for non-resident carriers to operate inland waterway transport services in a member state (cabotage).* Council Regulation (EEC) No. 3921/91 of December 16, 1991. Since January 1, 1993, carriers who are properly established and licensed in a member state have been able to transport goods or passengers by inland waterway in a member state in which they are not established (cabotage).
- (iii) *Harmonization and mutual recognition of occupational qualifications.* Council Directive 87/540/EEC of November 9, 1987 regulates access to the occupation of carrier of goods by waterway in national and international transport and the mutual recognition of diplomas, certificates and other evidence of formal qualifications for this occupation. Reciprocal recognition of national boatmasters' certificates for the carriage of goods and passengers by inland waterway in the Community was achieved with Council Directive 91/672/EEC of December 16, 1991. Council Directive 96/50/EC of July 23, 1996 harmonized the conditions for obtaining these national boatmasters' certificates.
- (iv) *Competition rules.* Council Directive 96/75/EC of November 19, 1996 introduced a system of free chartering and pricing, thus ending the system of minimum compulsory tariffs, from 1 January 2000.
- (v) *Overcapacity.* The problem of overcapacity was addressed by Regulation (EEC) No. 1101/89 of April 27, 1989. The "structural improvements" in inland waterway transport comprise: (i) the payment of premiums for the scrapping of vessels; the obligation that the owner of the vessel to be brought into service to scrap a tonnage of carrying capacity equivalent to the new vessel ("old-for-new" rule) or pay into a scrapping fund a special contribution equal to the scrapping premium fixed for a tonnage equal that of the new vessel. Commission Regulation (EC) No. 336/2002 of February 22, 2002 introduced amended "old-for-new" ratios in order to maintain the overall balance, without reversing the structural improvements.
- (vi) *Technical requirements.* Council Directive 76/135/EEC of January 20, 1976 requires member states to recognize navigability licenses for inland waterway vessels issued by another member state. Most of the provisions of this directive were amended by the provisions of Council Directive 82/714/EEC of October 4, 1982. It also introduced a Community inland navigation certificate, valid on all Community waterways except the Rhine, attesting the compliance of vessels with the common technical requirements. For the Rhine, a valid certificate issued pursuant to Article 22 of the Revised Convention for the Navigation of the Rhine applies, and is valid on all Community waterways.
- (vii) *Harmonized river information services (RIS).* Community Directive 2005/44/EC of the European Parliament and of the Council of September 7, 2005 on harmonized river information services (RIS) on inland waterways in the Community, provides a comprehensive framework for the establishment and further development of a harmonized, interoperable RIS on the Community's inland waterways. The directive imposes an obligation on those member states through which certain Community inland waterways pass to establish information services in line with the principles and specifications set forth in the directive. With these interoperable information services based on modern information and communications technology, the aim is to integrate inland waterway transport more effectively into the intermodal logistics chain. Among other things, RIS will provide fairway and traffic information as well as strategic traffic information for time and journey planning. The system also opens up new opportunities for better freight and fleet management.

**2.3 The EU water framework directive is also relevant for the IWT sector.** Directive 2000/60/EC of October 20, 2000 requires member states to identify all river basins lying within their national territory and assign them to individual river basin districts. River basins covering the territory of more than one member state will be assigned to an international river basin district. By December 22, 2003 at the latest, a competent authority will be designated for each of the river basin districts. At the latest four years after the date of entry into force of this directive, member states must complete an analysis of the characteristics of each river basin district, a review of the impact of human activity on water and an economic analysis of water use, and compile a register of areas requiring special protection. All bodies of water used for the extraction of water intended for human consumption providing more than 10 cubic meters a day as an average or serving more than fifty persons must be identified.<sup>4</sup> The directive was amended by Decision 2455/2001/EC and Directive 2008/32/EC. One of the effects of the directive is that work on river banks intended to improve IWT navigation must take into account impacts on floodplains and on the river's morphology.

### **The regional dimension**

**2.4 Navigation on the Sava river is subject to several international and regional treaties and regulations, particularly the Framework Agreement on the Sava river Basin (FASRB).** In addition to certain global treaties such as the Ramsar Convention, UNECE treaties and the *EU Acquis Communautaire*, there are specific instruments regulating navigation on the Sava river and its tributaries, particularly the FASRB and related protocols. The FASRB was signed by the riparian countries (Republic of Slovenia, Republic of Croatia, Bosnia and Herzegovina and the former Federal Republic of Yugoslavia) in Kranjska Gora (Slovenia) in December 2002, after successful completion of negotiations run under the umbrella of the Stability Pact for Southeastern Europe. The agreement entered into force on December 29, 2004. Its objectives are: (i) establishing the international navigation regime on the Sava river and its navigable tributaries; (ii) establishing sustainable water management; and (iii) undertaking measures for prevention or restriction of danger, as well as elimination of the hazardous impacts of floods, ice, draft and accidents involving substances having negative impacts to waters. In realization of the first objective above, the parties committed themselves to special cooperation with the Danube Commission.

**2.5 Pursuant to the provisions of the FARSB, the parties adopted detailed rules on navigation in the Protocol on the Navigation Regime to the Framework Agreement on the Sava River Basin.** Navigation on the Sava river and all its navigable tributaries has been declared open to merchant vessels of any state, except in the case of transport between ports within the territory of one party. Merchant vessels are free to enter the ports for the purposes of loading, unloading, re-supply or other operations,

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<sup>4</sup> These measures seek to (i) prevent deterioration, enhance and restore bodies of surface water, achieve good chemical and ecological status of such water and reduce pollution from discharges and emissions of hazardous substances; (ii) protect, enhance and restore all bodies of groundwater, prevent the pollution and deterioration of groundwater, and ensure a balance between groundwater extraction and replenishment; and (iii) preserve protected areas.

under the condition of respecting national regulations and rules set by the ISRBC (see discussion on the commission below). The protocols on the Navigation Regime established that all vessels have an equal status in respect of payment of navigation and port fees, services and taxes; use of pilotage services; use of port equipment, anchorage suites, and navigation locks; as well as re-supply and other operations. In addition, the parties agreed to mutually recognize vessels' documents and qualification documents for crew, including the boatmaster's license.

**2.6 The ISRBC is financed from regular annual financial contributions of the parties as well as from other sources.** The ISRBC has authorization to make decisions on collecting fees for use of the fairway on the navigable rivers under its scope of responsibility, as well as the amounts and manner of collecting these fees. The funds collected from fees can only be used for maintaining and improving the navigation conditions on the Sava. The responsible authorities of the parties take on the task of supervising navigation in a uniform manner in accordance with the decisions of the ISRBC and their national regulations.

**2.7 The ISRBC has issued a series of decisions regarding the Sava river basin.** These decisions aim to develop the Sava river and harmonize in line with the EU IWT *acquis* and include: (i) parameters for water classification; (ii) inland electronic chart display and information systems (ECDIS); (iii) vessel tracking and tracing standards; (iv) annual marking plans; (v) rules on minimum manning requirements for vessels; (vi) minimum requirements for the issuance of boatmaster's licenses; (vii) rules for waterway marking; and (viii) navigation rules on the Sava river. In addition, recent activities include the preparation of the Sava river Basin Analysis Report as a first step in the development of the Sava river Basin Management Plan, as well as other activities in the field of water management; activities on rehabilitation and development of navigation on the Sava river waterway; and finalization and adoption of the GIS Strategy for the Sava river Basin.

**2.8 The ISRBC has recently made a decision regarding the detailed design for the rehabilitation of the Sava river.** Decision 21/09 of July 7, 2009 states that the Sava river will be rehabilitated to Class Va status from the confluence of the Sava and Danube Rivers in Belgrade to Brčko port and to Class IV status from Brčko to Sisak. Class IV European inland waterways of international importance requires a draft of 2.5 meters and allows navigation of vessels of 1,000 to 1,500 tons, while Class Va requires a draft of 2.5 to 2.8 meters and allows navigation of vessels weighing from 1,500 to 3,000 tons. The ISRBC decision reflects lower transit traffic and a marked increase in capital costs for work upstream, after Šamac port. Croatia will take charge of developing the detailed design of the Sava river from Brčko to Sisak using the EU Instrument for Pre-accession Funds (IPA), while BH and Serbia will agree on the development of the detailed design from Brčko to the confluence of the Sava and Danube rivers.

**2.9 The ISRBC has initiated work on the introduction of a river information system (RIS).** A pilot project for the introduction of a river information system has been initiated. This is a common project financed by BH, Croatia and Serbia, with financial

contributions sent to the ISRBC which is responsible for the project. A call for bids has been published and a contractor has been selected, and work started in September 2009. The consultants are tasked to develop a design for a RIS system, execute assessment of compliance of the proposed RIS system, develop the detailed design and prepare the technical specifications, cost estimates and bidding documentation, and install and test a prototype of the service. In this pilot phase, every country will have installed one base station on the river bank and one on a boat. The assignment is scheduled to be completed by the end-May 2010.

**2.10 In addition to the ISRBC, the Central Commission for the Navigation of the Rhine and the Danube Commission regulate navigation in these two rivers.** Since the Sava river is a tributary of the Danube river, the Danube Commission mandate includes: (i) supervising the implementation of the convention's provisions; (ii) preparing a general plan of the main work called for in the interest of navigation on the basis of proposals and projects presented by the member states and the Special River Administrations and likewise, drawing up an evaluation of the costs of such work; (iii) establishing a uniform system of traffic regulations on the whole navigable portion of the Danube and, taking into account the specific conditions of various sections of the river, laying down the basic provisions governing navigation on the Danube, including those governing the pilot service; (iv) unifying the regulations governing river, customs and sanitary inspection; and (v) harmonizing regulations on inland navigation with the EU and the Central Commission for Navigation on the Rhine.

### **The national framework**

**2.11 The institutional framework for the IWT in BH is no less complex than any other sector in BH.** The Dayton Peace Accords, and particularly Annex 9, imply that international and inter-entity water infrastructure, as well as traffic on that infrastructure, are the responsibility of the state ministry of communications and transport (MOCT). However, until the passage of a state level Law on Inland Water Transport, this is a mandate without a clear legal basis. By contrast, all intra-entity river traffic, as well as all aspects of waterway management and operations, are the responsibility of the respective entity ministries of transport, and Brčko Administrative District, for a short section of the river, who collectively are responsible for the transport infrastructure within their respective domains. IWT is at present regulated in accordance with the Law on Internal Navigation of the Republic of Srpska<sup>5</sup> and the FBH Law on Internal and Maritime Navigation of the Federation of Bosnia and Herzegovina<sup>6</sup>. No legislation exists at the level of the state, as the draught Maritime and Inland Waterway Law of 2005 has yet to be adopted. BH is represented in the ISRBC by the MOCT, which is the focal point for implementation of the FASRB in BH.

**2.12 The entity laws on inland navigation currently regulate the IWT in BH.** The entities laws on inland navigation are generally harmonized, allotting the responsibility to determine the navigation regime on inland waterways to entity governments. These laws

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<sup>5</sup> Official Gazette of RS, Nov. 14, 2001, no. 58.

<sup>6</sup> Official Gazette of FBH, Dec 28 2005, no.73 year XII.

state that enacting regulations on navigation safety and monitoring, and implementing them are under the responsibility of the entities' ministries of transport. In addition, entity laws stipulate that regulations regarding vessels are under the competence of the entities' ministries of transport, and regulation on piloting are to be adopted by Entity governments. Maintenance of the navigability of the waterway is an obligation of the entities' ministries of transport which can stop navigation on a waterway, or part of a waterway, for safety reasons. But the management of the watercourse, and hence responsibilities for maintenance, are the responsibilities of the respective ministries of environment/water, and the two entity agencies for the management of the water resources within the basin.

**2.13 The entity laws state that technical checking of vessels shall be carried out by an authorized company and licenses shall be issued by the ministries.** In addition, the laws define crew's qualifications and certificates needed for navigation in a certain category, as well as the sanitary and health conditions for obtaining the certificate. Inspection was recently regulated in the two entities by the Laws on Inspectorates which establish in each entity an independent administrative body, the inspectorate, and inspectors are therefore independent in performing their tasks according to the law. Inspectors are directly supervised by the head inspector, nominated by the government. In the event of dispute, based on documents issued by the inspector, an appeal may be submitted to the ministry relevant to the particular area.

**2.14 Other laws and regulations, particularly in the environment and water sectors, impact the IWT sector.** By decisions of the two entity governments in 1998, an Environmental Steering Committee (ESC) was established. The body is tasked to coordinate activities in both entities related to the protection of the environment, the synchronization of activities in water-related issues, and the international cooperation of BH in this area. Bylaws on environmental protection, adopted in both entities (in RS 2002, in FBH 2003) established the Inter-entity Environmental Body, with similar responsibilities as the ESC.

**2.15 In addition, supported by the EU, the two entities have drafted new legislations on waters which are mutually synchronized in accordance with the main EU water-related regulations, especially the EU Water Framework Directive.** The two parliaments adopted the laws in May (RS) and December (FBH) 2006. The laws deal with water management as well as water protection and provide the legal framework for bodies that prepare water policy, and monitor, and issue water acts. In addition, both entities have adopted relevant laws establishing customs services and providing basic rules for the international movement of persons and goods.

**2.16 The customs service is part of the Ministry of Finance in both entities, its main task being to implement customs policy and to collect customs fees.** Ports on the Sava river have already been designated as official border crossings and customs services are organized to provide for the regular flow of persons and goods in all ports. In the case of Brčko port, a customs terminal is located within the port itself, where heavy duty

vehicles are cleared, coming from and going to Croatia via the bridge northwest of the port.

2.17 **Currently, BH does not have a merchant fleet or ship register.** The proposed BH Law on River and Maritime Transport foresees the introduction of a register, licenses and expertise requirements, technical characteristics of vessels, fees and payment obligations, as well as various operational issues. Currently most vessels serving the ports of BH are registered in Serbia. Private shipping companies in Serbia are currently interested in the business of minor bulk traffic on the Danube and the Sava rivers, with plans to expand container traffic, primarily from the Black Sea and most likely in partnership with a deep-sea operator. Nevertheless, deep-sea operators are reluctant to commit themselves until the Sava river is fully navigable again. At present, depending on the navigability and conditions of the Sava at different sections, vessels of up to 650 tons on Class II sections to up to 1500 tons on Class IV sections operate on the Sava.

2.18 **BH needs to harmonize its institutional framework for the IWT sector with the EU *acquis communautaire*.**<sup>7</sup> Several areas in the current entities regulations and draft state legislation need to be revised to ensure conformity with the *acquis*: the freedom of chartering and pricing needs to be revised, as current BH regulations do not sufficiently address this issue, given that most vessels presently operating on the Sava are registered outside BH (mostly in Serbia). Conditions on cabotage, particularly for non-resident carriers, need revision as FBH legislation is silent on this subject, while cabotage in RS is only allowed for ships registered in the RS Ship Record Book. Rules for access to the profession, boat masters' certificates, and technical and safety conditions are addressed at entity level, and there is a need to further harmonize these procedures and licenses to reflect the relevant EU directives on conditions for obtaining certificates, mutual recognition of certificates, as well as safety and technical requirements. In addition, there is a need to set up a national fund to maintain the inland waterways. A detailed comparison of the regulations in BH and relevant EU directives is presented in Table 1.

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<sup>7</sup> The relevant EU legislation is contained in the *acquis communautaire*. This document is constantly evolving as it reflects the contents, principles and objectives of the treaties on which it is based. It summarizes the requirements in a number of chapters and contains all relevant directives, regulations and decisions, together with all principles of law and interpretations of the European Court of Justice, and all relevant declarations and resolutions of the Council of Ministers. In all areas, candidate countries must bring their institutions, management capacity and administrative and judicial systems up to EU standards, both at national and regional level, as a prerequisite for membership of the European Union. The transport chapter in the *acquis* also includes all international transport agreements to which the EU is a party, including what is now termed the European Conference of Ministers of Transport (ECMT) *acquis*.

**Table 1. Progress with regard to the EU *acquis communautaire***

Area of Reform	EU Directive	Present status
Cabotage	<p><u>Council Regulation 3921/91/EEC</u>: on conditions under which non-resident carriers may transport goods or passengers by inland waterway within a member state.</p> <p><u>Council Regulation 1356/96/EC</u>: on common rules applicable to the transport of goods or passengers by inland waterway between member states with a view to establishing freedom to provide such transport services.</p>	<p>Draft state legislation (not yet voted on): cabotage allowed exceptionally with special permit issued by MOCT.</p> <p>In RS, cabotage is only allowed for ships registered in the Serbian Republic Ship Record Book.</p> <p>In FBH, no reference is made to cabotage.</p>
Access to the profession	<p><u>Council Directive 87/540/EEC</u>: on access to the occupation of carrier of goods by waterway in mutual recognition of diplomas, certificates and other evidence of formal qualifications for this occupation.</p>	<p>There are no common rules for access to the profession. The two entities issue permits and licenses on the basis of exams organized within the harbor office/captaincies.</p>
Boat masters' certificates	<p><u>Council Directive 91/672/EEC</u>: on the reciprocal recognition of national boat master certificates for the carriage of goods and passengers by inland waterways.</p> <p><u>Council Directive 96/50/EC</u>: on the harmonization of the conditions for obtaining national boat master certificates for the carriage of goods and passengers by inland waterway in the Community.</p>	<p>Boat master certificates are issued at entity level. Issues regarding harmonization and mutual recognition of issued certificates.</p>
Technical and safety conditions	<p><u>Council Directive 76/135/EEC</u>: on the reciprocal recognition of navigability licenses for inland waterway vessels.</p> <p><u>Council Directive 82/714/EEC</u>: on the technical requirements for inland waterway vessels.</p>	<p>Licenses are issued at entity level and there is no harmonization or mutual recognition.</p> <p>Rule books on the technical characteristics are under development but are entity-based.</p>
Chartering and pricing	<p><u>Council Directive 96/75/EC</u>: according to which the member states are obliged to introduce the freedom of chartering and pricing in their national market for IWT, except in case of serious disturbance of market competition.</p> <p><u>Council Regulation 718/99/EC</u>: on the Community fleet capacity policy to promote IWT with an objective to set up transitional measures to avoid the immediate introduction of new overcapacity.</p>	<p>There is no BH inland waterway sector, so no attention has been paid to this item. All navigation is on the Sava river by vessels registered outside BH.</p> <p>The capacity regulations are currently irrelevant for reason of absence of an inland waterway fleet.</p>
Inland waterway fund	<p><u>Council Regulation 718/99/EC</u>: under which the member states have to set up a fund under their national legislation and with their own administrative resources.</p>	<p>No Fund is under consideration</p>
River information services	<p><u>Directive 2005/44/EC</u>: on harmonized river information services (RIS) on inland waterways in the Community.</p>	<p>The ISRBC has launched a pilot project for RIS covering Bosnia and Herzegovina, Croatia, and Serbia.</p>

Sources: EU, MOCT.

### 3. THE SUPPLY SIDE: RIVER AND PORT INFRASTRUCTURE

#### The Sava river

3.1 **In pre-war times, navigation on the Sava river was possible during most periods of the year, except during the summer period (low river flow times).** Navigation on the river was possible almost 250 days a year. In times of low river flows (particularly during July-August), limits were introduced for navigation. Limits for navigation speed were also introduced when there was fog, except if vessels were equipped with radar, and during severe ice and wind conditions. Navigability was Class IV from the confluence of the Sava at Danube rivers up to Brčko port (rkm 221/225), Class III from Brčko port to Slavonski Brod (rkm 365), and Class II up to Rugvica (rkm 653). Class II implies that the river was navigable for ships with tonnage of up to 650 tons, Class III for ships up to 1,000 tons, and Class IV for ships up to 1,500 tons with draft of 2.5 meters. The classification is according to the European Agreement on Main Inland Waterways of International Importance.<sup>8</sup>

3.2 **The current navigation conditions along the Sava river are difficult.** Morphological characteristics of the Sava riverbed are unstable, having a negative impact on navigation conditions such as the shallow depth of the navigation channel, sharp curves due to meanders, and resultant low speeds. In addition, the Sava river has a strongly fluctuating discharge resulting in strong variation in water levels and depths during the year. Heavy sedimentation in certain areas together with a lack of maintenance of the river bed has led to a reduction in the width and depth of the fairway (navigable channel). The result is that conditions for navigation along the Sava river can be difficult for much of the year. The unfavorable conditions arise from: (i) limited draft during periods of low water, reducing the number of navigable days to less than 200 in some places, and less further upstream; (ii) limited width and depth of fairway; (iii) sharp river curves/bends limiting the length and width of vessels and convoys; (iv) limited height under bridges at high water; (v) no river information system for vessels; and (vi) the existence of sunken vessels and unexploded ordnance. In addition, until recently, the channel was not even marked. A further rather worrying development, respecting concerns about the impact of climate change, is the discovery of a significant drop in the Sava river water levels in the period 1990-1999 compared to 1975-1984.<sup>9</sup>

3.3 **Several efforts and investments have been undertaken to improve the navigability on the Sava river.** Reconstruction work on 170 km of channel in critical parts of the River has already been completed. More recently BH invested BAM 297,000 (US\$220,000) and finished the bathymetric survey and planning for Sava river between rkm 165- rkm 20. Croatia, in cooperation with ISRBC, also invested BAM 297,000 (US\$220,000) to conduct the bathymetric survey and a pre-feasibility study for the part of

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<sup>8</sup> European Agreement on Main Inland Waterways of International Importance (AGN), Geneva, January 19, 1996.

<sup>9</sup> Pacific Consultants International et al, "Feasibility Study and Project Documentation for Rehabilitation and Development of the Sava river Waterway: Report on Transport and Cargo and on Port Development", Phase 1 Tasks 2 and 4, Final Report, July 31, 2008.

Sava river from rkm 207 to rkm 586<sup>10</sup>. The study recommends the upgrading of the river channel to Class IV on the section from Brčko port to Sisak.

**3.4 The ISRBC issued a decision regarding the marking of the Sava river in 2007.** Decision 31/07 which entered into force on December 13, 2007 commits FASRB signatories to mark the river for signs used to regulate navigation on the waterway and for signs for waterway marking. The detailed design of the marking system of the Sava river on the BH portion was finished in October 2008 and was developed over 5 months and financed by BH and is the basis for the rehabilitation of the marking system on the BH portion of the river. Marking on the Bosnian sections of the Sava river started in 2009 and was recently completed.

**3.5 More recently, the ISRBC engaged a consortium of international consultants to perform a feasibility study for the rehabilitation of the Sava river.** The feasibility study recommends a program in the three riparian countries of Serbia, Bosnia and Herzegovina and Croatia, based on an assessment of the economic case, of capital dredging, bank protection and groyne construction to return the Sava river to Class Va status, for the section of the Sava river between Belgrade and Sisak in Croatia—a distance of 539 river kilometers (rkm).<sup>11</sup> The estimated cost of the associated engineering work amounts to a total of BAM 124.3 million (US\$92.4 million) for all three countries, including the costs of replacing three bridges,<sup>12</sup> and the costs of introducing a river information and vessel tracking service. The estimate excludes the cost of necessary mine clearance work, expropriation, contingencies and design and supervision costs. In 2009, the ISRBC decided to rehabilitate the Sava river from the confluence of the Sava and Danube rivers—the confluence is located in Belgrade (Serbia)—to Brčko to Class Va and to Class IV from Brčko to Sisak.

### **Brčko port**

**3.6 The first port company at Brčko was founded on November 27, 1961 under the name of “Company, Harbor and Storage Place”.** Since 1973, J.P. Luka Brčko has been running the port business as an independent organizational unit. Presently, J.P. Luka Brčko is a commercial public company, established by the Law on Brčko port. In the typology of port management models Brčko port is classified as a public service port<sup>13</sup>. Formally, the Law on Public Companies in the Brčko Administrative District (BAD) defines a public company as a company performing activities of public interest. However, at the same time, the Law on Public Companies in the BAD limits the status of a public company, relating it primarily to the ownership over the public company,

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<sup>10</sup> ISRBC, “Pre-feasibility for Rehabilitation and Development of the Sava River Waterway”, March 2007.

<sup>11</sup> Class Va status requires a minimum draft of 2.5 meters, a width of fairway (or navigable channel) of 90 meters, horizontal clearance under bridges of 55 meters, vertical clearance under bridges of 7.0 meters at high water, and a radius in the curves of 450m. These dimensions allow the passage of vessels of up to 3,000 deadweight tons (dwt).

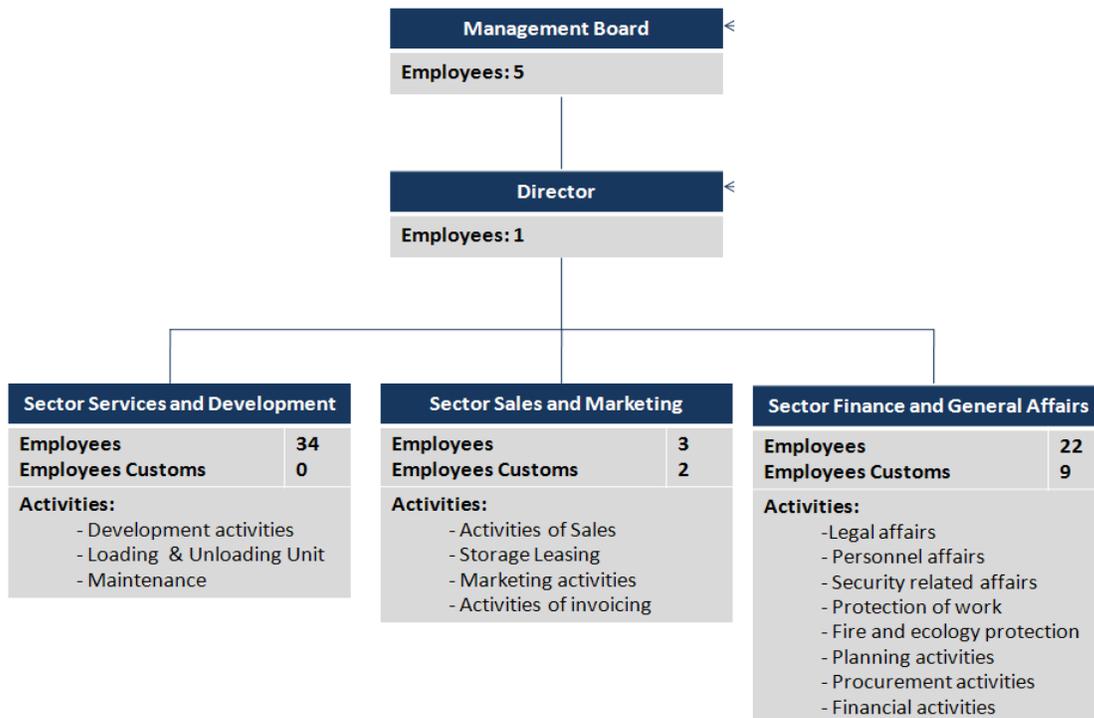
<sup>12</sup> Old Belgrade railway bridge, the old road and railway bridge at Sabac, and the bridge at Jasenovac.

<sup>13</sup> There are four main types of management model: public service port, tool port, landlord port, and fully privatized port.

foreseeing only BAD as the founder of a public company, which, based on its investment, acquires the right of ownership of 100% share in the public company capital.

**3.7 The port was registered as a limited liability company on the 21<sup>st</sup> of February 2003.** The Law on Public Companies of the Brčko District foresees the establishment of a public company only in the form of a limited liability company. The Law on Public Company “Luka Brčko” Brčko District of Bosnia and Herzegovina regulates the founding and organization of J.P. Luka Brčko. The founder of the public company with one hundred (100) percent share in the capital is BAD. The founding capital amounts to KM 4,977,198 in total. The property (land) is in sole ownership of the BAD. J.P. Luka Brčko is entitled to construct on the land, and has the sole ownership of the buildings. The management of J.P. Luka Brčko consists of a management board, a director and three heads of sectors (see Figure 1).

**Figure 1: Organization Chart of J.P. Luka Brčko**



Sources: Public Company “J.P. Luka Brčko” Ltd, Brčko District of BH, Business Plan 2009.

**3.8 Brčko port is located on rkm 221/225, and encompasses a total of 14 hectares of land at the south bank of Sava river.** Waterside cargo handling is executed at the 180 m long quay, of which 76 m is a pile-founded vertical quay wall and the remainder of the berth is constructed as a revetment quay.<sup>14</sup> With these berthing facilities the port can accommodate two Class IV barges at a time, one at the vertical and another at the revetment quay; both quays are accessible to the two rail-mounted jib cranes. Geo-

<sup>14</sup> For further details on Brčko port, PPIAF funded *Reforming the Management of the Port of Brčko: Towards Improving Port Efficiency and Operational Performance*, Final Report, produced by Maritime & Transport Business Solutions (MTBS), July 28, 2009.

morphologic conditions of the soil in the vicinity of the quay, and the lack of a fender system at the vertical quay make berthing at this site difficult. Brčko port owns and operates two 45-year-old rail mounted Ganz jib cranes. The cranes were renovated in 2001, including an upgrade of the electrical system, with a payload capacity<sup>15</sup> of 5 tons at a 30 m reach over the quay, with an average capacity of the cranes at about 100 tons per hour.

**3.9 Brčko port has significant storage space available.** The port offers 11,000 m<sup>2</sup> of warehouse storage space and 16,000 m<sup>2</sup> for open storage. Recently the warehouses were renovated. Most of the available warehouse storage space is leased to companies located within the port's vicinity (Agrana and Agro group). The paved open storage space is divided into two sites: west and east of the cranes. The customs terminal is located in the port area. At the customs terminal, heavy duty vehicles, coming from and going to Croatia via the bridge northwest of the port, are cleared. The customs terminal has a total surface of 17,000 m<sup>2</sup> including 5,500 m<sup>2</sup> of open air customs warehouse space called type "A" warehouses. The customs terminal provides space for processing about 50 heavy duty vehicles simultaneously.

**3.10 The port has two railway tracks at the quay at its disposal, which are connected to the national railway system.** Presently the BAD Council is in the process of exploring financing options for developing new railway connections for the port. The objective of the railway tracks relocation is to reroute cargo transport away from urban area. The relocation of the railway connection offers Brčko port an opportunity to optimize the efficiency of train logistics within the port boundaries by investing in a connection between the railway tracks of operating shores 1 and 2. Internal roads in the port are of good quality. The main road stretches from the main gate at the western entrance to the port, closer to the city center, all the way through the port to its eastern gate.

**3.11 There are now plans to concession Brčko port.** The Public Private Infrastructure Advisory Facility (PPIAF), following a request from the authorities, funded a study to prepare a policy reform package to assist the authorities to identify the most appropriate port management structures for Brčko port, and the necessary changes in the institutional framework. The study recommended that Brčko port should move towards a landlord port model<sup>16</sup> in three phases:

- a. During phase 1, a port authority is established and J.P. Luka Brčko is restructured as a pure, publicly owned port operator, without any public functions. During this phase legal amendments are prepared and submitted and preparations are made for the institutional, administrative and operational unbundling of activities. A temporary public concession

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<sup>15</sup> Payload capacity is the net capacity per grab.

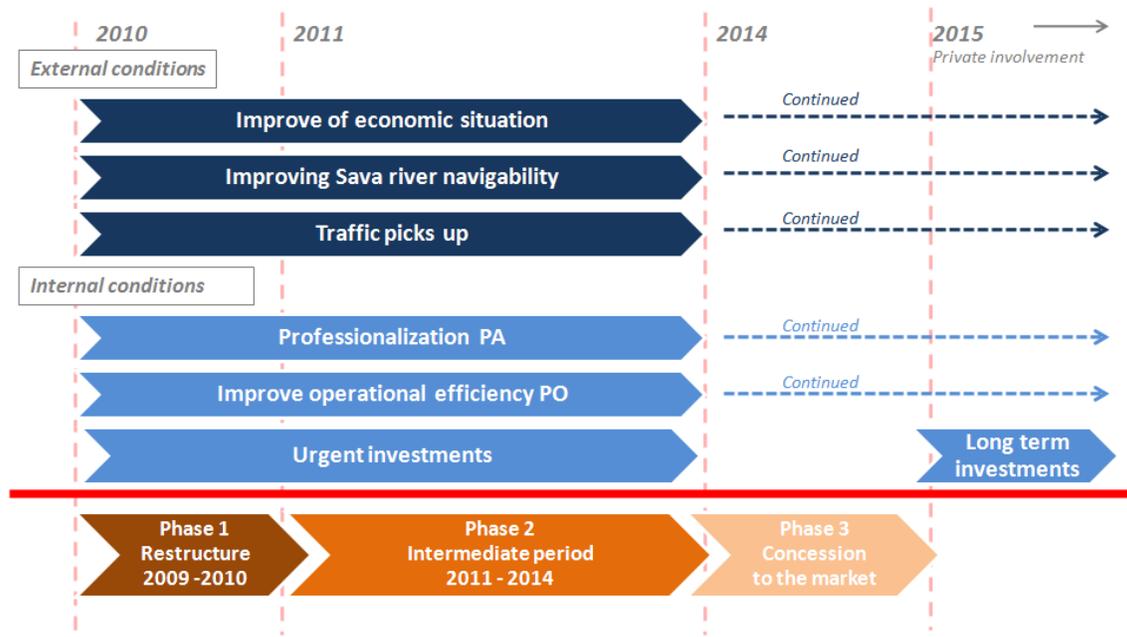
<sup>16</sup> At a landlord port, the port authority builds the wharves, which it then rents or leases to a terminal operator (usually a stevedoring company), while the operator invests in cargo-handling equipment (forklifts, cranes, etc), hires laborers to operate such lift machinery and negotiates contracts with ocean carriers (steamship services) to handle the unloading and loading of ship cargoes.

between the port authority and J.P. Luka Brčko is designed. As a result of this phase the actual separation of public and private functions is realized;

- b. During phase 2, the newly established port authority and J.P. Luka Brčko work towards professionalization, strengthening and rationalization of their respective roles within the landlord model with a temporary, business based, public concession. Furthermore, during this period the internal and external conditions should be met, enabling bringing the concession to the market; and
- c. During phase 3, the concession is brought to the market, a new and private concessionaire will become responsible for the loading and unloading activities and storage leasing after an open and transparent bidding procedure.

3.12 The proposed implementation timetable is presented in Figure 2.

**Figure 2. Proposed timing for each stage for implementing the proposed landlord port model**



Note : This timetable assumes that the rehabilitation of the Sava river from the confluence of the Sava and Danube rivers to Brčko is completed by 2014.

Source: MTBS (2009).

3.13 **The study also recommended short term investments to improve the operational efficiency of Brčko port.** The procurement of a loader and a forklift is urgent for the short term, because the current equipment needs to be replaced. The completion of the quay wall and the connection of the main rail track with the operating shore are infrastructure investments. Infrastructure investments are crucial for the service level in the port and to enhance the attractiveness for private involvement in the future. These investments were recommended to be implemented before 2014, and estimated to

result in a capacity increase of twenty (20) percent, raising maximum capacity for the port to 430,000 tons.

**Table 2. Short-term investments in the port of Brčko**

<b>Investment</b>	<b>Cost (BAM)</b>
Procurement of loader	360,000
Completion of work on the construction of the quay wall	1,500,000
Procurement of a forklift	150,000
Connection of rail main track to track of operating shores 1 and 2	3,000,000
Procurement of grabs of 3 m <sup>3</sup> (x2)	100,000
<b>TOTAL INVESTMENT</b>	<b>5,110,000</b>

Source: MTBS (2009).

3.14 **Over the longer term, further investments are deemed necessary to continue to improve both the capacity and operational efficiency of Brčko port.** After the implementation of these long-term investments, the maximum capacity is estimated at 720,000 tons. It should be noted that all investments concern equipment investments. There are no additional investments in infrastructure. The timeline for the investments should reflect the timetable for the rehabilitation of the waterway, and the resumption of traffic.

**Table 3. Long-term investments in the port of Brčko**

<b>Investment</b>	<b>Cost (BAM)</b>
Procurement of a port crane	2,700,000
Procurement of a port boxer	200,000
Procurement of a locomotive	1,300,000
Purchase of a double hopper	120,000
Procurement of a bobcat	300,000
<b>TOTAL INVESTMENT</b>	<b>4,620,000</b>

Source: MTBS (2009).

3.15 **Other supporting investments to improve access to and egress from the port were noted as necessary.** The BAD has also developed plans to relocate the access railway tracks to a more convenient location in order to relieve the city centre. The required investment is BAM 6.9 million (US\$5 million). In addition, approximately 2.5 km of the road access to the port needs to be asphalted at a provisional cost of BAM 1 million (US\$730,000).

### **Šamac port**

3.16 **Šamac port privatization was completed in 2006.** Headed by Balkan Steel, the new port owner<sup>17</sup> is established as a shareholder association with 100 percent private capital. The prime contractual obligations of the new owners are to start and further expand the port operations in accordance with the previously designed three phase development strategy. The existing facilities are not operational, and the cranes, the

<sup>17</sup> The official name is “Joint Stock Company Cargo Transport Center Luka Šamac.”

warehouse, the storage facilities, and the railway connection need to be repaired. Nevertheless, the new port owner managed to use the port marginally through sporadic loading and unloading activities, using mobile equipment and benefiting from moments of high water levels to berth, achieving traffic volumes of 17,000 tons in 2006, rising to 60,000 tons in 2007, consisting fully of imports, predominantly rolled steel sheets destined for the Balkan Steel plant near Derвента. Prior to the international crisis which has hit the steel sector particularly hard, Balkan Steel had stated that it was moving towards committed throughput of 500,000 tons, plus amenities for an additional 500,000 tons for third-party throughput.

**3.17 Šamac port was originally designed to handle 1 million tons per year, with plans for expansion before the war.** The maximum capacity of one million tons was never achieved. The port was usable approximately 220 days per year due to draft restrictions, primarily for bulk cargo, in particular steel and semi-finished products. The major clients of Šamac port prior to its closure were Energoinvest and the steel plant of Zenica. However, due to its good hinterland connections both by road and rail, industrial clients in the wider hinterland of what is now the Federation of Bosnia and Herzegovina and the RS began using the port. For example, companies in Prijedor and Modriča also shipped goods through Šamac port. The port has a 304 m long and 40 m wide vertical quay placed on reinforced concrete pillars, and two movable port cranes with a capacity of 5/6 ton over a 34m span mounted on rail tracks and capable of serving vessels moored next to each other.

**3.18 The new owners of Šamac port have started an ambitious investment plan for its rehabilitation.** In order to have proper port operations, immediate rehabilitation efforts are necessary to preserve and restore some Šamac port assets, and perform safe and efficient operations. The new owners of the port have formulated an ambitious short-term investment plan amounting to about BAM 20.1 million (US\$15.6 million) to rehabilitate Šamac port in a period of 3 to 5 years, and transform it into an efficient and multi-functional cargo transit point.<sup>18</sup> The planned investments are aimed at infrastructure improvements, installation of modern cargo handling equipment, and establishment of storage facilities. The main objectives of the planned investments are to rehabilitate the port to meet the transport demand of Balkan Steel as well as to provide port services to other potential costumers (open access port). The planned investment exceeds the minimum investment obligations in the privatization contract. Investment commitment associated with the privatization agreement could allow the eventual handling of one million tons per year.

### **Bosanski Brod**

**3.19 The port of Bosanski Brod is located on the Sava river (rkm 368) and only handles liquid bulk from the nearby oil refinery.** Vessels are handled from a pontoon. The site consists only of an improvised barge terminal which needs to be rehabilitated in order to be enabled for waterside handling of liquid cargoes at the adjacent refinery. The refinery was sold in mid-2007 to the Russian company NefteGazInKor, part of the state

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<sup>18</sup> Republic of Srpska, Municipality of Šamac, / Balkan Steel: “Development Plan until the year 2010.”

owned Zarubezhneft. The refinery is located on the bank of the Sava river. This offers potential for the refinery to use the inland waterway to import products (crude oil) and export final product (derivatives) to Sava and Danube riparian countries. On average, the refinery used to handle between 300,000- 400,000 tons per year of crude oil, which were delivered to the refining facilities by tank trucks and tank wagons and, to a lesser extent, by inland vessels crossing the Sava river from Slavonski Brod in Croatia. In 2008, the new owner repaired the oil refinery, with a capacity of 1.2 million tons a year, and put it into operation.

## 4. THE DEMAND SIDE: CURRENT AND FUTURE TRAFFIC

### Current demand

4.1 **The total amount of freight carried on the Sava river amounted to 5.2 million tons in 1990, primarily comprising the movement of bulk freight.** But since the end of the subsequent war, the Sava river has been neglected—with little or no maintenance expenditure or investment—and as a result traffic volumes have been very modest, amounting to a little over 400,000 tons in 2008 (Table 4). They have been broadly static in recent years, reflecting the limitations in navigability for much of the year. At present the bulk of the traffic involves transport of crude oil from the oil terminal in Slavonski Brod to the oil terminal in Sisak, both ports located in Croatia. Traffic volumes for the other ports, and on the waterway, remain low.

**Table 4. Sava river traffic volumes by port 2006-2008 (tons)**

Port	Country	rkm	2006	2007	2008
Belgrade	Serbia	0	0	0	0
Sabač Industrial port	Serbia	103	27,000	15,000	16,434
Sremska Mitrovica	Serbia	133	5,000	1,000	39,054
Brčko	Bosnia and Herzegovina	221	80,628	51,787	0
Šamac	Bosnia and Herzegovina	305	17,000	10,000	20,000
Slavonski Brod	Croatia	363	160,000	180,000	180,000
Bosanski Brod	Bosnia and Herzegovina	368	0	0	0
Sisak	Croatia	583	160,000	180,000	180,000
<b>Total</b>			<b>449,628</b>	<b>437,787</b>	<b>435,488</b>

Sources: Pacific Consultants International (2008) *Feasibility Study for the Rehabilitation and Development of the Sava river*.

4.2 **In terms of ton-kms, it is estimated that traffic was 590.2 million in 2008.** This figure was derived by taking existing throughput in tons in each port and multiplying it by the river kilometers traveled, based on an origin-destination matrix of throughput and distances between origin and destination. As Table 5 indicates, traffic is concentrated downstream, as a large part of throughput has as its destination the Danube or beyond.<sup>19</sup> As a result, the first river sections not only have traffic originating and destined to them, but they have significant transit traffic from further upstream. In contrast, in the upstream sections there is little transit traffic and at present the only traffic upstream is crude oil traffic between the Croatian ports of Sisak and Slavonski Brod.

<sup>19</sup> Serbia's section of river comprises rkm 0-rkm 175, a shared section between Serbia and Bosnia between rkm 175-rkm 202, a shared section between BH and Croatia from rkm 202-rkm 507.4, and the remainder upstream belongs to Croatia.

**Table 5. Traffic along the Sava river in millions of ton kms (2008)**

River Section	Country	Rkm	2008 Traffic (million ton km)
Section 1	Serbia	0 to 98	89.2
Section 2	Serbia	98 - 103	89.2
Section 3	Serbia	103 - 133	87.5
Section 4	Serbia/BH/Croatia	133 - 223	82.6
Section 5	BH/Croatia	223 - 305	71.4
Section 6	BH/Croatia	305 - 362	65.3
Section 7	BH/Croatia	362 - 363	65.3
Section 8	BH/Croatia	363 - 583	39.6
<b>Total</b>			<b>590.2</b>

Source: Pacific Consultants International (2008) *Feasibility Study for the Rehabilitation and Development of the Sava river*.

**4.3 Commercial traffic on the Sava river has grown considerably from 2002, albeit from a very low base.** The demand for transport and for port throughput is driven by economic activity, and as a result, overall port throughput has been drastically reduced in the ports along the Sava river and in 2000 the total port throughput came almost to a standstill. In 2007 total traffic along the Sava river reached 268,000 tons, with BH throughput reaching 111,787 tons, of which 60,000 tons was for Šamac port and 51,787 tons for Brčko port. These totals represent actual cargo transfers between landside and waterside and exclude volume double counting which could occur as a result of landside-landside cargo transfer activity.

- Traffic between Sisak and Slavonski Brod, ports located in Croatia, totaled 140,000 tons, highest among the Sava ports. However, this represents oil product being loaded at Slavonski Brod and unloaded at Sisak. The oil shipments between Slavonski Brod and Sisak have been declining in recent years from a high of 657,000 tons in 2001;
- Oil products are the dominant commodity, although steel products are rapidly increasing, particularly so at Šamac port. Excluding oil shipments, Brčko port and Šamac port account for some 50-60,000 annual tons. Both have shown promising increases, with Šamac growing from 17,000 tons in 2006 to 60,000 tons in 2007 (all being imports for the port's owner Balkan Steel). Brčko port totaled 15,000 tons in year 2003, growing steadily to 80,000 tons in year 2006 before moderating in 2007 -09; and
- Sand and gravel is listed as a transaction commodity (reaching hundreds of thousands of tons in addition to commercial quantities) particularly at Sisak, Slovanski Brod and Sremska Mitrovica ports. Brčko and Šamac ports indicate no sand/gravel transactions, but confirmed small operators dredging in the vicinity of the port.

4.4 **There is no containerized cargo along the Sava river.** The routing of these cargoes destined for BH is mainly via the Adriatic ports of Ploče or Rijeka.<sup>20</sup> At present containerized cargoes are transported to the project region by railways and trucks and not IWT. The substantial imbalance in containerized cargoes across the broader region, with imports exceeding exports, hinders the penetration of containers into the Sava region. Door to door transport of containers to and from the hinterland is also hampered by the lack of suitable warehouses (provision for reefers) and container handling equipment on the premises of ultimate receivers of containerized cargoes, as well as from the lack of landside transfer points and equipment to road and rail modes in ports.

#### **Traffic in the ports**

4.5 **Prior to the war, Brčko port throughput was significant, with an operation period of 206 days.** The volume of bulk freight being carried through the port in 1990 was 500,000 tons. Historically, Zenica Iron & Steel Works (Zenica Steel) in Zenica and the Koksno-Hemijski Kombinat (KHK) coke factory in Lukavac accounted for approximately 95 percent of the traffic in Brčko port and was predominantly constituted of coal, coke, steel products and sand/gravel. The Tuzla-Zenica region was its most important hinterland (50 percent coal/coke; 40 percent steel; 11 percent consumer coal and 3 percent of other goods). The 1992-1995 war led to the degradation of port facilities, which has had a deleterious impact on its role as a key transport route in the region.

4.6 **The main operational problem of Brčko port is low water levels.** This problem is particularly acute during July and August, which restricts access to the quay, and in the channel causes concern on the part of ship operators regarding the safety of their vessels. A second problem has been the absence of markings along the Sava river, particularly the part in BH, although this has now been addressed after the efforts of the riparian countries in 2009. As a result of these problems, traffic volumes remain low, rising from 15,384 tons of port throughput in 2003 to 80,628 tons in 2006, and falling to 51,787 tons in 2007. Contracts signed in 2007 had been at the level of 350,000 tons but the lack of markings delays in dredging of the waterways, and the low water level caused by drought meant that only 165,000 tons of throughput were planned for 2007. However, not even the planned level of throughput was reached.

4.7 **Current traffic volumes in Brčko port are considerably lower than those forecast in the 2007-2016 Brčko port development program.** The projected traffic is 165,000 tons for 2007 and 425,000 tons in 2008. Going forward, the program projects traffic of 600,000 tons in 2009 to 850,000 tons in 2010, amounts which are unlikely to be realized as the Sava river rehabilitation is not expected to start before 2010 at the earliest. The medium-term projection is based on imports of coal, hot rolled strip, coal for coke production, and old iron for the most part, and exports of coke, iron ore, and finished goods from Mittal Steel in Zenica. The port is projecting that overall traffic could attain 1.2 million tons in the next decade.

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<sup>20</sup> However, the port of Rijeka has recently taken a stake in Sremska Mitrovica port in Serbia with a view to developing an inland terminal.

## **Forecasting traffic on the Sava river**

**4.8 Forecasting future demand from a low base, particularly given the difficult external environment currently, is notoriously difficult.** Reliable traffic forecasting on the Sava river and its ports is difficult given the current low base for traffic, and the completely changed socio-economic environment which requires introducing a wide range of assumptions regarding the economic growth of BH, the rehabilitation of the river and port infrastructure, and the institutional and regulatory reforms. Typically, IWT is more suitable for ing conventional low-value and less time-sensitive bulk commodities rather than high-value time sensitive goods. As BH continue to adopt policies to transform its economy towards an industrialized economy, there is scope for increased transport demand and increased market capture by IWT. Realizing this potential is contingent on a number of things, in particular: (i) the adoption of the EU directives on IWT by the ISRBC member states; (ii) substantial investments to improve infrastructure and port facilities; (iii) substantial investments to improve navigation along the Sava river; (iv) improved operational efficiency of the river ports; and (v) good access and interconnections to other transport modes and leading industries.

**4.9 The TranSec study developed traffic forecasts for BH's inland waterways and ports under three scenarios: slow, medium, and fast development.** Under the slow development scenario, the Sava river traffic will reach over 960,000 tons by the year 2020 (52 percent Brčko , 43 percent Šamac, and 3 percent other). Under the stable development scenario, the Sava river traffic will reach an estimated 1,970,000 tons by the year 2020 (56 percent Brčko , 39 percent Šamac and 5 percent other). Under the rapid development scenario, Sava river traffic will be at almost 3,350,000 tons by the year 2020 (51 percent Brčko , 44 percent Šamac and 5 percent other). The inland waterways and ports sector is therefore positioned to play an integral role in the transport sector performance of BH. The various demand scenarios reveal that IWT is likely to play a growing role in BH transport.

**4.10 The Sava river Feasibility Study, which was completed in 2008, provides alternative port throughput forecasts.** Forecasts are projected from 2007 as a base year and it is assumed that rehabilitation of the river will jump-start traffic operations. In the slow scenario, which assumes rehabilitation of the Sava river by 2012, Brčko port throughput in 2020 would attain 504,815 tons, while Šamac port traffic would rise to 412,790 tons, totaling 963,486 tons, with an additional 45,860 for other ports in BH. This is quite similar to the TransSec projections for the same year. In the rapid development scenario of the Feasibility Study forecasts, traffic is projected at 1.7 million tons for Brčko and 1.47 million tons for Šamac, totaling 3.34 million tons. It should be noted that the Feasibility Study forecast assumed traffic of 275,477 tons for 2008, considerably higher than actual values. The European Commission Intermodal Study which, like the Feasibility Study, was also completed in 2008 is somewhat more optimistic. For 2015 it projects total throughput in the BH ports to 303,000 tons in 2015 in the low scenario,

rising to 2.7 million tons in the medium scenario, with 1.78 million tons for Brčko port and 221,000 tons for Šamac port.<sup>21</sup>

### **Box 2. The potential impact of climate change**

There is a need to consider the potential implications of climate change on the technical designs and economic viability of the proposed investments for the rehabilitation of the Sava river. The available regional climate modeling suggests, for example, that the Sava river may experience an overall reduction of around 15 to 25 percent in mean annual runoff by the middle of this century. This, if proved accurate, would be challenging for inland waterways, increasing the probability of low flow conditions, and either reducing the number of navigable days, or increasing the recurrent maintenance costs to maintain the required depth in the fairway. In either case, the economic viability of proposed capital investments would be undermined.

An expert from the Dutch Ministry of Public Works, Transport, and Water Management, was asked in 2009 to (i) review the feasibility studies, as well as the terms of reference for the detailed designs and the EIA to assess the extent to which climate change considerations were taken into account; (ii) provide recommendations for improving the proposed project preparation, with an emphasis on river management and climate change; and (iii) provide brief recommendations for further external expertise required to support regional work. The consultant concluded that river morphology, climate change, integration with other ongoing projects, and a review of maintenance costs must be conducted.

As a result of the EU Water Framework Directive, it is necessary to include the floodplains and river banks explicitly in the design process of measures to cope with navigation, flood protection as well as how these measures will affect the river's hydro-morphology. The latter requires the use of two dimensional morphological models, especially for dredging operations and their impact on navigation, in order to avoid sub-optimal designs in the final project. A significant impact of the proposed work on bed erosion and sedimentation of the river bed and banks could lead to changes in the proposed work and lead to changes in the calculated maintenance costs. It is thus critical that hydrological and morphological modeling be included in the detailed design work, if practicable, before the commissioning of detailed designs for work on the waterway.

**4.11 In the making of this report, the traffic forecast of the Feasibility Study has been reviewed and an alternative demand forecast developed for the Sava river.** Traffic along the Sava river was projected on the basis of baseline traffic in 2008 and after discussions with the ports and potential and existing clients regarding demand for usage of ports once full navigability is restored. Traffic growth was estimated first by forecasting future port origin and destination throughput, expressed in tons, and this information was then used to calculate traffic growth by river sections in ton km, in a "do minimum" and "do something" scenario. Total forecast traffic along the river comprises three elements:

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<sup>21</sup> USAID projected BH's future IWT traffic at 1 million tons in 2015 in the optimistic case, 720,000 tons in the base case, and 540,000 tons in the pessimistic case. See USAID, "Sava Inland Waterway Transport Demand and Institutional, Policy and Legal Framework Study." Final Report, November 2007. However, these forecasts assumed that rehabilitation would start and be completed more quickly.

- (i) The base traffic, which is the traffic currently using the waterway;
- (ii) Diverted traffic switching from other routes, which was modeled as a percentage of existing traffic diverted from Vukovar port in Croatia to ports in Bosnia and Herzegovina upon rehabilitation; and
- (iii) Pure generated traffic, defined as traffic that would not have been transported if the rehabilitation of the river had not taken place.

4.12 For the sections from Belgrade to Šamac, it was assumed that traffic will increase significantly in the year of opening—reflecting significant diverted traffic and some generated traffic, the former from the port of Vukovar to ports located in Bosnia and Herzegovina—in 2014, and for sections from Šamac to Sisak it was assumed that traffic will increase significantly starting in 2016, reflecting the fact that these latter sections will be rehabilitated in a later, second stage. Following the year of opening, conventional growth forecasts of GDP and an appropriate income elasticity of demand were used to calculate incremental traffic growth, in line with economic development over the defined appraisal period.

4.13 **The critical aspect of the traffic projections is the diverted and generated traffic assumptions on the scheme’s opening years.** Diverted traffic in the scheme opening year for phase one makes assumptions regarding traffic diverting from Vukovar port in Croatia to Šamac and Brčko ports in Bosnia and Herzegovina. In 2007 Vukovar port’s throughput reached 811,011 tons—of which 80 percent was destined to Bosnia and Herzegovina and is currently transported for the most part by rail from the port to various destinations in Bosnia and Herzegovina—but declined to 430,131 tons in 2008 as a result of declining base metals and mineral throughput in the second half of the year, due to the international economic crisis. The projections for the Sava river assume that Vukovar port throughput in 2014 will recover to the levels reached in 2007, and that of the throughput destined for Bosnia and Herzegovina, 25 percent will divert to Šamac and Brčko in 2014.

4.14 **Traffic growth after completion of work along the Sava river.** After the impact of the completion of work to restore the Sava river to navigability, traffic growth along the Sava river was calculated on the basis of conventional growth forecasts and income elasticity of demand, unless there was further port-specific or client-specific information suggesting otherwise. Traffic in the “do minimum” scenario was calculated using real GDP growth rates over the entire appraisal period. Real GDP growth projections are based on information from the IMF and World Bank staff, and the income elasticity of demand applied to derive traffic growth rates was 0.5. This low rate reflects the conservative approach taken, in order to assess the viability of the project with relatively modest throughput growth assumptions. Except for 2009, a time of global recession, real GDP growth rates are assumed to vary between 0 and 6 percent. With an income elasticity of demand of 0.5, traffic growth is projected as half of real GDP growth.

**Table 6. Annual real GDP and traffic growth (percentages)**

	2009	2010	2011	2012	2013	2014	2005-2019	2020-2030	2031-2045
<b>Real GDP growth</b>									
Bosnia and Herzegovina	-3.0	5.0	4.0	6.0	6.0	4.5	4.1	4.0	3.5
Croatia	-3.5	2.5	2.5	4.0	4.0	4.0	4.0	4.0	3.7
Serbia	-2.0	0.0	3.0	5.0	5.5	5.5	5.0	4.7	4.3
<b>Traffic growth</b>									
Bosnia and Herzegovina	-1.5	2.5	2.0	3.0	3.0	2.3	2.1	2.0	1.8
Croatia	-1.8	1.3	1.3	2.0	2.0	2.0	2.0	2.0	1.9
Serbia	-1.0	0.0	1.5	2.5	2.8	2.8	2.5	2.4	2.2

Sources: IMF, World Economic Outlook April 2009; Bank staff.

4.15 **Forecast traffic along the Sava river.** Based on the assumptions indicated earlier regarding traffic in the "do minimum" scenario, as well as diverted and generated traffic, Table 7 presents a summary of projected traffic at the scheme opening of phase one (2014) and the end of the appraisal period (2045), as well as in 2020 and 2030. To put the numbers in perspective, the Feasibility Study projected traffic throughput of 7 million tons by 2027 in the low scenario—it should be noted that in the Feasibility Study the projections were based on tons of throughput and not ton km—while the forecast used in the economic analysis projects traffic of 3.6 million tons in that year.

4.16 In other words, the traffic forecast to be used in the economic analysis is more than 50 percent lower than the low scenario of the Feasibility Study, and reflects the decision to only include potential traffic that could be confirmed based on discussions with ports and existing and potential clients. It also reflects the fact that the Feasibility Study assumes that port throughput capacity adjusts automatically to significantly larger traffic volumes, whereas this forecast assumes that investments in port capacity are constrained by the need to find financing and the long periods to design, prepare and implement port extensions.

4.17 **An economic evaluation of the rehabilitation of the Sava river concludes on the economic viability of the project.** Total costs and benefit streams, Economic Internal Rate of Return (EIRR), the benefit to cost ratio and economic net present value (NPV) were calculated for both phases of the project, separately and then together for the full program. The EIRR for the Sava Rehabilitation program, phases I and II, is estimated at 27.4 percent, with rehabilitation to Class Va from Belgrade to Brčko in 2011-2013 and rehabilitation from Brčko to Sisak to Class IV in 2013-2015 (Table 8). Meanwhile, the EIRR for phase I is 41.3 percent, reflecting considerable transit traffic downstream to the Danube river and rehabilitation work that is nearly 50 percent lower than in phase II, while for phase II the EIRR is estimated at 12.5 percent. The higher returns for phase I than for the entire Sava rehabilitation program reflect the very high costs of dredging and river bend improvements in Section 8 during phase II.

**Table 7. Forecast traffic along the Sava river (million ton km)**

	2014	2020	2030	2045
<b>SECTION 1</b>	<b>89</b>	<b>721</b>	<b>809</b>	<b>991</b>
Do Minimum	89	99	124	168
Diverted	0	50	61	79
Generated	0	572	624	743
<b>SECTION 2</b>	<b>89</b>	<b>727</b>	<b>815</b>	<b>998</b>
Do Minimum	89	99	124	168
Diverted	0	50	61	79
Generated	0	577	629	751
<b>SECTION 3</b>	<b>88</b>	<b>686</b>	<b>764</b>	<b>928</b>
Do Minimum	88	97	122	165
Diverted	0	50	61	79
Generated	0	539	581	685
<b>SECTION 4</b>	<b>83</b>	<b>635</b>	<b>706</b>	<b>849</b>
Do Minimum	83	91	114	154
Diverted	0	50	61	79
Generated	0	494	531	616
<b>SECTION 5</b>	<b>71</b>	<b>533</b>	<b>579</b>	<b>683</b>
Do Minimum	71	70	88	120
Diverted	0	38	47	60
Generated	0	425	445	502
<b>SECTION 6</b>	<b>65</b>	<b>397</b>	<b>413</b>	<b>467</b>
Do Minimum	65	62	79	108
Diverted	0	0	0	0
Generated	0	335	335	359
<b>SECTION 7</b>	<b>65</b>	<b>423</b>	<b>434</b>	<b>484</b>
Do Minimum	65	62	79	108
Diverted	0	0	0	0
Generated	0	361	356	376
<b>SECTION 8</b>	<b>40</b>	<b>288</b>	<b>270</b>	<b>268</b>
Do Minimum	40	0	0	0
Diverted	0	0	0	0
Generated	0	288	270	268
<b>Total</b>	<b>590</b>	<b>4,411</b>	<b>4,791</b>	<b>5,668</b>
Do Minimum	590	582	729	991
Diverted	0	239	291	377
Generated	0	3,590	3,771	4,300

Sources: PCI (2008) and study estimates.

**Table 8. Economic appraisal summary: Sava river rehabilitation (BAM millions)**

	Inland Waterways		Savings in Transport Costs	Residual Value	NPV	Benefit to cost ratio	EIRR
	Capital costs	Recurrent costs					
Serbia, Bosnia and Herzegovina, Croatia: Belgrade to Sisak (phases I and II) to Class Va and Class IV							
Undiscounted	134.8	105.4	1,675.1	36.3	68.9	53.9	27.4
Discounted	93.4	16.9	352.5	0.7	47.7	8.7	
Phase I: Confluence of the Drina/Sava to Brčko (inclusive) to Class Va							
Undiscounted	45.1	30.9	1,138.4	9.6	n/a	15.0	41.3
Discounted	36.1	5.6	179.5	0.2	70.4	4.3	
Phase II: From Brčko (excluded) to Sisak to Class IV							
Undiscounted	89.7	74.5	527.1	26.7	n/a	3.2	12.5
Discounted	57.3	11.4	100.1	0.5	2.6	1.5	

Sources: PCI (2008) and study estimates.

**4.18 Economic appraisal of the proposed rehabilitation shows that the investment is economically viable for the entire Sava river.** The proposed rehabilitation is also economically viable by section: from Belgrade to the confluence of the Drina/Sava and from there to Šamac in Bosnia and Herzegovina. Sensitivity tests with respect to higher construction costs, lower traffic, and delays in project completion were conducted for the Serbia and Bosnia and Herzegovina projects in phase I. The results show economic returns that are robust to changes in underlying assumptions, including a reduction in forecast traffic of 30 percent and construction extending from 3 years to 4 and 5 years, highlighting the high economic benefits from relatively small investment and operation and maintenance costs.

## 5. CONCLUSIONS AND RECOMMENDATIONS

5.1 **The Sava river can again play an important role in a multi-modal regional transport network.** The Inland Water transport sector in the South East Europe region has been neglected too long. As a sector, both energy consumption and the emission of greenhouse gases per ton-kilometer are lower than for any other land-based mode of transport. The benefits are realizable for relatively modest investments, compared to required investments in the other modes.<sup>22</sup> Water transport is safe, clean, eco-friendly and if well organized highly efficient. However, this potential is conditional on the rehabilitation of the river and port infrastructure. The Sava river and its ports have the potential to accommodate a considerable amount of commercial traffic which might otherwise use less safe, and less environmentally friendly modes of transport. [[traffic volume of 5 million tons of goods, particularly bulk freight?]]

### **Necessary improvements to the institutional framework**

5.2 **The respective responsibilities in BH's IWT sector are to be clearly defined.** The confusion regarding the various responsibilities in the IWT sector of BAD, entities and state government, and their respective agencies, needs to be clarified. An integral part of the clarification is the need to clarify the post-rehabilitation maintenance regime on the Sava river, as currently the risk is that responsibilities for navigation and maintenance will be atomized among the various stakeholder organizations, at all the different levels—entity, state, national, international. Ideally, maintenance would be contracted out along the entire waterway under one contract, coordinated by the ISRBC. This would realize the greatest efficiencies and economies of scale.

5.3 **The adoption of a State Law on Inland Water Transport would be a key first step in addressing the confusion and improving compliance with the *acquis*.** The new law, which should be in full compliance with FASRB and its protocols, needs to address the current weaknesses and remove the confusion in the sector. It should confirm the status of the Sava river, and define the mandate of the State Ministry of Communications and Transport. It should also ensure greater compliance with the relevant EU directives and the *acquis*, particularly with regard to the freedom of chartering and pricing, conditions on cabotage, rules for access to profession, boat master' certificates, and technical and safety conditions. If there is a need for entity and BAD laws, they should be revised in accordance with the State Law.

### **Necessary improvements to the waterway**

5.4 **The potential for the IWT sector in BH is significant given reasonable investments in the waterway and the ports.** The key intervention is the rehabilitation of the Sava river itself, to Class Va status between Belgrade and Brčko, and Class IV status between Brčko and Sisak. The cost of this intervention has been provisionally estimated

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<sup>22</sup> Commission of the European Communities (2007), *The EU's freight transport agenda: Boosting the efficiency, integration and sustainability of freight transport in Europe: Report on the motorways of the sea*.

to total BAM 137.3 million (US\$101.8 million) for the entire stretch. This estimate includes: (i) dredging the navigation channel; (ii) strengthening of river banks; (iii) constructing groynes; (iv) smoothing river bends to improve the radius of the curve; (v) increasing the height of the three bridges; and (vi) removing sunken vessels, mines and unexploded ordnance. It should be noted that these estimates have been made without the detailed designs needed.

**5.5 Table 9 provides a summary of the cost of rehabilitation on the two sections.** Total construction costs are BAM 35.4 million for Sections 1 to 4 to be rehabilitated between Belgrade and Brčko and BAM 91.7 million for Sections 5 to 8 from Brčko to Sisak. In addition, there is a further BAM 9 million (US\$7 million) for demining and the removing unexploded ordnance in the Bosnia and Herzegovina sections of the river. It should be noted that over 50 percent of the costs are for Section 8, reflecting higher dredging and river bend work, than for the entire phase I. It is assumed that all removal of mines and unexploded ordnance takes place in phase I of the project.

**Table 9. Summary of construction costs (BAM millions)**

River section	Rkm	Dredging and training work	Bridge replacement	River bends	Sunken vessels	Total
Phase I to Class Va						
Section 1	0 to 98	4.5	4.7	0.0	0.0	9.0
Section 2	98 - 103	1.2	0.0	0.0	0.0	1.2
Section 3	103 - 133	0.0	9.4	0.0	0.2	9.4
Section 4	133 - 223	15.5	0.0	0.0	0.2	15.8
TOTAL		21.1	14.1	0.0	0.4	35.4
TOTAL including demining costs						45.2
Phase II to Class IV						
Section 5	223 - 305	1.4	0.0	0.7	0.0	2.1
Section 6	305 - 362	12.1	0.0	0.0	0.0	12.1
Section 7	362 - 363	0.0	0.0	0.0	0.0	0.0
Section 8	363 - 583	44.7	5.2	27.4	0.3	77.5
TOTAL		58.3	5.2	28.1	0.3	91.7
Phase I and II						
TOTAL		79.4	19.2	28.1	0.6	127.2
GRAND TOTAL including demining costs						136.9

Sources: PCI (2008) and study estimates.

**5.6 The economic cost of phase I for BH is estimated at BAM 19.1 million, including demining costs.** Table 10 below presents a breakdown of work to be conducted during phase I for Bosnia and Herzegovina and for Serbia, rehabilitating to Class Va. The table assumes that where the river is shared by both countries, costs will be split evenly, with the exception of demining, which is necessary only on the Bosnia and Herzegovina part of the river. In addition, rehabilitation work from the border between Serbia and Bosnia and Herzegovina onwards will be borne exclusively by Bosnia and

Herzegovina, despite the fact that in this section of the river, from rkm 202, there is a common border with Croatia.

**Table 10. Phase I construction costs by country (BAM millions)**

Project	Rkm	Total cost	Cost Split	Cost by country
Bosnia and Herzegovina				
DTW4	173.8-176.6	8.2	0.5	4.1
DTW5	177.8-187.4	2.0	0.5	1.0
DTW6	189.2-202.5	2.2	0.5	1.1
DTW7	202.5-225.1	3.1	1.0	3.1
TOTAL				9.3
Total including demining				19.1
Serbia				
DTW1	79.9-85.8	0.6	1.0	0.6
DTW2	88.3-101.9	3.7	1.0	1.9
DTW3	103.5-109.8	1.2	1.0	0.6
DTW4	173.8-176.6	8.2	0.5	2.1
DTW5	177.8-187.4	2.0	0.5	0.5
DTW6	189.2-202.5	2.2	0.5	0.5
B1	2.6	4.7	1.0	2.4
B2	104	9.4	1.0	4.8
S1	0-202	0.4	1.0	0.2
TOTAL				26.0
GRAND TOTAL				35.2
GRAND TOTAL including demining costs				45.0

*Note:* DWT = dredging and training work; RB = river bend improvements; B = bridge replacement; and S = sunken vessel removal. All demining is assumed to take place in phase I. Sources: PCI (2008) and study estimates.

**5.7 The critical next step remains the commissioning of the detailed design of the rehabilitation work in the river and the associated environmental impact assessment (EIA).** The recent decision of the ISRBC to delineate responsibilities for the funding and implementation of the detailed design and the EIA is not necessarily beneficial, and careful coordination will be necessary to ensure that the output meets the formal requirements of the European Union and the World Bank in this respect. If the government decides to use Instrument for Pre-Accession (IPA 2010) funding for the detailed design and EIA, it is unlikely that either document would be available until the end of 2011 at the earliest.

#### **Necessary Improvements to the public ports**

**5.8 The concessioning of Brčko port under the landlord model will ensure the professional management of the port, while ensuring public interest.** The necessary activities to ensure that the port can be concession, in conjunction with the rehabilitation of the Sava river, should commence now. These comprise the following steps in the first of three phases:

- a. **Institutional preparations.** The institutional preparations regarding restructuring relate to key decisions to be taken by the BAD. These include: (i) the decision to restructure the port of Brčko into a landlord model, aimed at granting a concession for loading and unloading activities and storage leasing; (ii) the decision to create a port authority and establish a temporary public concession between the port authority and the pure (public) port operator before the long-term concession is brought to the market; and (iii) appointment and mobilization of a project implementation unit, responsible for the port reform process.
- b. **Implementation of necessary changes to the legal and institutional framework.** The necessary legal reforms are detailed in the following Table.

**Table 11. Implementation of legal and institutional framework steps**

Required actions		Law	Required legal reform
<b>Step 1</b>	The district authority should get the right to found a legal person as a grantor of concessions	Law on Concessions of the Brčko District of BH	Amendment in order to include in the law the possibility of the Brčko District Authority founding a legal person as a grantor of concessions.
<b>Step 2</b>	Establishment of a port authority regulating the establishment and functioning of the port authority	Law on the Port Authority of Brčko port	Adoption of the new Law on the Port Authority of Brčko port
<b>Step 3</b>	Actual founding of the port authority		None, based on new Law on the Port Authority (step 2)
<b>Step 4</b>	Decision to establish the right to grant a concession with the port authority		None, based on amended Law on Concessions (step 1)
<b>Step 5</b>	Transfer of the right to dispose of the port land and assets, taking effect on January 1, 2011		None; only registration according to Law on the Register of Land and Rights over the land in the Brčko District BH
<b>Step 6</b>	Decision to grant a temporary concession, taking effect on January 1, 2011		None; port Authority has the new mandate to grant this concession (step 2 and 4)

Source: MTBS (2009).

**5.9 Implementation phase 2: Intermediate period.** During implementation phase 2, the intermediate period, the temporary (public) concession is active between the port authority and the (public) port operator. During this Intermediate period, the newly established port authority and the (public) port operator work toward professionalization, strengthening and rationalization of their respective roles within the landlord model with a temporary concession. The objective of the intermediate period is to ensure that the required internal and external conditions are met to be able to bring the concession to the market.

**5.10 Implementation phase 3: bringing the concession to the market.** Basically, there are two methods for the public sector to enter into a new long-term concession contract:

- **Opening the concession to bidding;** bringing a new concession to the market, following the temporary concession.

- **Sale of shares;** bringing J.P. Luka Brčko to the market through the sale of shares, including a long-term concession.

5.11 **Necessary investments to improve the operational efficiency of Brčko port.** As mentioned, this includes an estimated BAM 5.1 million (US\$3.8 million) in the short term to ensure an immediate improvement in the operational efficiency of the port, together with necessary investments, amounting to BAM 7.9 million (US\$5.8 million) in improving access to the port. This would be followed by investments in the longer term, potentially by the prospective concessionaire, of an additional BAM 4.6 million (US\$3.4 million) for the items detailed in Table 12.

**Table 12. Necessary short and long-term investments in Brčko port (BAM 000)**

	<b>Investment</b>	<b>Costs (BAM 000)</b>
<i>Short Term</i>	Procurement of loader	360
	Completion of work on the construction of the quay wall	1,500
	Procurement of a forklift	150
	Connection of rail main track to track of operating shores 1 and 2	3,000
	Procurement of grabs of 3 m <sup>3</sup> (x2)	100
<i>Sub-Total</i>		<b>5,110</b>
<i>Parallel Investments</i>	Rail access to Brčko port	6,900
	Road access to Brčko port	1,000
<i>Sub-Total</i>		<b>7,900</b>
<i>Long Term</i>	Procurement of a port crane	2,700
	Procurement of a port boxer	200
	Procurement of a locomotive	1,300
	Purchase of a double hopper	120
	Procurement of a bobcat	300
<i>Sub-Total</i>		<b>4,620</b>
<b>Grand Total</b>		<b>13,015</b>

Source: MTBS (2009) and Study Data.