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Sava River Basin-inland waterway regulatory framework and infrastructure

Abstract

The Sava River was important transport line in former Yugoslavia but during the conflict in the last decade of the 20. century the waterway on the Sava River was neglected and very poorly maintained and transport was practically stopped. Taking into account great transport potential and environmental value of the Sava River, four riparian countries Slovenia, Croatia, Bosnia and Herzegovina and Serbia committed themselves to environmentally sustainable development of inland navigation on the Sava River and its navigable tributaries, signed Framework Agreement on the Sava River Basin (FASRB) and established the International Sava River Basin Commission (ISRBC). ISRBC is unique river commission in Europe which is dealing with navigation and water management issues in the same place. In the framework of the ISRBC the countries started with the development of the unique regulatory framework for inland navigation and with rehabilitation and development of the waterway. The progress, achieved in the field of navigation in period from the beginning of the work of the ISRBC, meets, to a great extent, the expectations posed by the Parties but the activities are continuing and the infrastructure rehabilitation on the Sava River, expected to be completed around 2016 and, in the same time, more measures necessary to support further development of the IWT sector is expected to be implemented.

Key words: Sava River Basin, inland waterway transport, regulatory framework, infrastructure development

1. Introduction

Inland waters have multiple functions such as transport, leisure, water management and environment. The most commonly known utilization of inland waterways is for the transport of cargo and related therewith the handling of cargo in river ports.

As a result of growing overseas trade and EU enlargement towards Central and Eastern Europe, freight transport volumes in Europe are expected to increase significantly until 2015 and with present patterns of transport growth and its reliance on road

transport the congestion, capacity problems and delays will affect mobility and economic competitiveness and will be detrimental to the environment and quality of life.

The EU has committed itself to pursue the goal of shifting transport to less energy-intensive, cleaner and safer transport modes and taking into account facts that:

- an increase in inland navigation can lead to significant transport cost reductions;
- inland waterway transport is by far safer than other modes[1] and
- inland navigation has been shown to be the most environmentally friendly land transport mode[2]

inland waterway transport is an obvious choice to play a more prominent role in reaching these targets [5].

Taking into account the above mentioned facts and a very suitable geo-political position of the Sava river, which links four South-Eastern European countries (Slovenia, Croatia, Serbia and Bosna and Hezegovina) and is a potential transport link beetween Adriatic and Danube, the Sava countries committed themselves to environmentally sustainable development of inland navigation on the Sava river and its navigable tributaries. This is one of the principal objectives of the *Framework Agreement on the Sava River Basin* (FASRB) [1], which is a foundation for the cooperation of the countries, and which is being implemented under the coordinating role of the International Sava River Basin Commission (Sava Commission).

Picture 1: Sava River Basin-Overview Map

[1] The number of yearly fatalities caused by accidents in the Netherlands, which has the highest density of inland waterway traffic in Europe, is next to zero [5].

[2] Total external costs currently calculated at 10 Euro per 1,000 tonne-kilometres for IWT (by comparison: 35 Euro for road and 15 Euro for rail transport) [5].

2. Framework Agreement on the Sava River Basin

After dissolution of the Socialist Federal Republic of Yugoslavia in the early 90-ies, the Sava River, which was the biggest national river, has become an international river of recognized importance. Following the support of the Stability Pact, the four riparian countries of the Sava River Basin - Bosnia and Herzegovina, Federal Republic of Yugoslavia, Republic of Croatia and Republic of Slovenia in 2001 entered into a process of cooperation known as "the Sava River Basin Initiative".

Acknowledging the great political, economic and social changes that have taken place in the region, and accepting an idea to cooperate in sustainable development of navigation, utilization, protection and management of water resources in the Sava River Basin, the basin countries accepted a challenge and managed to conclude the Framework Agreement on the Sava River Basin (FASRB) on December 03, 2002, at Kranjska Gora (Slovenia).

Course of negotiations was run pretty fast and the final text was harmonized and completed in the same year when initiated, which was special record within international frameworks. The result of that process is the FASRB – the unique international agreement, which integrated navigation with all other aspects of the water resources management and established the (joint) International Sava River Basin Commission (ISRBC), with legal status of an international organization.

ISRBC has been established for purpose of the implementation of the Framework Agreement on the Sava River Basin (FASRB), namely the provision of cooperation of the Parties to the FASRB, for realization of the following goals:

Establishment of an international regime of navigation on the Sava River and its navigable tributaries, which includes provision of conditions for safe navigation on the Sava River and its tributaries, inter alia, by:

- adopting the plan on marking, maintenance and development of navigable waterways;
- adopting the unified rules of navigation, taking into account specific conditions of certain parts of the navigable waterways;
- adopting the technical rules concerning inland navigation vessels and rules on obtaining the boat master certificates;
- establishing the River Information Services.

It is important to emphesize that under the Article 16(1a) of the FASRB all adopted deisions in the field of navigation are obligatory for the Parties to th FASRB.

Establishment of sustainable water management, which includes cooperation on management of the Sava River Basin water resources in a sustainable manner, including integrated management of surface and ground water resources, in a manner that would provide:

- water in sufficient quantity and of appropriate quality for the preservation, protection and improvement of aquatic eco-systems (including flora and fauna and eco-systems of natural ponds and wetlands);
- water in sufficient quantity and of appropriate quality for all kinds of use/utilization;
- protection against detrimental effects of water (flooding, excessive groundwater, erosion and ice hazards);
- resolution of conflicts of interest caused by different uses and utilizations; and
- effective control of the water regime.

Undertaking of measures to prevent or limit hazards, such as floods, ice, droughts and accidents involving substances hazardous to water, and to reduce or eliminate related adverse consequences.

3. Infrastructure – rehabilitation and development of the Sava River waterway

In the former Socialistic Federative Republic of Yugoslavia (SFRY), the Sava river was not open for the international traffic (only vessels under the flag of the SFRY were allowed to navigate on the Sava river), but nevertheless the Sava used to be an important lifeline in the former Yugoslavia and was regularly used for inland waterway transport. However, the break-up of Yugoslavia and the economic decline in the 1980's and 1990's caused a strong decrease of transport and navigation on the Sava. In the present day, the Sava is hardly used for river transport. Other transport modes are (slowly) recovering but inland waterway transport is still at a low level.

Transport on the Sava (including Croatia, Bosnia & Herzegovina and Serbia) was around 9.5 million tons in 1982 and decreased to 5.7 million tons in 1990. The war of 1991 – 1995 destroyed a lot of the economic activities and the river (and port) infrastructure. For this reason, the cargo handled in ports of the Serbian part of the Sava was down to less than 25 thousand tons and in ports in Bosnia & Herzegovina and Croatia down to less than 1 million tons [4].

Detailed surveys indicated that there is at present a navigable fairway of modest quality on the Sava river between Sisak and Belgrade and on the 5 rkm of the Kupa river, but overall navigation conditions are poor and unfavourable mostly related to:

- Limited draft during large periods;
- Limited width of the fairway;
- Sharp river bends limiting the length and width of vessels and convoys.

Other substantial problems for navigation are:

- Limited height under bridges;
- Insufficient marking;
- Sunken vessels or objects;
- Presence of unexploded ordnances.

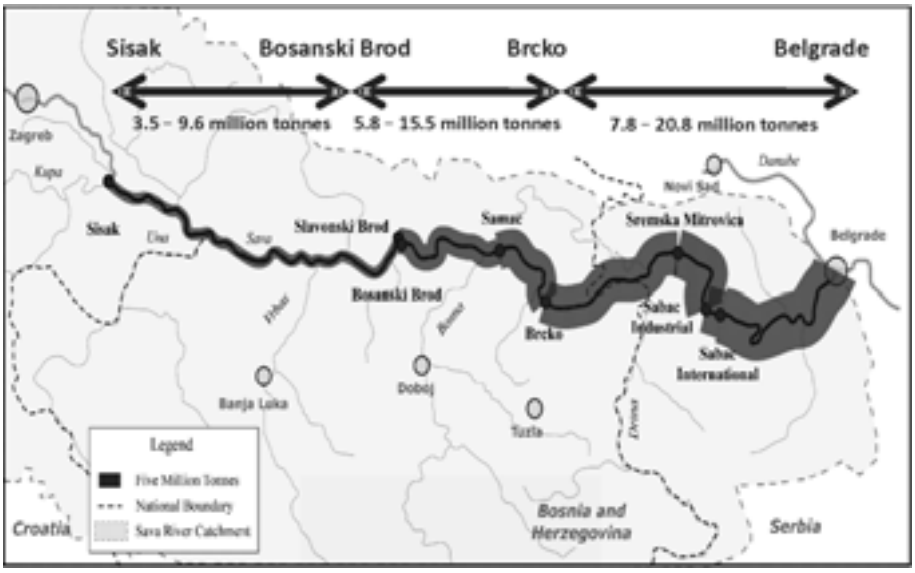
General conclusion is that the navigation infrastructure (including training structures and marking system) suffers of aging, lack of maintenance and incompleteness.

The Sava Commission and the Sava countries aim at rehabilitation and development of the waterway, improving the Sava river waterway between Belgrade and Sisak, along the stretch rkm 0 to rkm 586 (new rkm 594), to minimum SCC Class IV, and to SCC Class Va on sectors where it is possible and feasible. The extension of the navigability upstream Sisak is planed for a later phase in accordance with the development of the economic and transport activities. In that respect Sava Commission started with the development of the necessary documentation for the financing of the river training works and Prefeasibility Study for the Rehabilitation and Improvement of the Sava River Waterway and Feasibility Study and Project Documentation for the Rehabilitation and Development of Transport and Navigation on the Sava River Waterway was done. Likewise, the significant activities on the waterway marking started in 2008 and after almost 17 years the complete fairway marking system on the Sava River is in place.

In accordance with the Feasibility Study, the expected growth in river traffic is notable and clearly warrants the investments and initiatives.

The cargo forecasts after upgrading to Class IV and Va confirm the growing positive appreciation regarding traffic volumes on the Sava river between now and the year 2027. During the year 2027 (representative of post-upgrading of the Sava river to Class Va navigation), commercial cargo traffic is expected to reach between 3.5 and 9,6 million tonnes on Upper Sava and between 7,8 and 20,8 million tonnes on Downstream Sava, depending on realization of low or high economic growth scenarios (see Picture 2.). This positive future is not a consequence of the progress of one particular port along the Sava river, but the results of a combined strong performance of all river ports.

Figure 2. Cumulative traffic volume per main segment (minimum and maximum estimated volumes for year 2027) [4].



As a result of all abovementioned Studies the investigation provided sufficiently robust information to recommend:

- The immediate implementation of rehabilitation works to upgrade Sava river to Class Va between Belgrade and Sisak;
- Formally abandon the idea of upgrading the Sava river upstream Zagreb for commercial river transport and concentrate on tourism development and energy production.

It is obvious that the highest priority is to ensure as quickly as possible the restoration of commercial transport on the Sava river and Sava Commission and Sava Countries are proceeding with activities (detail design, sources of financing) in that respect, but developing the Sava river infrastructure without simultaneously stimulating the restoration of a modern and competitive river transport sector increases the risks to substantially undershoot the year 2027 aimed 20 million tonnes goal pursued with the upgrading of the Sava river navigability.

4. Navigation safety and technical standards

In order to improve the navigation safety, taking into account the present poor condition of the fairway on the Sava river, the Sava Commission started with the upgrading of the regulations in the field of navigation.

According to the *FASRB* [1], as well as the *Protocol on the navigation regime to the FASRB* [2], the unification of rules in the field of navigation is one of the main activities, with the aim to establish an unified regulatory system in the Sava river basin, which will be harmonized with the rules on European level.

Using the legal capacity given by Article 16(1a) (adopted decisions of the Sava Commission are obligatory for the Parties) of the *FASRB*, the Sava Commission, based on the proposal of the Permanent Expert Group for Navigation (PEG NAV), passed the following decisions in the field of navigation safety:

- Decision 30/07 on adoption of the *Navigation Rules on the Sava River Basin*;
- Decision 31/07 on adoption of the *Rules for Waterway Marking on the Sava River Basin*;
- Decision 32/07 on adoption of the *Rules on Minimum Requirements for the Issuance of Boatmaster's Licenses on the Sava River Basin*;
- Decision 33/07 on adoption of the *Rules on Minimum Manning Requirements for the Vessels on the Sava River Basin;*
- Decision 03/09 on adoption of the *Vessel Tracking and Tracing Standard*, and
- Decision 04/09 on adoption of the *Inland ECDIS Standard*.

The Sava Commission, jointly with the navigation commissions for the Rhine, Danube and Mosel, as well as the UNECE and the Government of Austria, finished the process of comparing the existing navigation rules on European level, in order to improve the *European Code for Inland Navigation* (*CEVNI*) and harmonize the rules in different river basins. There is also a joint work on the establishment of criteria for mutual recognition of boatmaster certificates, with the aim to minimize administrative obstacles for the development of inland navigation.

As for the technical requirements for inland waterway vessels, the Sava Commission developed the *Draft Technical Rules for the Vessels on the Sava River Basin* and the *Draft Rules for the Transport of the Dangerous Goods in the Sava River Basin*. Both documents are currently under discussion in the framework of the PEG NAV.

The *Draft Technical Rules for the Vessels on the Sava River Basin* are based on the EU Directive 2006/87/EC, laying down technical requirements for inland waterway vessels, while the *Draft Rules for the Transport of the Dangerous Goods in the Sava River Basin* propose application of the *European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways* (*ADN*). Adoption of these rules will be a basis for introduction of highest technical standards in the shipbuilding

and the transport of dangerous goods, and will significantly contribute to improvement of navigation safety and environmental protection.

All the above mentioned Rules represent a basic set of regulations for the establishment of an unified system of navigation in the Sava river basin, and are fully harmonized with the requirements of the Danube and Rhine navigation commissions, the UNECE and EU.

5. Conclusions

The progress, achieved in the field of navigation in period from the beginning of the work of the Sava Commission, meets, to a great extent, the expectations posed by the Parties. The main accomplishments include:

- development of a set of rules related to navigation, and adoption of the corresponding decisions by the Sava Commission, which provided a basis for upgrading the level of harmonization of the respective national regulation with the EU regulation;
- significant progress in the re-establishment of the marking system on the Sava river waterway, based on the decisions and coordinating activities of the Sava Commission;
- development of the studies and design related to rehabilitation and development of transport and navigation on the Sava river waterway,
- preparatory steps for the establishment of the RIS on the Sava river.

The infrastructure rehabilitation on the Sava River, expected to be completed around 2015, will be the first prerequisite for development of the modern transport system on the Sava River. The Sava River is connected with the major European waterway corridor (Danube – Main – Rhein) and as a part of European Waterway Network depends heavily on future global development of the IWT sector and in this respect from our point of view the urgent measures and support actions on regional and European level are necessary to make this sector more competitive.

Documents developed on Pan European level, such as NAIADES, PINE Report, EFIN Group Report, presented extensive list of good proposals and from the point of view of the Sava Region we want to specially emphasize some of the measures necessary to support further development of the IWT sector:

- elimination of bottlenecks on main waterways and also on the navigable tributaries (tributaries can further contribute to the improvement of the density of the waterway network in some regions). In all projects the cooperation between navigation and water management sectors with aim to find acceptable solutions for the navigation and environmental protection is necessary;

- quick implementation of RIS should be undertaken with aim to increase safety and efficiency of IWT
- further unification of the regulations on Pan European level, especially technical rules for vessels, minimum manning requirements and minimum requirements for the issuance and recognition of the boatmaster certificate (process of upgrading CEVNI and navigation rules in river commissions can serve as good example);
- the development of the sector and the modernization of IWT should be strengthened by a sustainable and modern marketing campaign, on the one hand to attract private investments and on the other hand to increase the demand for and use of IWT;
- it can be seen in Sava Region that, on national level, the inland navigation, although the most efficient and environmentally friendly mode of transport, does not grant the same level of attention as the sea, road and rail transport and further promotion and improvement of the image of inland navigation is necessary.

References:

1. Framework Agreement on the Sava River Basin, 2004, www.savacommission.org.
2. Protocol on the Navigation Regime to the FASRB, 2004, www.savacommission.org.
3. Pre-Feasibility Study for Rehabilitation and Improvement of the Sava River Waterway, 2007, www.savacommission.org.
4. Feasibility Study and Project Documentation for the Rehabilitation and Development of Transport and Navigation on the Sava River Waterway, 2008, www.savacommission.org.
5. Communication from the Commission on the Promotion of the Inland Waterway Transport-„NAIADES" An Integrated European Action Programme for Inland Waterway Transport – 2006, http://ec.europa.eu/transport/inland/promotion/promotion_en.htm.
6. Publication "Rehabilitation and Development of the Navigation on the Sava River", 2009, www.savacommission.org.

Acronyms

CEVNI -	European Code for Inland Navigation
EU -	European Union
EFIN -	European Framework for Inland Navigation
FASRB -	Framework Agreement on the Sava River Basin
ISRBC -	International Sava River Basin Commission
IWT -	Inland Waterway Transport
PEG NAV -	Permanent Expert Group for Navigation
PINE -	Prospects of Inland Navigation within the enlarged Europe
RIS -	River Information Services
SCC -	Sava Commission's Classifications of the Waterway
SFRY -	Socialistic Federative Republic of Yugoslavia
UNECE -	United Nations Economic Commission for Europe

Željko Milković

Regulativa i infrastruktura porječja - plovnog puta rijeke Save

Sažetak

Rijeka Sava je bila značajni plovni put u bivšoj Jugoslaviji, ali je tijekom ratnih zbivanja u zadnjem desetljeću 20. st. taj plovni put zanemaren i nedovoljno održavan te je prijevoz njime praktički prestao. Uzimajući u obzir veliki prijevozni potencijal i ekološki značaj rijeke Save, četiri države ovog porječja – Slovenija, Hrvatska, Bosna i Hercegovina te Srbija – obvezale su se na ekološko održivi razvoj plovidbe rijekom Savom i njezinim plovnim pritocima, potpisale Okvirni ugovor o porječju Save (FASRB) i osnovale Međunarodnu komisiju za porječje Save (ISRBC). ISRBC je jedinstvena rječna komisija u Europi, koja je zadužena za pitanja plovidbe i upravljanja vodom na jednome mjestu. U okviru ISRBC, ove su države počele razvijati jedinstvenu okvirnu regulativu za plovidbu unutrašnjim plovnim putevima te za osposobljavanje i razvoj toga plovnog puta. Napredovanje postignuto na području plovidbe u razdoblju od početka rada ISRBC u velikoj mjeri zadovoljava očekivanja odnosnih sudionica i aktivnosti se nastavljaju te se završetak osposobljavanja infrastrukture na rijeci Savi očekuje 2016. godine, a istodobno se očekuje primjena daljnjih mjera nužne podrške daljnjem razvoju sektora prijevoza unutrašnjim vodnim putevima.

Ključne riječi: porječje Save, prijevoz unutrašnjim vodnim putevima, okvirna regulativa, razvoj infrastrukture