



INTERNATIONAL SAVA RIVER BASIN COMMISSION

SAVANewsFlash

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■ Sava River Waterway marking in the Republic of Serbia

■ Sava River Basin Analysis - First step toward the Sava River Basin Management Plan

■ Conserving the environmental values of the Sava River Basin

■ Integrated management of water resources in the Sava River Basin in Slovenia

CONTENT

I	Foreword	3
II	Activities of the Sava Commission	4-5
III	Sava River Waterway marking in the Republic of Serbia	6-7
IV	RIS in the Sava River Basin	8
V	Towards joint solution of sediment management in the Sava River Basin	9
VI	Sava River Basin Analysis - First step toward the Sava River Basin Management Plan	10-12
VII	Conserving the environmental values of the Sava River Basin	13-15
VIII	Integrated management of water resources in the Sava River Basin in Slovenia	16
IX	Support to development of the ecosystem of Bosna River and its tributaries	17
X	Geodesic-hydrographic rootstocks for the purpose of maintenance of the riverbed and embankments of the Sava River in Federation of Bosnia and Herzegovina	18

ANNOUNCEMENT

The meetings on harmonization of the texts of draft Protocol on Flood protection to the Framework Agreement on the Sava River Basin and draft Protocol on emergency situations to the Framework Agreement on the Sava River Basin will be organized in December 2009, and beginning of 2010 respectively, upon invitation of the Sava Commission. The meetings will be attended by respective delegations of the State Parties. The texts of the draft protocols were prepared by the Sava Commission and delivered to the Parties for consideration in order to reach a final consent on the draft texts and, thereof, sign the protocols.



DEAR READERS,

Climate crisis which is causing a dramatic water shortage on one hand and is increasing flood risk on the other is a consequence of unlimited use of natural resources. **Economic crisis** is a consequence of production and consumption growth without considering the social and environmental reality.

Both crises were caused by **social crisis** (value crisis) of the so called developed world. In order to evaluate e.g. economic success, the developed economies are still primarily using GDP index which DOES NOT CONSIDER **material and energetic relationship between the environment, economy and society** in development evaluation. Such actions are distinctively opposite to the Agenda 21 (UNCED, 1992). By looking for a way out of the global crisis, the politics is “discovering” the 21st century programme – Agenda 21. It recognizes it as an up-to-date, comprehensive and useful document which has already for 17 years been imposing on all UNO members to work towards establishment and maintenance of sustainable development with a motto “think globally, act locally”. In practice the implementation of principles of Agenda 21 means measures of mitigation and adaptation to climate changes which are hazardous to safety, welfare and development. In practice the realization of sustainable development principles means searching for development solutions which take into consideration the characteristics of the local and regional resources and preserve their ecosystem services. We are talking about a **developmental challenge** for the researchers and planners on the regional, state and local level. This is a **business opportunity** for introduction of environmentally suitable technologies and arrangements and a **large business** that can open new work posts for the local inhabitants.

A WAY OUT: STRONGER REGIONAL COOPERATION

EU has enacted regional approach by implementing the EU Water Framework Directive (EU WFD, 2000). River basins have become basic management units for which the members, following a joint methodology, are preparing river basin management plans (RBMP) for water resource use. Danube river basin (DRB) is an example of good practice when it comes to introduction of sustainable development principles into the international river basin management. It was due to **cross-border cooperation** of the Danube countries in implementation of the Convention on protection and sustainable

use of the Danube river and due to the work of the International Commission for the Protection of the Danube River (ICPDR) that the **efficiency in water resource management** in this international river basin **has increased**. This is also perceptible in decreased burdening of the Black Sea. By adopting the DRBMP, the Danube river basin will get an up-to-date regional programme for water resource management and that will be an ideal framework on which a developmentally oriented Danube strategy which considers regional resources can be based on.



Mitja Bricelj, PhD, Member to the Sava Commission, Secretary, Ministry of Environment and Spatial Planning of the Republic of Slovenia

ENHANCING THE EFFICIENCY: CROSS-BORDER AND SUB-REGIONAL PROJECTS

The Sava River has the highest river stage among the Danube tributaries. Legal basis for transboundary cooperation of countries (Slovenia, Croatia, BiH, Serbia and Montenegro) in the river basin is the Framework Agreement on the Sava River Basin (FASRB, 2004). The Secretariat of the International Sava River Basin Commission began its work in 2006. Goal: preparation of Sava RBMP that will enable re-establishment of navigation and planning of comprehensive solutions to increase flood protection, reduce drought damage and increase the percentage of renewable resources. This is a highly **developmentally oriented approach** emphasizing the assistance to the Parties, so that they can establish a Consensus among various shareholders in the river basin in the field of project preparation with transboundary importance. Here we should point out the role of EC which offered financial support to this approach. Sava countries thus have an up-to-date legal basis and tools (Permanent Secretariat) which enable them to reach comprehensive solutions with consideration of material and energetic relations in the international river basin.

IMPRESSUM

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INTERNATIONAL SAVA RIVER BASIN COMMISSION

SAVA NewsFlash is the official bulletin of the International Sava River Basin Commission, published twice per annum as a bilingual edition – in English and the chosen official language of the Sava Commission for each edition. It is aimed to present the review of most significant activities, projects and achievements of the Sava Commission in the fields covered by the Framework Agreement on the Sava River Basin, provide useful information and enable better communication of relevant stakeholders, as well as the wider public, with the Sava Commission, and, thereby, promote the values and potentials of the Sava River Basin.

SAVA NewsFlash is available on the website of the Sava Commission at:
www.savacommission.org

ACTIVITIES OF THE SAVA COMMISSION



Many activities and developments have taken place since the last edition of the SAVA NewsFlash. As the capital event organized by the Sava Commission we should stress the Second Meeting of the Parties to the Framework Agreement on the Sava River Basin (FASRB), hosted by the Republic of Serbia, which took place on June 1st 2009 in Belgrade. The high level officials of the Parties to the FASRB, international and regional organizations, NGOs and other stakeholders considered and discussed the progress achieved in implementation of the FASRB, capacity building and cooperation issues since the First Meeting of the Parties in 2007. As Mr. Branko Bačić, Chairman of the Sava Commission, noted *“This is the occasion to review the results achieved within work of the Sava Commission in the past two-year period, possibility to see the big picture of the state of condition we are currently dealing with, as well as to announce the development measures, plans and programs under coordination of the Sava Commission and through a common vision of the riparian countries, in the forthcoming period.”*

As one of the milestones of the meeting, the Protocol on prevention of water pollution caused by navigation to the FASRB – signed by the Heads of Delegation of the Parties – should be especially highlighted. The Protocol is aimed at prevention, monitoring and reduction of pollution caused by navigation, establishment of technical requirements for equipping the port facilities and other reception stations, development of the best available techniques, informing, development of spill response measures, and monitoring of the water quality. It stresses the significance of establishment of institutional framework and joint body for identification of grounds and

facts relating to accidents, and environmental impacts, and presents the common result yielded under the auspice of the Sava Commission.

The other milestone is the Declaration of the 2nd Meeting of Parties, by which the Parties have confirmed the objectives of the FASRB as an important guidance for the work with regard to different aspects of cooperation and development in the region, provided support to further development of navigation and water management in a sustainable manner, highlighted the role of the Sava Commission in realization of the goals, pointed out the significance of climate changes that could have significant impact to activities in the water management of the Sava River Basin, and, accordingly, encouraged further investigation of possible impacts and development of an integrated approach involving mitigation and adjustment measures, as well as the development of joint projects.

Within its regular activities in past six-months, the Sava Commission held two sessions: 12th Special Session (May 6-7, 2009) and 13th Special Session (September 22-23, 2009). Among standard issues considered on the session, such as the realization of the Commission’s Work Plan, work of the expert groups, financial management, etc., the Decision on Amendments of the Detailed Parameters for Waterway Classification on the Sava River was also passed on this session. One of the highlights of the 12th Special Session is surely the Decision related to development of the “Detailed Design and Prototype Installation for the



River Information Services on the Sava River”, which has been agreed to be financed on equal basis by Bosnia and Herzegovina, Republic of Croatia and Republic of Serbia. The ministries responsible for transport from Bosnia and Herzegovina, Republic of Croatia, and Republic of Serbia have designated their representatives to act as members of the Steering Committee for the monitoring of the project, which has commenced on September 15 2009.

In period between the 12th and 13th Special Session, the Sava Commission passed the Decision related to the Detailed Design of the Sava River Waterway. Namely, according to the Decision, the Detailed Design of the Sava River Waterway shall be developed in accordance with the parameters for the class Va on the sector from the river mouth (rkm 0) to Brčko (rkm 234) and in accordance with the parameters for the class IV on the sector from Brčko (rkm 234) to Sisak (rkm 594). The Republic of Croatia shall take charge for development of the Detailed Design for the Sava River Waterway on the sector from Brčko to Sisak, and Bosnia & Herzegovina and Republic of Serbia shall mutually agree on the development of the Detailed Design of the Sava River Waterway on the sector from the river mouth to Brčko. The competent authorities of the latter countries shall begin with all necessary procedures for financing the works on rehabilitation and development of transport and navigation on the Sava River Waterway, and the Republic of Croatia and Republic of Slovenia shall continue with activities on establishment of navigation upstream from Sisak. If circumstances would require so, the Parties to the FASRB shall, for realization of this Decision and if necessary, conclude additional bilateral or multilateral arrangements.

Deliverables of the 13th Special Session are also of high significance for the sustainable development of the Sava River Basin. The Commission accepted the Sava River Basin Analysis (SRBA) Report, which was prepared in line with the EU WFD and would be used as a solid basis for further activities on development of the Sava River Basin Management Plan. In order to enable the informa-

tion availability, the Commission is undergoing technical preparation of the SRBA Report for broader dissemination. Among else, the Commission considered the activities and decided on next steps to be taken in regard to the following projects: Master Plan for development of the nautical tourism in the Sava River Basin, Rehabilitation of the Sava River Waterway, Hydrology Report for the Sava River Basin Analysis, Hydro-morphology Report for the Sava River Basin Analysis Report, Preparation of implementing documents for the Sava GIS, PLATINA project, etc., passed the Decision related to the application for financial support for preparation of the Sava River Basin Management Plan, under the framework of the project of the European Commission “Technical assistance for the preparation and implementation of the Sava River Basin Management Plan”, discussed the promotion activities for next year, organization of negotiations of the Parties on the draft Protocol on Flood Protection and draft Protocol on Emergency Situations, granted the observer status to the World Wide Fund for Nature (WWF) and extended the observer status to the NGO “Green Action” from Republic of Croatia, etc.

The Sava Commission continues its activities and hard work focused on sustainable development of the Sava River Basin under the scope of the FASRB implementation.

Ljiljana Pandžić,

Expert Associate, Secretariat of the Sava Commission

“HYDROLOGY REPORT FOR THE SAVA RIVER BASIN ANALYSIS”

- △ The project completed on May 21 2009;
- △ Aimed at preparation of the hydrology part of the Sava River Basin Analysis, based on the previous hydrologic analyses in the Sava River Basin, in order to provide: meteorological and hydrological data for the Sava River Basin Analysis Report and Sava RBMP, input to the planned activities of the permanent expert groups for flood prevention, navigation and ad hoc expert group for hydrological issues related to navigation, and Terms of Reference for common and detailed Hydrological Study of the Sava River Basin.

“HYDRO-MORPHOLOGY REPORT FOR THE SAVA RIVER BASIN ANALYSIS”

- △ The project completed on May 21 2009;
- △ Aimed to contribute to the finalisation of the Sava River Basin Analysis Report by preparation of a comprehensive report on hydro-morphological drivers, pressures and impacts in the Sava River Basin. The report should also, by its findings and recommendations, help increase the synergies and reduce the antagonisms among different sectoral policies in the Sava River Basin.

“PREPARATION OF IMPLEMENTING DOCUMENTS OF THE SAVA GIS”

- △ The project commenced on June 29 2009;
- △ Sava GIS should provide a good communication channels for the ISRBC community for sharing and disseminating knowledge about water resources, an effective and efficient river basin management and planning in the Sava River Basin, and assist in creation of a technical context and establishment of environment in order to enable the Parties to the FASRB to work according to open and interoperable principles and criteria.



SAVA RIVER WATERWAY MARKING IN THE REPUBLIC OF SERBIA

Sava River Waterway marking in the Republic of Serbia has a long tradition, since the Sava as a river transport waterway has always been used to a lesser or higher extent for a significant number of economical activities between the cities (regions) it links. Even when due to lack of assets, in beginning of 1997, the activities on waterway marking and maintenance ceased and when, for more than 10 years, navigation was exclusively a sole responsibility (and risk) of the shippers, navigation has never been completely suspended, nor has a wish for re-establishment of river transport ever extincted.

A paradox related to the cease of care after the Sava River regarding the navigation refers to a fact that only a few years before this event, and after a longer pause, a significant investments were directed to research works, development of documentation, and even construction of two groins, dredging works, and displacement of the waterway into the left estuary on one of the most known navigation bottlenecks in the Republic of Serbia – sector “Kamičak”. In parallel with these works, in mid 90’s, the upgrade – repair of the existing and construction of several new groins was realized on a bit up-streamer sector “Mrdjenovac”. And then, when it looked like the long expected progress was taking place on the Sava River, after completion of the first phase of the envisaged works, a complete cease of the activities on marking and maintenance of this watercourse had happened.

Meanwhile, a number of events, which directly or indirectly made an impact to rehabilitation of the marking system for purpose of navigation on the Sava River in terms of its re-actualization, happened: the Sava River was officially recognized as the international waterway; the Sava Commission, with special expert group for navigation, was established; the project “Bathymetric survey of the Sava riverbed from km 0 – 165 and from km 207 – 225” was realized, the cooperation of the riparian countries was intensified on levels, a years-long bizarre problem of four double kilometre marks on a boundary of the Republic of Serbia, Republic of Croatia and Bosnia and Herzegovina was solved; the rulebooks regulating numerous navigation-related issues on the Sava river according to the European standards were adopted and put into the effect.

Directorate for inland waterways “Plovput” is a special organization of the Government of Republic of Serbia, to which a work on re-establishment and maintenance of the marking system of the existing waterway on the Sava River in the Republic of Serbia – on a section of the watercourse from km 0 – 210 on the left bank, and from km 0 – 178 on the right bank, has been delegated. The works have begun in September 2007.

Basis for planning and later execution of these works was project “Bathymetric survey of the Sava riverbed from km 0 – 165 and from km 207 – 225”. Major part of the bank marks (signs for navigation regulation and river kilometre marks) was developed during that year, so that first concrete field works could begin in November. The latter works considered removal of old and placement of new bank marks in accordance with the newly designed waterway and the adopted Marking Plan for the Sava River. Works started from the river mouth, upstream.

Marking of the first 15 kilometres of the watercourse faced many difficulties, since the marks had to be installed in urban zone of Belgrade, where, due to a numerous floats, the access to bank by a ship was almost impossible. By end of year 2007, first 48 river kilometres were marked bank marks. On this section, after 17 years of existence of the unkept marking system, about 50% of the old bank marks, which were removed from their position so they could not cause confusion during navigation, were found. Upstream, the situation was significantly worse, so the per-



Photo: “Plovput” Belgrade

centage of the residual old bank marks amounted at about 10%. The largest damage was noted at kilometre marks outside the inhabited areas, which have, all these years, been excavated, cut and taken for private use by local population and collectors of secondary raw materials.

Further works on rehabilitation of the marking system were intensified in June of next year, when the remaining part of the marks necessary for completion of works to rkm 210 was developed, and the section of the waterway from rkm 48 to rkm 150 was marked as well. Besides the hard work and long-lasting excavation of the old marks, the activities in this section were additionally delayed by works on sectors “Kamičak”, “Mrdjenovac” and Šabac, where the access to location, from rkm 80 to rkm 113, was only possible by boats due to low water level and low banks.

In line with the field works, the activities on establishment of the surveillance point on the Sava River, which would after completion of works on the waterway marking take over the maintenance of the installed marks to keep them trim, were initiated. Due to its geographical position, primarily due to vicinity of the Drina river mouth – sector “Rača”, as well as availability of the necessary infrastructure, Sremska Mitrovica was selected to be the location of the first surveillance point on the Sava River in a watercourse section in Serbia. For that purpose, during same year, a ship with crane, which will work on the sector, and a wharf, which will be a physical base of “Plovput” in Sremska Mitrovica, have been capacitated. Another surveillance point, which would be located in Šabac and responsible for correct functioning of the marking system on all well (not)known sectors on the Sava River “Mrdjenovac” and “Kamičak”, is planned to be formed.

Directorate for inland waterways has continued the activities on realization of the works, which considered procurement of the housing container units for the needs of future surveillance points in Sremska Mitrovica, whilst it is expected that the last bank mark on the Serbian side of the Sava River (river kilometre 210) would be in place until publication of this text.

What is interesting to note is that, out of total 180 bank marks that have been installed during period November 2007 – October 2009, three kilometre marks have disappeared, which, in overall, witnesses the state of condition in the field and the positive attitude toward this kind of work, in whose realization many people ceased to believe a long ago.



Photo: “Plovput” Belgrade

It is important to emphasize that all installed marks have been developed and placed in accordance with the adopted documents of the International Sava River Basin Commission: Rules for Waterway Marking on the Sava River Basin, Navigation Rules on the Sava River Basin and Marking Plan for the Sava River.

With aim to continue the signalization modernisation on inland waterways, which “Plovput” has started in year 2004 – first on the Danube River, and later on the Tisza River, all lighted bank marks have been adjusted to a solar navigation lanterns, which will later on be installed on them, and kilometre marks from rkm 48 to rkm 210 actually bear numbers made by reflective foil. All this should create the evident, reliable, of high-quality and for maintenance simple marking system for the international waterway. As a final result, all these steps, in combination with other activities that “Plovput” in parallel implements on the Sava River, such as the regular bathymetric survey of the riverbed, hydro-technical measuring and implementation of river information services, will, pretty soon, establish the environment for intensive and safe navigation on the Sava River.

Ljubiša Mihajlović,
Assistant Director

Vladimir Seničić,
Head of the Department for inland waterways marking
Directorate for inland waterways “Plovput” Belgrade

RIS IN THE SAVA RIVER BASIN

River Information Services (RIS) are presently under development in two out of four Parties to the Framework Agreement in the Sava River Basin (FASRB). Croatia and Serbia are developing RIS in different ways, but completely in accordance with the European RIS Directive (2005/44/EC), on their inland waterways, including the Sava River Basin. Slovenia has no categorised inland waterway on its territory, for purpose of commercial navigation in the Sava River Basin, and, therefore, is not developing the RIS, while Bosnia and Herzegovina has no experience in RIS development, meaning that none of the RIS services has ever been developed.

Holders of the RIS development in Serbia and Croatia are Directorate for inland waterways from Belgrade – Plovput and Agency for inland waterways from Vukovar, respectively. The common characteristic of RIS development in both countries is that all RIS services have primarily been developed on the Danube River, so that the RIS

in vicinity of Belgrade, ENC are under development but covering complete section of the Sava River in Serbia.

It is essential to note the ongoing project on RIS Implementation on the Danube River in Serbia, financed by the European Commission in amount of 11,000,000 EUR, whereby the completely operative RIS will be established from Bezdan to Djerdap II during year 2012.

Agency for inland waterways from Vukovar ensures the RIS functionality in Croatia. Entire section of the Sava River in Croatia is covered by NtS and ENC, while AIS is developed on the Danube River and Drava River up to Osijek. One should emphasize that, in Croatia, the RIS on the Danube and Drava, up to Osijek, is in appliance.

The Sava Commission, recognizing the significance of the RIS, and in line with the liabilities originating from the FASRB, has undertaken initial steps toward establishment of a completely operative RIS in the Sava River Basin. Among other activities, the respective *Ad hoc* expert group is formed, relevant standards necessary for RIS establishment are passed, and development of the “Detailed Design and Prototype Installation for RIS on the Sava River” is launched.

Obligation to finance the afore mentioned project has been, equally, taken over by all three parties interested for RIS implementation in the Sava River Basin – Bosnia and

Herzegovina, Croatia and Serbia. The project has commenced in mid September 2009, and its completion is expected in mid 2010.

The project should outline the assessment of the current state in regard to RIS in the Sava River Basin, detailed design of the RIS system, detailed field measurements, compatibility test with the systems on the Danube and Rhine, prototype installation, which will be completely in function on the section of the Sava River, cost estimation of the RIS implementation on the Sava River,

detailed technical specification of the future system, implementation plan, tender documentation and relevant environmental impact assessment study for the RIS.

Hereby, conditions for harmonized development of RIS in the Sava River Basin are created, fully in accordance with all relevant European standards, as well as with already established or foreseen RIS

on the Danube and Rhine.

Many factors make impact to final implementation of RIS in the Sava River Basin, but one should expect that completely operative RIS will be established in year 2012.

Željko Milković,
Deputy Secretary for navigation

Siniša Špegar,
Advisor for technical issues of navigation
Secretariat of the Sava Commission

Figure 1: Croatian NtS portal home page

Source: CRUP Ltd.



Figure 3: CRORIS player application

Source: CRUP Ltd.

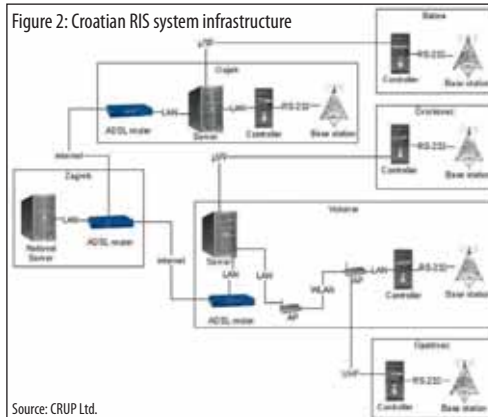


Figure 4: Serbian NtS interface

Source: Plovput



Figure 2: Croatian RIS system infrastructure



Source: CRUP Ltd.

Figure 5: AIS Coverage of test centre in Serbia

Source: Plovput



coverage of the Sava River is significantly lesser. Moreover, all services have been developed in conformity with respective European standards and directives.

Plovput from Belgrade has been developing the RIS on inland waterways of Serbia independently and is operator of all available RIS services, which also includes the Notices to Skippers (NtS), preparation of the Electronic Navigation Charts (ENC), and Automatic Identification System (AIS). NtS and AIS services are available on the Sava River only

TOWARDS JOINT SOLUTION OF SEDIMENT MANAGEMENT IN THE SAVA RIVER BASIN

One of the important elements in sustainable water management is sediment management. When referring to the quality of our rivers, we often have in mind clean green water in which fish, crayfish, water plants and other water organisms live. We enjoy the beauties of the river but we are often not aware of how important it is to preserve balance between the animate and inanimate nature. One of the important factors for preservation of water life is also sediment which is a part of inanimate nature. Sediment is created by leaching and erosion of mineral and organic substances which are transported and deposited by water in the areas where the water flow slows down due to the ground configuration.

Each person has a different attitude towards this part of inanimate nature. Children most often use it for playing. How lovely it is to play next to the water with a bucket and spade and to throw stones in the water. How “cool” you are when you can throw a flat stone so that it jumps off the water surface a few times, before it sinks. Finer material is perfect for making “sand cakes” which cannot be eaten, of course, but the sediment nevertheless contains nutrients – the areas which are occasionally flooded by the river are one of the most fertile places. The first great cultures (e.g. the Egyptian culture) developed along great rivers which offered a narrow area of fertile soil that was flooded by the river every year and provided food for these grand and advanced civilizations. The construction workers mainly see sediment as a building material. The best concrete for the most demanding constructions has to contain fractions from natural origin without sharp edges. In addition to the larger ones (gravel), smaller fractions, such as sand and fine sand, are important as well. A great deal of material which can be obtained at the river or by excavating the bottom of the river, is used in dike construction (river and road dikes). Sediment is also used in private house construction. The cheapest place to obtain building material is the river. However, such uncontrolled actions leave behind great “wounds” and these are especially visible on sandbanks. Instead of white gravel or fine sand we can find sharp rocks pointing out from the river, disabling access to the water. In addition, they do not offer enough protection for the organisms living in or near the water.

Each Sava River Basin country has its own legislation which in general only allows such interventions with the environment to a limited extent and in small quantities but the contractors often break the rules by excavating the sediment illegally. The laws are written down, the water managers grant permissions but we lack an efficient system of exploitation control. On the other hand, each country has its own interests regarding the sediment excavations and they are often not entirely coordinated in the whole river basin.

For that purpose the Sava Commission is developing a Protocol on Sustainable Sediment Management as an appendix to the Framework Agreement on the Sava River Basin. The main purpose of this Protocol is to establish cooperation between the signatories in the field of sediment



management in order to protect the water regime and sediment in the Sava River Basin. We are talking about preserving or improving the sediment quality, as well as preserving the appropriate quantities of sediment. Coordinated measures shall reduce pollution, control excavation and disposal and determine measures to maintain balance and cause morphologic changes to the lowest possible extent.

Basic principles of sustainable sediment management laid out in the Protocol are:

- Natural processes shall be respected;
- Water regime shall be respected, preserved or improved;
- Quality and quantity of sediment as natural wealth shall be considered;
- Balance between the socio-economic and natural sediment values shall be observed;
- Measure planning shall aim towards reduction of downstream and upstream negative effects;
- Relation between the river, sediment, ground and underground water shall be considered;
- Cooperation between various shareholders in the Sava River Basin shall be encouraged.

The Protocol envisages that the countries shall elaborate a sediment management plan that will be consistent with the water management plan. Through the Sava Commission, the countries should also exchange and harmonise information on monitoring implementation.

Protocol on sustainable sediment management is yet another step towards sustainable water management in the Sava River Basin which is one of the basic principles of the Framework Agreement and is in accordance with the goals of the EU Water Framework Directive.

Samo Grošelj,
Deputy Secretary for protection
of waters and aquatic eco-system,
Secretariat of the Sava Commission



SAVA RIVER BASIN ANALYSIS - FIRST STEP TOWARD THE SAVA RIVER BASIN MANAGEMENT PLAN

The Sava River Basin is a major drainage basin of the South Eastern Europe covering the total area more than 97,500 km². It represents one of the most significant sub-basins of the Danube River Basin, with the share of 12%, and it is the biggest tributary of Danube River with the average discharge of about 1,700 m³/s. The basin area is shared between six countries: Slovenia, Croatia, Bosnia and Herzegovina, Montenegro and Serbia, while a negligible part of the basin area also extends to Albania.



The Sava River is formed by two mountainous streams: the Sava Dolinka and Sava Bohinjka. From the confluence of these headwaters between the Slovenian towns of Lesce and Radovljica until it joins the Danube in Belgrade (Serbia), the Sava River is 945 km long. Together with its longer headwater, the Sava Dolinka River, it measures nearly 1,000 km. More than a half (586) of the Sava River is navigable, e.g. from Belgrade to Slavonski Brod and by the higher water levels up to Sisak.



The Sava River Basin is of important significance due to its outstanding biological and landscape diversity, which include mountaineering areas and large

	SI	HR	BA	RS	ME	AL
Total country area [km ²]	20,273	56,542	51,129	88,361	13,812	27,398
Share of national territory in the Sava RB [%]	52.8	45.2	75.8	17.4	49.6	0.59
Area of the country in the Sava RB [km ²]	11,734.8	25,373.5	38,349.1	15,147.0	6,929.8	179.0
Share of Sava RB [%]	12.01	25.97	39.25	15.50	7.09	0.18

lowlands with the largest complex of alluvial wetlands. Some of these floodplains are still intact and support flood alleviation and biodiversity. Wetlands are cradles of biological diversity, providing the water and primary productivity upon which countless species of plants and animals depend on survival. They support high concentrations of birds, mammals, reptiles, amphibians, fish and invertebrate species. Those areas are constantly under the pressures of different interest groups (construction civil engineering, traffic, industrial, etc.), so it is important to develop and implement the joint Sava River Basin Management Plan aiming toward the sustainable water resources management.

The Parties of Framework Agreement on Sava River Basin (FASRB) – Bosnia and Herzegovina-BA, Republic of Croatia-HR, Republic of Serbia-RS and Republic of Slovenia-SI, have committed themselves to cooperate in line with the EU Water Framework Directive – EU WFD, which represents a basis for sustainable management of European river basins. Under the EU WFD, the basic principles and guidelines for development and implementation of River Basin Management Plans are included. From the Sava riparian countries, only Slovenia, as the EU member state, is obliged to consider the EU WFD guidelines, but the signing of the FASRB obliged the other countries, as well, to develop the Joint Sava River Basin Management Plan.

One of the most important activities of the International Sava River Basin Commission, which has been established as the FASRB implementation body, in the field of sustainable water management are oriented towards the development of Sava River Basin Management Plan.

Since 2007 the first phase of development of the River Basin Management Plan was implemented by the preparation of the Characterization Report on the Sava River Basin as a result according to Article 5 of EU WFD.

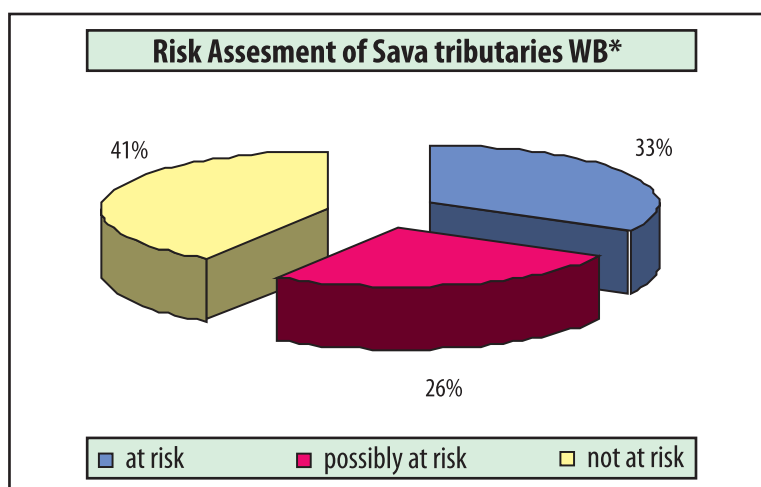
The Report is titled as the Sava River Basin Analysis and has been developed in cooperation with the members of the Permanent Expert Group for River Basin Management - PEG RBM. The members are experts who are representatives of the ministries and other relevant organizations from all four Parties to FASRB. The basis for development of the Sava River Basin Analysis was provided by external projects, which have been developed in parallel to the Danube River Basin Management Plan and the project financed by the EC CARDS „Pilot River Basin Plan for Sava River“.

The main difference between the Danube River Basin Management Plan and the Sava River Basin Management Plan is in scale. In the Sava River Basin Management Plan, all rivers with catchment larger than 1,000 km² are introduced, whilst in the Danube River Basin Management Plan the rivers with the catchment larger than 4,000 km².

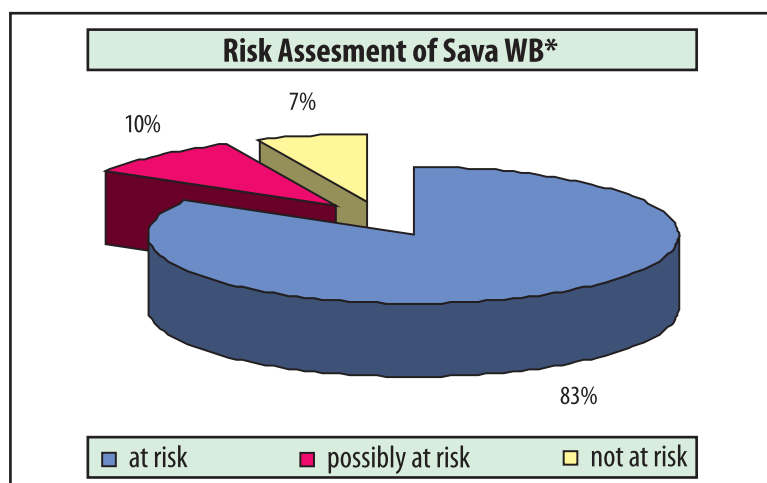
The Sava River Basin Analysis consists of following chapters:

- Part I:** Sava River Basin overview and general characteristics
- Part II:** Water Quality
- Part III:** Water Quantities

Two documents are enclosed as Annexes, which cover flood protection and maintenance and development of navigation in the Sava River Basin.



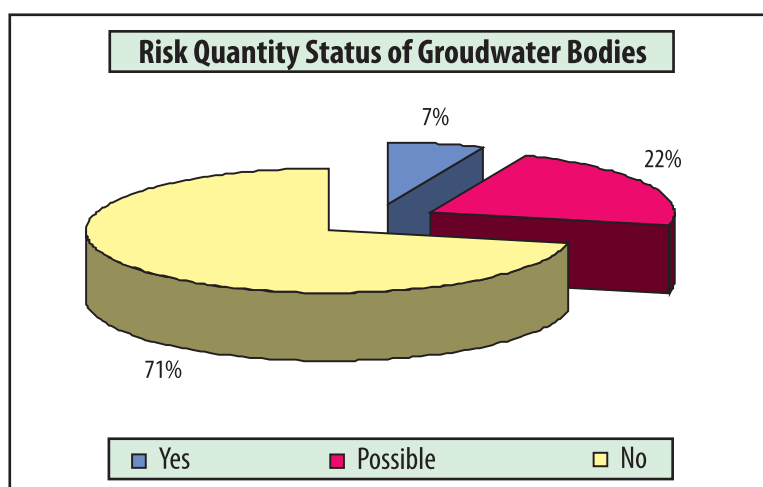
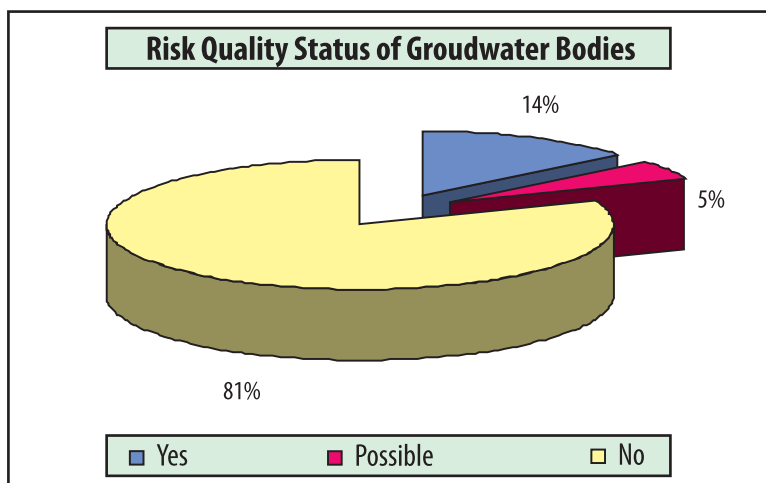
*Risk Assessment has been conducted in SI, HR, RS



*Risk Assessment has been conducted in SI, HR, RS

During the development of the Sava River Basin Analysis the most important issues considering the sustainable water management have been included.

Among else, the main pressures and drivers have been identified, and the risk assessment for the Sava River and its main tributaries has been conducted as well. The risk assessment has showed that 83% of the water bodies of the Sava River and 33% of the Sava River main tributaries are under risk, meaning



that those water bodies do not comply with the provision of the EU WFD regarding the „good ecological status“. In the risk assessment, no data from BA has been included because the risk assessment analysis has not been developed yet in BA.

The situation is a bit better with regard to groundwaters as the risk assessment on groundwaters has showed that „only“ 14% of important groundwater bodies are under risk with regard to the quality and 7% with regard to the water quantity.

During the Analysis development, some gaps have been identified because some of the important data are uncertain or missing. There is a lack of water quality and biological monitoring data and lack of data on hydromorphology and hydromorphological changes. The assessment of interaction between hydromorphology and eco-system and negative impacts on water and water eco-system has not been provided yet according to the EU WFD. In future, a lot of work should be done with regard to harmonization of transboundary water bodies, determination of joint reference conditions and determination of consequences of different

impacts to waters. The relevant data about ecological characterization on Sava River Basin are missing, because only data on ecological status on sites, which are protected by the Ramsar Convention, have been collected. In the Sava River Basin, six Ramsar sites are located and those are Cerknica Lake in SI, Lonjsko polje and Crna Mlaka in HR, Bardača wetland in BA and Obedska bara and Zasavica in RS.

In future, most of the Sava Commission’s activities in the field of water management will focus to the development of Programme of Measures and Sava River Basin Management Plan. The financial support of the European Union under the project “Technical Assistance for the preparation and implementation of the Sava River Basin Management Plan” will be essential. For this project, EU has provided public procurement. Some additional financial support for the activities of the Sava Commission will also be available in a form of grant. This grant will cover some of the activities on development of the Sava River Basin Management Plan. In future, a great deal of attention will be oriented to the public participation, which will ensure active involvement of the public in development of the Sava River Basin Management Plan. According to

the Strategy on implementation of the FASRB of the Sava Commission, the first draft Management Plan will be available to stakeholders in year 2011. After the public consultation process, which will last at least half a year, is conducted, it is foreseen that the Parties to the FASRB will adopt the final version of the Sava River Basin Management Plan.

Samo Grošelj,
Deputy Secretary for protection
of waters and aquatic eco-system,
Secretariat of the Sava Commission



CONSERVING THE ENVIRONMENTAL VALUES OF THE SAVA RIVER BASIN

INTERVIEW with Mr. Goran Gugić, Managing Director of the Nature Park "Lonjsko Polje"

Sava NewsFlash: *You've been in charge for the management of the Nature Park "Lonjsko Polje" since 1998. Can You collate the state of the park then and nowadays, after more than a decade?*

Mr. Gugić: It was in spring 1988 when I visited the today's park area for the first time as a young student from the Forestry Faculty of Ludwig-Maximilians University in Munich. I remember that I was fascinated of the huge complexes of riparian hardwood forests of oak and ash, the massive and archaic fabric of the old wooden houses of Posavina and the wide common pastures with horses, pigs, cattle and geese – a last living medieval picture of Europe's lowlands, indeed. This was two years before Lonjsko polje became a nature park. On my return – it seems to me from a today's perspective a return forever - in 1992, the nature park was heavily war-affected. It was quite dangerous and difficult to deal with nature conservation along the front line. When the Park Service finally started its regular work in 1998,

the area was without any perspective, completely unknown even in Croatia. Therefore, public awareness and political support hardly existed. Local people had left or were leaving the area. With that the traditional wooden houses were collapsing rapidly. Grazing and mowing stopped, and as a result the grassland habitats were disappearing under *Amorpha fruticosa*, an invasive shrub species. This species is already covering 10% of the entire park area today – a serious conservation issue. Additionally one must say that the management of this protected area surely of utmost complexity because of the presence of so many major stakeholders with often contradictory interests. But the situation is changing: the number of visitors has increased ten times since 2000. The number of private accommodation offered in renovated traditional wooden houses is increasing since 2004 when the Ministry of Tourism started to support those actions financially and technically. The number of livestock in the area is also increasing, particularly of the endangered autochthonous breeds of horse, cattle and pig. For the first time we had a larger action on the rehabilitation of pastures in co-operation with local breeders. This indicates that there is an increasing interest of young farmers in traditional farming. But the

perhaps most important change is that we succeeded to rehabilitate the identity of Posavina.

Sava NewsFlash: *How did the project "Central Posavina – Wading toward Integrated Basin Management" reflected to the Nature Park „Lonjsko Polje“? Are the stipulated outputs reached?*

Mr. Gugić: In comparison with our first project "Towards wise use in Lonjsko Polje Nature Park" supported by the European Commission in the frame of the LIFE Third Countries program this particular project has to be understood on one hand as a logical follow-up of the first project while focusing on capacity building and improvement of the management within the protected area: the approval of the management plan for Lonjsko Polje Nature Park on 15 December 2008 must be seen as the most important output as this document is conducting the basis of all management activities for the next ten years. The plan considers

particularly the park's new habitat map on a 1:25000 scale – a second output of the project that is in strong correspondence with the EU Habitat Directive. Through the mapping it became also very clear that actually the park's grassland habitats are the most endangered, and I am happy to see that we have found within the project frame a strategy how to rehabilitate these habitats in future. But on the other hand this particular project has led us beyond the boundaries of the protected area: a floodplain ecosystem situated in the central part of the basin of a large river must not be seen within the boundaries of the protected area, only. Any management activity up- and downstream of Lonjsko Polje could have an impact on this ecosystem. Therefore, the Park Service established a stakeholders' committee for Central Posavina as an appropriate structure of an integrated management approach. The idea is to bring together all the strategic stakeholders like ministries, state institutes, international organizations and NGOs to discuss existing problems, possible solutions and the further development of the Central Sava River Basin. I am happy to see that the Secretariat of ISRBC is attending the Committee's meetings regularly. Results of this approach are already visible: one can say that the flood





Photo: NP "Lonjsko Polje"

control system of Central Posavina is more and more corresponding with conservation objectives up to such a manner that both become inclusive. This is thanks to an intensive co-operation between Croatian Waters and the Park Service. I am already sure that with this approach of integrating flood control and ecosystem management Lonjsko polje becomes a European – perhaps even a global – showcase.

Sava NewsFlash: *Are there any new programs/projects to be in launched in near future?*

Mr. Gugić: In this moment the Park Service is thinking in two main directions: within the park boundaries it is important to strengthen the traditional land use system, particularly the traditional animal husbandry system. In this context I must mention that Lonjsko Polje Nature

Park has become one of altogether three pilot areas where agro environmental schemes in the frame of EU policies will be tested. A significant part of the park is also involved in the establishment of a Local Action Group, a pilot to prepare Croatia for the LEADER program. We will also try to continue with the development of marketing of 5 agriculture products from Lonjsko polje already identified by a previous study supported by the Ministry of agriculture, fisheries and rural development.

But it is also essential to continue with activities beyond the park's boundary which finally have to ensure the integrity of the entire floodplain ecosystem of Central Posavina by establishing a series of protected areas and strengthening an ecological network perhaps in the frame of UNESCO. I would not like to see that this is understood as a pure conservation exercise, only. This approach is much more: it ensures the basis for future rural development, tourism development, cultural identity (particular important within the frame of the EU accession process), water supply and purification and last but not least an effective and sustainable flood control system.

Sava NewsFlash: *How are the effective flood control and conservation management reconciled in the Nature Park "Lonjsko Polje"?*

Mr. Gugić: Recently, I calculated for myself: it took some eleven years to reach the situation that we have got now. Fortunately, there has been the idea to use basically and deliberately retention areas for flood control purposes from the very beginning. But the question has been all the time: how many of those areas are needed? Originally, it was planned to reduce the natural retention areas for almost six times. It was planned to "store" water on detention and remaining retention areas mainly on the today's park area. Through a fair and open communication process amongst the authorities and institutions competent for water management and nature conservation guided in some stages by international organizations like the World Bank and the European Commission (through the above mentioned LIFE project) a re-thinking of the original plan started that resulted in an approach that follows – I would say so - two principles: the principle of modesty and the principle of plainness: sustainable land use systems respect and accept natural limitations. They focus more on optimizing success under the given conditions and limitations of the environment than on maximizing success by obviating or erasing limitations. Management features and facilities have to be simple and conducive to sustainability. Very often the application of this principle leads to a necessary decommissioning of facilities.

This is what in my opinion makes the case of Lonjsko Polje and its adjacent floodplains so innovative: the inclusion of the entire existing retention area into both an effective flood control system and an ecological network results in a very economic and sustain solution – a wise investment in times of climate change. I do encourage both the national authorities competent for flood control and ISRBC follow this approach wherever it is possible.

This approach might become the “Leitmotiv” for the entire Sava River Basin.

Sava NewsFlash: *What is the perspective of the tourism development in the Nature Park “Lonjsko Polje”?*

Mr. Gugić: As I mentioned before: it has become reality that we are facing a constant increase of number of visitors. The number of foreign visitors starts to increase also significantly. Thus, the idea is to create a pool of educated local people to participate actively in the visiting system, and to involve our visitors in the living system. We believe that the site must not be adapted to the visitors. It is the opposite: the visitors must adapt to the site’s cultural and natural values. A visitor can do this much better if he stays at least a couple of days. So, we try to animate visitors to change their behaviour: do not come for only one day but stay at least two nights. We would like to establish a system similar to the Neusiedler See Card at Neusiedler See National Park in Austria. We also work on integrating the region’s tourist offer. Recently, a Lonjsko Polje Cluster has been established and even a process of transboundary tourism development has started including the area along the Una and Sava river (in first stage up to the mouth of the Vrbas river).

So, the Park Service is working on the realization of the main idea of the Regional Tourism Masterplan: Lonjsko Polje Nature Park as the unique selling point starts to “radiate” in the entire region.

Sava NewsFlash: *What kind of educative, cultural and other programs the Nature Park “Lonjsko Polje” offers? On what basis?*

Mr. Gugić: There is an entire series of interpretative programs related to the natural and cultural values of Lonjsko Polje. The park established also several biking routes which can be explored with the help of a trail guide available in the park’s visitor centres. Beside these programs there are several events over the year like the European Stork Village Day, The European Heritage Days, events in Lonja, Kratečko, Repušnica and Osekovo. Parts of the tourist offer are also three private ethnographic exhibitions in Čigoć, Mužiločica and Krapje. I am happy that simultaneously with the offer of private accommodation in restored wooden houses the gastronomic offer is improving now. Of course, the Park Service also offers the individual guided tours.

Sava NewsFlash: *Which facilities do attract the most attention? Does the number of visitors rise?*

Does the Nature Park plan to offer any new contents?

Mr. Gugić: The three main visitor hot spots are Čigoć – the European Stork Village, Mužilovčica – The entrance to Lonjsko polje and Krapje – The Architectural Heritage Village. Currently, we are creating a tourist offer on the northern park border at Repušnica, i.e. in the Moslavina region of the park. An interpretative program on the corncrake will take place here. I hope that the park’s visiting system will get an additional value in the up-coming season: the Park Service will take over its first tourist boat on the Sava River, these days. Simultaneously, we will develop an interpretative program on the Sava River and its importance and values.

Sava NewsFlash: *What is, in Your opinion, a key ingredient to a sustainable development of the Nature Park “Lonjsko Polje”?*

Mr. Gugić: I do repeat here what I have written in the publication “Managing sustainability under conditions of change and unpredictability” (can be downloaded from the Park’s official web-site): A traditional land use system run by conservationists exclusively for the purposes of conservation might not be sustainable. Conservation management must offer an entire range of motives for running the system and must take cognizance of the essential economic, social, cultural and natural stimulating and limiting factors that generate and maintain the system. This is the principle of diversity of motivation.

Ljiljana Pandžić,

Expert Associate, Secretariat of the Sava Commission



Photo: NP “Lonjsko Polje”



INTEGRATED MANAGEMENT OF WATER RESOURCES IN THE SAVA RIVER BASIN IN SLOVENIA

HISTORY

Sava River Basin in Slovenia is situated in the Alpine, Dinaric and Pannonian ecoregion. Characteristics of these regions are reflected in hydro-morphology, water regime and biological state of the river. Through the years, people adjusted to the nature of the river in different manners.

A technique to reduce water erosion power on the Alpine slopes and in torrential streams was developed by using log and stone constructions. Such anti-erosion facilities were called "Carniolan wall". People inhabited and utilised the area of Dinaric karst in a well adjusted manner, so that they did not experience harm by the floods on the karstic fields. Due to the substantial water level fluctuation of the torrential Sava River, people developed rising mill wheels which enabled mill operation during the low and high water periods. The river was used as a waterway as early as in the antique period and it was still used for wood export after the Second World War.

INDUSTRIALISATION

The beginning of the 20th century witnessed a great development of ironwork, mining and cellulose pulp industry. All of these activities very much depended on the water from the Sava River and had a great economic significance until the end of 1980s. The construction of the hydropower plant chain on the Sava River began in 1952 (HPP Moste) and continued with HPPs Medvode, Mavcice and Vrhovo (1990). In the 1970s a study with a modern concept of flood protection (preservation of retention surfaces) was developed for the entire Sava River Basin in cooperation with UNO. Implementation spatial plans of the Republic of Slovenia envisage a water space (cor-

ridor) for implementation of HPP chain on the Sava River (connection with HPP Podsused in Croatia) and of the waterway (Danube - Adriatic Sea). These studies represented important expertise groundwork for planning of flood protection and water supply of the NPP Krsko, including the transboundary radiological and non-radiological monitoring of the surface and groundwater bodies.

INDEPENDENT SLOVENIA AND SUB-REGIONAL COOPERATION

This was the period when a thorough industrial restructuring took place. Cellulose pulp industry and mining with wet separation technology were history. Construction of treatment plants began in industry, cities, towns and countryside. The burden of Sava River was thus substantially reduced (1 mil PE), while its quality greatly improved. HPP projects gained municipal support in Posavje region where opportunities for a high-quality spatial development were recognized. It would increase flood protection and enable multi-purpose use of the river, including the re-establishment of navigability on the lower part of the Sava River. This project is feasible only with consensus of all Sava countries regarding the development strategy of the Sava River. A modern hydrological model was developed for deliberate action. It represents a tool for integrated arrangement planning and considers spatial and climate change impact on the Sava River water regime. Investments into this multi-purpose project made by the country and by the Slovenian Power Plant Holding are outlined in frame 3 above.

In Slovenia we are pursuing the goal of preserving good ecological state of water resources and of ecological services. This is possible only with development which considers the vulnerability of the entire river basin. The Dinaric ecoregion is the part with the highest river stages and is the most vulnerable area of the Sava River Basin and at the same time also of the Adriatic Sea catchment area. And what is the reason for that? Karstic hydrogeology. In order to reduce transboundary impacts, the Karst Research Institute (Postojna, 2008) prepared a workshop on sustainable management of rich natural resources (forest, water, underground habitats). Reinforced sub-regional approach to planning of sustainable use of renewable resources (water and biomass) is an opportunity to implement the efficient adjustment measures in the Dinaric ecoregion. This is a developmental challenge for all Dinaric countries and for the International Sava River Basin Commission.

Mitja Bricelj, PhD,

*Member to the Sava Commission,
Secretary, Ministry of Environment and Spatial Planning
of the Republic of Slovenia*

NATURAL CHARACTERISTICS OF THE RIVER BASIN

- △ Sava River Basin covers 56 % of the territory of the Republic of Slovenia
- △ The longest river in Slovenia (220 km) springs in the Triglav National Park (Zelenci: 833 m, Bohinj Lake: 526 m) – border with Croatia: 134 m altitude.
- △ Headwaters in Alpine and Dinaric karst
- △ Extensive gravel fillings of Radovljiska, Ljubljanska and Krška basin with groundwater
- △ Distinctive torrential character (Q_{min} : Q_{max}) 1 : 100; extremes 1: 250

ECONOMIC CHARACTERISTICS OF THE RIVER BASIN

- △ Waterway in the past
- △ Gravel fillings – source of water supply and food production
- △ 1914 first hydropower plant on Završnica represented the basis for development of Gorenjska (Upper Carniola) region
- △ Since then hydropower plant chains have been considered on the Sava River (max. 15; 5 constructed)
- △ Industry water resource (ironwork industry, cellulose pump, coal mining)

INVESTMENTS INTO SAVA RIVER BASIN

- △ Treatment plant construction (2000- 2009): 70 mil EUR
- △ Waste management (2000 – 2009): 80 mil EUR
- △ Construction of a hydropower plant chain (Bostanj, Blanca, Krsko, Brezice, Mokrice) with infrastructure (period: 2004-2015): 1000 mil EUR
- △ Mathematical-physical model of the Sava River: 1.1 mil EUR

SUPPORT TO DEVELOPMENT OF THE ECOSYSTEM OF BOSNA RIVER AND ITS TRIBUTARIES

The Project titled “Support to development of the ecosystem of Bosna River and its tributaries” is realized under the donation of the Government of Spain and implemented through the Spanish Agency for international development cooperation AECID/OTC for Bosnia and Herzegovina. The project is aimed at establishment of the automatic monitoring system (system for automatic monitoring of quality and quantity of surface waters of the Bosna river basin) on whole Bosna river basin, as well as the development of hydrodynamic and advective-dispersive mathematical model of propagation of flood wave and accidental pollution along the Bosna river course.

Project beneficiaries and active actors in the project are the agencies authorized for Bosna river: “Agency for the Sava River Water Region” Sarajevo and “Water Agency for the Sava River District” Bijeljina.

During realization of the project on the Bosna river basin, 57 automatic stations have been installed aimed at monitoring of main parameters of the water quality and hydrological parameters on the Bosna river basin for purpose of development of the forecast mathematical model of propagation of flood wave and monitoring of accidental pollution along the Bosna river course.

For purpose of development of the re-

Figure 1. Hydrological stations on the Bosna river main water course

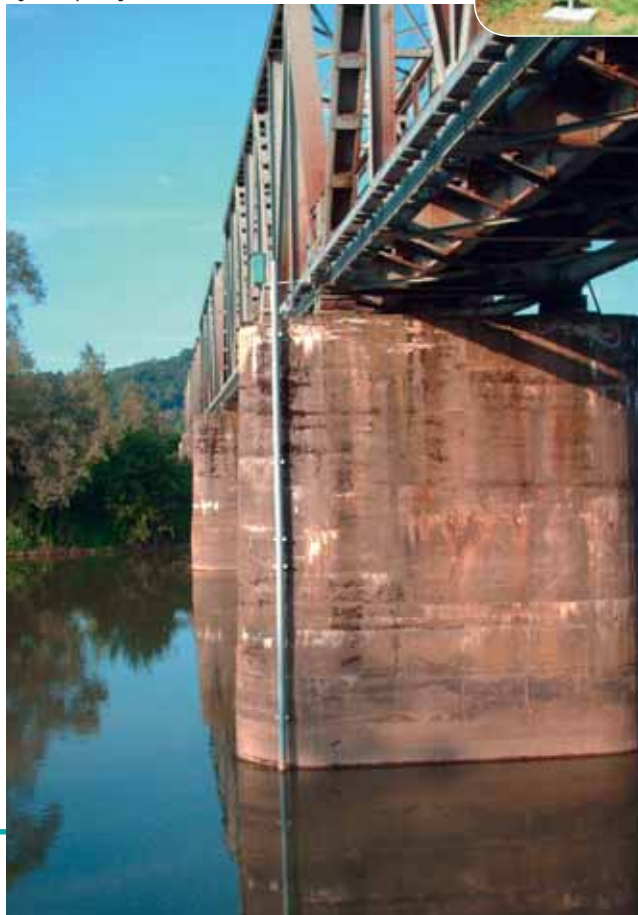


Figure 2. Look-up map of automatic monitoring stations installed within the project



Figure 3. Field works on the cross-section survey

spective mathematical model aimed at preparation of the rootstocks, 1,150 of cross-sections were surveyed on the Bosna river and mouth of its significant tributaries, at mean inter-distance of approximately 300 m.

Based on the data provided by the cross-sections survey, a digital terrain model of the Bosna riverbed, which is integrated into the overall terrain model of the area covered by the project, is developed and the unique terrain model of the Bosna riverbed and inundation area has also been attained.

The hydrodynamic mathematical model of propagation of flood wave and accidental pollution along the Bosna river course for needs of the water agencies in Sarajevo and Bijeljina is currently undergoing development.

Enes Alagić, BSc civil engineering
Hajrudin Mičivoda, BSc civil engineering
 “Agency for the Sava River water region” Sarajevo,
 Bosnia and Herzegovina

GEODETSKO-HIDROGRAFSKA PODLAGA ZA VZDRŽEVANJE STRUGE IN BREGOV REKE SAVE V FEDERACIJI BOSNE IN HERCEGOVINE

Uresničevanje projekta »Geodetsko - hidrografska podlaga za namene vzdrževanja struge in bregov reke Save v Federaciji Bosne in Hercegovine,« ki je bil financiran v okviru načrta in finančnega načrta »Agencije za vodno regijo reke Save« iz Sarajeva, poteka v obdobju 2008 – 2009. Projekt zajema območje reke Save na odseku od Vučilovca (km 27+793,16) do Kadarja (km 138+479,39) v skupni dolžini približno 110 km. Projekt realizira konzorcij, ki ga sestavljata družbi TRAFFICON Ltd. Odžak (ki je odgovorna za geodetska dela) in MIG Ltd. Slavonski Brod (ki je zadolžena za izvedbo hidrografske raziskave za strugo reke Save).

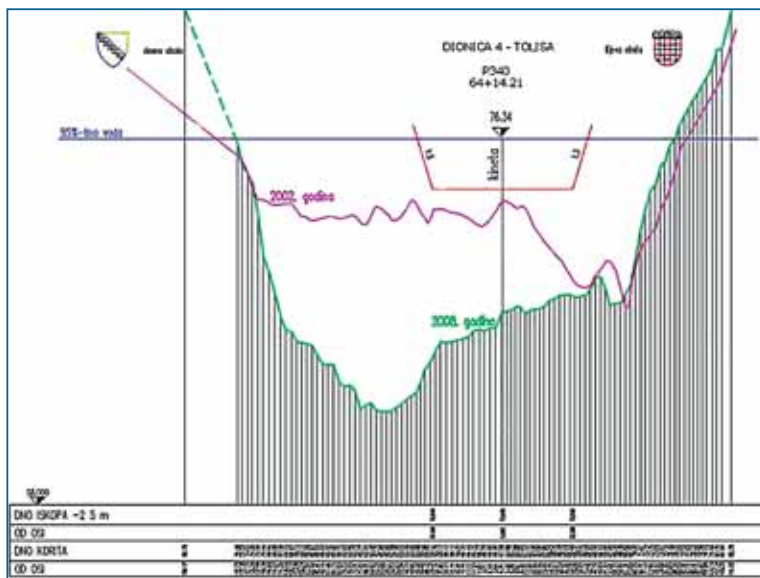
Projekt je bil lansiran zaradi pomembnosti, ki jo ima reka Sava kot čezmejni vodotok, zaradi potrebe po njenem upravljanju v skladu z zakonodajo EU, ter zaradi potrebe po zaščiti vodotoka.

Slika 1. Podatki o trigonometričnih / GPS točkah



V sklopu pripravljanih del za hidrografske raziskave struge reke Save, je bilo postavljenih 29 GPS (globalni sistem za določanje položaja) točk, da bi določili položaj prečnega prereza. Te točke, ki se nahajajo na zadevnem odseku vodotoka, so med seboj oddaljene približno 3 km in so bile vključene v državno geodetsko mrežo. Pozicioniranje teh točk je izvedeno s sprejemanjem signala najmanj štirih satelitov.

Naslednji korak po vzpostavitvi



Slika 2. Prečni prerezi

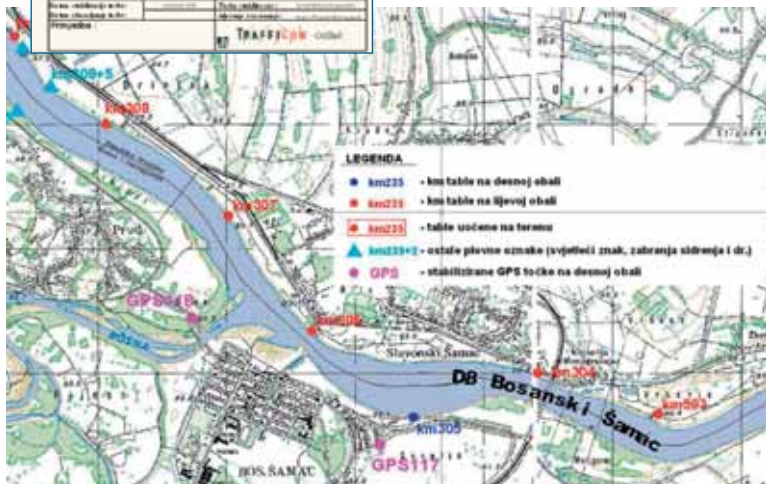
GPS omrežja je predstavljala hidrografska raziskava prečnih prerezov reke Save. Skupno je bilo raziskanih 1111 prečnih prerezov na povprečnem razmiku 100 m. Na posebej pomembnih odsekih vodotoka (večje naselbine, ustje reke Bosne, anomalije struge, itd.) so bili razmiki med preučeni profili še manjši.

Zaradi velikega obsega projekta in možnosti za ločeno preučevanje določenih odsekov vodotoka, je bil vodotok razdeljen v 12 pododsekov. Zaradi tega projekt sestavlja 13 knjig (12 posebnih odtisov za posamezne odseke in splošni priročnik z geodetskim elaboratom GPS omrežja).

Predhodna primerjava novo preučenega materiala v raziskavi struge reke Save, ki so jo izvedle »Hrvaške vode« v obdobju med leti 2001 – 2003 z namenom razvoja konceptne zasnove »Načrtovanje plovne poti reke Save in določitev regulacijske črte od Račinovcev do Siska«, se prav tako realizira v sklopu tega projekta. Primerjava prečnih prerezov je privedla do zaključkov da je prekomerno izkoriščanje rečnih materialov (gramoza in peska) v preteklih šestih letih povzročilo precejšnje morfološke spremembe struge. Struga reke Save se je znižala in to je nedvomno pustilo posledice na področju hidroloških in hidravličnih značilnosti vodotoka.

Z realizacijo tega smo dejansko opredelili »začetno« stanje struge reke Save na odseku Vučilovac – Kadar, ki ga je potrebno v prihajajočem obdobju skrbno nadzorovati in analizirati.

*Almir Prljača, Univ. dipl. ing. gradbeništva
Amer Kavazović, Univ. dipl. ing. gradbeništva
»Agencija za vodno območje reke Save« Sarajevo,
Bosna in Hercegovina*



GEODETSKO-HIDROGRAFSKA PODLAGA ZA VZDRŽEVANJE STRUGE IN BREGOV REKE SAVE V FEDERACIJI BOSNE IN HERCEGOVINE

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Naslednji korak po vzpostavitvi



Slika 1. Podatki o trigonometričnih / GPS točkah

vati in analizirati.

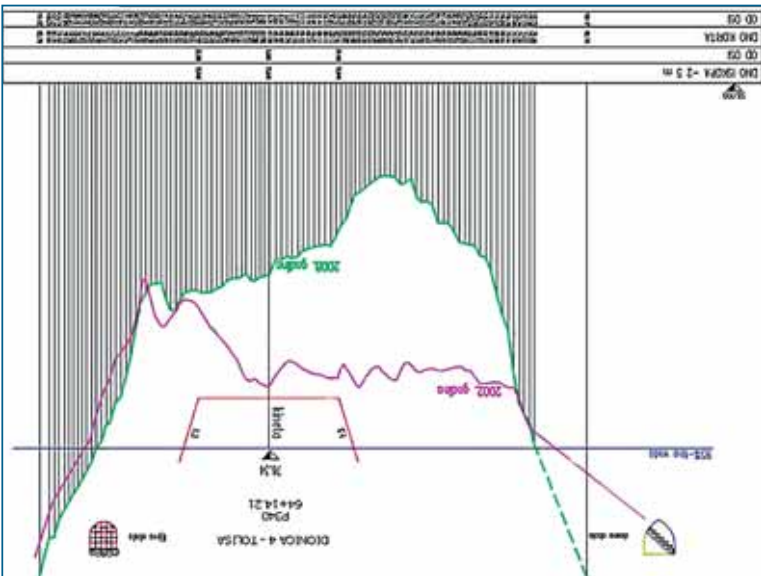
Z realizacijo tega smo dejansko opredelili »začetno« stanje struge reke Save na odseku Vučilovac – Kadar, ki ga je potrebno v prihodnjem obdobju skrbno nadzorovati in analizirati.

Predhodna primerjava novo preučenege materiala v raziskavi struge reke Save, ki so jo izvedle »Hrvatske vode« v obdobju med leti 2001 – 2003 z namenom razvoja konceptne zasnove »Načrtovanje plovne poti reke Save in določitev regulacijske črte od Račinovec do Siska«, se prav tako realizira v sklopu tega projekta. Primerjava prečnih prerezov je privedla do zaključkov da je prekomerno izkoriščanje rečnih materialov (gramoza in peska) v preteklih šestih letih povzročilo precejšnje morfološke spremembe struge. Struga reke Save se je znižala in to je nedvomno pustilo posledice na področju hidroloških in hidravličnih značilnosti vodotoka.

Zaradi velikega obsega projekta in možnosti za ločene odseke in splošni priložnik z geodetskim elaboratom sestavlja 13 knjig (12 posebnih odtisov za posamezne dotok razdeljen v 12 pododsekov. Zaradi tega projekta no preučevanje določenih odsekov vodotoka, je bil v celoti preučevanje obsega projekta in možnosti za ločene

miki med preučeni profili še manjši. Na posebej pomembnih odsekih vodotoka (večje naselbine, ustje reke Bosne, anomalije struge, itd.) so bili razporejeni prečni prerezi na povprečnem razmiku 100 m. Skupno je bilo raziskanih prečnih prerezov reke Save. Skupno je bilo raziskanih 111 prečnih prerezov na povprečnem razmiku 100 m.

Slika 2. Prečni prerezi



PODPORA RAZVOJU EKOSISTEMA REKE BOSNE IN NJENIH PRITOKOV

Realizacijo projekta z naslovom »Podpora razvoju ekosistema reke Bosne in njenih pritokov« je omogočila donacija španske vlade. Projekt poteka pod okriljem španske Agencije za razvoj mednarodnega sodelovanja AECID/OTC za Bosno in Hercegovino. Cilj tega projekta je vzpostavitev avtomatskega sistema za nadzor (sistema za avtomatsko spremljanje kakovosti in količine površinskih voda v porečju reke Bosne) v celotnem porečju reke Bosne, ter razvoj hidrodinamičnega in advektivno-disperzivnega matematičnega modela širjenja poplavnega vala in spremljanja nenamernega onesnaževanja vzdolž reke Bosne.

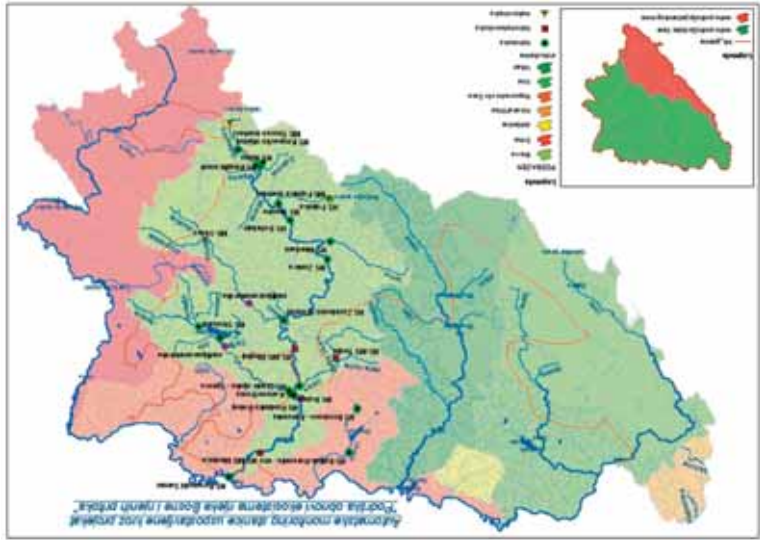
Upravičenci projekta in aktivni akterji v projektu so agencije pooblašene za Bosno in Hercegovino: »Agencija za vodno regijo reke Save« Sarajevo in »Vodna agencija za območje reke Save« Bijeljina.

Med realizacijo projekta v porečju reke Bosne je bilo nameščenih 57 avtomatskih postaj za nadzor glavnih parametrov kakovosti vode, ter hidroloških parametrov v porečju Bosne z namenom razvoja napovednega matematičnega modela širjenja poplavnega vala, ter spremljanja nenamernega onesnaževanja vzdolž reke Bosne.

Z namenom razvoja ustreznega matematičnega modela s katerim bi pripravili podlago, je bilo preučeni 150 prečnih prerezov na reki Bosni, ter na usjih njenih pomembnejših pritokov z povprečnim razmikom približno 300 m.



Slika 2. Prikaz projektiranih in preučeni prečnej prerezov vzdolž reke Bosne



Slika 1. Izkalni zemljevid avtomatskih nadzornih postaj nameščenih v sklopu projekta



Slika 3. Terensko delo pri raziskavi prečnih prerezov

Na podlagi podatkov dobljenih z raziskavo prečnih prerezov je bil razvit digitalni model terena rečne struge Bosne, ki je bil integriran v splošni model terena za celotno območje, ki ga zajema projekt, dobili pa smo tudi edinstveni terenski model struge reke Bosne in poplavnega območja.

Hidrodinamični matematični model širjenja poplavnega vala in nenamernega onesnaževanja vzdolž reke Bosne za potrebe vodnih agencij v Sarajevu in Bijeljini je trenutno v razvoju.

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Hajrudin Mitić, Univ. dipl. ing. gradbeništva
»Agencija za vodno območje reke Save« Sarajevo,
Bosna in Hercegovina*

CELOVITO UPRAVLJANJE Z VODNIMI VIRI V SLOVENSKEM POREČJU SAVE

INDUSTRIALIZACIJA

Večji razmah doživi v začetku 20. stoletja železarstvo, rudarstvo ter celulozna industrija. Vse tri dejavnosti so bile močno navezane na savsko vodo – imele so močan gospodarski pomen do konca osemdesetih let prejšnjega stoletja. Gradnja savske verige se je začela v 1952 (HE Moste) in nadaljevala z HE Medvode, Mavčice in Vrhovo (1990). V sedemdesetih letih nastane ob sodelovanju z OZN študija s sodobnim konceptom varstva pred poplavamimi (ohranja retencijske površine) za celotno porečje Save. Republiški prostorski plani za izvedbo predvidijo vodni prostor (kotidor) za izvedbo HE verige na Savi (povezava s HE Podused na Hrvaskem) in plovne poti (Donava-Jadran). Te študije so bile tudi pomembna strokovna podlaga za načrtovanje poplavne varnosti in oskrbe z vodo NEK, ki vključujejo tudi radiološki in neradiološki monitoring površinskih in podzemnih vodnih teles v čezmejnem obsegu.

SAMOSTOJNA SLOVENIJA IN SUB-REGIONALNO SODELOVANJE

V tem obdobju pride do temeljitega prestrukturiranja industrije. Celulozna industrija in rudarstvo z mokro separacijo postane zgaodovina. Začel se je ciklus izgradnje čistilnih naprav v industriji, mestih in na podeželju. Z nje-hov izvedbo se je obremenitev Save močno zmanjšala (1 mio PE) in zaznavno izboljšala njena kakovost. HE profekti so dobili veliko podporo občin v Posavju, ki so v njih prepoznale priloznost za kakovosten prostorski razvoj, ki večja poplavna varnost in omogoča večnamensko odražajo v hidromorfologiji, vodnem režimu in biološkemu stanju reke. Skozi čas se je človek na različne načine prilagajal naravi reki.

Na alpskih pobočjih in hudo-urniških strugah je razvil tehniko za zmanjševanje erozijske moči vode z grajenimi objekti iz brun in kamna imenovano kranjska stena (Kraïner wand). Na območju dinarskega krasa se je s poselitvijo in rabo izjemno dobro prilagodil poplavam kraških polj, da mu niso povzročale škod. Ob hudo-urniški Savi je zaradi visokogladin razvil dvigaloča mlinska koleksa (vtilavci), ki so omogočala delovanje mlinov ob nizkih in visokih vodah. Reko je uporabljal kot prometno pot že v antiki, za izvoz lesa še po drugi svetovni vojni.

V Sloveniji sledimo cilju ohranjanja drugega ekološkega stanja vodnih virov in njih ekostistemskih storitev. To je mogoče le ob takem razvoju, ki upošteva ranljivost celotnega porečja. Dinarska ekoregija je najbolj vodnata in najbolj ranljivo območje porečja Save in povodja Jadrana hkrati! Razlog: kraska hidrogeologija. Zaradi zmanjševanja čezmejnih vplivov smo za dinarske države na Inštitutu za raziskovanje krasa (Postojna, 2008) pripravili delavnico o trajnostnem upravljanju z bogatimi naravnimi viri (gozd, voda, podzemni habitat). Okrepljen sub-regionalni pristop pri načrtovanju trajnostne rabe obnovljivih virov (vode in bio-mase) je priloznost za izvedbo učinkoviteh prilagoditvenih ukrepov v ekoregiji Dinaridov. To je razvojni izziv za vse dinarske države in Mednarodno komisijo za Savski bazen.

*Dr. Mitja Brčić, Član Savske komisije
Sekretar, Ministrstvo za okolje in prostor, Republika Slovenija*



ZGODOVINA

Porečje Save v Sloveniji pripada alpski, dinarski in panonski ekoregiji. Te značilnosti se odražajo v hidromorfologiji, vodnem režimu in biološkemu stanju reke. Skozi čas se je človek na različne načine prilagajal naravi reki.

Na alpskih pobočjih in hudo-urniških strugah je razvil tehniko za zmanjševanje erozijske moči vode z grajenimi objekti iz brun in kamna imenovano kranjska stena (Kraïner wand). Na območju dinarskega krasa se je s poselitvijo in rabo izjemno dobro prilagodil poplavam kraških polj, da mu niso povzročale škod. Ob hudo-urniški Savi je zaradi visokogladin razvil dvigaloča mlinska koleksa (vtilavci), ki so omogočala delovanje mlinov ob nizkih in visokih vodah. Reko je uporabljal kot prometno pot že v antiki, za izvoz lesa še po drugi svetovni vojni.

GOSPODARSKE ZNAČILNOSTI POREČJA

- ▷ Plovna pot v preteklosti
- ▷ Prodni zasipi vir za oskrbo z vodo in pridelavo hrane
- ▷ 1914 prva HE na Završnici osnova za razvoj Gorenjske
- ▷ Od tedaj variante verige HE na Savi (max. 15, zgrajenih 5)
- ▷ Vodni vir industrije (železarstvo, celuloza, premogovništvo)

INVESTICIJE POREČJE SAVE

- ▷ Gradnja čistilnih naprav (2000-2009): 70 mio evrov
- ▷ Ravnanje z odpadki (2000 – 2009): 80 mio evrov
- ▷ Gradnja HE verige (Boštanj, Blanca, Krško, Brežice, Mokrice) z infrastrukturnimi ureditvami (obdobje 2004-2015): 1000 mio evrov
- ▷ Matematično-fizični model Save: 1,1 mio evrov

NARAVNE ZNAČILNOSTI POREČJA

- ▷ Porečje Save obsega 56% ozemlja RS
- ▷ Najdaljša reka v Sloveniji (220 km) izvira v Triglavskem nacionalnem parku (Zelenca: 833 m, Bohinško jezero: 526m) - meja s Hrvasko: 134 m n.m.v.
- ▷ Povirje v alpskem in dinarskem krasu
- ▷ Obsezni prodni zasipi Radovjške, Ljubljanske in Krške kotline s podzemno vodo
- ▷ Izrazit hudourniški značaj (Qmin : Qmax) 1 : 100; ekstremi 1: 250



SAVSKI VESTNIK: Kaksne izobraz-
valne, kulturne in druge progra-
me ponuja Naravni park Lonjsko
Polje? Na kakšni osnovi?

G. Gugič: Obstaja cela vrsta in-
terpretativnih programov pove-
zanih z naravnimi in kulturnimi
vrednotami Lonjskega Polja. V
parku je urejenih tudi več kole-
sarskih poti, ki jih obiskovalci
lahko raziskujejo s pomočjo vo-
dnikov, ki so na voljo v centrah
za obiskovalce parka. Poleg teh
programov se čez leto zvrstijo
raznovrstni dogodki, kot so dan
evropske vasi štorkej, dnevi
evropske dediščine, ter dogodki
v Lonju, Kratečkem, Repušnici in
Osekovem. Del turistične ponud-
be so tudi tri privatne etnografske
razstave v Čigoču, Muzilovčici in
Krapju. Veseli me, da se skupaj
s ponudbo privatnih nastanitev v
obnovljenih lesenih hišah izboj-
šuje tudi gastronomska ponudba.
Poleg tega pa Sluzba parka seve-
da ponuja tudi individualne vo-

*Ljiljana Pandžić,
Strokovni sodelavec, Sekretariat Savske komisije*

G. Gugič: Tukaj bi ponovil, kar sem zapisal v publikaci-
oni »Trajnostno upravljanje pod spremenljivimi in ne-
predvidljivimi pogoji« (snamete jo lahko z uradne sple-
tne strani Naravnega parka Lonjsko Polje): Ni nujno, da
je tradicionalni sistem rabe zemljišč, ki ga vodijo oko-
ljevarstveniki le v smislu ohranjanja narave, trajnosten.
Upravljanje ohranjanja narave mora zagotavljati celo
vrsto motivov za vodnje sistema, ter upoštevati bistve-
ne ekonomske, socialne, kulturne in naravne pospeše-
valne in omejevalne dejavnike, ki ustvarjajo in vzdržu-
jejo sistem. To je nacelo raznolikosti motivacije.

**SAVSKI VESTNIK: Kaj je po vašem mnenju ključno pri
zagotavljanju trajnostnega razvoja Naravnega parka
Lonjsko Polje?**

Savi, ter njen pomen in njeno vrednost.
Istočasno bomo razvili interpretativni program na reki
dneš prevzela svojo prvo turistično ladjo na reki Savi.
Upam, da bo v prihajajoči sezoni sistem obiskov v par-
ku pridobil na svoji vrednosti: Sluzba parka bo v teh
ka. Tam se bo odvijal interpretativni program o koscu.
verni meji parka pri Repušnici, v Moslavinski regiji par-
se ukvarjamo z ustvarjanjem turistične ponudbe na se-
ben Neusiedler See Card v Naravnem parku Nežidersko
jezero v Avstriji. Ukvarjamo se tudi z izpopolnjevanjem
turistične ponudbe v regiji. Nedavno je bila ustanovlje-
na Skupina Lonjsko Polje, začel pa se je tudi postopek
čezmejnega razvoja turizma, ki vključuje območje vzdolž
reke Une in Save (v prvi fazi do usnja reke Vrbas).

G. Gugič: Tri najbolj obiskane lokacije so Čigoč –
evropska vas štorkej, Muzilovčica – vhod na Lonjsko
Polje in Krapje – vas arhitekturne dediščine. Trenutno
se ukvarjamo z ustvarjanjem turistične ponudbe na se-
verni meji parka pri Repušnici, v Moslavinski regiji par-
ka. Tam se bo odvijal interpretativni program o koscu.
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Istočasno bomo razvili interpretativni program na reki
Savi, ter njen pomen in njeno vrednost.



Photo: NP Lonjsko Polje

da bi to področje prilagodili obiskovalcem, ampak rav-
no obratno – obiskovalci se morajo prilagoditi njegovim
kulturnim in naravnim vrednotam in to je veliko lažje, če
obiskovalci tukaj bivajo vsaj nekaj dni. Goste skušamo
pripraviti do tega, da ne bi prihajali le za en dan, ampak da
bi ostali vsaj dve noči. Želimo si vzpostaviti sistem podo-
ben Neusiedler See Card v Naravnem parku Nežidersko
jezero v Avstriji. Ukvarjamo se tudi z izpopolnjevanjem
turistične ponudbe v regiji. Nedavno je bila ustanovlje-
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čezmejnega razvoja turizma, ki vključuje območje vzdolž
reke Une in Save (v prvi fazi do usnja reke Vrbas).
Torej, Sluzba parka se ukvarja z realizacijo osrednje
ideje Glavnega regionalnega načrta za razvoj turizma,
v skladu s katero naj bi Naravni park Lonjsko Polje
postal edinstvena prodajna točka, ki »osvetljuje« ce-
lotno regijo.

opredeljeni v prejšnji študiji, ki jo je podprlo Ministrstvo za kmetijstvo, ribolov in razvoj podeželja. Nujno potrebno je tudi nadaljevanje dejavnosti izven meja parka, ki bodo zagotovile celovitost celotnega ekosistema poplavnih ravnin Osrednje Posavine. Ustanoviti je potrebno vrsto zaščitnih območij, ter okrepiti ekološko omrežje, morda v okviru UNESCA. Ne bi želel, da se na to gleda le kot na dejanje ohranjanja narave. Ta pristop pomeni mnogo več: zagotavlja osnovo za nadaljnji razvoj podeželja, razvoj turizma, kulturne identitete (kar je še zlasti pomembno v okviru postopka za pristop k EU), oskrbo in čistcenje vode in nenazadnje tudi učinkovit in trajnostni sistem za preprečevanje poplav.

SAVSKI Vestnik: *Kako se v Naravnem parku Lonjsko Polje usklajuje učinkovito preprečevanje poplav in upravljanje ohranjanja narave?*

G. Gugic: Nedavno sem računal: trajalo je kakšnih enajst let, da smo dosegli današnje stanje. Na srečo je bila v osnovi in namenoma že od vsega začetka za preprečevanje poplav predvidena uporaba zadrževalnih območij, vendar je bilo ves čas prisotno vprašanje: »Koliko teh območij je dejansko potrebnih?« Prvotno je bilo predvideno skoraj šestkratno zmanjšanje naravnih zadrževalnih območij. Nactovano je bilo »shranjevanje« vode v zadrževalnikih in na preostalih zadrževalnih območjih predvsem na področju današnjega parka. V okviru pravičnih in odprtih pogovorov med oblastmi in institucijami pristojnimi za upravljanje voda in ohranitev narave, ki so jih na določeni stopnji vodile mednarodne organizacije, kot sta Svetovna banka in Evropska komisija (v okviru zgoraj omenjenega projekta LIFE), se je pričela ponovna presoja prvotnega načrta. Rezultat tega je pristop, ki po mojem mnenju upošteva dve načeli: načelo skromnosti in načelo preprostosti: trajnostni sistemi za rabo tal spoštujejo in sprejemajo naravne omejitve. Bolj se osredotočajo na optimizacijo uspešnosti pod danimi okoljskimi pogoji in omejitvami kot na doseganje čim večjih uspehov z izogibanjem ali odstranjevanjem omejitev. Funkcije in narave za upravljanje morajo biti preproste in ustrezne trajnostnemu upravljanju. Zelo pogosto uporaba tega načela privede do potrebne izločitve naprav iz uporabe.

In to je po moje tisto zaradi česar so Lonjsko Polje in njegove poplavne ravnice tako inovativne: vključevanje celotnega obstoječega zadrževalnega območja v učinkovit sistem za preprečevanje poplav in rezultatov ekološkega omrežja v zelo ekonomično in trajno rešitev – modro investicijo v času podnebnih sprememb. Sam spodbujam tako državne oblasti, pristojne za preprečevanje poplav, kot ISRBC, naj kjerkoli je mogoče upoštevajo ta pristop, saj bi lahko postal vodilni motiv za celoten Savski bazen.

SAVSKI Vestnik: *Kakšna so pričakovanja za razvoj turizma v Naravnem parku Lonjsko Polje?*

G. Gugic: Kot sem že prej omenil: dejstvo je, da številno obiskovalcev narasča. Tudi število tujih obiskovalcev se znatno povečuje, zato smo dobili idejo, da bi sestavili skupino izobrazenih domačinov, ki bi aktivno sodelovali v sistemu obiskov, ter da bi obiskovalce vključili v sistem življenja na tem območju. Menimo, da ni stvar v tem,

stema Lonjsko Polje postalo vzorčni evropski in morda celo globalni primer.

SAVSKI Vestnik: *Ali so v pripravi kakšni novi programi/projekti, ki bodo lansirani v bližnji prihodnosti?*

G. Gugic: Trenutno Služba parka razmišlja v dveh glavnih smereh: pomembno je, da se znotraj meja parka okrepi tradicionalna raba zemljišč, še zlasti tradicionalna zivinarja. V tem kontekstu moram omeniti, da je Naravni park Lonjsko Polje postal eno izmed treh pilotnih območij na katerih se bodo preizkušale agro-okoljske sheme v okviru politike EU. Precejšen del parka sodeluje tudi pri ustanovitvi Lokalne akcijske skupine v okviru pilotne-ga projekta za priravo Hrvaške na program LEADER. Skušali bomo nadaljevati tudi z razvojem marketinga za 5 kmetijskih proizvodov z Lonjskega Polja, ki so bili



Foto: NP "Lonjsko Polje"

VAROVANJE VREDNOSTI OKOLJA SAVSKEGA BAZENA INTERJU Z g. Goranom Gugičem, direktorjem Naravnega parka "Lonjsko Polje"

SAVSKI VESTNIK: Za upravljanje Naravnega parka Lonjsko Polje ste odgovorni od leta 1998. Kako bi komentirali stanje parka takrat in sedaj, po več kot enem desetletju?

G. Gugič: Spomladi leta 1998 sem prvič obiskal območje parka kot mlad študent Fakultete za Gozdarstvo na Univerzi Ludwig-Maximilians v Münchnu. Spominjam se, da so me prevzele velike površine hrastovih in je-

senovih gozdov na obrežju, masivne in arhaične lesene hiše v Posavini, ter prostrani pašniki s konji, prašiči, govedom in goskami – to je bila prazaprav zadnja še živeča srednjevska slika evropskega nizavja. To je bilo dve leti preden je Lonjsko Polje postalo naravni park. Ob moji vrnitvi leta 1992, ki se mi z današnjega vidika zdi vrnitev za zmeraj, je bil naravni park močno prizadet zaradi vojne. Ohranjanje narave ob frontni črti je bilo nevarno in zahtevno delo. Ko je leta 1998 končno pričela z delovanjem Sluzba par-

ka, je bilo to območje brez perspektive in popolnoma neznano celo v sami Hrvaški in zato praktično ni bilo politične podpore in ozaveščanja javnosti. Lokalno prebivalstvo je odšlo oz. odhajalo s tega območja in tradicionalne lesene hiše so naglo propadale. Pase in košenja trave ni bilo več in rezultat tega so bila izginjajoča travišča pod inavazivno vrsto grmovnic (Amorpha fruticosa). Ta vrsta amortje danes pokriva 10 % celotnega območja parka in predstavlja resno vprašanje pri ohranjanju narave. Poleg tega je potrebno omeniti, da je upravljanje tega zaščitenega območja zelo kompleksno zaradi prisotnosti velikega števila deležnikov katerih interesi si velikokrat nasprotujejo. Vendar pa se situacija spreminja: število obiskovalcev se je od leta 2000 povečalo za desetkrat. Število privatnih nastanitev v obnovljenih tradicionalnih lesenih hišah se povečuje od leta 2004, ko je Ministrstvo za turizem začelo nuditi finančno in tehnično podporo tem projektom. Povečuje se tudi število živine na tem območju, še zlasti ogroženih avtohtonih pasem konjev, govoda in prašičev. V sodelovanju z lokalnimi živinogojci smo prvič v velikem obsegu izvedli tudi obnovo pašnikov. To kaže na rastoče zanimanje mladih kmetov za tradicionalno kmetovanje. Verjetno najpomembnejša sprememba pa je ta, da smo uspeli vrniti Posavini njeno

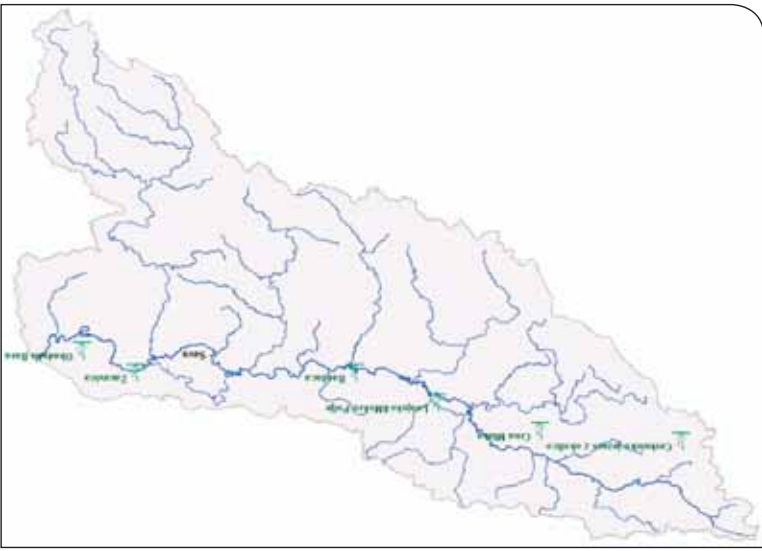


Foto: Polje

SAVSKI VESTNIK: Kako je projekt »Osvrednja Posavina – Doseganje celostnega upravljanja porečja« vplival na Naravni Park Lonjsko Polje? So bili doseženi predvideni rezultati?

G. Gugič: V primerjavi z našim prvim projektom »Doseganje smotrne rabe v Naravnem parku Lonjsko Polje«, ki ga je podprla Evropska komisija v okviru programa LIFE Treje države, je potrebno ta projekt po eni

strani razumeti kot logično nadaljevanje prvega projekta, pri čemer se osredotočamo na izgradnjo kapacitet in izboljšanje upravljanja na zaščitenem območju: 15. decembra 2008 je bil odobren načrt upravljanja za Naravni park Lonjsko Polje in na to moramo gledati kot na najpomembnejši rezultat, saj ta dokument določa osnovo za vse dejavnosti upravljanja za obdobje naslednjih desetih let. Ta načrt še zlasti obravnava novi zemljevid življenjskega prostora parka v merilu 1:25000 – in to je drugi rezultat projekta, ki ustreza EU Direktivi o življenjskem prostoru. V postopku kartiranja je postalo jasno, da so travišča v parku dejansko najbolj ogroženi habitat in veseli me, da smo v okviru projekta razvili strategijo bodoče obnove teh življenjskih prostorov. Po drugi strani pa smo v okviru tega projekta prestopili meje zaščitenega območja: na ekosistem poplavnih ravníc, ki se nahajajo v osrednjem delu porečja velike reke, ne moremo gledati le v mejah zaščitenega območja, saj lahko vse dejavnosti upravljanja, ki se izvajajo gor in dolvodno od Lonjskega Polja, vplivajo na ta ekosistem. Zato je Sluzba parka ustanovila odbor deležnikov za Osvrednjo Posavino in ta predstavlja ustrezno strukturo celostnega pristopa upravljanja. Osnovna ideja je združitev vseh strateških deležnikov, kot so ministrstva, državni inštituti, mednarodne organizacije in nevladne organizacije, da bi skupaj razpravljali o težavah, možnih rešitvah, ter o nadaljnjem razvoju osrednjega Savskega bazena. Zadovoljen sem, da se Sekretariat Mednarodne komisije za Savski bazen redno udeležuje sestankov odbora. Rezultati tega pristopa so že vidni: lahko rečemo, da sistem za preprečevanje poplav v Osvrednji Posavini vse bolj in bolj ustreza ciljem ohranjanja. Zasluge za to ima intenzivno sodelovanje med podjetjem Hrvatske vode in Sluzbo parka. Preprican sem, da bo s takšnim celostnim pristopom k preprečevanju poplav in upravljanju ekosist-



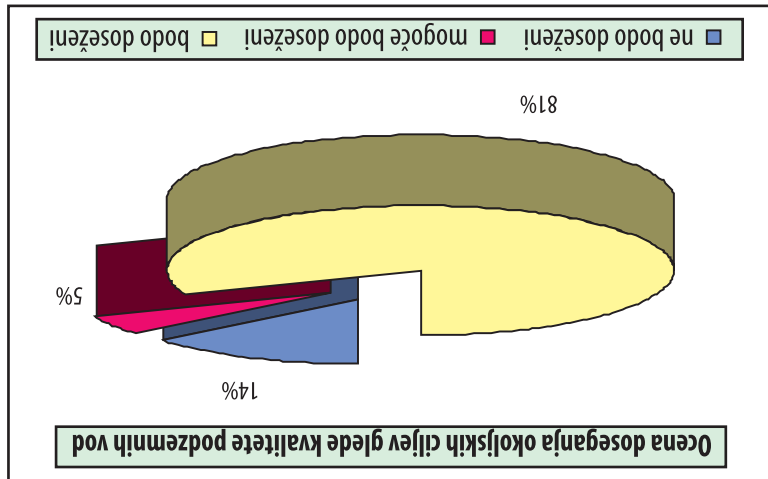
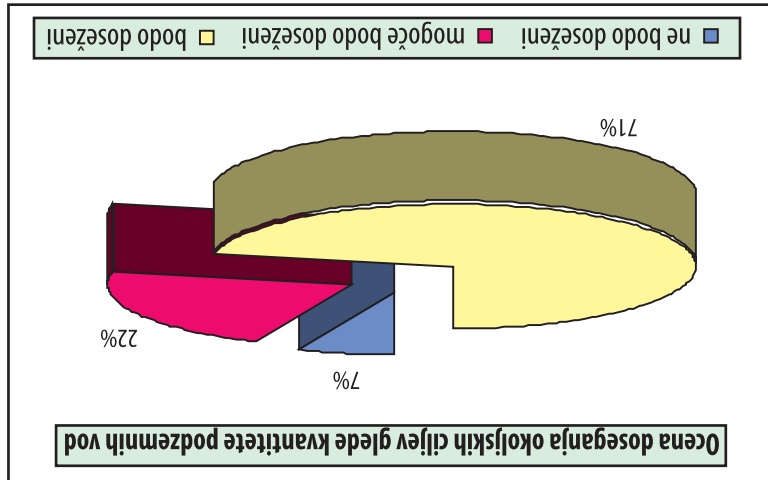
Samo Groselj,
Namestnik sekretarja za varstvo voda in vodnega ekosistema,
Sekretariat Savske komisije

Po izdelavi analize bodo aktivnosti Savske komisije na področju upravljanja voda usmerjene k razvoju Programa mer in Načrta upravljanja voda v Savskem bazenu. Pri tem bo zelo pomembna tudi finančna pomoč, ki jo bo prispevala Evropska unija, in sicer preko projekta Tehnična pomoč pri pripravi in izvedbi Načrta upravljanja voda v Savskem bazenu (»Technical Assistance for the preparation and implementation of the Sava River Basin Management Plan«). Za ta projekt je Evropska komisija izvedla narocilo za izbrato izvajalca, vedla narocilo pa je tudi neposredna obljubljena pa je tudi neposredna finančna pomoč Savski komisiji, s katero bomo pokrili del aktivnosti pri razvoju načrta. Velika pozornost bo v prihodnosti usmerjena v informiranje javnosti, s katerim bomo zagotovili aktivno sodelovanje javnosti pri razvoju Načrta upravljanja voda v Savskem bazenu. Po Strategiji Savske komisije, je predvideno, da bo prva verzija načrta dostopna za zainteresirani javnosti in deležnikom v letu 2011. Po opravljenih javnih konzultacijah z glavnimi deležniki, ki bodo trajale najmanj pol leta, pa je predvideno, da bodo države pogodbenice Okvirnega sporazuma potrdile in sprejele končno verzijo Načrta upravljanja z vodami v Savskem bazenu.

podatke o stanju na območjih, ki so zasčiteni z Ramsarsko konvencijo, kot so Cerknjsko jezero v Sloveniji, Lonjsko polje in Crna Mlaka na Hrvaškem, Bardača v Bosni in Hercegovini ter Obedska bara in Zasavica v Srbiji.

sažo na stanje voda v Bosni in Hercegovini, saj ocena na območju BA še ni bila izdelana. Boljše je stanje na področju podzemnih vod, saj so analize pokazale, da okolski cilji glede kvalitete ne bodo doseženi, le“ na 14% pomembnih vodnih teles podzemnih vod oz. na 7% glede na kvantiteto.

Pri izdelavi Analize so se pokazale določene pomankljivosti, saj so marsikateri pridobljeni podatki o stanju voda nezanesljivi, veliko pomembnih podatkov pa tudi manjka. Predvsem nam manjkajo podatki o kvaliteti vode, podatki s področja biologije in hidromorfologije ter podatki o hidromorfoloških spremembah. Prav tako nismo še uspeli določiti medsebojnih vplivov med hidromorfologijo in vodnim ekosistemom ter overdnosti vse negativne vplive na vode in vodni ekosistem v skladu z EU WFD. Veliko dela nas čaka še pri harmonizaciji vodnih teles na prekomernih vodotokih, pri določitvi istih izhodišč za določitev referenčnega stanja voda ter določitev posledic različnih negativnih pritiskov na vode. Z relevantnimi podatki ostaja nepokrito tudi področje ekološke karakterizacije Savskega bazena, saj smo uspeli pridobiti le



Vijanje z vodami (Permanent Expert Group for River Basin Management - PEG RBM), katere člani so strokovnjaki iz relevantnih organizacij in ministrstev iz vseh štirih držav podpisnic Okvirnega sporazuma, na osnovi nekaterih zunanjih projektov, ki so potekali v zvezi z izdajo Načrta upravljanja z vodami v povodju reke Donave ter na osnovi projekta, ki je bil financiran iz programa EC CARDS „Pilot River Basin Plan for Sava River“.

Glavna razlika med Načrtom upravljanja z vodami na povodju Donave (Danube River Basin Management Plan) in Načrtom upravljanja z vodami v porečju reke Save je v natančnosti, in sicer v Načrtu za Savski bazen so upoštevane vse reke, ki imajo površino porečja večjo od 1.000 km², medtem, ko so v Načrtu za Donavski bazen upoštevane porečja s površino večjo kot 4.000 km².

Analiza porečja reke Save obsega naslednja

poglavja:

- I del:** Porečje reke Save in njegove glavne karakteristike
- II del:** Kvaliteta vode
- III del:** Kvantiteta vode

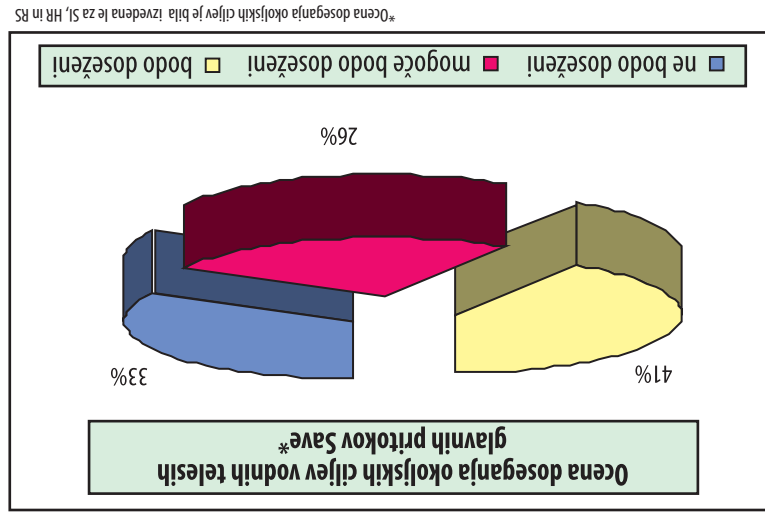
Analizi sta priložena tudi dva dokumenta, ki obravnava vata poplavno ogroženost ter obnovo in razvoj plovbe v Savskem bazenu.

V izdelavo Načrta upravljanja z vodami v porečju reke Save so bile tako usmerjene ene izmed pomembnih aktivnosti Mednarodne komisije za Savski bazen, ki je

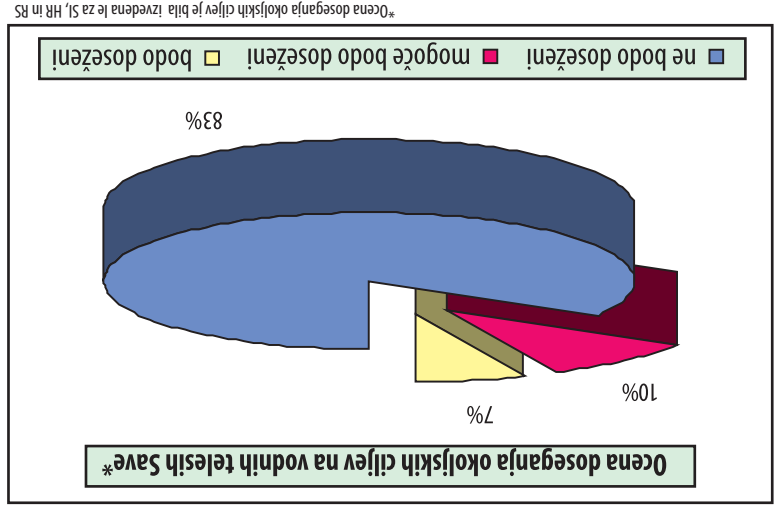
bila ustanovljena kot organizacija odgovorna za izvajanje Okvirnega sporazuma na področju trajnostnega in vzdržnega upravljanja z vodami. Od leta 2007 je v okviru teh aktivnosti potekala prva faza izdelave Načrta upravljanja z vodami v porečju reke Save. Rezultat aktivnosti prve faze predstavlja Poročilo o značilnostih Savskega bazena. Poročilo je izdelano v skladu s 5. členom EU WFD in smo ga poimenovali Analiza porečja reke Save (Sava River Basin Analysis). Analizo smo izdelali v sodelovanju s stalno strokovno skupino za upravljanja z vodami.

Države pogodbenice Okvirnega sporazuma o Savskem bazenu (Bosna in Hercegovina - BA, Republika Hrvaška-HR, Republika Srbija-RS in Republika Slovenija-SI) so se s podpisom sporazuma obvezale, da bodo medsebojno sodelovale na osnovi in v skladu z Evropsko Okvirno direktivo o vodah (EU Water Framework Directive - EU WFD), ki se nanaša na trajnostno upravljanje z vodami v porečjih evropskih rek. V direktivi so med drugim tudi podane smernice za razvoj Načrta upravljanja z vodami oz. t. i. River Basin Management Plan. Kljub temu, da je edino Slovenija kot članica Evropske unije obvezana dosledno upoštevati smernice podane v okvirni direktivi, so tudi ostale države, ki ležijo v porečju reke Save, odločile in zavezale, da bodo izdelale skupen načrt upravljanja z vodami.

Analizo smo izdelali v sodelovanju s stalno strokovno skupino za upravljanje z vodami. Od leta 2007 je v okviru teh aktivnosti potekala prva faza izdelave Načrta upravljanja z vodami v porečju reke Save. Rezultat aktivnosti prve faze predstavlja Poročilo o značilnostih Savskega bazena. Poročilo je izdelano v skladu s 5. členom EU WFD in smo ga poimenovali Analiza porečja reke Save (Sava River Basin Analysis). Analizo smo izdelali v sodelovanju s stalno strokovno skupino za upravljanje z vodami.

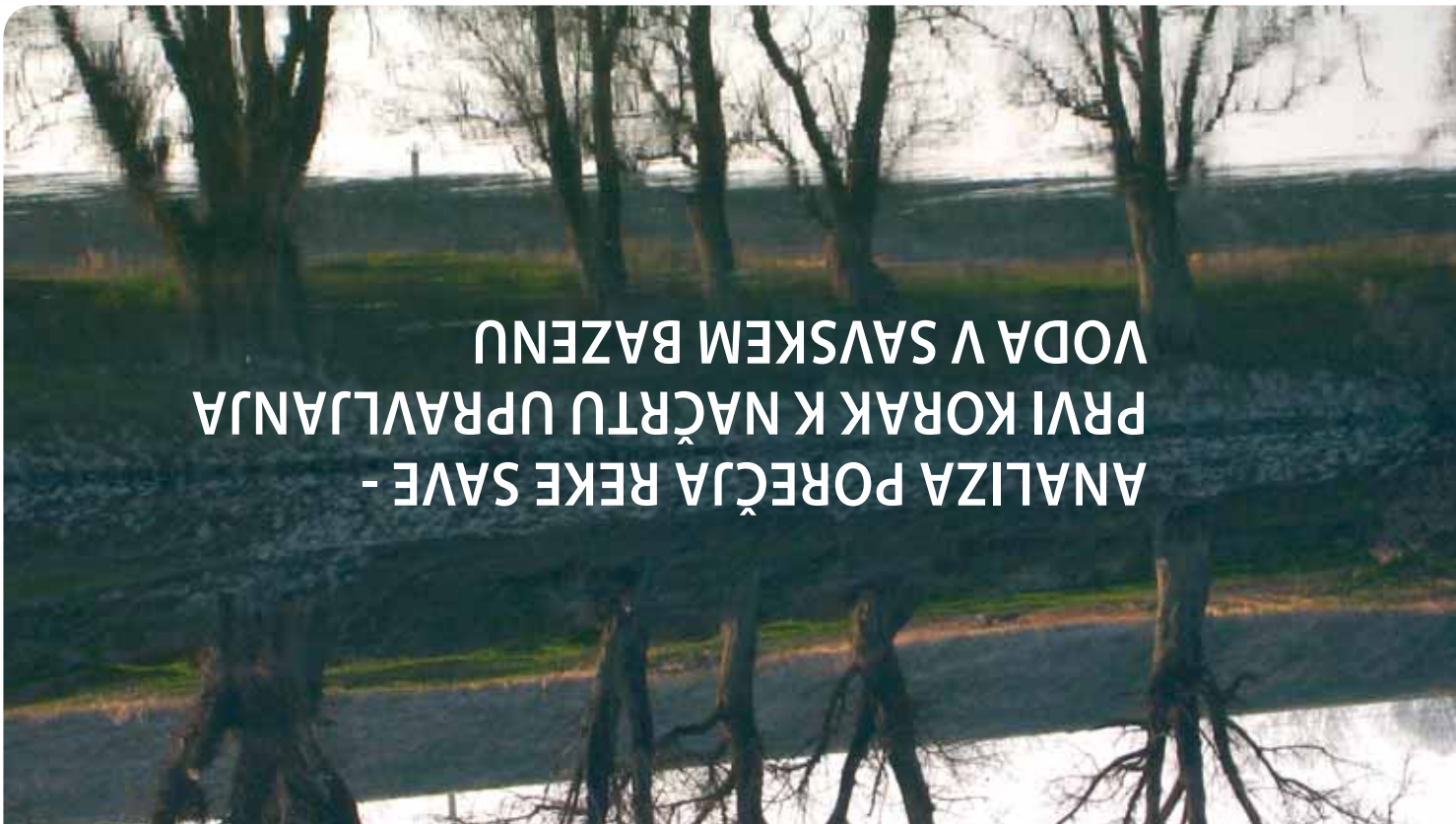


*Ocena doseganja okoljskih ciljev je bila izvedena le za SJ, HR in RS



*Ocena doseganja okoljskih ciljev je bila izvedena le za SJ, HR in RS

Pri izdelavi analize smo se dotaknili ključnih zadev, ki so pomembni za trajnostno upravljanje z vodami. Med drugim smo identificirali glavne pritoke in vplive v porečju in delno izvedli oceno verjetnosti doseganja okoljskih ciljev za reko Savo in njene glavne pritoke. Ocena doseganja okoljskih ciljev je pokazala, da je kar 83% reke Save oz. 33% glavnih pritokov pod ta-kušnji pritiski, da ne bo mogoče doseči okoljskih ciljev, kakor je zahtevano v EU WFD. Pri tem pa še niso upoštevani rezultati, ki se nana-



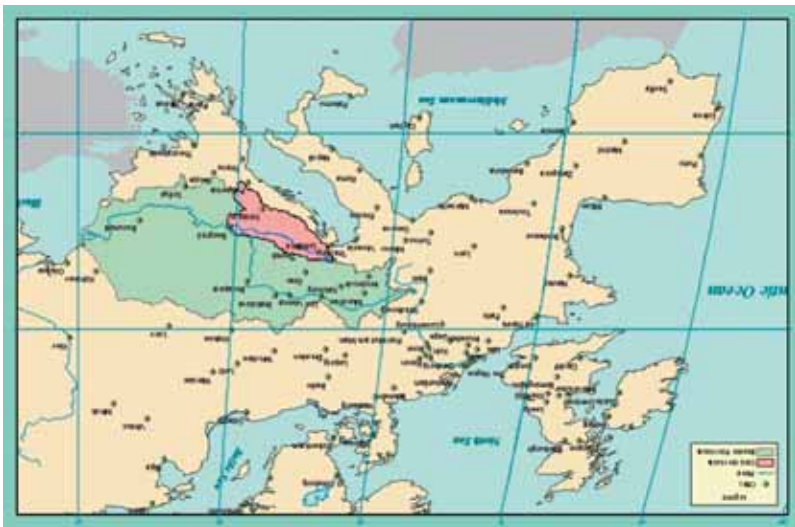
ANALIZA POREČJA REKE SAVE - PRVI KORAK K NAČRTU UPRAVLJANJA VODA V SAVSKEM BAZENU

Savski bazen predstavlja največje porečje na območju jugovzhodne Evrope in pokriva površino večjo kot 97.500 km². Porečje Save je del povodja reke Donave z deležem cca 12%, vendar pa je Sava s povprečnim pretokom cca 1.700 m³/s največji pritok reke Donave. Savski bazen pokriva območje 6 držav, in sicer Slovenije, Hrvaške, Bosne in Hercegovine, Srbije, Črne gore in manjši del tudi Albanije.

Reka Sava nastane z združitvijo dveh gorskih rek,

Bohinjke pri Radovljici (SI). Dolga je cca 945 km, oz. skupaj z najdaljšim delom skoraj 1000 km. Pri Beogradu se izliva v Donavo. Več kot polovica (586 km) reke Save je tudi plovne, in sicer od Beograda do Slavonskega broda oz. pogojno ob višjih vodostajih do Siska.

Porečje reke Save je zelo pomembno tudi zaradi izredne biološke in pokrajinske raznovrstnosti, saj obsega tako gorska območja kot tudi velike ravnine, ki so v veliki meri zamočvirjene. Ravno ta velika zamočvirjena območja so ena izmed glavnih značilnosti v porečju reke Save, saj nudijo zavetje in omogočajo preživetje velikemu številu ptic, sesalcev, kuščarjev,



	SI	HR	BA	RS	ME	AL
Celotna površina države [km ²]	20.273	56.542	51.129	88.361	13.812	27.398
Delež površine države, ki leži v Savskem bazenu [%]	52,8	45,2	75,8	17,4	49,6	0,59
Površina države v Savskem bazenu [km ²]	11.734,8	25.373,5	38.349,1	15.147,0	6.929,8	179,0
Delež v Savskem bazenu [%]	12,01	25,97	39,25	15,50	7,09	0,18

U SMERI SKUPNE REŠITVE UPRAVLJANJA S SEDIMENTOM U SAVSKEM BAZENU

Eden izmed pomembnih elementov v trajnostnem upravljanju z vodami je tudi upravljanje s sedimentom. Če govorimo o kvaliteti naših rek, velikokrat mi slimo na čisto zeleno vodo, v kateri živijo ribe, raki, vodne rastline in ostali vodni organizmi. Uživamo ob lepoti reke, vendar se velikokrat ne zavedamo, kako pomembno je ohraniti ravnotežje med živo in mrtvo naravo. Eden izmed pomembnih členov za življenje v vodi je tudi sediment, ki je del mrtve narave. Sediment nastaja ob izpiranju in eroziji mineralnih in organskih snovi, ki jih voda transportira in odlaga na območjih, kjer se zaradi konfiguracije terena tok vode upočasni.

Vsak človek nekako drugače gleda na ta del mrtve narave. Otroci ga največkrat uporabljajo za igranje. Kako lepo se je igrati ob vodi s kanglico in vedrom ter metati kamne v vodo! Kakšen „fajfer“ si, če znaš vreči ploščati kamen tako, da se večkrat odbije od gladine, dokler ne potone v globoki vodi. Z drobnjšim materialom je lepo delati „potičke“ oz. „peči tortice“. Seveda teh „tortice“ ne moremo pojedti, vendar se v sedimentu skrivajo hranilne snovi, saj so območja, ki jih reka občasno poplavlja ena izmed najbolj rodovitnih. Prve velike kulture (npr. Egipčanska), so se razvile ob velikih rekah, kjer je le ozek pas rodovitne zemlje, ki jo je reka vsako leto poplavljal, dajal hrano tem velikim in naprednim civilizacijam. Gradbinci vidijo v sedimentu predvsem gradbeni material. Najboljši betoni za najbolj zahtevne konstrukcije morajo vsebovati frakcije, ki so naravno obdelane brez ostrih robov. Poleg večjih (gramoz) pa so pomembne tudi bolj drobne frakcije, kot so pesek in mivka. Veliko materiala, ki se ga najlaže dobi ob reki ali direktno z izkopom z dna reke, se uporabi pri gradnji nasipov za različne inženirske gradnje, od rečnih nasipov, do nasipov za ceste. Sediment se uporabja tudi pri gradnji privatnih hiš. Najcenejše je kvaliteten gradbeni material vzeti iz reke. Za takšni-mi nekontroliranimi posegi ostajajo velike rane, predvsem so vidni posegi na obrežnih sipinah. Namesto tega prod ali mehkega peska oziroma mivke, zevajo iz reke ostre skale, ki onemogočajo dostop k vodi in ne dajejo dovolj zavetja živim bitjem, ki živijo ob ali v vodi.

Države v Savskem bazenu imajo vsaka svojo zakonodajo, ki napoloma dovoljujejo takšne posege v naravno okolje le v omejenem obsegu in v manjših količinah, kar pa izvajalci večkrat kršijo z izkopom sedimenta „na črno“. Zakoni so napisani, upravljalci z vodami izdajajo dovoljenja, vendar bi bilo potrebno uveljaviti tudi učinkoviti sistem kontrole nad izkoriščanjem. Po drugi strani pa ima vsaka država svoje interese z izkopavanjem sedimenta, ki večkrat niso povsem usklajeni po celnem porečju.

V ta namen v Savski komisiji razvijamo Protokol o Okvirnem sporazumu o Savskem bazenu. Glavni namen



men Protokola je, da države podpisnice medsebojno sodelujejo pri upravljanju s sedimentom zaradi re- zima vode in sedimenta v Savskem bazenu. To se nanaša tako na ohranjanje oz. izboljšanje kvalitete kot tudi na ohranjanju primernih količin sedimenta. Z usklajenimi ukrepi naj bi zmanjševali onesnaževanje, kontrolirali iz- kop in odlaganje ter določili ukrepe, ki ohranjajo ravnotežje in v najmanjši možni meri vplivajo na morfološke spremembe.

Osnovni principi trajnostnega upravljanja s sedimentom, ki so zapisani v Protokolu, so:

- sposlovesti naravne procese;
- sposlovesti, ohranjati oz. izboljšati vodni režim;
- uposlovesti kvaliteto in kvantiteto sedimenta kot naravnega bogastva;
- uposlovesti ravnotežje med socio-ekonomskimi in naravnimi vrednotami sedimenta;
- načrtovati ukrepe na takšen način, da se zmanjšuje- jo dolvodni in gorvodni negativni vplivi;
- uposlovesti povezavo med reko, sedimentom, tlemi in podzemno vodo ter;
- pospeševati sodelovanje med različnimi delezniki v porečju reke Save.

V Protokolu je tudi predvideno, da bodo države izde- lale načrt upravljanja s sedimentom, ki bo skladen z na- črtom upravljanja z vodami. Preko Savske komisije naj bi države medsebojno izmenjavale in usklajevale tudi informacije o izvajanju monitoringa.

Protokol o trajnostnem upravljanju s sedimentom je še en korak v smeri trajnostnega upravljanja z voda- mi v Savskem bazenu, kar je eno izmed osnovnih na- čel Okvirnega sporazuma in v skladu s cilji Evropske Okvirne direktive o vodah.

Samo Grošelj,
Namestnik sekretarja za varstvo voda in vodnega ekosistema,
Sekretariat Savske komisije

RIS V SAVSKEM BAZENU

Radne informacijske storitve so trenutno v fazi razvoja v dveh od štirih držav pogodbenic k Okvirnemu sporazumu o Savskem bazenu (OSSB). Hrvaška in Srbija na svojih celinskih plovih poteh, vključno s Savskim bazenom, razvijata RIS na različne načine, vendar popolnoma v skladu z Evropsko direktivo o RIS (2005/44/ES). Ker na območju Slovenije ni klasificiranih celinskih plovih poti za gospodarske namene, le-ta RIS-a ne razvija, medtem ko Bosna in Hercegovina pri tem nima izkušenj, kar pomeni, da se tovrstne storitve niso tam še nikoli razvijale.

Nosilca razvoja RIS v Srbiji in na Hrvaškem sta Direktorata za vzdrževanje in razvoj celinskih plovih poti iz Beograda – Ploput, ter Agencija za celinske plovne poti iz Vukovarja. Skupna značilnost razvoja RIS v obeh državah je ta, da so se prvotno vse te storitve razvijale na reki Donavi in zato je pokritost storitve razvijale na reki sprejeti so bili ustrezni standardi za RIS in začel se je razvoj »Podrobnege načrta in namestitvev prototipa RIS-a na reki Savi«.

Ob prepoznavanju pomembnosti RIS-a in v skladu z odgovornostmi, ki izhajajo iz OSSB, je Savska komisija izvedla začetne dejavnosti za vzpostavitvev celoti delujočega RIS-a v Savskem bazenu. Med drugim je bila ustanovljena začasna strokovna skupina, s katero je bilo ustrezni standardi za RIS in začel se je razvoj »Podrobnege načrta in namestitvev prototipa RIS-a na reki Savi«.

Projekt naj bi okvirno predstavljal oceno sedanjega stanja v zvezi z RIS-om v Savskem bazenu, podrobni načrt za sistem RIS, podrobne terenske meritve, preizkušnje združljivosti s sistemi na reki Donavi in Renu, namestitvev prototipa, ki bo v celoti funkcionalen na odseku reke Save, oceno stroškov izvedbe RIS-a na reki Savi, podrobne tehnične specifikacije bodočega sistema, načrt izvedbe, razpisno dokumentacijo, ter ustrezno ocenjevalno študijo o vplivih RIS-a na okolje.

S tem se oblikujejo pogoji za usklajen razvoj RIS-a v Savskem bazenu, ki so v celoti usklajeni z ustreznimi evropskimi standardi, ter z že vzpostavljenimi ali predvidenimi RIS-om na reki Donavi in Renu.

Na končno izvedbo RIS-a v Savskem bazenu lahko vplivajo mnogi faktori, vendar lahko vzpostavitev v celoti delujočega RIS-a pričakujemo v letu 2012.

Zeljko Milković,
Namestnik Sekretarja za plovbo
Siniša Špegar,
Svetovalec za tehnična vprašanja v zvezi s plovbo
Sekretariat Savske komisije



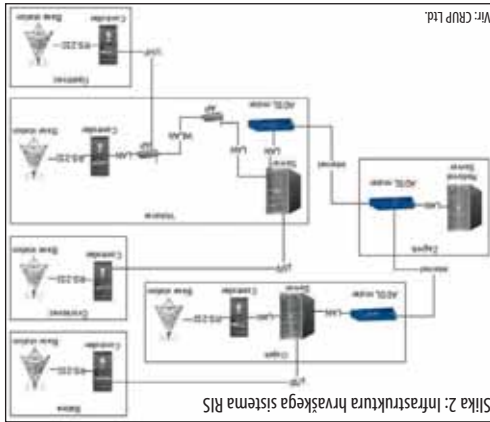
Slika 1: Domaća stran hrvaškega portala NIS



Slika 3: Prijava igralcev CRORIS



Slika 4: Srbski vmesnik NIS



Slika 2: Infrastruktura hrvaškega sistema RIS



Slika 5: Pokritost testnih centrov AIS v Srbiji

reke Save bistveno slabša. Poleg tega so bile vse storitve razvite v skladu z ustreznimi evropskimi standardi in direktivami.

Ploput iz Beograda je razvijal RIS na celinskih plovih poteh v Srbiji neodvisno in je istočasno tudi operater vseh storitev RIS, kar vključuje obvestila kapitanom (NIS), pripravo elektronskih navigacijskih kart (ENC), ter sistem za avtomatsko prepoznavanje (AIS). Storitve

*Ljubisa Mihajlović,
Pomočnik direktorja
Vladimir Senčić,
Vodja oddelka za označevanje celinskih plovih poti
Direktorat za celinske plovne poti »Plovput« Beograd*

Pri označevanju prvih 15 kilometrov se je pojavila vrsta težav, saj je bilo oznake potrebno namestiti na urbanem območju Beograda, kjer je bil zaradi številnih splavov dostop do obale z ladjo praktično nemogoč. Do konca leta 2007 je bilo z obreznimi oznakami označenih prvih 48 kilometrov reke. Na tem odseku je bilo po 17 letih nevdruževane sistema označevanja približno 50 % starih obreznih oznak, ki so bile odstranjene, da ne bi povzročale zmede pri plovbi. Govorimo je bila situacija precej slabša, saj je bilo prisotnih le še 10 % starih odpadnih obreznih oznak. Največjo škodo je bilo opaziti pri oznakah kilometrov izven naseljenih območij, saj je tam v vseh teh letih lokalno prebivalstvo izvajalo izkope za lastno uporabo, prav tako pa so območje poškodovali zbiralci sekundarnih surovin.

Nadaljnja dela pri obnovi sistema označevanja so bila okrepljena v juniju naslednje leto, ko je bil razvit preostali del oznak, ki so bile potrebne za zaključek del do rkm 210, označen pa je bil tudi odsek plovne poti od rkm 48 do rkm 150. Poleg tega dela in dolgotrajnih izkopavanj starih oznak je zamuda pri dejavnostih na tem območju nastala tudi zaradi izvedbe del na odsekih »Kamničak«, »Mrdjenovaca« in Šabac, kjer je bil dostop do lokacij od rkm 80 do rkm 113 zaradi nizkega vodostaja in nizkih bregov mogoč le s čolni.

V skladu s terenskimi deli so se pričele dejavnosti za vzpostavitev nadzorne točke na reki Savi, ki bi po zaključku del za označevanje plovih poti prevzela vzdrževanje nameščenih oznak, da bi le-te ostale v ustreznem stanju. Zaradi njihovega geografskega položaja, predvsem zaradi bližine usija reke Drine – odsek »Rača«, ter zaradi dostopnosti potrebne infrastrukture, je bila Sremska Mitrovica izbrana kot lokacija za prvo nadzorno točko na reki Savi na odseku vodotoka v Srbiji. Ta namen je bila v istem letu usposobljena ladja z žerjavom, ki bo delovala na tem odseku, ter nabrežje, ki bo predstavljalo fizično bazo »Plovputa« v Sremski Mitrovici. V načrtu je druga nadzorna točka, ki naj bi bila locirana v Šabcu in bo odgovorna za pravilno delovanje označevalnega sistema na vseh dobro (ne)znanih odsekih reke Save »Mrdjenovaca« in »Kamničak«.

Direktorat za celinske plovne poti je nadaljeval z dejavnostmi za realizacijo del, ki so predvidevala nabavo stanovanjskih kontejnerjev za potrebe prihodnjih nadzornih točk v Sremski Mitrovici, medtem ko je predvideno, da bo zadnja obrežna oznaka na srbski strani reke Save (rkm 210) nameščena do objave tega besedila.

Zanimivo je, da so izmed vseh 180 oznak, ki so bile nameščene v obdobju od novembra 2007 do oktobra 2008, tri oznake kilometrov izginile, kar v splošnem



Foto: »Plovput« Beograd

OZNAČEVANJE PLOVNE POTI REKE SAVE V REPUBLIKI SRBIJI

Označevanje plovne poti reke Save v Republiki Srbiji ima dolgoletno tradicijo, saj je plovna pot Paradoks, ki je povezan s prekinjivijo oskrbovanja po ponovni vzpostavitvi rečnega prometa. nikoli popolnoma ustavila, prav tako pa ni zamrla želja z njo povezane nevarnosti odgovorni ladjarji, se le-ta ni ne dejavnosti na področju označevanja in vzdrževanja plovnih poti in so bili za več kot desetletje za plovbo in radi pomanjkanja sredstev v začetku leta 1997 prekinje- ne dejavnosti na področju označevanja in vzdrževanja po reki Savi v večjem ali manjšem obsegu služila rečne- mu prometu v smislu mnogih gospodarskih dejavnosti med mesti (regijami), ki jih povezuje. Tudi ko bile za- radi pomanjkanja sredstev v začetku leta 1997 prekinje- ne dejavnosti na področju označevanja in vzdrževanja narodna plovna pot; ustanovljena je bila Savska komisi- ja s posebno strokovno skupino za plovbo; izvedena je posodobitev: reka Sava je bila uradno priznana kot med- čevanja za potrebe plovbe po reki Savi v smislu njene postredno ali postredno vplivala na obnovo sistema ozna- čevanja pa so potekale številne dejavnosti, ki so ne- zevanja reke.

Medtem pa so potekale številne dejavnosti, ki so ne- se ustavile dejavnosti na področju označevanja in vzdr- va z dvojnimi označevanjem rečnih kilometrov na meji

plovbe po reki Savi je ta, da so bile le nekaj let pred tem po daljšem ča- sovernem obdobju znatne investicije namenjene raziskavam, razvojno do- kumentacije in celo izgradnji dveh valomov, poglabljanju dna, ter premestitvi plovne poti v levi ro- kav enega najbolj znanih plovnih ozkih grt v Republiki Srbiji – odsek »Kamitčak«. Vzporedno s temi deli je bila sredi devetdesetih let prej- snjeja stotletja izvedena posodobitev – popravilo obstoječih in izgradnja več novih valomov na nekoliko bolj gorvodnem odseku »Mrdjenovac«. Nato pa, ko je bila zaključena prva faza predvidenih del in je bilo videti, da je reko Savo do- letel dolgo pričakovani napredek, so

med Republiko Srbijo, Republiko Hrvaško in Bosno in Hercegovino je bila rešena; pravilniki, ki urejajo števila vprašanja povezana s plovbo po reki Savi in so usklajeni z evropskimi standardi so bili sprejeti in so začeli veljati.

Direktorat za celinske plovne poti »Ploput« je po- sebna organizacija v okviru vlade Republike Srbije. Pooblaščen je za ponovno vzpostavitev in vzdrževa- nje sistema označevanja na obstoječi plovni poti reke Save v Republiki Srbiji – na odseku reke od km 0 – 210 na levem bregu in od 0 – 178 na desnem bregu.

Osnova za nactovanje in kasnejšo izvedbo del je bil projekt »Batimetrična študija struge reke Save na odseku od km 0 – 165 in na odseku od km 207 – 225«. V tistem letu je bila narejena večina obstoječih oznak (oznake za urejanje plovbe in oznake rečnih kilometrov), da bi se lahko prva terenska dela priče- la v novembru. Ta dela so zajemala odstranitev starih in namestitev novih obstoječih oznak v skladu z novo zasnovano plovno potjo, ter s sprejetim Nactrom za označevanje reke Save. Dela so se pričela na usju reke in se nadaljevala v smeri proti toku.



Foto: "Ploput" Beograd



Foto: "Ploput" Beograd



Končni izsledki 13. izrednega zasedanja so zelo pomembni za trajnostni razvoj Savskega bazena. Komisija je sprejela Poročilo o analizi Savskega bazena, ki je bilo pripravljeno v skladu z evropsko okvirno direktivo o vodah in bo predstavljalo dobro podlaglo za nadaljnje dejavnosti razvoja Narčna za upravljanje Savskega bazena. Da bi zagotovila dostopnost

me dvostranske ali večstranske dogovore. Končni izsledki 13. izrednega zasedanja so zelo pomembni za trajnostni razvoj Savskega bazena. Komisija je sprejela Poročilo o analizi Savskega bazena, ki je bilo pripravljeno v skladu z evropsko okvirno direktivo o vodah in bo predstavljalo dobro podlaglo za nadaljnje dejavnosti razvoja Narčna za upravljanje Savskega bazena. Da bi zagotovila dostopnost

V obdobju med 12. in 13. izrednim zasedanjem je Savska komisija sprejela Odločbo v zvezi s Podrobnim načrtom za plovno pot reke Save. V skladu z odločbo bo Podrobni načrt za plovno pot reke Save razvit v skladu s parametri za razred Va na odseku med usjem reke (rkm 0) in Brčkim (rkm 234) in v skladu s parametri za razred IV na odseku od Brčkega (rkm 234) do Siska (rkm 594). Republika Hrvaška bo odgovorna za razvoj Podrobnega načrta za plovno pot reke Save na odseku med Brčkim in Siskom, Bosna in Hercegovina in Republika Srbija pa se morata medsebojno sporazumeti o razvoju Podrobnega načrta za plovno pot reke Save na odseku med usjem reke in Brčkim. Pristojni organi teh držav bodo pričeli s potrebnimi postopki za financiranje del za rehabilitacijo in razvoj transporta in plovbe po plovni poti reke Save, Republika Hrvaška in Republika Slovenija pa bosta nadaljevali z dejavnostmi za uvedbo plovbe gorodno od Siska. V kolikor bodo to zahtevale okoliščine bodo pogodbenice OSSB za uresničevanje te odločbe po potrebi sklenile dodate dvostranske ali večstranske dogovore.

»PRIPRAVA IZVEDBENIH DOKUMENTOV ZA GIS REKE SAVE«

Projekt se je pričel 29. junija 2009; Savska komisija mora zagotavljati dobre komunikacijske kanale za skupnost ISRB za izmenjavo in razširjanje znanja o vodnih virih, za učinkovito upravljanje porečja in načrtovanje v Savskem bazenu, ter pomagati pri oblikovanju tehničnega konteksta in vzpostavitvi okolja, da bi zagotovili pogodbenicam OSSB delo v skladu z odprtimi in interoperabilnimi načeli in kriteriji.

»HIDROMORFOLOŠKO POROČILO ZA ANALIZO SAVSKEGA BAZENA«

Projekt je bil zaključen 21. maja 2009; Da bi prispeval k zaključku Poročila o analizi Savskega bazena s pripravo izrednega poročila o hidromorfoloških gonilih, pritiskih in vplivih v Savskem bazenu. Poročilo naj bi s svojimi ugotovitvami in priporočili pripomoglo k povečanju sinergije in zmanjšati nasprotja med različnimi sektorskimi politikami v Savskem bazenu.

»HIDROLOŠKO POROČILO ZA ANALIZO SAVSKEGA BAZENA«

Projekt je bil zaključen 21. maja 2009; Za pripravo hidrološkega dela Analize za Savski bazen in na podlagi predhodnih hidroloških analiz v Savskem bazenu, da bi zagotovili: meteorološke in hidrološke podatke za Poročilo o analizi Savskega bazena in za Narčna za upravljanje Savskega bazena, doprinesli k načrtovanju dejavnosti stalnih strokovnih skupin za preprečevanje poplav in plovbo, ter začasnih strokovnih skupin za hidrološka vprašanja v zvezi s plovbo, ter projektno nalogo za skupno in podrobno Hidrološko študijo Savskega bazena.

Savska komisija nadaljuje s svojimi dejavnostmi in trdim delom osredotočenim na trajnostni razvoj Savskega bazena v okviru izvajanja OSSB.

Lilijana Pandžić,

Strokovni sodelavec, Sekretariat Savske komisije

Savska komisija nadaljuje s svojimi dejavnostmi in trdim delom osredotočenim na trajnostni razvoj Savskega bazena v okviru izvajanja OSSB. Savska komisija nadaljuje s svojimi dejavnostmi in trdim delom osredotočenim na trajnostni razvoj Savskega bazena v okviru izvajanja OSSB. Savska komisija nadaljuje s svojimi dejavnostmi in trdim delom osredotočenim na trajnostni razvoj Savskega bazena v okviru izvajanja OSSB. Savska komisija nadaljuje s svojimi dejavnostmi in trdim delom osredotočenim na trajnostni razvoj Savskega bazena v okviru izvajanja OSSB.

DEJAVNOSTI SAVSKE KOMISIJE



skupnega telesa za opredelitev temeljev in dejstev povezanih z nesrečami, ter okolijskih vplivov in predstavlja skupni rezultat, ki je nastal pod okriljem Savske komisije.

Drugi mejnik je Deklaracija 2. sestanka pogodbenic s katerim so pogodbenice potrdile cilje OSSB kot pomembno vodilo za delo glede na različne vidike sodelovanja in razvoja v regiji. Deklaracija zagotavlja podporo nadaljnjemu razvoju plovbe in upravljanju voda na trajnostni način, poudarja vlogo Savske komisije pri uresničevanju ciljev, izpostavlja pomen podnebnih sprememb, ki bi lahko znatno vplivale na dejavnosti na področju upravljanja voda v Savskem bazenu in spodbuja nadaljnjo raziskava morebitnih vplivov, ter razvoj celostnega pristopa, ki vključuje omilitvene in prilagoditvene ukrepe, ter razvoj skupnih projektov.

V sklopu svojih rednih dejavnosti v preteklih šestih mesecih je imela Savska komisija dve zasedanji: 12. izredno zasedanje (6. in 7. maja 2009) in 13. izredno zasedanje (22. in 23. septembra 2009). Med običajnimi vprašanji obravnavanimi na zasedanjih, kot je uresničevanje delovnega načrta komisije, delo strokovnih skupin, finančno poslovanje, jeta tudi Odločba o spremembah Podrobnih parametrov za klasifikacijo vodnih poti reke Save. Eden izmed najpomembnejših dosežkov 12. izrednega zasedanja je prav go-



V času od zadnje izdaje Savskega Vestnika so bile izvedene mnoge dejavnosti in razvojni dosežki. Kot glavni dogodek, ki ga je organizirala Savska komisija velja izpostaviti Drugi sestanek pogodbenic Okvirnega sporazuma o Savskem bazenu (OSSB), ki ga je gostila Republika Srbija in je potekal 1. junija v Beogradu. Visoki uradniki pogodbenic OSSB, mednarodne in regionalne organizacije, nevladne organizacije in drugi deležniki so obravnavali in razpravljali o napredku, ki je bil dosežen na področju izvajanja OSSB, o izgradnji kapacitet in o vprašanjih sodelovanja v obdobju od Prvega sestanka pogodbenic v letu 2007.

G. Branko Bačić, Predsednik Savske komisije je ob tej priložnosti povedal: »To je priložnost za pregled rezultatov doseženih v okviru dela Savske komisije v obdobju preteklih dveh let, ter priložnost, da pogledamo celotno sliko trenutnega stanja in pogojev. Prav tako lahko ob tej priložnosti za prihajajoče obdobje objavimo razvojne ukrepe, načrte in programe, ki jih koordinira Savska komisija in ki so plod skupne vizije obveznih držav.«

Kot enega izmed mejnikov sestanka je potrebno posebej izpostaviti Protokol k OSSB o preprečevanju onesnaževanja vode zaradi plovbe, ki so ga podpisale vodje delegacij iz držav pogodbenic. Protokol je namenjten preprečevanju, spremljanju in zmanjševanju onesnaževanja zaradi plovbe, vzpostavitvi tehničnih zahtev za opremljanje pristaniških naprav in drugih sprejemnih postaj, razvoj najboljših dostopnih tehnik, informiranje, razvoj ukrepov za ravnanje ob izlitih, ter spremljanju kakovosti vode. Protokol poudarja pomen vzpostavitve institucionalnega okvirja in



Podnebna kriza, ki povzroča dramatično pomanjkanje vode na eni strani ter večja poplaveno ogroženost na drugi strani je posledica neomejene rabe naravnih virov. **Gospodarska kriza** je posledica rasti proizvo- dnje in potrošnje brez upoštevavanja družbene in okoljske stvarnosti.

Vzrok obeh kriz je posledica **družbene krize** (krize vrednot) t.i. razvitega sveta. Razvite ekonomije npr. za predvsem BDP (GDP) kazalec, ki NE UPOŠTEVA snov- ne in energetske povezanosti okolja, gospodarstva in družbe pri vrednotenju razvoja. Tako ravnanje je v izra- zitem nasprotju z Agendo 21 (UNCED, 1992). V iskanju izhoda iz globalne krize politika »odkritva« Agendo 21 (Program za 21. stoletje op.p.). V njej prepoznava akta- len, celovit in uporaben dokument, ki že 17 let nalaga vsem članicam OZN udeležanje trajnostnega razvoja z motom »misi globalno, deluj lokalno«. Implementacija nadel Agende 21 v praksi poteka z uvajanjem ukrepov blaženja (mitigation) in prilagajanja (adaptation) na pod- nebne spremembe, ki zaznavno ogrožajo varnost, blagi- njo in razvoj.

Udeležanje nadel trajnostnega razvoja v praksi po- meni iskanje takih razvojnih rešitev, ki upoštevajo zna- čilnosti lokalnih in regionalnih virov ter ohranjajo nji- hove ekosistemske storitve (ecosystem services). Gre za **razvojni izziv** raziskovalcem in načrtovalcem na regionalni, državi in lokalni ravni. To je **poslovna priljubljenost** za uvajanje okolju primernih tehnologij in ureditev ter **velik posej**, ki prinaša delovna mesta lo- kalnemu prebivalstvu.

IZHOD:

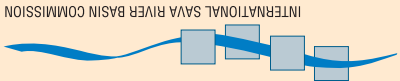
KREPITEV REGIONALNEGA SODELOVANJA

EU je uzakonila regionalni pristop z izvajanjem EU Vodne direktive (EU WFD, 2000). Porečja (River Basin) so postala temeljna upravljalna območja (ma- nagement unit) za katere članice po skupni metodolo- giji pripravljajo upravljalne načrte (RBMP) za rabo vodnih virov. Porečje reke Donave (DRB) je primer dobre prakse uveljavljanja nadel trajnostnega razvoja v upravljanje z mednarodnim porečjem. Prav zaradi de-

javnega čezmejnega sodelovanja dona- jskih držav pri izva- janju Konvencije o varstvu in trajnosti rabi reke Donave in dela Mednarodne ko- misije za varstvo reke Donave (ICPDR) se je izboljšala učin- kovitost upravlja- nja z vodnimi viri v mednarodnem po- rečju. To se odra- za tudi v zaznavno zmanjšani obremenit- vi Črna morja. S spre- jemom DRBMP bo Donavsko porečje dobilo sodobni regionalni program za upravljanje z vodnimi viri. To bo odlično okvir za zasnovano razvojno naravnane Donavske strategije, ki upošteva regionalne vire.

POVEČANJE UČINKOVITOSTI: ČEZMEJNI IN SUB-REGIONALNI PROJEKTI

Sava je najbolj vodnat pritok Donave. Pravna podla- ga za čezmejno sodelovanje držav (Slovenija, Hrvaška, BiH, Srbija, Črna gora) v porečju je Okvirni sporazum o Savskem bazenu (OSSB/FASRB, 2004). Sekretariat Mednarodne komisije za Savski bazen je začel z delom v letu 2006. Cilj: priprava Sava RBMP, ki bo omogočal ponovno vzpostavitev plovbe in načrtovanje celovitih ureditev za povečanje poplaven varnosti, zmanjševanje škod ob sušah in večji delež obnovljivih virov. Gre za iz- razito **razvojno naravnano pristop** s poudarkom na asi- stenci pogodbenicam pri vzpostavljanje konsenza med različnimi deležniki v porečju za pripravo projektov, ki imajo čezmejni pomen. Pri tem je pomembno izpostaviti vlogo EK, ki je tudi finančno podprta tako zasnovan pri- stop. Savske države imajo torej sodobno pravno podlago in orodje (stalni sekretariat) za doseganje celovitih uredi- tev, ki upoštevajo snovno-energetske povezave v medna- rodnem porečju.



SAVSKI Vestnik je uradno glasilo Mednarodne komisije za Savski bazen in izhaja dvakrat letno v dvojezični obliki - v angleščini in v enem izmed uradnih jezikov Savske komisije v vsakem izvodu. Namen

glasila je predstavitev najvažnejših dejavnosti, projektov in dosežkov Savske komisije na področjih, ki jih pokriva Okvirni sporazum o Savskem bazenu, seznanitev s koristnimi informacijami, kar omogoča boljše komunikacijo med deležniki, kakor tudi s širšo javnostjo in Savsko komisijo s čimer se pospešujejo in povečujejo vrednote ter potencial Savskega bazena.

SAVSKI Vestnik je dostopen na spletni strani Savske komisije: www.savacommission.org

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Vladimir Stoličić (RS);
Oblikovanje in tisk: ISD "Cicero" d.d.

Dr. Mitja Bralcij, Član Savske komisije
Sekretar, Ministrstvo za okolje in prostor,
Republika Slovenija





I	Uvodna beseda	3
II	Djavnosti Savske komisije	4-5
III	Označevanje plovne poti reke Save v Republiki Srbiji	6-7
IV	RIS v Savskem bazenu	8
V	U smerni skupne rešitve upravljanja s sedimentom u Savskem bazenu	9
VI	Analiza porečja reke Save - prvi korak k Načrtu upravljanja voda v Savskem bazenu	10-12
VII	Varovanje vrednosti okolja Savskega bazena	13-15
VIII	Celovito upravljanje z vodnimi viri v slovenskem porečju Save	16
IX	Podpora razvoju ekosistema reke Bosne in njenih pritokov	17
X	Geodetsko-hidrografska podlaga za vzdrževanje struge in bregov reke Save v Federaciji Bosne in Hercegovine	18

OBVESTILO

V decembru 2009 oz. v začetku 2010 bo Savska komisija organizirala sestanka v zvezi končnega usklajevanja predlaganih besedil Protokola o zaščiti pred poplami in Protokola o zaščiti pred nesrečami k Okvirnemu sporazumu o Savskem bazenu. Na sestanka bodo vabljene delegacije iz držav pogodbenic. Besedili protokolov je pripravila Savska komisija in jih pošlala državam pogodbenicam Okvirnega sporazuma v pregled in usklajevanje z namenom, da bodo države dosegle soglasje k predlaganim protokolom in podpisale oba protokola.

Označevanje plovne poti reke Save v Republiki Srbiji

Analiza porečja reke Save - prvi korak

k Nacrtnu upravljanja voda v Savskem bazenu

Varovanje vrednosti

okolja Savskega bazena

Celovito upravljanje z vodnimi viri v slovenskem porečju Save

uradno glasilo Savske komisije št.4 / november 2009

SAVSKIVestnik

INTERNATIONAL SAVA RIVER BASIN COMMISSION

