

Project Fiche – IPA National programmes / Component I

1 IDENTIFICATION

Project Title	Support to the International Sava River Basin Commission in the development of the Sava Geographic Information System
CRIS Decision number	2013/024-094
Project no.	15
MIPD Sector Code	6. Environment and Climate Change
ELARG Statistical code	03.27 Environment
DAC Sector code	14040
Total cost (VAT excluded)¹	EUR 166.667
EU contribution	EUR 150.000
Management mode	Centralised direct
Centralised mngmt:	DG ENV C1
Implementation management	DG ENV, based on a sub-delegation agreement with DG ELARG
Implementing modality	Stand alone project
Project implementation type	Direct grant
Zone benefiting from the action(s)	Sava River Basin area, and more specifically the countries which have been cooperating under the Framework Agreement on the Sava River Basin (FASRB), through the Sava Commission: Western Balkans

¹ The total project cost should be net of VAT and/or of other taxes. Should this not be the case, clearly indicate the amount of VAT and the reasons why it is considered eligible.

2 RATIONALE

2.1 PROJECT CONTEXT: ISSUES TO BE TACKLED AND NEEDS ADDRESSED

The Sava River Basin (Sava RB) is a major drainage basin of South Eastern Europe with a total area of approx. 97,700 km². It is the second largest Danube sub-basin by catchment area, comprising 12% of the Danube River Basin. The Sava River itself has the largest discharge of water to the Danube of any tributary, contributing with average annual discharge of approx. 1,700 m³/s. The basin area is shared among six countries: Slovenia, Croatia, Bosnia and Herzegovina, Serbia, Montenegro and Albania. Except for Serbia and Albania, its watershed covers 45 to 70% of the surface area of the other four countries. Its water resources constitute nearly 80% of the total freshwater resources in those four countries.

The population of the five countries (Albania is not included since only negligible part of the basin area belongs to its territory) of the region is approximately 18 million, and half of this number resides in the Sava RB. Particularly, the population of the Sava RB in Slovenia is 61%, in Croatia 50%, in Bosnia and Herzegovina 88%, in Serbia this figure is 26% and in Montenegro around one third of the population lives in this basin. Economic activities developed in the basin, generate more than 2,379,000 employed people (SRBA, 2009). That is 29 % of all inhabitants in the Sava River Basin and 45 % of all employed people in all countries (excluding Albania and Montenegro).

Sava River is very important for the Danube River Basin also for its outstanding biological and landscape diversity. It hosts the largest complex of alluvial wetlands in the Danube Basin (Posavina - Central Sava Basin) and large lowland forest complexes. The Sava River is a unique example of river with some of the floodplains still intact, thus supporting the flood alleviation and biodiversity.

The Sava River, which was the biggest national river of ex-Yugoslavia, has become an international river. A long lasting and fruitful tradition of effective water management has become more complicated in the new circumstances. According to the arising need for an effective cooperation in management of the shared waters of the Sava RB, the four riparian countries of the Sava RB - Republic of Croatia, Bosnia and Herzegovina, Federal Republic of Yugoslavia (later on Serbia & Montenegro, and then Republic of Serbia) and Republic of Slovenia have started the process of negotiation which finally resulted in concluding the Framework Agreement on the Sava River Basin (FASRB).

http://www.savacommission.org/dms/docs/dokumenti/documents_publications/basic_documents/fasrb.pdf

The FASRB was signed on December 03, 2002 and entered into force on December 29, 2004, after the ratification procedure. The FASRB presents the first multilateral agreement in the region after the agreement on succession. The FASRB emphasizes the importance of trans-boundary cooperation of governments, institutions and individuals for sustainable development of the Sava River Basin.

It defines three main goals of the process of cooperation:

- Establishment of an international regime of navigation on the Sava River and its navigable tributaries;
- Establishment of sustainable water management which included cooperation on management of the Sava River Basin water resources in a sustainable way, including integrated management of surface and ground water resources;

- Undertaking measures to prevent or limit hazards, and reduce and eliminate adverse consequences, including those from floods, ice hazards, droughts and incidents involving substances hazardous to water.

The cooperation in achieving the main goals of the FASRB is based on the following principles:

- Sovereign equality, territorial integrity, mutual benefit, and good faith;
- Mutual respect of national legislation, institutions and organizations;
- ***Cooperation in line with the EU Water Framework Directive and other related EU legislation;***
- ***Regular exchange of information within the basin on: water regime, navigation regime, legislation, organizational structures, administrative and technical practices;***
- Securing the integrity of the water regime in the basin,
- Reduction of trans-boundary impacts caused by economic and other activities.

The implementation of the FASRB is coordinated by the International Sava River Basin Commission (ISRBC), and with the permanent Secretariat as its executive body. It is mandated with a number of tasks and responsibilities specified in Annex III of this document. A valuable support to the Sava Commission is provided by permanent and ad-hoc expert groups established by the Sava Commission. The list of the main expert groups has been also provided in Annex III.

Although the Sava riparian countries have different status towards the EU (Slovenia and Croatia are member of the EU, , Bosnia and Herzegovina, Serbia and Montenegro are enlargement countries), they are committed to implement the provisions of the EU WFD and other related EU legislation, as provided for in the above mentioned basic principles of cooperation under FASRB.

Under the umbrella of the ISRBC, the Parties to the FASRB (Slovenia, Croatia, Bosnia and Herzegovina, Serbia) have started various activities which lead to reaching the main goals of the FASRB as soon as its Secretariat became operational in 2006. In the field of river basin management (RBM) the main achievements can be summarized as follows:

- Preparation and adoption of the ***Sava River Basin Analysis (Sava RBA)*** in 2009 and its publishing in 2010. The process has been supported by the EU, through one component of the CARDS Sava project with assistance in drafting of the water quality chapter of the Sava RBA;
- ***Preparation of the Sava RBM Plan.*** The Plan has been prepared in accordance to the FASRB, Article 12 which states: *“The Parties agree to develop the joint and/or integrated Plan on the management of the water resources of the Sava River Basin and to cooperate on its preparatory activities”*. The Plan represents a major achievement in cooperation of the Parties to the FASRB and Montenegro in reaching the one of the main goals of the FASRB - establishment of sustainable water resources management. The Sava River Basin Management Plan (RBMP) has been developed according to the requirements of the EU WFD which establishes a legal framework to protect and enhance the status of all waters and protected areas including water dependent ecosystems, prevent their deterioration and ensure long-term, sustainable use of water resources. The Plan has been based on elaboration of issues of the basin-wide concern - Significant water management issues (SWMIs), agreed upon by the riparian countries (organic, nutrient, hazardous substances pollution and hydro-morphological alterations), and issues regarding pressures on groundwater quantity and quality and the related Programme of Measures. It consists of the main text, 13

annexes and 22 accompanying maps. A numerous background papers are also produced during the Plan development. The peculiarity of the Plan is that it is prepared in English and in 7 official languages of the Sava countries and the two letters-Latin and Cyrillic. It has been a specific challenge for the Secretariat of the ISRBC; especially regarding preparation of the Sava RBMP maps.

- The Sava RBM Plan was prepared in early 2013 and distributed to the Parties for their national adoption procedures. That process is currently in the progress in all the Sava countries.
- Preparation of the Plan was strongly supported by the EU, by IPA funding through the two projects: Technical assistance in the preparation and implementation of the Sava RB Management Plan and the Support to the International Sava River Basin Commission in preparation and implementation of the Sava RBM Plan.

In the field of flood management the riparian countries, coordinated by the ISRBC, also achieved some significant results, such as:

- Preparation of a comprehensive overview of the flood management practices in the Sava countries, as the annex of the Sava RBA report;
- Preparation of a ***Flood Action Plan (FAP)*** for the Sava RB, in line with the International Commission for Protection of Danube River (ICPDR) Flood Action Programme and in close cooperation with that commission;
- Preparation of preliminary hydrologic and hydraulic models for the Sava RB and for the Sava River, respectively;
- Development of the ***Protocol on flood protection to the FASRB***. The Protocol establishes the strong basis for cooperation of the Sava countries in all aspects of trans-boundary flood management in line with the EU Flood Directive (FD). The Protocol was signed by the Parties in 2010 and is currently in the process of ratification.

The ISRBC has adopted the new Strategy of implementation of the FASRB (http://www.savacommission.org/dms/docs/dokumenti/sastanci_strana/3_sastanak_strana_fasrb/strategy_on_implementation_of_the_fasrb.pdf), and it's accompanying Action Plan for the period 2011-2015. (http://www.savacommission.org/dms/docs/dokumenti/sastanci_strana/3_sastanak_strana_fasrb/action_plan_for_the_period_2011-2015.pdf).

These two basic documents pave the way for future actions leading to reaching the main goals of the FASRB. Some important activities of the Parties which should be implemented in the planning period are:

- Preparation of the 2nd Sava River Basin Analysis
- Drafting the 2nd Sava RBM Plan
- Assessment of data and information needs for preparation of a joint Sava FRM Plan
- Initial flood vulnerability assessment in the Sava River Basin and identification of the most vulnerable areas
- Information exchange on the preparation of the preliminary flood risk assessment
- Information exchange in production of the flood hazard and flood risk maps for the Sava River Basin
- Development of the Sava FRM Plan including a summary of measures

These and other planned activities of the ISRBC were strongly supported by the Parties on its 3rd meeting, held in 2011, and the 4th meeting held in Sarajevo on 31 May 2013. The Declaration from the 4th ministerial meeting can be found at:

http://www.savacommission.org/event_detail/1/19/289 .

In the Strategy and its Action Plan the information management, as a cross cutting issue which is necessary for efficient implementation of the above actions, has also been noted. The ISRBC plans to implement the core functionalities of the Sava Geoportal as the first step and continue with development of advanced functionalities of the system in later phases.

Activities related to *Sava GIS* planned through this project will serve as an important tool in data handling and information flow for the purposes of implementation of the above mentioned activities as well as for informing wide public on the relevant actions.

The preparatory steps for establishment of the Sava GIS are being conducted almost since the establishment of the Sava Commission Secretariat in early 2006. The Sava GIS Strategy, giving the main directions of further GIS development in the basin, had been prepared and adopted by the ISRBC in 2008.

http://www.savacommission.org/dms/docs/dokumenti/documents_publications/strategies/sava_gis_strategy/sava_gis_strategy_final.pdf).

The vision of the Sava GIS Strategy is to provide seamless, platform-independent, timely, and open access to integrated data, products, information, services and tools with sufficient accuracy and precision in order to address important water management issues in the Sava River Basin. Primarily, 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.

A second major goal of the Sava GIS is creation of a technical context and establishment of environment in which ISRBC Parties will be able to work according to open and interoperable principles and criteria. The ISRBC, through previously implemented actions leading to establishment of a efficient GIS system, performed an investigation on what Sava GIS users 'needs (individual, expert groups) including the thematic content, functionality these users might require or expect, and standards to be adopted and followed) as well as a description of proposed technical architecture of the future SavaGIS system. In addition, the ISRBC also assessed the approaches on establishment of Sava GIS/Sava GeoPortal that will enable ISRBC users to discover and access water related information along with indicative funding requirements.

Implementation of the Sava GIS Strategy actually started through above mentioned project "Support to the International Sava River Basin Commission in preparation and implementation of the Sava RBM Plan", through the project component, entitled **Action D Sava GIS**, with the two major activities:

Activity D1 Refinement and verification of the collected national data sets and upgrade of the Sava RBA maps has been fully implemented. The main reason for performing of this activity was the fact that the datasets collected from the countries during work on the Sava RBA Report were often inconsistent because of several reasons identified, such as:

- obsolete topography data used for preparation of basic GIS data;
- different scales of basic maps (especially important on boundary rivers (Drina, Sutla etc.) which lead to different shape files for the same river,
- lack of common standards on the level of the ISRBC for preparation and submitting the shapes (projections etc.)

These findings lead to conclusion that a certain level of refinement and verification of basic shapes is needed and following was done through this project component:

- checking and making necessary refinements of basic GIS data sets used for the Sava RBA purposes;
- based on these refined data, upgrading of existing maps prepared for the Sava RBA report and producing some additional maps;
- based on the data collected as well as additional products prepared by the Secretariat of the ISRBC a geo-database was compiled as an initial input in the Sava GIS.

The work on this project component went even far more than originally planned since the quality of the GIS information provided through the “Technical Assistance” was good enough for representation on the Sava RBM Plan maps, but it was not prepared in line with all GIS principles and therefore had required a substantial additional work to be included in the common Sava geo-database. Additional effort was also needed to adjust the Sava RBA maps in accordance to the justified comments provided through the public consultation process, after the formal termination of the “Technical assistance” component of the project.

2nd activity of this project component was **Activity D2** Establishment of Sava GeoPortal core functionalities, has been seen as the first implementation step in establishing of the Sava GIS core functionalities, fully in line with the Sava GIS Strategy. **This component was implemented only partially.**

Geoportal prototype establishment should have included:

- Procurement and installation of the information and communication equipment (such as servers, software, network adapting and firewall extending) at the premises of the Sava Commission, who will host Sava Geoportal;
- Launching the Sava Geoportal as a standalone web and map based application allowing for publishing, managing, discovering (finding) and viewing metadata stored on metadata repository, as well catalogue service, metadata harvesting tools and user managing tools.

Beside preparation of the core datasets to be used in the Sava GIS, as described above, the ISRBC also purchased part of the information and communication equipment - Database and Application server, UPS and rack. Rest of the equipment was not procured because of the reasons described briefly in 2.6. Setup and launching of the Sava Geoportal also was not implemented due to the reasons also briefly described in 2.6. Continuation of the activities on the SavaGIS project has been proposed through this project as it is found essential for fulfilling the above described and other tasks of the ISRBC in necessary capacity on the information side to fulfill the obligations required by the FASRB.

2.2 LINK WITH MIPD AND NATIONAL SECTOR STRATEGIES

The main assistance to IPA Beneficiaries is given through the National Programmes with the Multi-Beneficiary Programmes complementing these. As it is noted in the Multi-Annual Indicative Planning Document (MIPD) areas of intervention will only be addressed through the Multi-Beneficiary programmes where there is a clear need for regional cooperation or horizontal action, for instance through tackling cross-border problems or in obtaining efficiencies through establishing harmonised approaches, leveraging established instruments or facilitating networks of experts. This project, with its cross-cutting nature, tackles all above priorities. In addition, it is stated in MIPD that the specific areas of intervention identified for Multi-Beneficiary assistance will build on the progress made to date, particularly with regard to fulfilling the Copenhagen criteria and alignment with the EU *acquis*. One of the two major regional initiatives which were worth mentioning in the MIPD, is the Sava River Basin

Management Plan. The purpose of the latter is to improve integrated water management of the Sava river basin following the approach of the EU Water Framework Directive and Floods Directive and thereby improve water quality and reduce pollution while establishing cooperation mechanisms between the countries of the Sava basin in the areas of water protection, flood risk management and sustainable navigation.

The project also can contribute to solving other issues of regional concern like those in disaster risk management and mitigation of and adaptation to climate change, by supporting implementation of the ISRBC activities planned in its Action Plan for 2011-2015, like actions related to implementation of the Sava RBM Plan and actions for the 2nd RBM cycle and the activities leading to preparation of the first Sava FRM Plan. Another important contribution of the project, in line with the goals of the MIPD, can be ensuring standardisation in warning systems and protocols for data exchange. Regarding regional cooperation which goes beyond the Sava RB are it could be mentioned cooperation with the Regional Programme on Disaster Risk Reduction in South-East Europe (IPA 2008 project). In the frame of that project in June 2013 a workshop has been held in Zagreb, jointly organized by the project WMO and ISRBC, to discuss the hydrological and meteorological data exchange and related cross-border cooperation and coordination on DRR issues.

The project also contribute to the one of the goals of IPA Multi-Beneficiary assistance to support Beneficiaries to align with the environmental and climate change *aquis*, strengthen regional cooperation in strategic planning for environmental policy and in developing the capacities and mechanisms in the area of disaster risk management and mitigation of and adaptation to climate change.

2.3 LINK WITH ACCESSION PARTNERSHIP (AP) / EUROPEAN PARTNERSHIP (EP) / STABILISATION AND ASSOCIATION AGREEMENT (SAA) / ANNUAL PROGRESS REPORT

As mentioned before, an comprehensive assessment has been undertaken to investigate the current use of G(IS) by the Parties of FASRB. The major stakeholders expressed almost unanimous opinion that there is a need for development of the common Sava River Basin GI System, which cuts across many themes, delivering up-to-date, consistent information at both Sava Basin-wide level and as many smaller-area levels as possible. Such a cross-cutting GIS system will add value, by encouraging cross-linking of existing national GI systems (spatial thematic servers) and their information with other areas and enabling thinking outside the national borders. The establishment of the Sava RB GeoPortal will allow the users to discover, visualize, share and retrieve geographic information and datasets related to the water management in the whole basin. The entire concept should be based on the latest ISO/TC211 standards and OGC specifications for GI interoperability, compliant with the INSPIRE principles. Following the principle of INSPIRE “*Data should be collected once and maintained at the level where this can be done most effectively*” (<http://inspire.jrc.it>), the Sava RB GIS, in its final phase, will not store or maintain the data. These are distributed by national thematic servers across the region.

2.4 PROBLEM ANALYSIS

To be able to fulfil all activities in the frame of ISRBC in RBM, FRM and other sectors on time and in accordance to agreed methodology, a variety of spatial and non spatial data should be collected and processed. The Sava GIS Strategy, adopted in 2008, anticipates development of decentralized information system in the final phase of its development. This project shall be an important step in that direction. It serves as continuation of the Sava GIS activities, performed during the preparation of the Sava RBA and the first Sava RBM Plan. The data collection

performed during preparation of the above documents was done in a traditional way, by submitting the needed GIS information in shape files from institutions of participating countries. Such data often suffer because of geometric inconsistencies and missing information in their attribute tables. Since they are collected from different institutions and country systems they also have different methodologies of preparation and it is hard and time consuming to prepare them even for visualisation purposes through maps. That was marked as a very serious problem in the past activities of the ISRBC.

Through the EU support to the ISRBC in preparation of the Sava RBM Plan the data collected from various sources were processed and imported in a common geo-database, created in accordance to the agreed model of the future Sava GIS. This could serve for setup of initial ISRBC GIS capabilities. Nevertheless, it is the ultimate priority of the ISRBC to continue the steps leading to establishment of fully functional Sava GIS, which is needed to develop efficient access and data flow between the ISRBC Parties and Secretariat, with minimum manual data handling, technical and administrative burdens, and in line with the EU GIS guidance.

By implementing of this project 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 will be established. Wider stakeholders shall also benefit by implementing the project by easier sharing the data with the Sava Commission and/or by access the information through Sava GeoPortal.

The lack of new funding would have significant negative effects, including the risk of halting or, at least, losing the momentum in the above mentioned ambitious processes and plans of the ISRBC and participating countries in a politically volatile region (including Serbia, Bosnia and Herzegovina, Croatia, Slovenia and Montenegro), implications further downstream in the Danube River Basin (Romania and Bulgaria) endangering their possibilities of attaining the targets of the EU WFD and FD.

2.5 LINKED ACTIVITIES AND DONOR COORDINATION

This project is a natural continuation of the EU supported project “Support to the International Sava River Basin Commission in preparation and implementation of the Sava River Basin Management Plan” (grant line) and the connected project “Technical assistance in preparation and implementation of the Sava River Basin Management Plan”(tender line). Through these parallel actions the first Sava RBMP has been produced, as the main achievement. One of the project components was collection of the (geo)data needed for the Plan preparation, production of the related maps as well as transformation of the collected and derived data into geo-database format which should serve as the initial dataset for future Sava Geoportal. Through above mentioned EU support to the Sava Commission, basic IT equipment for establishing the Sava GIS system (database and application servers, UPS and rack) is already purchased.

The activities proposed by this action are planned to be financed by the IPA funding only, with the ISRBC contribution expressed in human resources engagement. No other donors will contribute to the activities foreseen.

2.6 LESSONS LEARNED

Transnational project management and coordination is a key integrative part aimed at efficient and effective project implementation. The whole process of coordination of the preparation of the Sava RBM Plan and other accompanying project components had been performed by the ISRBC Secretariat. The project management aimed at successful integration and suitable coordination of the activities implemented through the two components, *the “grant line “and*

the “tender line“, which required a proactive facilitation and coordination of the whole process in a way to reach the common ultimate goal, which is preparation of the first Sava RBM Plan.

Generally, it could be declared that the *ISRBC succeeded to perform this coordination effort in a satisfactory manner, taking into account specific implementing arrangements for the “tender” and “grant” line of the project. Nevertheless, certain risks could not be avoided.* Very complex interaction between the two SRBMP project lines - “grant” line, implemented directly by the ISRBC and related “tender” line, administered by the EC, sometimes caused unexpected problems in the project implementation. Any delay in performing of the “tender” line specific components resulted in shifting the deadlines of connected activities of the “grant line”. That was specifically visible in the inception phase of the SRBMP preparation and in the “tender” line performance of the activities related to collection and processing the GIS data, which was one of the weakest points in the project implementation. A proper preparation of the core set of GIS data for purposes of the Sava system was possible only after the termination of the “tender line” component of the project. Since this project is comprised by only one implementing line it will not be the issue and possible risk for the project implementation.

2nd problematic issue refers to the IT equipment supply. Since the procurement was rather small, in quantity and in costs, the potential tenderers were not motivated for offering the supply. A part of the equipment was purchased in a repeated tender procedure only, where just one tenderer submitted the offer. Besides the small budget for the supply, the reason for such low interest for offering was the rule of origin, required by such funding, due to time and costs needed for obtaining such a certificate. The other problem was that certain products required for the information system setup have the origin from non-eligible countries only.

In this project it shall not be the case because the ISRBC made a decision to purchase all remaining hardware components through its funds, in order to avoid such problems which can jeopardize the whole project implementation.

3rd problematic issue in the project implementation was the fact that certain external projects, which have been assessed important, were not finished on time (Water and Climate Adaptation Plan, managed by World Bank) and that made impossible implementing the envisaged activities as previously planned. Such reliance on external project should be avoided to the most possible extent.

3 DESCRIPTION

3.1 OVERALL OBJECTIVE OF THE PROJECT

The overall objective of the project is to provide good communication channels for the ISRBC community in order to share and disseminate information and knowledge about protection of the water resources and water management activities in the Sava River Basin. This will strongly support the Sava riparian countries in further approximation to the EU environmental *acquis* in the field of water management according to the EU WFD.

3.2 SPECIFIC OBJECTIVE(S) OF THE PROJECT

The specific objective of the project is:

- to provide support and assistance to the International Sava River Basin Commission and the countries cooperating under the Framework Agreement on the Sava River Basin (Croatia, Bosnia and Herzegovina, Serbia and Slovenia) as well as to Montenegro in starting to implement the first Sava River Basin Management Plan as well as in all joint

activities targeted for subsequent RBM cycles by developing necessary capacities and information base - Sava Geoportal.

3.3 RESULTS

Sava GIS initial functionalities established and the Sava GeoPortal in function.

3.4 MAIN ACTIVITIES

Establishment of Sava GeoPortal core functionalities will be achieved by accomplishing the following project components:

Activity 1: Supply of Operating system software, Relational Database management System (RDBMS), GIS Application Software, and Web GIS Application Software

Through implementing of this activity following will be purchased:

- 64-bit operating software fully compliant with the Relational Database Management System (RDBMS) and GIS applications, proposed as system solutions;
- The RDBMS must provide an embedded mechanism for guaranteeing data integrity; it must provide support for XML, embedded in the RDBMS; it must enable calling external Web services from database and database as Web services provider; it must include mechanisms for automatic backup and recovery; it must have mechanisms for creating, maintaining, and monitoring one or more standby databases to protect enterprise data from failures, disasters, errors, and corruptions; it must be multi-user system; it must have comprehensive spatial data support etc;
- GIS application must comply with the following general requirements:
 - it should be able to provide easy access to a GIS database, as well as to process, analyse and visualize Sava GIS data.
 - It should use advanced statistical tools to investigate the data, such as visualize, model, and predict spatial relationships; link data, graphs, and maps dynamically; perform deterministic and geo-statistical interpolation; evaluate models and predictions probabilistically to assess risks.
 - It should derive answers from Sava GIS using advanced spatial analysis which provide a new information from existing data, analyse spatial relationships, build spatial models, and perform complex raster operations, create self-documenting models make it easy for others to understand the spatial analysis process applied, examine what-if scenarios, compare results, find area by different criteria, etc.
 - GIS application software should also provide use of data in various formats such as GML, XML, WFS, Shape, Geodatabase etc.
- Web GIS Application Software with capability to support wide range of the geo-processing tools, with web data viewer and web data editor, capability to work within common web browsers, to support vector and raster standard formats, etc;

Activity 2: Establishment of the Sava Geoportal core functionalities

An assessment has already been undertaken to investigate the current use of GIS by Parties of FASRB. This has established that there is a need for the development of the Sava River Basin GIS system (Sava River Basin GeoPortal), which cuts across many themes, delivering up-to-date, consistent information at both Sava Basin-wide level and as many smaller-area levels as

possible. Such a cross-cutting GIS system will add value, by encouraging cross-linking of existing GI systems (spatial thematic servers) and their information with other areas and enabling thinking outside the national border.

The establishment of the Sava River Basin GeoPortal is one of the main aims of the Sava Commission. It will allow the users to discover, visualize, share and retrieve geographic information and datasets related to the water management in the Sava River Basin. The entire concept should be based on the latest ISO/TC211 standards and OGC specifications for GI interoperability, compliant with the INSPIRE initiative principles. In line with the INSPIRE, the Sava River Basin GIS should aim at creating a gateway from where one can search for spatial data, information, services and organisations related to the water management at basin-wide level.

Following the principle of INSPIRE “*Data should be collected once and maintained at the level where this can be done most effectively*” (<http://inspire.jrc.it>), the Sava River Basin GIS, in its final phase of development, will not store or maintain the data. These are distributed by Parties of the Sava Commission and their thematic servers across the region. Each server is maintained by the organisation responsible for the data.

Within the project “Preparation of the implementing documents for the establishment of the Sava GIS” the set of standards for contributing and discovering water management-related data was determined, thematic water management related data sets or objects to be used and processed in the Sava GIS were agreed and specified in details, and architecture at the level of the operational concept and solution overview was proposed. Taking into account that that implementation of the agreed standards, data and metadata specification, as well as process of setting data repositories in the participating countries and migration toward services-based national GIS, will take some time after being agreed and confirmed by the Parties, implementation of Sava GIS will be done following phased approach.

First implementation phase will be focused on the setup of the core functionalities: Geoportal Prototype tools, services and products to support implementation of the SRBMP as well as all other tasks of the Sava Commission given by the FASRB. This is fully in line with the Sava GIS Strategic goals: *Collect and manage water related data from multiple locations* and *Enable ISRBC users to discover and access water related information via the Sava River Basin Geoportal*.

The Sava Geoportal prototype will include establishment of testing environment and thematic datasets that can be reported throughout services. If Party will not be able to publish spatial data and metadata via services, data/datasets that will be reported in traditional way by uploading the files in appropriate format at Sava Geoportal.

Geoportal prototype establishment shall include:

- Setup of the information and communication equipment and software at the premises of the Sava Commission, who will host Sava Geoportal;
- Location and /or creation of required data services. Custom interface graphic and content. Implement Sava Geoportal as a standalone web and map based application allowing for publishing, managing, discovering (finding) and viewing metadata stored on metadata repository, as well catalogue service, metadata harvesting tools and user managing tools;

- Establishing metadata and data flow;
- User trainings shall be provided for the Secretariat staff and for invited country experts.

Beside regular reporting and discussion on the ISRBC EG meetings (with core function of the Ah GIS EG) *two workshops* are planned with participation of the Sava county experts in order to follow project development and to consult on specific issues. The consultant engaged for establishment of the Sava Geoportal shall prepare the materials for the workshop, present the project interim and final results and draft the minutes of the workshop. The Sava Commission Secretariat shall undertake all necessary organizational tasks.

Expected results: Sava GeoPortal prototype operational. Background and core SRBMP related GIS data sets uploaded.

The indicative timing for the two previously mentioned activities is contained in the following table. The SAVA River Basin Commission will award three contracts for the acquisition of system, software and consulting services.

Contracts	Start of Tendering/ Call for proposals	Signature of contract	Project Completion
Contract 1 "Support to the International Sava River Basin Commission in the development of the Sava Geographic Information System"	N/A	Q1 2014	Q2 2015

Activity 3: Project management

Following are the main anticipated components of the activity 3:

Meetings

In order to follow-up the progress of the project to provide efficient and effective performance of the project, project meetings are foreseen in order to analyze the status of the activities, to review the progress of on-going activities, provide review and assessment of the activities that are finished or are about to be finished and to plan the next activities (activities that are about to start).

- **Project meetings** will be organized within the framework of the *Ad hoc GIS EG* which has been established by Sava Commission. Among other tasks, the main tasks of the Ah GIS EG are coordination of all tasks related to development of the GIS. At the project meetings, nominated experts from the Sava Countries and the sub-contractors (if applicable) will be present depending on the issue which will be presented and discussed at the meeting. The project meetings will be held in Zagreb mainly. Within the lifetime of the project, *three project meetings* are planned. Project meetings will be planned in a way to meet the requirements of this project. Presence and active participation, including preparation of necessary inputs for discussion, of the consultant representatives shall be obliged on these meetings. Project meetings will assure suitable coordination of the activities, adopt the results on the expert level and within its responsibilities and provide recommendations for steps forward. It will also serve to verify quality of deliverables before final adoption by the ISRBC.
- **Specific issue meetings** will be organized within the frame of other expert groups of the ISRBC, primarily Permanent Expert Group for RBM as well as other expert groups in

accordance to needs (PEG for Navigation, PEG for Flood Protection, PEG for Accident Prevention and Control ...). Within the lifetime of the project *six meetings* are planned. Specific issue meetings will assure suitable coordination of the activities, adopt the results on the expert level and within its responsibilities and provide recommendations for steps forward. It will also serve as inputs for discussion on the project meetings.

- **ISRBC sessions** will serve for final verification of deliverables, making conclusions on specific issues and providing recommendations for further work. Dissemination of key outputs to the institutions responsible for implementation of the FASRB will be done after prior approval of the ISRBC.
- **Specific task meetings** shall be organized by the Secretariat with the consultants for specific tasks planned to be performed by means of engagement of experts/consultants. In order to follow-up the progress of the activities to provide efficient and effective performance of the project, specific task meetings are foreseen in order to analyze the status of on-going activities. Task meetings will be held according to its necessity. If needed country experts for specific issues/sectors might be invited to attend the meetings. Task meetings can be organized also via phone conversation or personal meetings.
- Meetings of the Steering Committee, comprised by the expert from the Sava countries, shall be organized by the Secretariat in order to follow the implementation of the project on the expert level;

Assistance to the ISRBC Secretariat in tendering and supervising of the project implementation

For specific activities it is anticipated that external consultant assistance will be needed. These are:

- Assistance to the Secretariat in preparation of the tender documents for specific activities and in the evaluation of the offers, if found necessary;
- Assistance to the Secretariat in supervising the contracts execution;

Reporting to the EC

During the project execution, the following reports are planned to be prepared towards the EC:

- 1 progress report and the final implementation report;

3.5 ASSESSMENT OF PROJECT IMPACT, CATALYTIC EFFECT AND CROSS BORDER IMPACT (WHERE APPLICABLE)

Activities related to Sava GIS planned through this project will serve as an important tool in data handling and information flow for the purposes of implementation of the first and preparation of subsequent Sava RBM Plans as well as for informing wide public on the relevant actions. It will also contribute to enhance the national water related GIS systems in parts related to implementation of the EU regulations. It will also strongly contribute to easier data flow between ICPDR and the Sava Commission, which closely cooperate in all actions related to implementation of the EU WFD.

In addition WFD requires MS to coordinate efforts between each other and third countries. This direct grant will result in enhanced trans-boundary cooperation in the SAVA River Basin.

3.6 SUSTAINABILITY

The results of the project will have positive impact to the water management in the beneficiary countries. They will help the beneficiaries to enhance the process collecting,

processing and exchange the data and to improve decision making process in the field of water and environmental protection. The sustainability of the project results can be considered as ensured because the beneficiaries have already made a decision to follow the commonly agreed way of data sharing as proposed in the Sava GIS strategy. They have made a commitment to cooperate on the development of the common system for the Sava River Basin, by providing necessary financial resources and by strengthening the Secretariat with engagement a special advisor for GIS. However, this section should be read with the following section 3.7, where a detailed explanation of the risks, assumptions and possible contingency measures for management of possible risks has been elaborated.

3.7 ASSUMPTIONS AND PRE-CONDITIONS²

The main risks, assumptions and contingency measures are:

- **Personnel resources in the beneficiary countries**

Risk: In the field of water management there is a lack of personnel in the organizations and institutions which are responsible for GIS activities in the respective countries.

Assumption: Each country cooperating under the FASRB is aware of its obligation toward this project and they will adjust the structure of water management institutions in the manner to secure adequate personnel capable to cooperate with the Sava Commission and other cooperating countries in the development of the common GIS system.

Contingency measures: In cases where an inadequate response from the countries is noticed towards the agreed actions in the project the Sava Commission members shall inform the responsible persons/institutions in the beneficiaries and facilitate the problem to the mandated extent. The Sava Commission is also mandated to issuing recommendations to the Parties in special cases which might occur during the lifespan of the project.

- **Sava GIS post project development**

Risk: After the project termination needed resources are not engaged for maintenance and further development of the Sava GIS

Assumption: The Parties see advantages of the common information point for the basin and strongly support its further development. The ISRBC will secure all necessary resources, including staffing for normal system functioning.

Contingency measures: The common Sava GIS can be established only by securing active support of the Parties. Having it in mind the Sava Commission already adopted the Sava GIS strategy which gives the main directions in establishment of GIS. First step in preparation of the Strategy was a comprehensive capabilities and needs assessment, whose findings and conclusions were based mostly on detailed questionnaires filled by the relevant institutions in the Parties. Almost 94% of the respondents declare the need of establishment the Sava Geoportal, as common access point to data of basin relevance. That fact indicates a broad interest in the beneficiary institutions for the Sava GIS. This project will, through regular facilitation in the relevant ISRBC EGs as well as by planned workshops and regular information channels like publications and web site, secure information flow to all beneficiaries and raise an interest for the project. It is expected that measurable results during the project lifespan, achieved with active participation of the country experts, will enable an

² Assumptions are external factors that have the potential to influence (or even determine) the success of a project but lie outside the control of the implementation managers. Such factors are sometimes referred to as risks or assumptions but the Commission requires that all risks shall be expressed as assumptions. Pre-conditions are requirements that must be met before the sector support can start.

easy decisions on the continuation of activities on the Sava GIS. The ISRBC can also organize a meeting with the decision maker from the beneficiaries if found necessary for further project development. On the other hand, the ISRBC as future “provider” of water related information through newly established system should enable environment for its smooth functioning. One of the main tasks mandated to the ISRBC by its Statute, which is the Annex I of the FASRB.

(www.savacommission.org/dms/docs/dokumenti/documents_publications/basic_documents/fasrb.pdf) is to coordinate the establishment of a unified information system.

The activities related to the information systems in the Secretariat are being covered currently by the RBM expert, with external consultant assistance in a highly specialized tasks. The similar mode is anticipated during the project course, with the key function of the GIS EG, which has been already established, to permanently monitor the implementation of the Sava GIS and its functionality. If any modifications or improvement would be needed the members of the groups will propose the measures how to implement the improvements to the Sava Commission and it will provide recommendations to the Parties or solve the problem in scope of its activities.

4 IMPLEMENTATION ISSUES

Transnational project management and coordination is a key integrative part aimed at efficient and effective project development. The project management will be performed by the Sava Commission and its Secretariat as the implementing body. Administrative and financial management of the project will be performed by the Secretariat, as well, in order to meet the reporting requirements to the EC. A number of meetings, as described in section 3.4, will be organised during the project timeline. In order to ensure the quality of the project, the review and assessment will be performed through structures described in 3.4.

The project management will be aimed at successful integration and suitable coordination of the activities, coordination of sub-contractor (where applicable), financial requirements and time-schedule.

4.1 INDICATIVE BUDGET

Indicative Project budget (amounts in EUR) (for centralised management)

PROJECT TITLE			SOURCES OF FUNDING									
			TOTAL EXPENDITURE	IPA CONTRIBUTION		NATIONAL CONTRIBUTION					PRIVATE CONTRIBUTION	
	IB (1)	INV (1)	EUR (a)=(b)+(c)+(d)	EUR (b)	% (2)	Total EUR (c)=(x)+(y)+(z)	% (2)	Central EUR (x)	Regional/Local EUR (y)	IFIs EUR (z)	EUR (d)	% (2)
Activity 1	X											
contract 1	-	-	166 667	150 000	90						16 667	10
TOTAL IB			166 667	150 000	90						16 667	10
TOTAL INV												
TOTAL PROJECT			166 667	150 000	90						16 667	10

Amounts net of VAT

- (1) In the Activity row, use "X" to identify whether IB or INV
- (2) Expressed in % of the **Total** Expenditure (column (a))

4.2 INDICATIVE IMPLEMENTATION SCHEDULE (PERIODS BROKEN DOWN BY QUARTER)

Contracts	Start of Tendering/ Call for proposals	Signature of contract	Project Completion
Contract 1”Support to the International Sava River Basin Commission in the development of the Sava Geographic Information System”	N/A	Q1 2014	Q4 2015

4.3 CROSS CUTTING ISSUES

4.3.1 *Equal Opportunities and non discrimination*

The implementation of the project will be done respecting the equal opportunities and non discrimination for all the participants.

4.3.2 *Environment and climate change*

This is a cross-cutting project by its nature. It will support all joint activities of the Sava countries, mostly dealing with environment (such as Sava RBM Plan), flood management and the impact of climate change on sustainable development in the basin. Furthermore, the project will strengthen capacity by various institutions dealing with environment and climate change by enabling better data and information flow through a common channel.

4.3.3 *Minorities and vulnerable groups*

The beneficiaries will be public servants coming from environment ministries and all the other public institutions active in the field of environment (*e.g.* agencies, other ministries, inspectorates, etc.) and the general public.

4.3.4 *Civil Society/Stakeholders involvement*

Stakeholders from national institutions of the Sava countries, noted in 2.4, shall be included either directly through their work in the institutions, or through work in the bodies of the Sava Commission- expert groups, Steering Committee etc. Stakeholders from NGOs shall have the opportunity to participate either through work of the expert groups of the Sava Commission in case that they have the observer status or through participation at the workshops, planned during the course of the project. Wider public shall be regularly informed on the project development through information channels of the ISRBC- web site, Sava NewsFlash etc.

ANNEXES:

Annex I Log frame

Annex II Amounts (EUR) contracted and disbursed per quarter over the full duration of the project

Annex III Description of institutional framework

Annex IV Reference list of relevant laws and regulations

Annex V Details per EU funded contract (*) where applicable

Annex VI Project visibility activities

ANNEX I: Logical framework matrix in standard format

LOGFRAME PLANNING MATRIX FOR Project Fiche		Project title and number		”Support to the International Sava River Basin Commission in the development of the Sava Geographic Information System”
		Contracting period expires 30 November 2014		Execution period expires 30 November 2017
		Total budget	166.667 EUR	
		IPA budget:	150.000 EUR	
Overall objective	Objectively verifiable indicators (OVI)	Sources of Verification		
The overall objective of the project is to provide good communication channels for the ISRBC community in order to share and disseminate information and knowledge about protection of the water resources and water management activities in the Sava River Basin. This will strongly support the Sava riparian countries in further approximation to the EU environmental acquis in the field of water management according to the EU WFD.	Identification of priority objectives common to the Sava Commission and beneficiary countries and encouraging a more strategic focus towards establishing of good communication channels for the ISRBC community for sharing and disseminating information and knowledge by cooperation in establishment of the common Sava GIS system.	ISRBC sessions, EG meetings, Steering Committee sessions, Reports to the EC		
Specific objective	Objectively verifiable indicators (OVI)	Sources of Verification	Assumptions	
The specific objective of the project is to provide support and assistance to the Sava Commission and the countries cooperating under the FASRB (HR,BA,RS,SI as well as ME) in starting to implement the first Sava River Basin Management Plan as well as in all joint activities targeted for subsequent RBM cycles by developing necessary capacities and information base - Sava Geoportals.	Necessary inputs of the countries in terms of data in formats agreed.	ISRBC sessions, EG meetings, Steering Committee sessions, Reports to the EC	The Sava countries should be aware of their obligation toward this project. They should secure adequate personnel capable to cooperate with the Sava Commission and the consultant in order to cooperate on developing a common SavaGIS system with the core functionalities. They should also allow an “insight” into their national GIS systems to the consultant in order to propose a proper model of the common GIS system. A "force majeure" can be a global economic crisis which can strongly influence an active participation of the countries in the Sava cooperation process.	
Results	Objectively verifiable indicators (OVI)	Sources of Verification	Assumptions	
Sava GIS core functionalities established	Hardware and software in place and tested, Core datasets uploaded, core tools produced and tested	GIS EG meetings; Steering Committee sessions, workshops minutes, reports to the EC	National institutions fully cooperate in the process; adjusting the data in required format; actively participate in the workshops and the expert groups of the Sava Commission..	

Activities to achieve results	Means / contracts	Costs	Assumptions
<p>Supply of necessary software</p> <p>Establishment of Sava GeoPortal core functionalities</p> <p>Project management</p>	<p>C1: Supply contract for operational system software and RDBM software between beneficiary and contractor</p> <p>C2: Supply contract for GIS system software between beneficiary and contractor</p> <p>C3: Consulting services for establishment of Sava Geoportal core functionalities between beneficiary and contractor</p> <p>B</p>	<p>EUR 150 000</p>	

ANNEX II: Amounts (in EUR) contracted and disbursed per quarter over the full duration of project

Contracted	Q1 2014	Q2 2014	Q3 2014	Q4 2014	Q1 2015	Q2 2015
Contract 1	150.000					
Cumulated	150.000					
Disbursed	Q1 2014	Q2 2014	Q3 2014	Q4 2014	Q1 2015	Q2 2015
Contract 1.1	40.000	43.200	0	43.200	0	23.600
Cumulated	40.000	83.200	83.200	126.400	126.400	150.000

ANNEX III: Description of Institutional Framework

The International Sava River Basin Commission (ISRBC) is the institution with the international legal capacity necessary for exercising its functions, with the Permanent Secretariat as its executive body.

The **mandate and responsibilities** of the ISRBC, given in the Annex I of the FASRB – Statute of the Sava Commission, reflect the ambitious approach of the Parties to establish a joint institutional system, which will result in full implementation of the FASRB.

In order to achieve the main goals of the FASRB, the following activities are coordinated by the ISRBC:

- creation and realization of joint plans of the Sava River Basin (e.g. river basin management plan, flood risk management plan);
- preparation of development programs of the Sava River Basin;
- rehabilitation and development of navigation in the Basin;
- establishment of integrated systems for the Sava River Basin (GIS, RIS, flood forecasting and warning system, etc.);
- harmonization of national regulation with the EU regulation, and
- development of protocols for regulating specific aspects of the FASRB implementation.

In accordance with the mandate and responsibilities, the ISRBC is a central point in identification and implementation of projects of regional importance, aiming to strengthen the cooperation of the Sava countries and facilitate the fulfillment of the FASRB objectives.

The ISRBC is composed of two representatives of each Party to the FASRB, one member and one deputy member of each Party, having one vote in the Commission. The Commission has a Chairman who represents the ISRBC. The Secretariat is an administrative and executive body of the ISRBC. It consists of officials and support staff. The officials are Secretary, the Deputies and Advisors . They are nationals of the Parties, represented on an equal basis, and appointed by the ISRBC.

In order to foster cooperation and ensure synergy in achieving its goals, the ISRBC has established permanent and ad-hoc expert groups, composed of delegated experts from each Party.

There are four permanent expert groups (PEGs), covering the key issues in the Sava River Basin – river basin management, accident prevention and control, flood prevention, and navigation, as well as five ad-hoc expert groups, dealing with specific issues and tasks – legal issues, financial issues, hydro-meteorological issues, GIS and RIS.

Steering Committee to be established during the course of the project shall be composed by one member from each country cooperating under FASRB (preferably from the Ah GIS EG) and chaired by the project leader.

The target groups, beside the ISRBC and its expert bodies, which will have benefits from the project are mainly:

- The authorities/bodies/agencies which are responsible for implementation of the FASRB, as follows:

Bosnia and Herzegovina

Ministry of Communications and Transport of Bosnia and Herzegovina
Ministry of Foreign Trade and Economic Relations of Bosnia and Herzegovina
Federal Ministry of Agriculture, Water Management and Forestry
Ministry of Agriculture, Forestry and Water Management of the Republika Srpska
Ministry of Transport and Communications of the Republika Srpska
Federal Ministry of Transport and Communications
Ministry of Spatial Planning, Civil Engineering and Ecology of the Republika Srpska
Federal Ministry of Environment and Tourism
The Government of Brcko District

Croatia

Ministry of Agriculture
(competent authority for implementation of the Water Framework Directive also)
Ministry of Maritime Affairs, Transport and Infrastructure

Serbia

Ministry of Agriculture, Forestry and Water Management
Ministry of Energy, Development and Environmental Protection
Ministry of Transport
Ministry of Foreign Affairs
Republic Hydrometeorological Service of Serbia
Republic Geodetic Authority

Slovenia

Ministry of Foreign Affairs
Ministry of the Agriculture and the Environment
(competent authority for implementation of the Water Framework Directive also)
Ministry of Economic Development and Technology
Ministry of Infrastructure and Spatial Planning

Montenegro

Ministry of Agriculture and Rural Development

- International Commission for Protection of Danube River (ICPDR) as the implementing body of the Convention on Cooperation for the Protection and Sustainable use of the Danube River (Danube River Protection Convention). Through the ICPDR, the results of the project will be available to the countries which have signed the Convention out of the Sava River Basin (Austria, Bulgaria, Czech Republic, Germany, Hungary, Republic of Moldova, Romania, Slovakia, Ukraine) as well as for Montenegro which recently joined the ICPDR. Taking into account that Montenegro still isn't the Party to the FASRB it could be another window for cooperation on this particular project.
- Observers to the Sava Commission (NGOs-Zelena Akcija, WWF and Euronatur; Danube Commission...)
- Other main stakeholders in the basin recognized during preparation of the Sava RBM Plan,
- Water users in the Sava basin, who will profit from sustainable river basin management.

The target group which will have a lot of benefit from the project comprise at least 25 national authorities/agencies/organizations.

Annex IV Reference list of relevant laws and regulations

Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 **establishing a framework for Community action in the field of water policy (WFD)** with its daughter directives

Directive 2007/60/EC of the European Parliament and of the Council of 23 October 2007 on the **assessment and management of flood risks (FD)**

Directive 2007/2/EC of the European Parliament and of the Council of 14 March 2007 establishing an **Infrastructure for Spatial Information in the European Community (INSPIRE)**

Multi-beneficiary Multi-annual Indicative Planning Document 2011-2013

Danube River Protection Convention (1994)

Framework Agreement on the Sava River Basin (2002)

Protocol on flood protection to the Framework Agreement on the Sava River Basin (2010)

Other multilateral and bilateral agreements relevant for the Sava River Basin as listed in Annex II of the Sava RBM Plan

Annex V Details per EU funded contract (*) where applicable

Implementation management for this project will be performed by DG ENV, based on a sub-delegation agreement with DG ELARG. The project will be implemented through a direct grant agreement with the International Sava River Basin Commission (ISRBC) in accordance with Article 190 (1)(f) of the rules of application of Regulation (EU, Euratom) No 966/2012 of the European Parliament and of the Council on the financial rules applicable to the general budget of the Union on account of its technical competence and high degree of specialisation.

Based on their regional presence and wide experience in horizontal actions, reviews and stakeholder coordination in the area, only the ISRBC combines the required technical capacity, knowledge and above all independence and authority to undertake a fair and consistent assessment, with a view to creating the conditions for effective coordination.

The ISRBC Secretariat will be in charge for overall project management, as described in details in Section 3.4.

Annex VI Project visibility activities

The European Union visibility requirements will be ensured for all project activities. All project outputs will be properly equipped by the EU logo as well as related text describing the financing of the project as well as the position of the EU. Project visibility will be also clearly stipulated in all contractual documents whereby the contractors/implementers are obliged to adhere to all EU visibility requirements. At the end of the project the Sava Geoportal web site shall also be properly equipped with the EU logo and note that the project has been financed by the EU.