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Zagreb, 27 January 2016

28th Meeting of the Permanent Expert Group for Flood Protection
REPORT FROM THE MEETING
Zagreb, 26-27 January 2016

Venue: Premises of the International Sava River Basin Commission, Kneza Branimira 29/II, Zagreb

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I. ATTENDANCE

The PEG members from Slovenia, Croatia, Bosnia and Herzegovina and Serbia attended the meeting. Additional expert from Slovenia attended the meeting. The experts from IN2& IGEA Consortium also participated at the respective agenda items (SavaGIS and SavaHIS). The experts from the U.S. Army Corps of Engineers presented their work on H&H modelling by video conference (Cisco WebEx).

The list of participants is annexed to this report.

II. CHAIRMANSHIP

Mr. Dragan Zeljko chaired the meeting.

III. ADOPTED AGENDA

1. Opening of the meeting

- Welcome and opening remarks
- Adoption of the Agenda

2. Overview of the activities between the two PEG FP meetings

- General presentation on the ISRBC activities
- Activities in the Parties to the FASRB (Country representatives in PEG FP)

3. Exchange of information on flood related projects

- Presentation of the final draft template for collecting information
- Discussion and conclusions

4. Sava GIS & Sava HIS

- Presentation of the Sava GIS & Sava HIS core functionalities
- Basic training for the PEG FP members
- Status of collection of national data sets, discussion and related conclusions

5. USACE support – 2nd phase

5.1. “Lidar” project

- Information on the status of “Lidar” project

5.2. Hydrologic & Hydraulic modelling

- Presentation of the activities
- Discussion and conclusions related to implementation, data needs and next steps

6. Program for development of the FRMP in the Sava River Basin

- Presentation of the final draft
- Discussion & conclusions

7. Improvement of Joint Flood Management Action in the Sava River Basin (“WBIF project”)

7.1. Component 1- Sava FRMP

- Introduction
- Discussion and conclusions related to scope of work and implementing arrangements

7.2. Component 2 - Sava FFWS

- Information on the project status

8. 2nd Sava River Basin Analysis report – flood related issues

- Introduction
- Discussion and conclusions

9. Any other issues

IV. DISCUSSION, RECOMMENDATIONS AND CONCLUSIONS

AD.1. OPENING OF THE MEETING

1.1. Welcome and opening remarks by the PEG FP Chairman

Mr. Dragan Zeljko opened the meeting, welcomed the participants and informed the participants on some logistical issues.

1.2. Adoption of the Agenda

The Group adopted the proposed agenda of the 28th meeting (*Doc.Ref.No: 3-16-1/2-2*), with agenda items presented in Part III of this report.

AD.2. ISRBC ACTIVITIES BETWEEN THE TWO PEG FP MEETINGS

2.1. ISRBC

General presentation on the ISRBC activities

The Secretary, Mr. Komatina, informed the PEG FP on the most important activities and events since the last, 27th PEG FP meeting held in September 2015, as well as on the upcoming meetings and events.

As the most important facts for the work of PEG FP he emphasized the following:

- *Protocol on flood protection to the FASRB* entered into force on November 27, 2015;
- 39th and 40th sessions of the ISRBC, held in Zagreb (19-20 Oct. 2015, 14 Dec. 2015)
- SavaGIS workshop and SavaGIS & SavaHIS training, held in Zagreb (21 Sep. 2015, 9-10 Dec. 2015).

Mr. Komatina also informed the PEG FP that 6th Meeting of the Parties to the FASRB will be held in Belgrade on 1 June 2016.

2.2. Activities in the Parties to the FASRB

Slovenia

Mr. Luka Štravs informed PEG about the activities in the implementation of the EU Floods Directive (FD) in Slovenia and the current status of preparation of the Flood Risk Management Plan (FRMP), with the following main points:

- Slovenian FRMP, based on 61 APSFRs, prepared and published with a short public consultation;
- Strategic Environmental Assessment (SEA) is in preparation;
- The deadline (22 March 2016) for the WISE reporting will be met.

Mr. Štravs informed the PEG that the Slovenian Water Agency (Direkcija Republike Slovenije za vode) started operating on 1 January 2016 and related information is available at its new web site: <http://www.dv.gov.si/en/>.

Croatia

Mr. Marijan Babić informed the PEG about the activities in the implementation of the FD in Croatia with the following main points:

- Draft FRMP was prepared, as an integral part of the River Basin Management Plan (RBMP);
- SEA has been prepared and the public consultation for SEA is in the process, with the deadline set to 19 February 2016;
- After the public consultation process the plan(s) shall be delivered to the Government for adoption;

Mr. Babić also described the first experiences regarding operational use of the Croatian flood forecasting system (“Sava and Kupa to Sisak”) as well as on the short-term plan to expand the system to the Serbian border by the end of 2016.

The following important projects are in preparation or at the stage of applying for the EU funds:

- Functional increase of the retention “Kupčina”, including the construction of dam for water release into the canal Kupa-Kupa (*green infrastructure project*);
- Functional increase of the retentions “Lonjsko polje” and “Odransko polje”;
- Modernization of the left Sava levee, downstream of Stara Gradiška, including the construction of berm along the levee using the material from the inundation area (*green infrastructure project*).

Bosnia and Herzegovina

Mr. David Latinović and Mr. Almir Bajramlić informed the PEG FP that the project - *Preparation of Flood Hazard Maps, Flood Risk Maps and Support to the PMU of the Flood Risk Management Project*, is still in the preparatory phase.

Mr. Latinović emphasized that the project design for construction of the dykes along the Drina River in Republika Srpska, is prepared. Mr. Bajramlić informed the PEG on the progress of the reconstruction of the dykes on five locations along the Sava River in Federation of Bosnia and Herzegovina.

Serbia

Ms. Radovanka Pavlović informed the PEG about the activities in the implementation of FD in Serbia. She stressed that preparation of the FRMP in Serbia which is contracted with “Jaroslav Černi” Institute depends of the Lidar surveying and preparation of the DEM. This activity is in the process of the ToR preparation. She stressed that the ToR, prepared by the ISRBC Secretariat for the Lidar project within the second phase of support of U.S. State Department, was very much used. Deadlines for the FRMP preparation are extended.

Ms. Pavlović also mentioned the pilot study for flood risk management on the Kolubara River, prepared under the Japanese donation, which will be used as a good example for the preparation of priority measures on the other parts of the Sava River basin.

AD.3. EXCHANGE OF INFORMATION ON FLOOD RELATED PROJECTS

The Secretariat prepared a new version of the template for exchange of information on the flood related projects. The PEG reviewed the new version, agreed on some minor changes and concluded the following:

- The Secretariat will prepare the upgraded (final) version of the template and deliver it to the PEG members;
- In addition, the Secretariat will fill in the template with information about the projects and activities carried out through the ISRBC;
- The countries will deliver the information on related projects by March 15, 2016;
- The information on the planned projects will be delivered, regardless of whether they are approved;

AD.4. SAVA GIS & SAVA HIS

Mr. Mirza Sarač gave an introductory presentation with an overview of the Sava GIS and the Sava HIS projects implementing status. He noted that the both projects are in the closing phase.

Following the introduction representatives of the implementing consortium IN2&IGEA, Ms. Jarmila Pezo and Ms. Andrea Majjić, assisted by Mr. Sarač gave a short training for the PEG FP members in order to transfer the knowledge on how to use the capabilities of the system. Basic functionalities and instructions of the following applications were presented:

- SavaGIS Geoportal (for public and registered users);
- SavaGIS FRM datasets reporting;
- SavaGIS FRM metadata reporting;

- Sava HIS web-based application for real time data management (the use of web services);

Status of collection of national data sets: according to agreed upload of the available data, Mr. Sarač presented the conclusions from the 27th meeting of PEG. He stressed that the Ah GIS EG members are informed about these conclusions at their 13th meeting, but afterward agreed set of data is not delivered to the system.

The following was agreed:

- The countries will upload the remaining datasets for **PFRA and APSFR as follows**:
 - PFRA Flood Events – Feature Classes (historical floods and possible in future represented as polygons, lines or points)
 - PFRA Flood Event – Table (category of flood, date of commencement, flood duration, recurrence, frequency, flood area, flood length, etc.)
 - PFRA Flood Locations – Table (location codes, names, transboundary, etc.)
 - PFRA Surface Water body codes – Table (water body/bodies which is/are probably affected by a recurrence of the flood event)
 - PFRA Summary Information – Table (overall approach, past adverse consequences, potential adverse consequences, long term developments, issues FD Article 4(2) (d), etc.)
 - PFRA & APSFR Flood Characteristics – Table
 - PFRA & APSFR Flood Consequences for Cultural Heritage – Table
 - PFRA & APSFR Consequences for Economic Activity – Table
 - PFRA & APSFR Consequences for Environment – Table
 - PFRA & APSFR Consequences for Human Health – Table
 - PFRA & APSFR Flood Mechanism Types – Table
 - PFRA& APSFR Flood Sources – Table
- The countries will upload the **flood hazard and risk maps** and related datasets for all maps prepared by the Parties, for all identified APSFR, for the following scenarios:
 - (i) floods with a medium probability (return period of 100 years), and
 - (ii) floods with a low probability, or extreme event scenarios (regardless of the return period considered by a Party)
- The countries will upload available data for the **flood protection structures** along the Sava River and the tributaries with catchment area larger than 1,000 km² (with exemption of the rivers with smaller catchment area but designated as of basin-wide importance in the course of preparation of the Sava RBMP) for the following structures:
 - dykes;
 - retentions;
 - pumping stations;
 - floodgates;
 - dams;
 - overflows.
- All the above mentioned datasets, including corresponding metadata, will be uploaded, **as soon as possible**, in the SavaGIS database
- Ah GIS EG members will be informed on these conclusions.

Important related information presented at the meeting:

Links to information on PFRA and APSFR for Slovenia and Croatia at the EC web site:

- PFRA SI:
http://cdr.eionet.europa.eu/Converters/run_conversion?file=si/eu/floods/envu2ogyw/SI_RBD_1_PFRA_20140507_updated.xml&conv=259&source=remote#1
- APSFR SI:
http://cdr.eionet.europa.eu/Converters/run_conversion?file=si/eu/floods/envu2ogyw/SI_RBD_1_APSFR_20140507_updated.xml&conv=289&source=remote

- PFRA HR:
http://cdr.eionet.europa.eu/Converters/run_conversion?file=hr/eu/floods/envuuebew/HR_HRC_PFRA_20140124.xml&conv=259&source=remote
- APSFR HR:
http://cdr.eionet.europa.eu/Converters/run_conversion?file=hr/eu/floods/envuuebew/HR_HRC_APSFR_20140124.xml&conv=289&source=remote

National definition of floods with medium and low probability:

Country	Medium probability	Low probability
SI	HQ100	HQ500
HR	HQ100	HQ1000 – <i>for unprotected areas</i>
		Infrastructure failure scenario – <i>for protected areas</i>
BA	HQ100	HQ500
RS	HQ100	HQ1000

AD.5. USACE SUPPORT – 2ND PHASE

5.1. Lidar project

Mr. Zeljko informed the PEG on the latest developments in preparation of the new Lidar project proposal as well as on the next steps. A new project proposal was prepared by the Secretariat with assistance of experts from USACE. The proposal contains wider spatial extent in comparison with the March 2015 version and some other modifications. The project proposal was prepared in the form required by the US Authorities and submitted for further procedure. The procurement procedure will be conducted by the US authorities.

- PEG FP took note on the information.

5.2. Hydrologic & Hydraulic modelling

Mr. Brantley Thames, the USACE expert, informed the PEG about the project progress (by video conference). He emphasized that he visited Zagreb, Croatia the week of 17-23 October to meet with ISRBC staff and present project status to the Sava Commission and to personnel from Bosnia and Herzegovina. Through meetings with ISRBC staff, additional modifications to the hydrologic delineation were identified, which is very critical to the hydrologic modelling task. Following the meeting in October, the ISRBC provided additional data and information to improve the hydrologic delineation.

Thereafter, USACE has been focused on improving the hydrologic delineation using the best available data and completed the development of a new delineation of the Sava River watershed, which provides a much more detailed and accurate representation of the Sava River sub-watersheds. Currently, USACE is in the process of transferring the hydrologic parameters from the preliminary hydrologic models (presented on the PEG FP 27) to the improved model and recalibrating the basins that had been calibrated in the preliminary models.

In addition to improvements to the hydrologic model, USACE progressed on the Bosna River Flood Forecasting Platform task. Using existing hydraulic models provided by the ISRBC, USACE converted the steady flow HEC-RAS models for the Bosna and Usora rivers to unsteady flow models. As a test, USACE imported the preliminary HEC-RAS and HEC-HMS into the HEC-RTS (Real Time Simulation) flood forecasting software. There are still issues with this process and will be continued when the final models are developed.

- PEG FP took note on the information.

AD.6. PROGRAM FOR DEVELOPMENT OF THE FRMP IN THE SAVA RIVER BASIN

Mr. Zeljko stressed that the Protocol entered into force on November 27, 2015. Therefore the Secretariat made a significant modifications of the draft Program, taking into account related conclusions from the PEG FP 27 meeting. He also stressed that the Program, in line with the provisions of the Protocol, must be adopted within 6 months after entering the Protocol in force.

He also informed the participants that the ToR for consultant services to prepare the Sava FRM Plan, within the Component 1 of the WBIF project, will be prepared by World Bank team, with input from the ISRBC. This information is also important for finalization of the Program, taking into account that the Program should comprise all elements relevant for development of the Sava FRM Plan and it could serve as a good starting point for a consultant who will be engaged for the ToR preparation.

The PEG FP discussed the draft Program, with the following conclusions and agreed actions:

- The Secretariat will prepare the next version of the Program by February 15, 2016, taking into account comments and remarks from the meeting and send it to the PEG for review;
- PEG FP will provide their final comments by February 29, 2016;
- The Secretariat will, thereafter, prepare the final draft of the Program and deliver it to the ISRBC for adoption in written procedure.

AD.7. IMPROVEMENT OF JOINT FLOOD MANAGEMENT ACTIONS IN THE SAVA RIVER BASIN (“WBIF PROJECT”)

7.1. Component 1 - Sava FRMP

Mr. Zeljko briefly informed the PEG that the World Bank (WB) took responsibility for the implementation of this component, with the plan to hire a consultant which will prepare the ToR for this project component.

Keeping in mind the fact that the selection of a consultant is a sole responsibility of the WB, the PEG considers that a knowledge about the processes in the Sava basin would be an asset for potential consultants. Several names of the experts that are able to successfully prepare the ToR were mentioned during discussion (Slobodan Čubrilo, Jože Papež, Željko Tusić).

- The Secretariat will inform the WB on the position of the PEG on this issue if asked by the Bank representatives.

7.2. Component 2 - Sava FFWS

The PEG was informed that the WB has been conducting the procedure of selection of the consultant. The procedure should be completed by February 2016, in accordance to the WB representatives. No further details on the procedure are known to the Secretariat.

- PEG FP took note on the information.

AD.8. 2ND SAVA RIVER BASIN ANALYSIS REPORT – FLOOD RELATED ISSUES

Mr. Sarač gave a short presentation on prepared text for the 2nd SRBA report - flood related issues.

The PEG FP discussed the draft text and concluded it should be more concise. The PEG FP stressed that the construction measures, such as improvement of existing dykes and building of the new flood protection structures and efficiency improvement of the existing large lowland retentions rather than its preservation only, shall be pointed out in the 2nd SRBA report.

PEG FP agreed that:

- PEG FP members Ms. Babić-Mladenović and Mr. Babić will provide additional inputs for the text until February 10, 2016;
- The Secretariat will integrate the new inputs and prepare the final draft version of the text and send it to the PEG for review;
- PEG FP will provide their final comments by March 11, 2016;
- Final draft of the text shall be prepared by the Secretariat and thereafter delivered to the PEG RBM.

AD.9.ANY OTHER ISSUES

Mr. Sarač briefly informed the PEG FP about one of the conclusions from *the Workshop on flood risk management measures & links to EU WFD*, held on November 11-12, 2015 in Zagreb and the idea for preparation of the Operation manual for the measures and activities in flood defence emergency situations for the Sava River basin level

- *Mr. Đuroković will prepare the initial text and provide related documentation for preparation of this manual by February 15, 2016.*

The next 29th meeting of PEG FP shall be held on 12 May, 2016 in Belgrade, back to back with the 29th ICPDR FP EG meeting.

ANNEX I. LIST OF PARTICIPANTS

Full Name	Country/Company/Organization	Tel/ E-Mail	Attendance
SECRETARIAT OF THE SAVA COMMISSION			
Dejan Komatina	ISRBC Secretariat	+385 1 488 69 61 dkomatina@savacommission.org	x
Dragan Zeljko	ISRBC Secretariat	+385 1 488 69 68 dzeljko@savacommission.org	x
Samo Grošelj	ISRBC Secretariat	+385 1 488 69 67 sgroselj@savacommission.org	x
Mirza Sarač	ISRBC Secretariat	+385 1 488 69 72 msarac@savacommission.org	x
PEG FP MEMBERS AND DEPUTY MEMBERS			
Almir Bajramlić	Bosnia and Herzegovina “Sava River Watershed Agency, Sarajevo”	+387 33 726 407 bajramlic@voda.ba	x
David Latinović	Bosnia and Herzegovina Public Institution “Vode Srpske”	+387 51 215 485 dlatinovic@voders.org	x
Marijan Babić	Republic of Croatia “Croatian Waters”	+385 1 630 74 02 marijan.babic@voda.hr	x
Zoran Đuroković	Republic of Croatia “Croatian Waters”	zoran.durokovic@voda.hr	x
Radovanka Pavlović	Republic of Serbia Ministry of Agriculture and Environmental Protection	+381 11 201 33 47 radovanka.pavlovic@minpolj.gov.rs	x
Marina Babić Mladenović	Republic of Serbia Jaroslav Černi Institute for the Development of Water Resources	+381 11 390 64 77 marina.babic-mladenovic@jcermi.co.rs	x
Luka Štravs	Republic of Slovenia Ministry of the Environment and Spatial Planning	+386 1 478 74 04 luka.stravs@gov.si	x
Blažo Đurović	Republic of Slovenia Institute for Water of the Republic of Slovenia	blazo.djurovic@izvrs.si	
EXPERTS AND GUESTS			
Brantley Thames	U.S. Army Corps of Engineers	brantley.a.thames@usace.army.mil	x ¹
Jarmila Pezo	IN2& IGEA Consortium	+385 99 447 6876 jarmila.pezo@igea.hr	x
Andrea Majić	IN2& IGEA Consortium	andrea.majic@igea.hr	x
Bojan Jakopič	Ministry of the Environment and Spatial Planning, Republic of Slovenia	bojan.jakopic@gov.si	x

¹ Participated by video conference (Cisco WebEx)

ANNEX II. LIST OF DOCUMENTS

Agenda item	Document	ENG	HRV	SLO	BIH-BOS	BIH-HRV	BIH-SRP	SRP
1.	Ad.1. PEG FP_27th meeting_Adopted_Agenda.pdf	↓						
2.	Ad.2. Presentation_ISRBC_PEG FP 27.ppt	↓						
3.	Ad.3_Exchange of information on projects-Summary Sheet.doc	↓						
3.	Ad.3_Exchange of information on flood related projects_Template.xls	↓						
4.	Ad.4_Sava GIS & Sava HIS-Summary Sheet.doc	↓						
4.	Ad.4_SavaGIS&HIS_Overview.pptx	↓						
4.	Ad.4_GIS data collection_FRM.ppt	↓						
4.	Ad.4_Bd1_SavaGIS&HIS!Training_Schedule.docx	↓						
4.	Ad.4_Bd2_SavaGIS_UserManual_Geoportal.pdf	↓						
4.	Ad.4_Bd3_SavaGIS_Geoportal_Training_Cases.pdf	↓						
4.	Ad.4_Bd4_SavaGIS_MetadataCatalog_Training_Cases.docx	↓						
4.	Ad.4_Bd5_SavaGIS_UserManual_MetadataCatalog.pdf	↓						
4.	Ad.4_Bd6_SavaHIS_TrainingCases_RealTimeDataManagement.docx	↓						
5.1.	Ad.5.1_Lidar project -Summary Sheet.doc	↓						
5.1.	Ad.5_Bd1_Sava_LiDAR_Performance Work Statement.pdf	↓						
5.2.	Ad.5.2_USACE_HH modelling-Summary Sheet.doc	↓						
5.2.	Ad.5.2_USACE_HH modelling_Progress.pptx	↓						
6.	Ad.9_Program for development of the FRMP in the Sava River Basin -Summary Sheet.doc	↓						
6.	Ad.6_Program_SFRMP_20160125.docx	↓						
7.1.	Ad.7.1_WBIF_Component 1- Sava FRMP-Summary Sheet.doc	↓						
7.2.	Ad.7.2_WBIF_Component 2- Sava FFWS-Summary Sheet.doc	↓						
8.	Ad.8_2nd Sava River Basin Analysis report-flood related issues-Summary Sheet.doc	↓						
8.	Ad.8_2nd SRBA_Integration_flood.docx	↓						

ANNEX III. MAIN CONCLUSIONS, OBLIGATIONS AND DEADLINES

Agenda Item	Description/Conclusion	Responsible	Deadline
AD.3.	Exchange of information on related regional and national projects		
	Prepare the final template filled with information about the projects and activities carried out through the work of the ISRBC and deliver to the PEG FP	Secretariat	ASAP
	First cycle of the information collection on the projects	PEG FP	Mar 15, 2016
AD.4.	Sava GIS		
	The countries will upload the available data for: <ul style="list-style-type: none"> - PFRA - APSFR (remaining attribute data) - Flood hazard and risk maps - Flood protection structures 	Ah GIS EG PEG FP	ASAP
	To inform Ah GIS EG members	Secretariat	
AD.6.	Program for development of the FRMP in the Sava River Basin		
	Prepare an upgraded draft of the Program	Secretariat	Feb 15, 2016
	Final comments on the Program	PEG FP	Feb 29, 2016
	Delivering the final draft to ISRBC for adoption	Secretariat	
AD.8.	2nd Sava River Basin Analysis report – flood related issues		
	Prepare an additional inputs for the text	Ms. Babić-Mladenović and Mr. Babić	Feb 10, 2016
	Preparation of the final draft of the text	Secretariat	
	Final comments on the text	PEG FP	Mar 11, 2016
	Delivering the final text to the PEG RBM	Secretariat	
AD.9.	Any other issues		
	Preparation of the initial text and related documentation for the Operation manual for the measures and activities in flood defence emergency situations on the Sava River basin level	Mr. Đuroković	Feb 15, 2016