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*Session V. Transboundary & international
cooperation*

TOWARDS SUSTAINABLE RIVER BASIN MANAGEMENT IN THE SAVA RIVER BASIN

Deputy Secretary of the ISRBC

Jovana Rašeta Bastić





INTERNATIONAL SAVA RIVER BASIN COMMISSION

International Sava River Basin Commission -in brief-

1

International multilateral agreement

4

Countries

21

National/entities' institution responsible for FASRB implementation

4

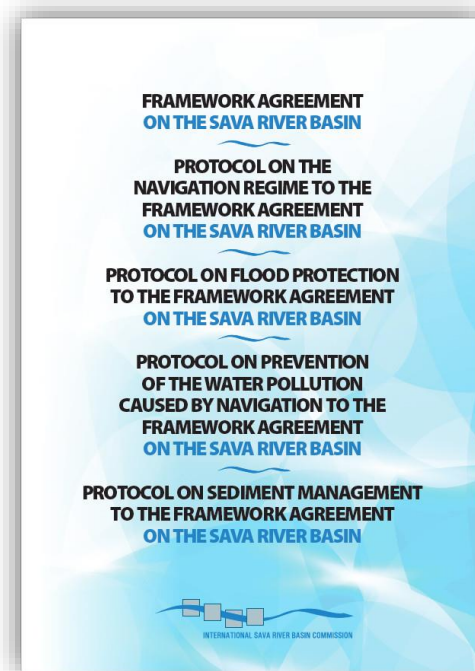
Protocols covering specific issues

11

Expert groups (permanent, ad-hoc, task)

162

Experts involved in group works



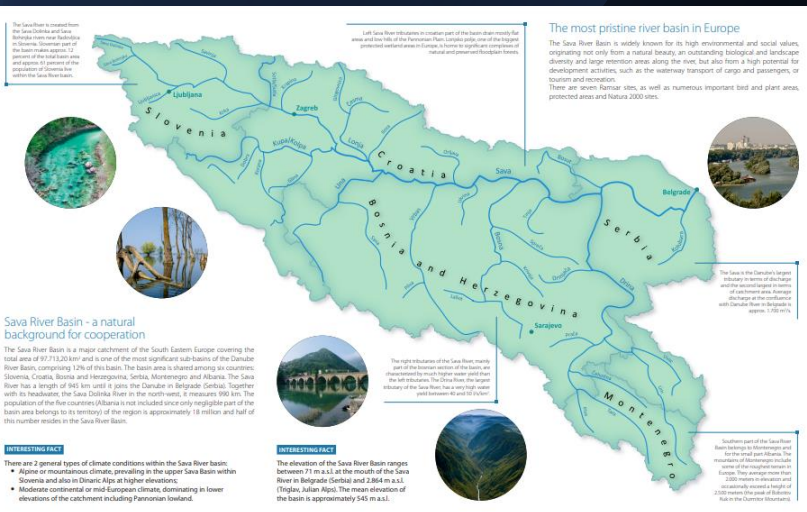
Objectives of the FASRB

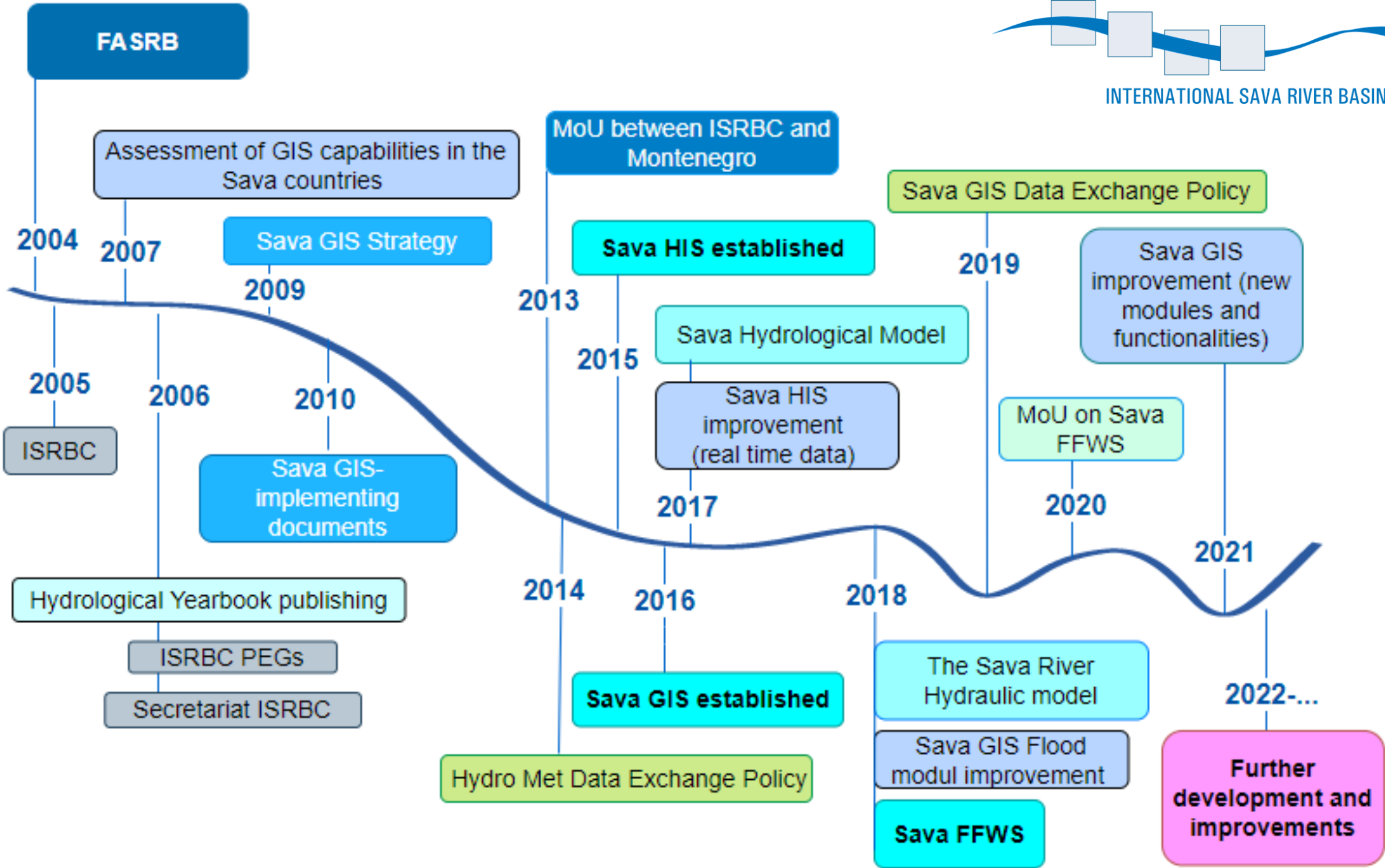
Safe navigation

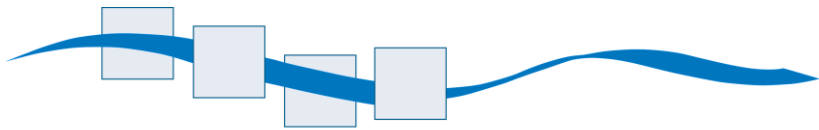
Sustainable water management

Accidental and hazard prevention, management and control

AIM OF THE **FASRB** IMPLEMENTATION
Sustainable development of the region through transboundary water cooperation







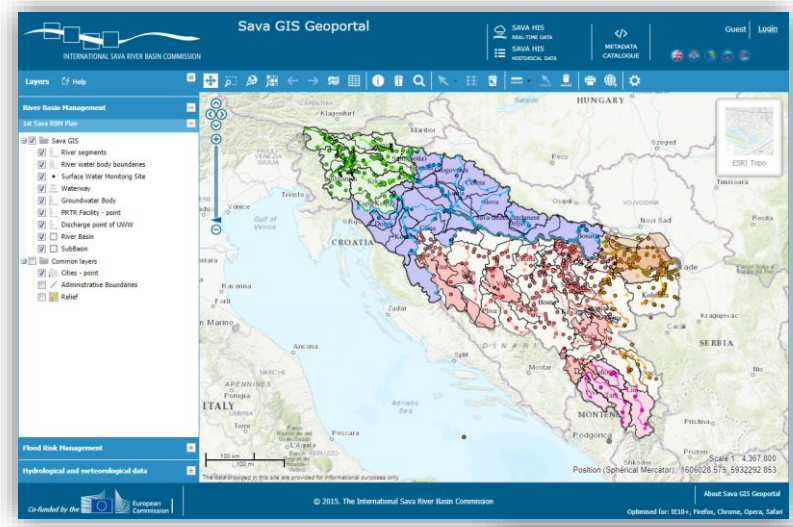
INTERNATIONAL SAVA RIVER BASIN COMMISSION

Geographical Information System of the Sava River Basin – Sava GIS

Common platform for information and knowledge about WRM in the basin sharing and dissemination

Sava Geoportal www.savagis.org

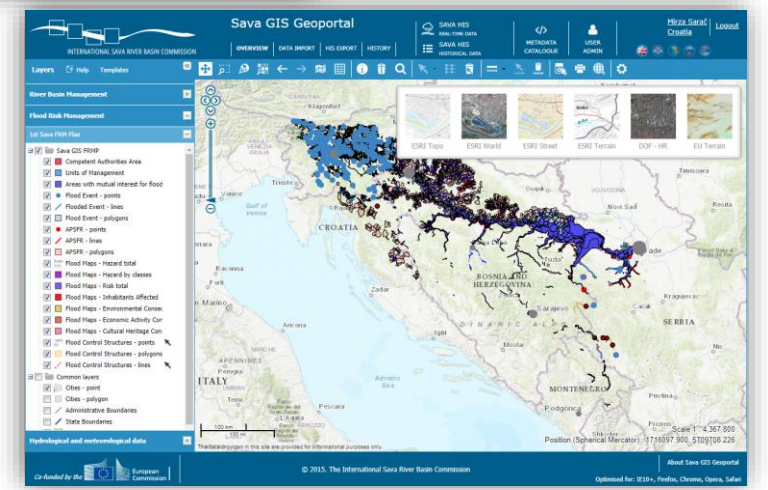
- **Public users:**
 - Overview of public spatial data
 - Viewing attributes and features
 - Filtering by attributes or spatial data
 - Exporting areas of map to PDF or PNG format
- **Registered users**
 - Data upload & download (relevant authorities and institutions)



Sava Metadata Catalogue www.savagis.org/metadatalogue

Currently available data and metadata:

- RBM related datasets
- FRM related datasets



Hydrological Information System of the Sava River Basin -Sava HIS

Common platform for sharing and dissemination of HM data and information in the basin and the channel for exchanging and viewing HM data and information in emergency situations (e.g. floods)

– Data base

- **Historical (processed) HM data**
- **Real-time HM and SED data**
- **Hydrological Yearbook (2000-2018)**
- **Joint H-measurements** at border sections (since 2013)

– Standards

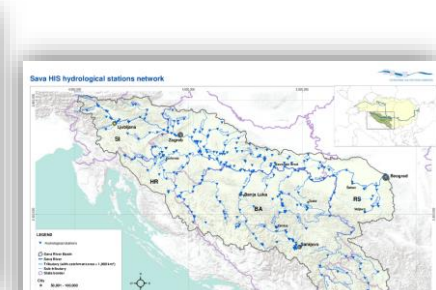
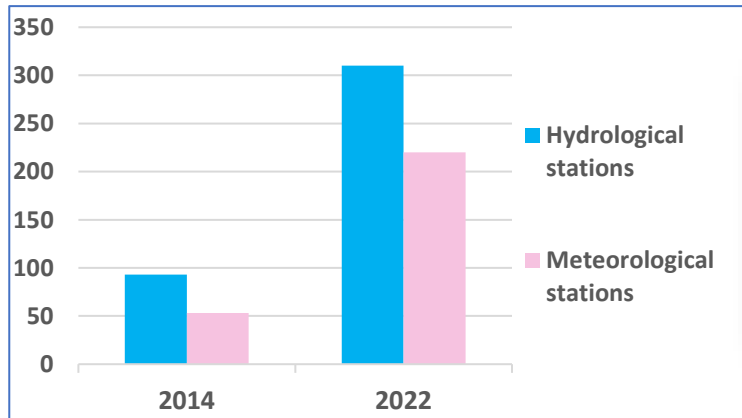
- INSPIRE
- WMO resolutions
- WaterML 2.0

Hydrological Stations	BA	HR	ME	RS	SI	Total
	108	131	11	28	32	310

Meteorological Stations	BA	HR	ME	RS	SI	Total
	78	49	5	12	76	220

Parameter	Temporal Resolution
River, Lake or Reservoir Level/Stage	Daily (Mean) Hourly
River Discharge	Daily (Mean) Hourly
Water Temperature	Daily (Mean)
Suspended Sediment Discharge	Daily (Mean)
	Hourly (Turbidity)
Ice Condition	Daily

Parameter	Temporal Resolution
Precipitation	Annual (Total)
	Monthly (Total)
	Daily (Total)
	6/12 Hourly (Total)
	Hourly (Total)
Air Temperature	Daily (Mean) Hourly
Relative Humidity	Daily Hourly
Wind (Speed and Direction)	Daily Hourly
Snow Depth	Daily
Evaporation	Daily (Total)
Solar Radiation	Daily
Sunshine	Daily (Total)
Atmospheric Pressure	Daily

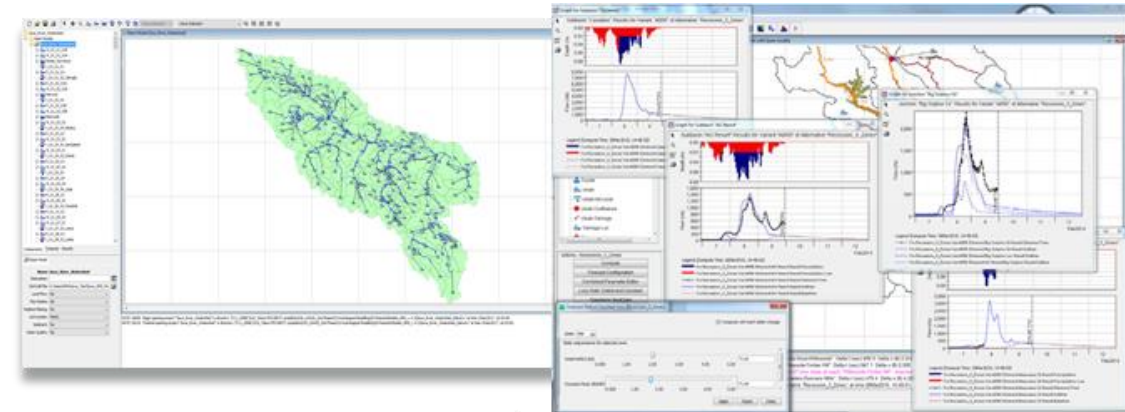


Hydrological and hydraulic modelling

Hydrologic model (HEC-HMS)

of the **Sava River Basin** (2010, 2014, 2016, **2020**)

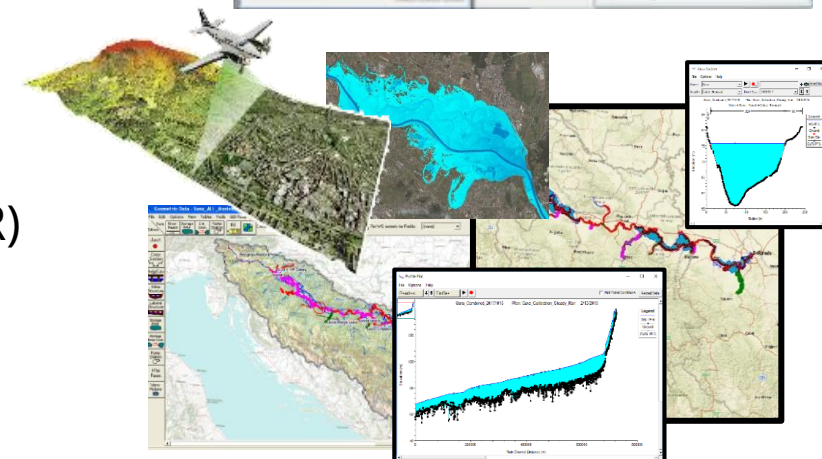
- 19 sub-models integrated in 1 model
- 17 for the main tributaries
- calibrated and re-calibrated
- 22 dam locations for the reservoirs analysis

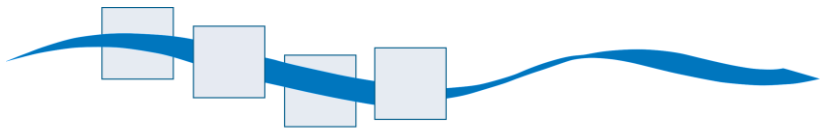


Hydraulic model (HEC-RAS)

of the **Sava River** (2012, 2018, **2021**)

- Accurate terrain model (LiDAR)
- 1D/2D simulation possibilities
- Levee breach analysis





INTERNATIONAL SAVA RIVER BASIN COMMISSION

Sava FFWS

MoU on cooperation on regular functioning and maintenance of Sava FFWS

- Joint hosting and maintenance
- Using and forecasting (with individual warnings per countries)
- Evaluation and assessment of the work performed
- Joint financing (by contribution of the countries, on equal basis)
- Real costs of all activities at the international level in accordance with the System roles and responsibilities
- Further developments, regular training of the engaged personnel

Organizational structure

TECHNICAL GROUP

International Forecasting Team (9 members)

International Support Team (9 members)

International Development Team (10 members)

STEERING GROUP

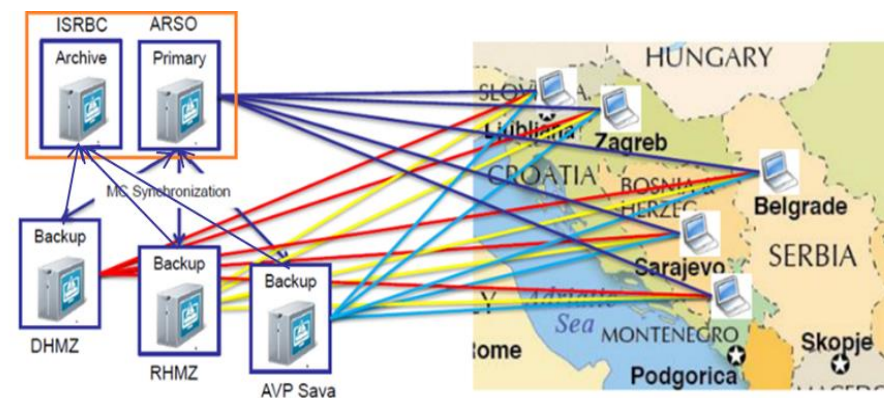
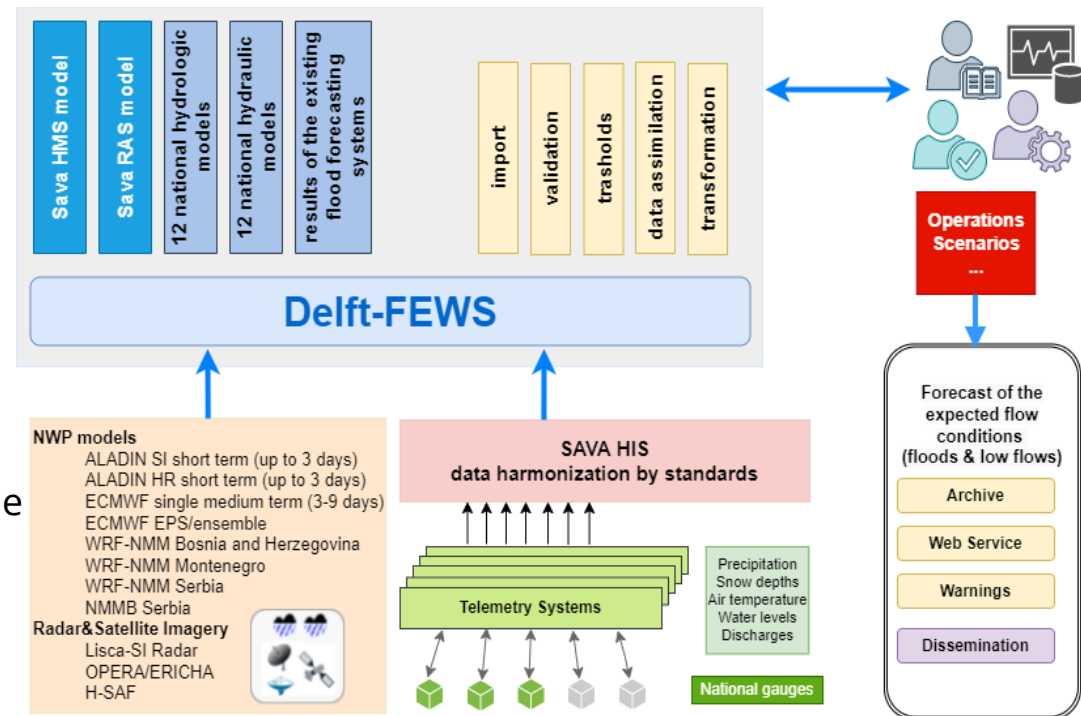
10 members

Assess, evaluate and approve all activities performed

ISRBC

8 members

Decision making, final approval



Ongoing Projects

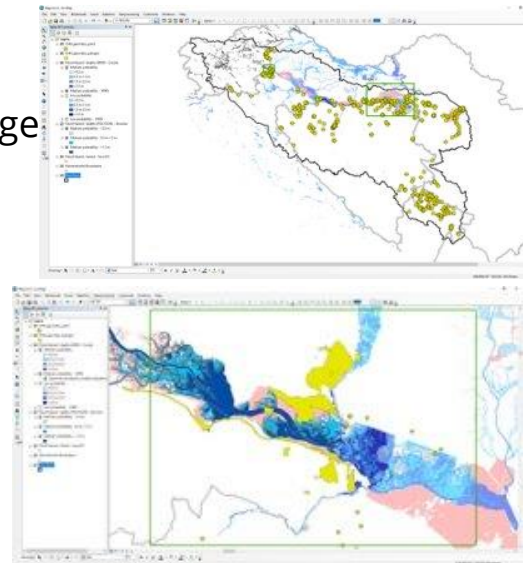
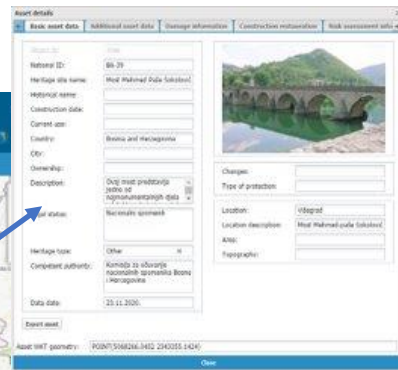
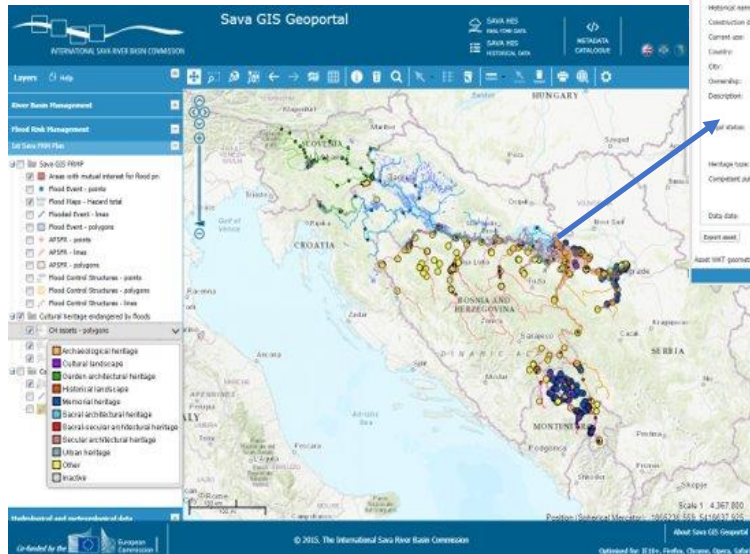
Sustainable **H**istoric Environments holistic reconstruction through **T**echnological Enhancement and community-based **R**esilience (**SHELTER**)

Local objective

- Improvements of **Sava GIS** and
- integration of CHH
- dataset into the system



Development of the methodology for assessment of flood hazard risk on the cultural-historical and natural heritage



all relevant sector involved

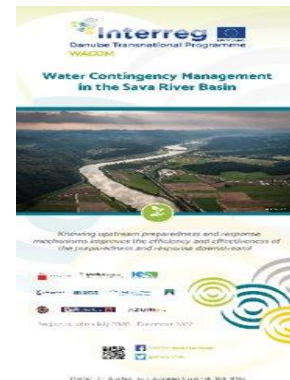
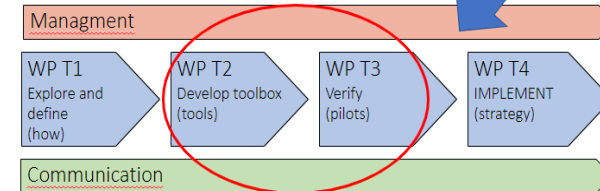
- 2 pilot areas analysed
- 2 scenarios
- flood extent & depths
- 3D visualization

Water Contingency Management in the Sava River Basin (**WACOM**)

Main objective: reduction of environmental risks related to accidental pollution and floods, especially those which have or might have transboundary impact in the Sava River Basin by developing

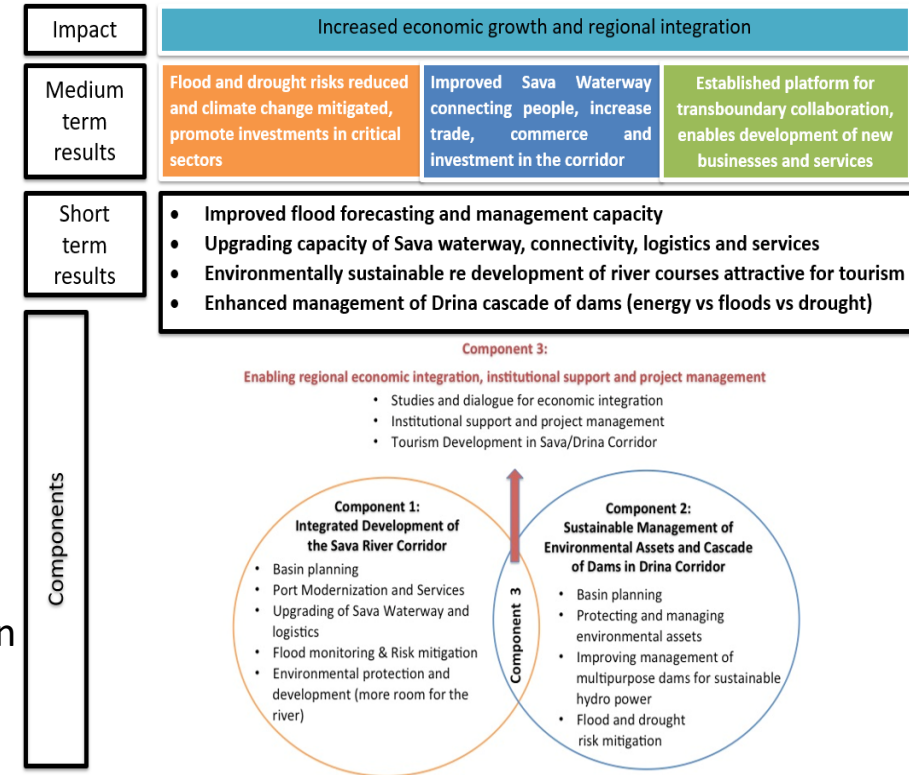
Scope: activation of Protocols on Flood Protection, Prevention of Pollution Caused by Navigation, and Emergency situations to the FASRB

WACOM toolbox-system design
SAVA GIS Upgrade-development of data framework for the accidental pollution and navigation



Sava Drina Integrated Development Programme *-future steps-*

- GEF grant
- Based on the Joint Plan of Actions for the Sava River Basin (2017)
- 2 phases - 10 years
- National and regional (basin-wide) component
- ISRBC- regional component – facilitation and implementation
- **Planned activities:**
 - a new hydrological study
 - climate change adaptation strategy
 - sediment study as well as preparation of the first Sava SM plan
 - regional strategy for ecotourism development
 - further improvements of Sava GIS /HIS and Sava FFWS (Flood impact analysis, Water resources modeling, Navigation purposes)
 - updates of the Sava RBM and FRM plans



Thank you !!!

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