



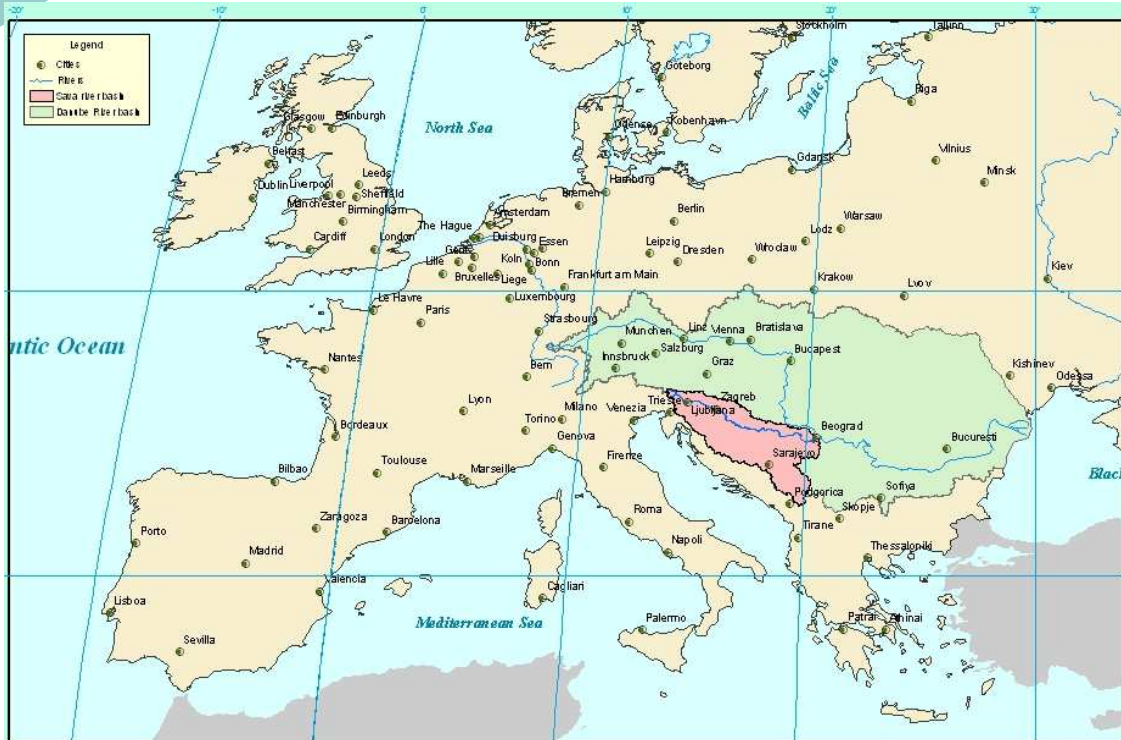
**Water and climate change: How to develop an adaptation strategy in transboundary basins
10-11 May 2010, Geneva**

**Building the link between Flood Risk Management
planning and climate change assessment in the
Sava River Basin
- Pilot project proposal -**

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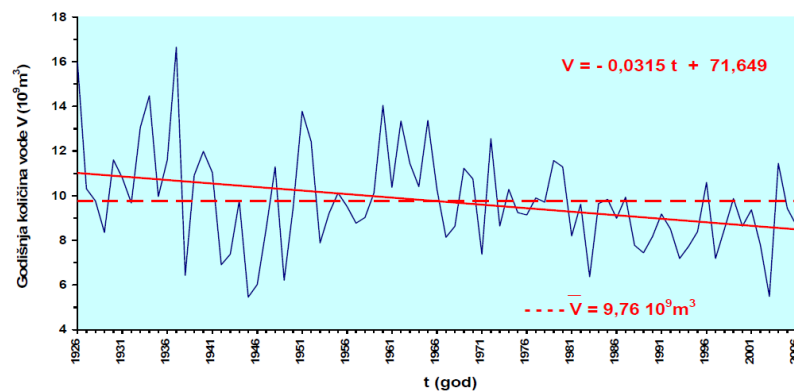
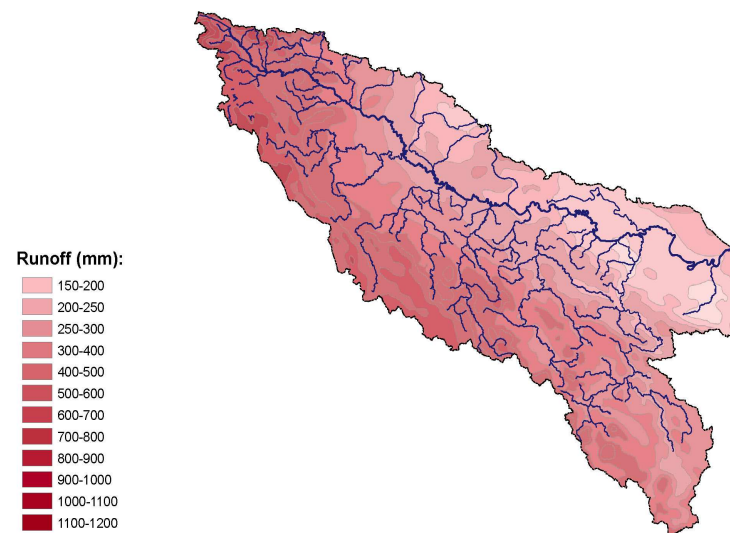
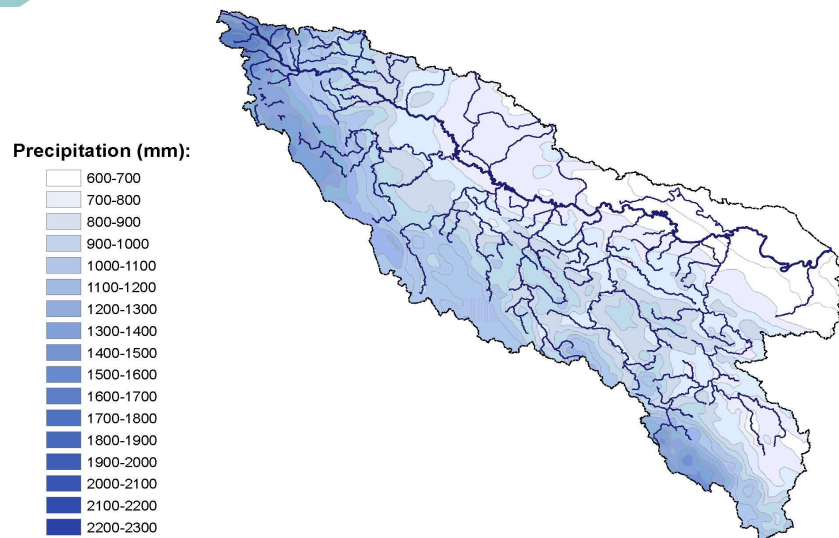
Basic facts on the Sava river basin



- River in SEE
- Right tributary of Danube – the second largest tributary by river basin area (97,713 km²), and the largest by discharge (average almost 1700 m³/s at the mouth)
- Sava river course is ~945 km long
- More than 30 first and second order tributaries >1000 km²
- River basin altitude 60 – 2864 m.a.s.l (mean 545 m.a.s.l)
- Very asymmetrical river basin - 78% belongs to the right, southern part (mountains and hilly areas)

Climate, precipitation and runoff

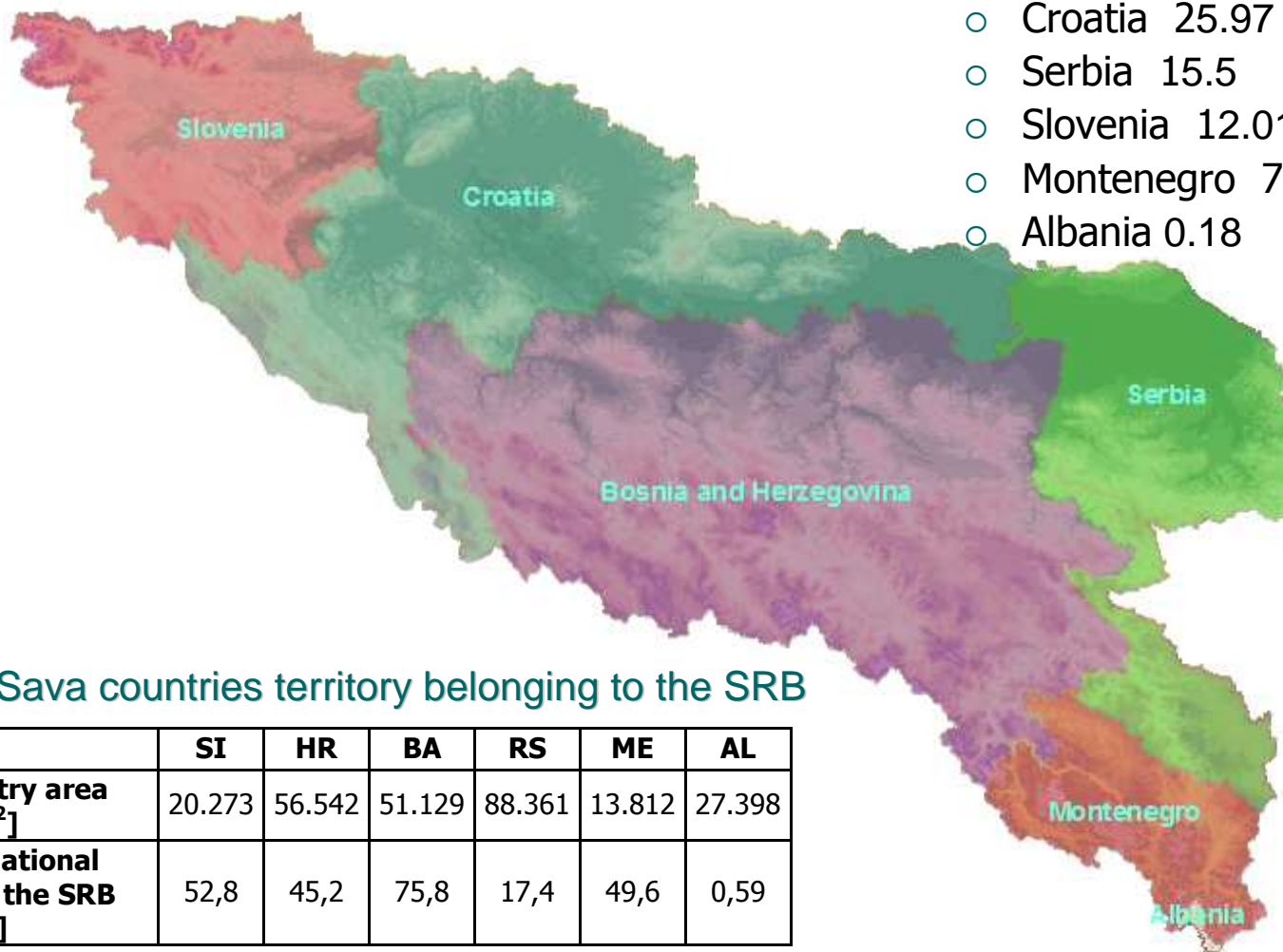
- Alpine climate (upper SRB)
- Moderate continental climate



*Decrease of annual run-off (1926-2006)
(Zagreb, Croatia)-Source: DHMZ Croatia*

Countries in the Sava River basin

- Share of the Sava RB (%)
 - Bosnia & Herzegovina 39.25
 - Croatia 25.97
 - Serbia 15.5
 - Slovenia 12.01
 - Montenegro 7.09
 - Albania 0.18



Share of the Sava countries territory belonging to the SRB

	SI	HR	BA	RS	ME	AL
Total country area [km²]	20.273	56.542	51.129	88.361	13.812	27.398
Share of national territory in the SRB [%]	52,8	45,2	75,8	17,4	49,6	0,59

Framework Agreement on the Sava River Basin

Signed: 2002

Ratified: 2004

Parties:

Republic of Slovenia



Republic of Croatia



Bosnia and Herzegovina



Republic of Serbia



- **Key objective:** Transboundary cooperation for sustainable development of the region
- **Specific objectives:**
 - To establish an international regime of navigation
 - To establish a sustainable water management
 - *To prevent / limit hazards (floods, droughts, ice, accidents) and reduce consequences*
- **Coordination of the FASRB implementation:**
 - International Sava River Basin Commission (ISRBC)



Pilot project - Goals

- Aim of the Project: to address, through expanded and strengthened collaboration among the countries in the Sava River basin, issues of transboundary management of floods, taking also into account the impacts of climate change under different scenarios and the perspective adaptation measures envisaged.
- Immediate objective: to prepare the basis for the preparation of the first FRMP for the Sava RB, based on the concept of Integrated Flood Management (IFM) and including strong elaboration of possible climate change impacts on flood management in the basin and adaptive measures to be undertaken to cope with.

Pilot project - Grounds

PROTOCOL ON FLOOD PROTECTION TO THE FRAMEWORK AGREEMENT ON THE SAVA RIVER BASIN

- a strong supplement to the FASRB, aimed at creating the conditions for sustainable flood protection and implementation of joint activities of the Parties

- Initialized in January 2010
- Expected to be signed in June 2010 (Sava day)
- Ratification: ?

The **Protocol** provides a starting point for step-by-step development of a common **Flood risk management plan (FRMP)**, in accordance with the EU Flood Directive (2007/60/EU) and in line with the UNECE Water Convention.

The **climate change** challenge has been recognized and emphasized in the preamble of the Protocol.

“Recognizing the likely consequences of climate change on the water regime on the Sava RB and the need for effective adaptation measures, it is expected that the common FRMP shall take into account climate change impacts as well as various vulnerabilities of society, economy and environment”

Workshop on transboundary flood risk management, 22-23 April 2009, Geneva



Pilot project – related projects&activities

Numerous ongoing and completed projects in the Sava River Basin have dealt with flood management and recently with climate change issue.

The synergy of following projects and initiatives is especially important:

- Sava River Basin Analysis Report (2009)
- Preparation of the Sava River Basin Management Plan - Implementation period: 2009-2012
- Flood Action Plan for the Sava River Basin (2009)
- Flood mapping project for the Sava River - Ongoing
- Development of the Preliminary Water and Climate Adaptation Plan for the Sava River Basin (WB WATCAP project) - Ongoing

Pilot project - Activities

1. Prepare an overview of already completed or ongoing activities and their findings regarding flood risk management planning
2. Compile various existing climate change scenarios for the region, their expected impacts on water cycle and more specifically on frequency and magnitude of extreme events and assess whether additional modeling of climate change impact on flood vulnerability is needed (starting point are WATCAP results),
3. Identify and assess existing legislation, strategies and plans related to FRM planning and climate change adaptation
4. Assess data and information needs for preparation of joint FRMP for the Sava river basin, identify data sources on national and international level, find data gaps and define strategy how to obtain missing data.



Pilot project – Activities (cont.)

5. Prepare an initial flood vulnerability assessment of the SRB and identify the most vulnerable areas.
6. Preliminary identify and describe possible adaptation measures and select a package of measures
7. Prepare a draft programme for preparation of the first FRMP plan and discuss it with the parties of the FASRB (Slovenia, Croatia, Bosnia and Herzegovina, Serbia) and Montenegro
8. Share relevant experiences with other pilot projects under the framework of the UNECE Water Convention's platform for exchanging experience on transboundary cooperation



Pilot project – Implementing responsibilities

- Project duration: June 2010 – Dec 2012
- Facilitating: ISRBC, UNECE
- Partners: Institutions of the Parties responsible for the FASRB implementation
- Coordination at the ISRBC level:
 - Permanent EG for Flood Protection with
 - PEG for RBM
 - Ad hoc EG for meteorological and hydrological issues ...