INTERNATIONAL SAVA RIVER BASIN COMMISSION

Transboundary Water Cooperation and Adaptation to Climate Change in the Sava River Basin

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Overview

- Introduction on the Sava River Basin
- Establishment of Cooperation in the Sava River Basin
- Framework Agreement on the Sava River Basin (FASRB)
- International Sava River Basin Commission (ISRBC)
- Adaptation to Climate Change in the Sava River Basin
- Summary
- Contact Information

Sava river basin overview map

Sources:
ESRI, ICPDR, Countries of the Sava River Basin
Prepared by the Sava Commission Secretariat

Sava River Basin overview map

Sava RB boundary
State borders

Urban areas
- Continuous urban areas
- Discontinuous urban areas
- Industrial or commercial units
- Green urban areas
- Sport and leisure facilities
- Urban centers

Reservoirs (V>=5 mil m3)

Sava RB rivers
*(Catchments >=1000 sq.km)**
- Sava River
- 1st order tributary
- 2nd order tributary
- 3rd order tributary

**except Sutla/Sotla, Lašva and Tinja*

Sava RB elevation
Value
High : 2864
Low : 68

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The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the ISRBC

Data sources:
DEM data: The NASA Shuttle Radar Topographic Mission (SRTM) processed by the CIAT-CSI (http://srtm.csi.cgiar.org), USGS
CORINE land cover: EEA (http://www.eea.europa.eu)
Other data: ICPDR, ESRI, the Parties to the FASRB (SI,HR,BA,RS)

0 20 40 80 120 160 Km

1:2,000,000

Coordinate system: ETRS 1989
Projection: Lambert Azimuthal Equal Area

Processed and compiled by the Secretariat of the ISRBC
November 2009

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Sava River Basin

- **Area:** 97 713 km^2 (the second largest Danube sub-basin; share: 12%)
- **Average flow** at the mouth: 1722 m^3/s
  (the largest Danube tributary; contribution: 25%)
- **River length:** 940 km (594 km of which is the waterway)
- **Population:** approx. 8.5 million

Country	Share of the basin (%)	Share of the territory (%)
Albania	0.2	0.6
Bosnia & Herzegovina	39.2	75.8
Croatia	26.0	45.2
Montenegro	7.1	49.6
Serbia	15.5	17.4
Slovenia	12.0	52.8

Sava River Basin

- **High environmental and social value**
  - Natural beauty

Sava River Basin

- **High environmental and social value**
  - High biological and landscape diversity (natural wetlands, parks, protected areas)

Sava River Basin

- **High environmental and social value**
  - Large retention areas

Sava River Basin

- **High environmental and social value**
  - High potential for transport of cargo and passengers

Sava River Basin

- **High environmental and social value**
  - High potential for tourism and recreation

Establishment of Cooperation

- **Decay of Yugoslavia – a challenge to WRM in the SRB**
  - Sava river used to be the biggest **national river** of the former SFRY
  - Activities related to WRM in the SRB were regulated by **national regulation, plans and programs**
  - Appropriate institutional framework for implementation of water policy in the SRB existed **until decay of the SFRY**
  - Upon establishment of independent countries in the basin, Sava river became an **international river**
  - **New, international framework required** for exploitation, protection and control of the Sava river, i.e. for **the TWRM**
  - Consequences of the war in 1990's – an **obstacle** for the establishment of the framework

Establishment of Cooperation

- **From different priorities to Integrated TWRM approach**
  - Rehabilitation and development of **navigation**
  - **Flood protection**
  - Utilization of potentials for **tourism development**
  - Utilization of potentials for **energy production**
  - Maintenance of **water quality and quantity**

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Establishment of Cooperation

- **The Sava River Initiative**
  - **Launch of the Initiative:** June 2001
  - **Signing the Letter of Intent on Coop. in the SRB:** Nov. 29, 2001
  - **Signing the FASRB:** Kranjska Gora, Dec. 3, 2002
  - **Est. of the Interim Sava Commission:** Brussels, March 12, 2003
  - **Ratification of the FASRB:** December 29, 2004
  - **Est. of the ISRBC:** Zagreb, June 27-29, 2005
  - **Est. of the ISRBC Secretariat:** Zagreb, January 9, 2006

FASRB

- **Key objective:**

Transboundary cooperation
for **sustainable development** of the region

- **Particular objectives:**
  - To establish an **international regime of navigation**
  - To establish **sustainable water management**
  - To **prevent/limit hazards** (floods, droughts, ice and accidents) and **reduce/eliminate** their negative **consequences**

FASRB

- Implementation **coordinated by the ISRBC** (BA, HR, RS, SI)
- **Fields of work** of the ISRBC
  - Issues of **sustainability**:
    - Improvement of water quality
    - Protection of aquatic ecosystem
    - Protection against the harmful effects of water (due to floods, ice, droughts, accidents)
  - **Development** activities:
    - Different kinds of water use (navigation, hydropower generation, water supply, sewerage and drainage, fishery, tourism and recreation)
- **Broadest scope of work** among European river / lake commissions

FASRB

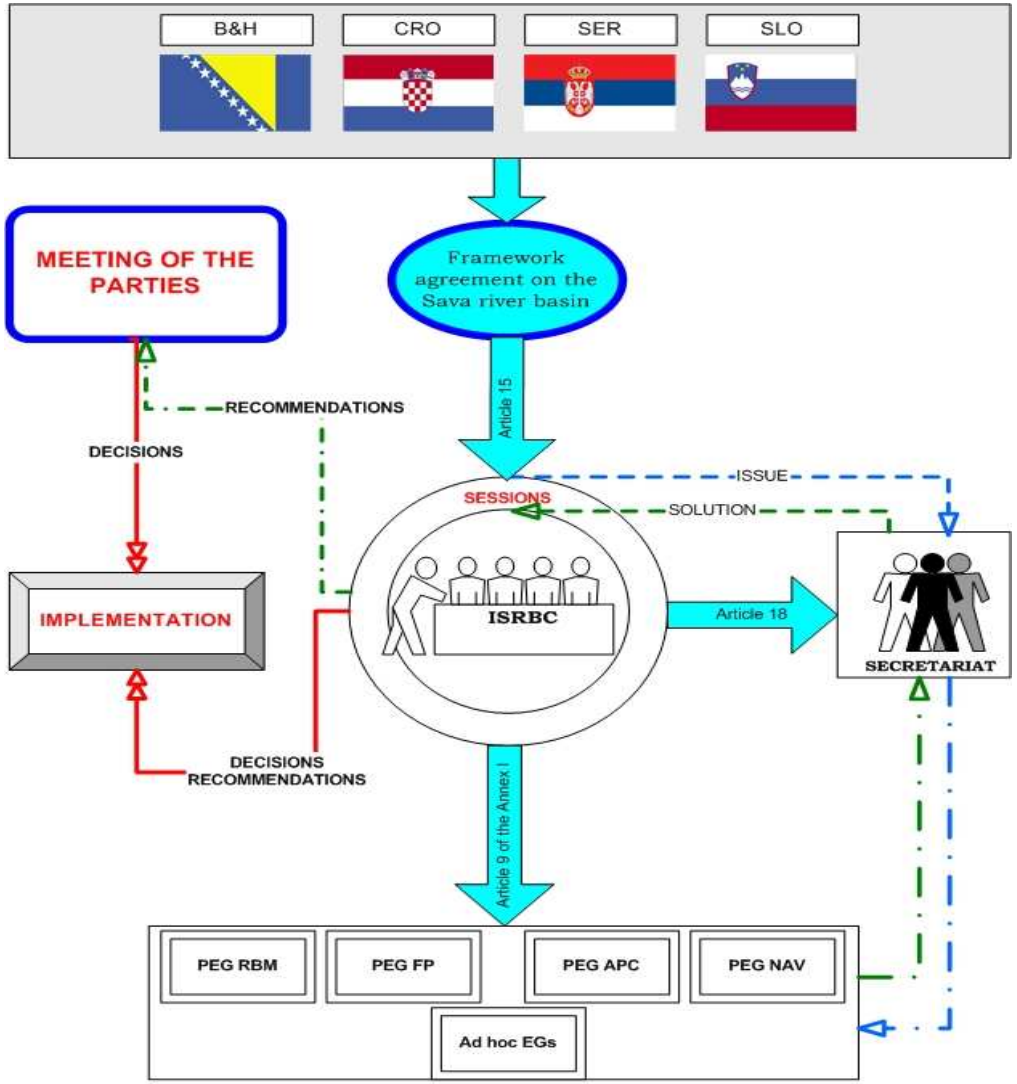
- **Principles of transboundary cooperation**
  - Cooperation on the basis of **sovereign equality**, **territorial integrity**, **mutual benefit** and **good faith** in order to achieve the goals of the FASRB
  - Cooperation in accordance with the **EU WFD**
  - Regular **exchange of information** within the basin
    (on the water regime, navigation regime, legislation, organizational structures, administrative & technical practices)
  - Cooperation with **international organizations** (ICPDR, DC, UNECE, EU)

FASRB

- **Principles of transboundary cooperation (cont.)**
  - **Reasonable and equitable use** of water
  - Securing **integrity** of the water regime in the basin
  - Reduction of **transboundary impacts** caused by economic and other activities of the Parties
  - **Prevention of causing significant harm** to other Party(ies), when using water of the Sava River Basin

FASRB

- **Mechanism of TB cooperation**



Acronyms and abbreviations:

ISRBC	- International Sava river basin commission
PEG RBM	- Permanent expert group for river basin management
PEG FP	- Permanent expert group for flood prevention
PEG APC	- Permanent expert group for accident prevention and control
PEG NAV	- Permanent expert group for navigation
Ad hoc Egs	- Ad hoc expert groups

ISRBC

- **General info**
  - Composed of 8 **representatives** of the 4 countries
  - Given the international **legal capacity**, for:
    - Making **decisions** in the field of **Navigation**
    - Providing **recommendations** in all other fields, i.e. **Water Protection and Hazard Management**
  - **Decisions and recommendations** are adopted by unanimous vote
  - **Languages** of the ISRBC:
    - **Official** (3 official languages of B&H, Croatian, Serbian, Slovenian)
    - **Working** (English)

ISRBC

- **Financing**
  - **Functioning of the Secretariat** – through regular annual contributions of the Parties from their budgets
  - **Projects**
    - From **additional contributions of the Parties**
    - From **international programs / funds**
- **Reporting**
  - Report on the Secretariat work **to the ISRBC** (3-4 sessions per year)
  - Annual report on the ISRBC work **to the Parties**
  - Country reports on implementation of the FASRB **to the ISRBC**
  - Report on implementation of the FASRB and the ISRBC work **to the Meeting of the Parties** (every 2 years)

INTERNATIONAL SAVA RIVER BASIN COMMISSION

ISRBC

- **Coordination of:**
  - Development of joint / integrated **plans** for the SRB
    - River Basin Management Plan (according to EU WFD)
    - Flood Risk Management Plan (according to EU Flood Directive)
  - Establishment of **integrated systems** for the SRB
    - GIS (according to INSPIRE Directive and WISE)
    - RIS – River Information Services (according to EU RIS Directive)
    - Meteorological and Hydrological Data Exchange System
    - Flood Forecasting and Warning System
    - Accident Emergency Warning System
  - Preparation of **development programs** for the SRB
    - Rehabilitation and development of **navigation**
    - Development of (nautical) **tourism**

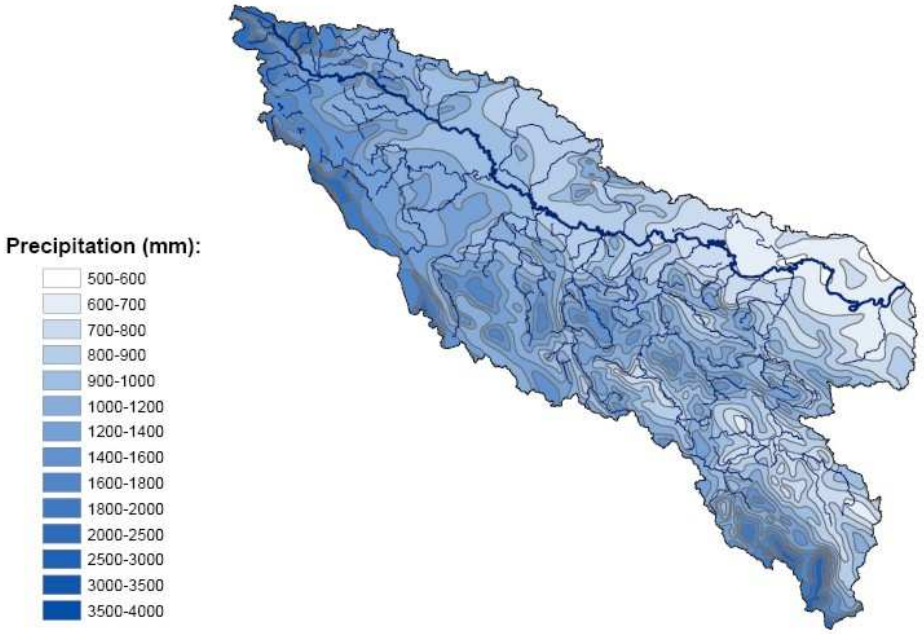
ISRBC

- **Coordination of (cont.):**
  - Harmonization of **regulation** (national → EU)
  - Creation of additional **protocols to the FASRB**
    - Navigation regime
    - Prevention of water pollution caused by navigation
    - Flood protection
    - Emergency situations
    - Sediment management
    - Transboundary impacts
- **Cooperation / stakeholder involvement / public participation**

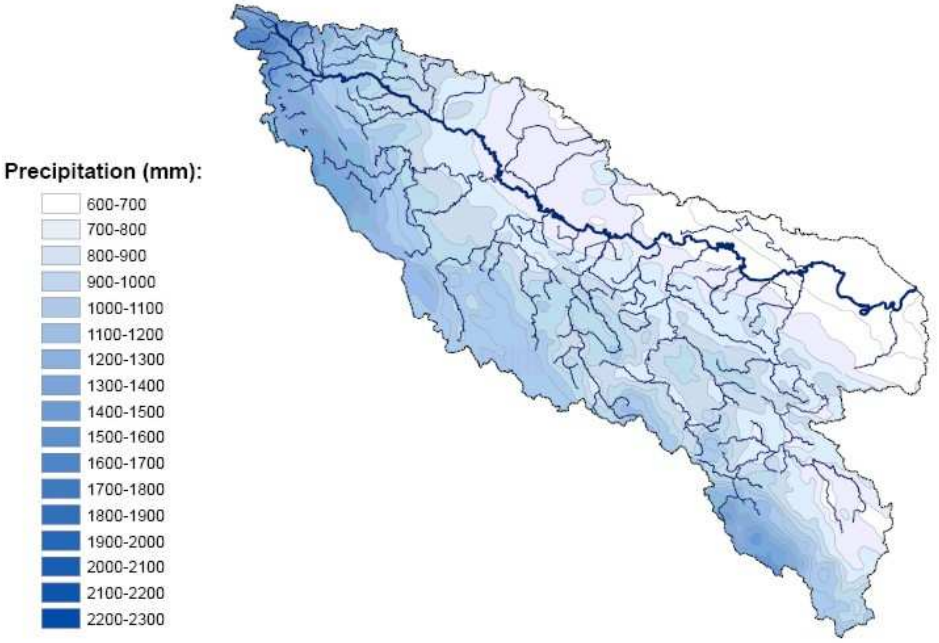
Climate Change Adaptation

- **Climate trends in the basin**
  - Precipitation

Map 6: Mean annual precipitation in Sava River Basin (1969)



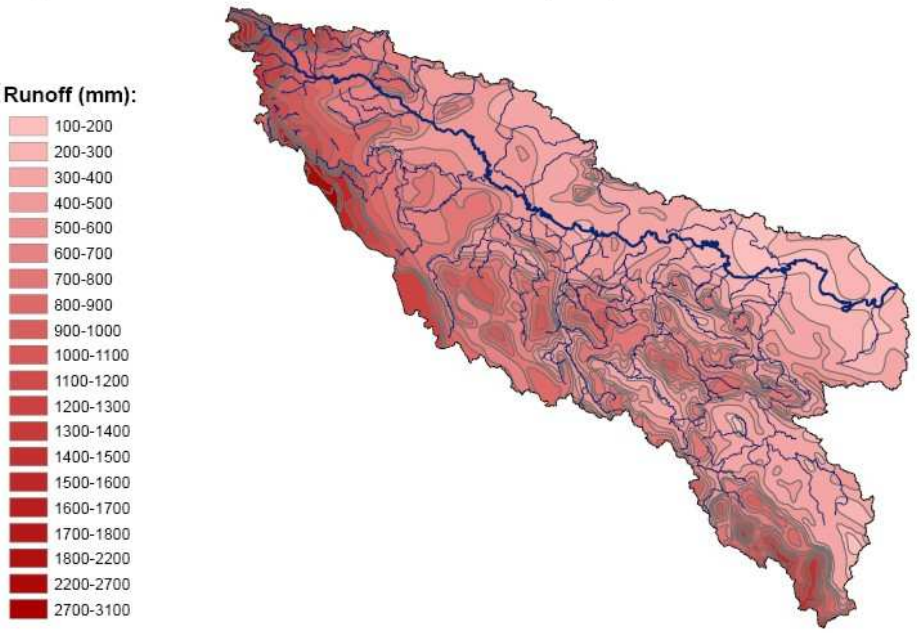
Map 3: Mean annual precipitation in Sava River Basin (2006)



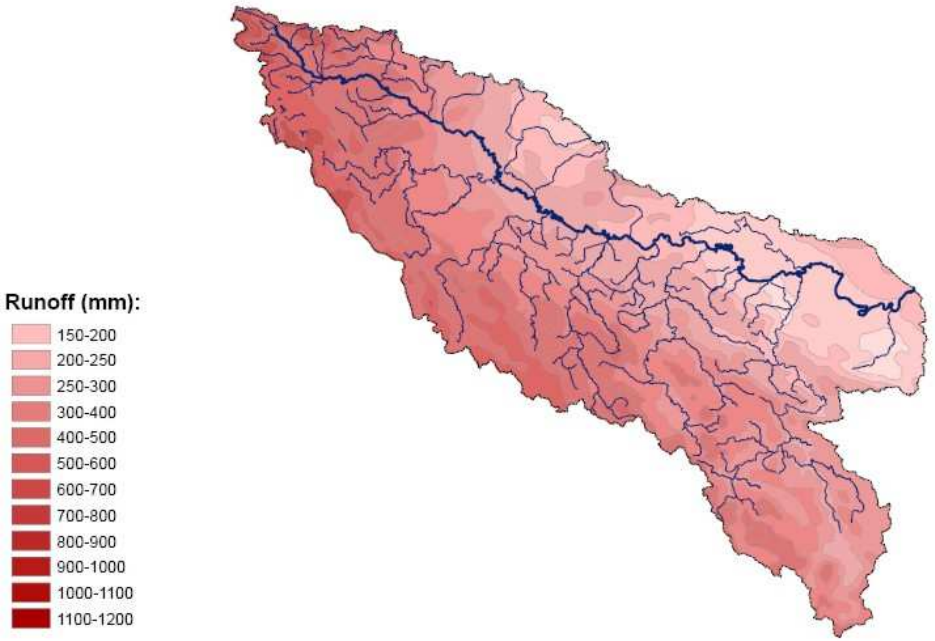
Climate Change Adaptation

- **Climate trends in the basin**
  - Runoff

Map 5: Mean annual runoff in Sava River Basin (1969)

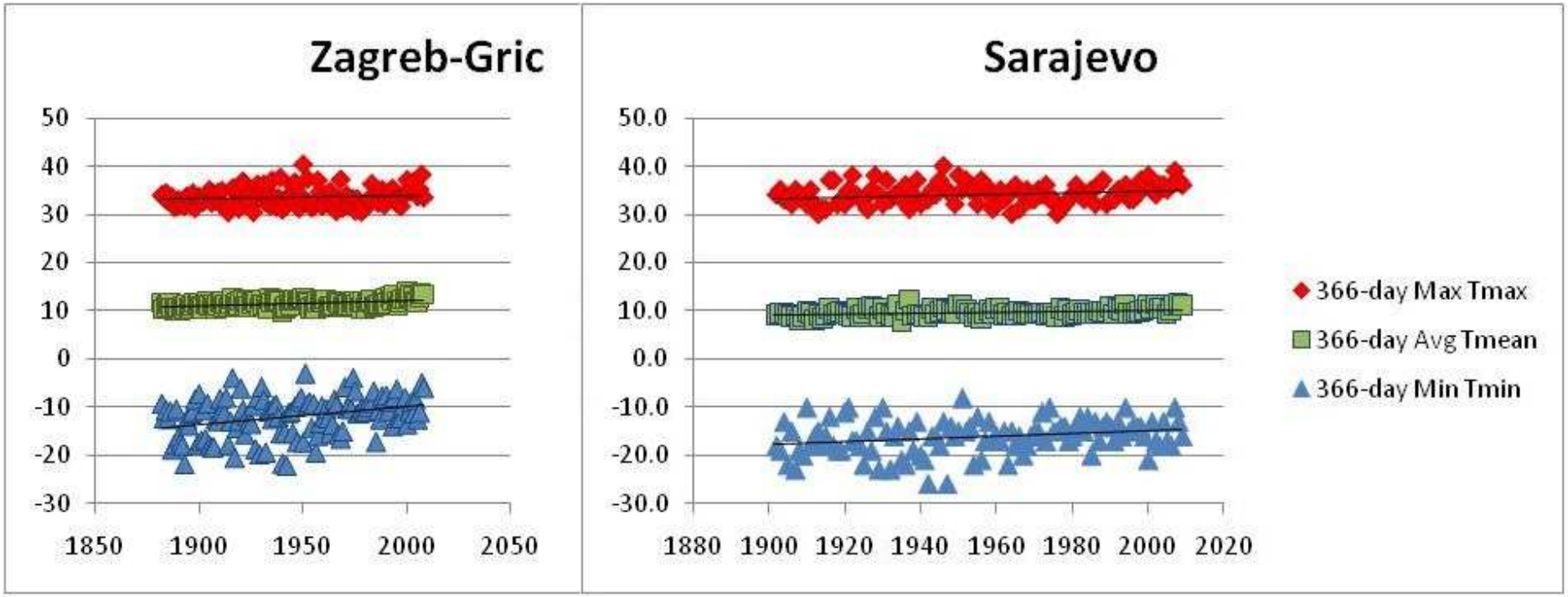


Map 2: Mean annual runoff in Sava River Basin (2006)



Climate Change Adaptation

- **Climate trends in the basin**
  - Temperature



Climate Change Adaptation

- **Political commitment on a high level**
  - **Declaration from the 3rd Meeting of the Parties** (ministerial level)
  - **Strategy on Implementation of the FASRB** and **Action Plan for the Period 2011-2015**
    - Integration of **water policy** (RBM planning) with the climate change issues
    - Adaptation of **flood management** to climate change
    - Consideration of further development of **economic activities** in the basin (navigation, hydropower generat., water supply, agriculture, recreation & tourism) and its sustainability with respect to environmental protection and climate change

Climate Change Adaptation

- **Preparation of the Climate Adaptation Plan for the basin**
  - Financed and implemented by World Bank
  - Duration: 2 years; Budget: 300 k$
  - Objectives:
    - To improve the knowledge on the climate change impact on the water sector
    - To show how to increase the climate resilience of IWRM in the region

Climate Change Adaptation

- **Preparation of the Climate Adaptation Plan for the basin**
  - Analysis of climate and hydrologic trends
  - Climate modelling (downscaling of the Global Climate Model)
  - Hydrologic and hydraulic modelling
  - Guidance notes on adaptation, for different water sub-sectors
    - Navigation
    - Hydropower generation
    - Agricultural water use
    - Flood protection

Climate Change Adaptation

- **Building the Link between the Flood Risk Management Planning and Climate Change Assessment for the basin**
  - Financed by ENVSEC through UNECE, implemented by the ISRBC
  - Duration: 2 years; Budget: 170 k$
  - Objectives:
    - To make a basis for preparation of the first *Flood Risk Management Plan for the Sava River Basin*
    - To elaborate possible climate change impacts on flood management in the basin and adaptive measures

Climate Change Adaptation

- **Building the Link between the Flood Risk Management Planning and Climate Change Assessment for the basin**
  - Preparatory activities for development of the *Sava Flood Risk Management Plan*
  - Compilation of various climate change scenarios for the region, their expected impacts on frequency and magnitude of extreme flood events
  - Assessment of the need for additional modelling of climate change impact on flood vulnerability
  - Preliminary identification and description of possible adaptation measures
  - Selection of a package of the adaptation measures

Climate Change Adaptation

- **Lessons learned**
  - **Data collection** is a challenge
  - **Local knowledge** and **engagement of local experts** is extremely important for successful implementation of the projects
  - **Steering** of the projects is essential
    - Being done by **Expert Groups of the ISRBC** (Flood Prevention, Hydro-Meteorological Issues, River Basin Management)
    - **Sufficient level of expertise** is provided
    - **Representation of all beneficiary countries** is ensured

Summary

- **Key features of the approach**
  - **Cohesive**, providing conditions for:
    - **Cooperation** of the countries **after the conflict**
    - Implementation of **joint, basin-wide projects**
    - **Harmonization** of national regulation, methodologies, procedures …
  - **Integrated** (whole basin, sustainability, development)
  - **Transparent** (public participation)
  - **Aligned with UNECE and EU regulation** (UNECE Water Convention, EU Directives, …)
  - **Subregional** ("finer resolution" of results than on a regional scale)
  - **Pragmatic and practical** (offering, to the Parties, "products" such as joint plans, development programs, protocols, harmonized regulation, integrated systems)

Summary

- **Challenges / possible obstacles to implementation**
  - **Differences between the countries**
    - Level of **economic development** (financial resources)
    - **Organizational structure** in decision-making process
    - **Environmental awareness** of the public
  - **Financing** priority projects / strategic studies, establishment of integrated systems
  - **Resolving** conflicts of interests of different users of water (within a country / between countries / climate change)
  - **Different legal capacity** of the ISRBC in the fields of Navigation and Water Management

Summary

- **Conclusions**
  - **FASRB** appears to be **a good framework** for Integrated TWRM
    - By scope
    - By vision of transboundary cooperation (principles, mechanism)
  - **Many focal points** and **good inter-sectoral coordination and communication** within a Party needed due to broad scope of the FASRB
  - **Protocols are necessary** to regulate specific issues addressed by the FASRB
  - Involvement of **expert groups** is very important for realization of regular activities, not only as a support to the Secretariat, but also as a link to other experts of the Parties
  - **Political commitment** and support at high political level (Joint Statement, MoU) is crucial for launching new projects

Contact Information

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