

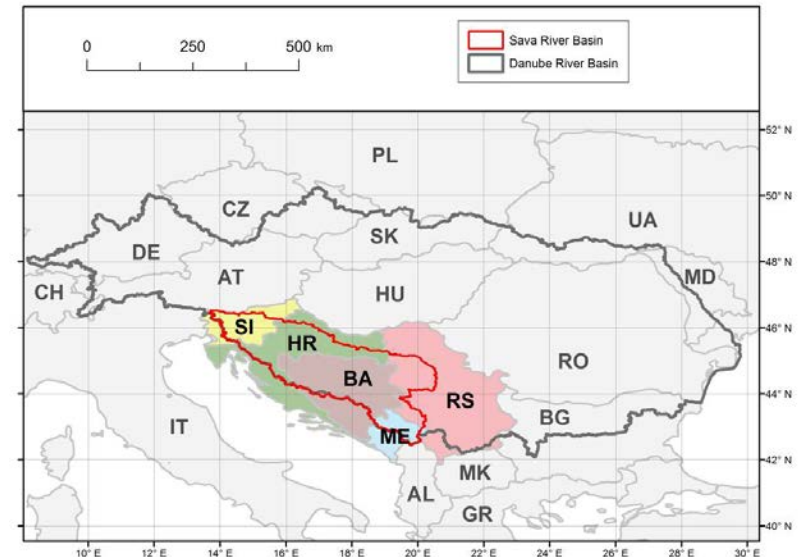
Water – Food – Energy – Ecosystems Nexus Assessment in the Sava River Basin

3rd Meeting of the Task Force on the Water-Food-Energy-Nexus
under the Water Convention
Geneva, 28-29 April 2015

Dr Dejan Komatina,
Secretary, ISRBC

Sava river basin

- **Challenges**
 - **Use of resources:** development and protection
 - **Management of resources:** national → transboundary
- **Legal and institutional framework** for cooperation
 - **Framework Agreement** on the Sava River Basin
 - **ISRBC**
- **Broad scope** of work → **Many sectors** involved



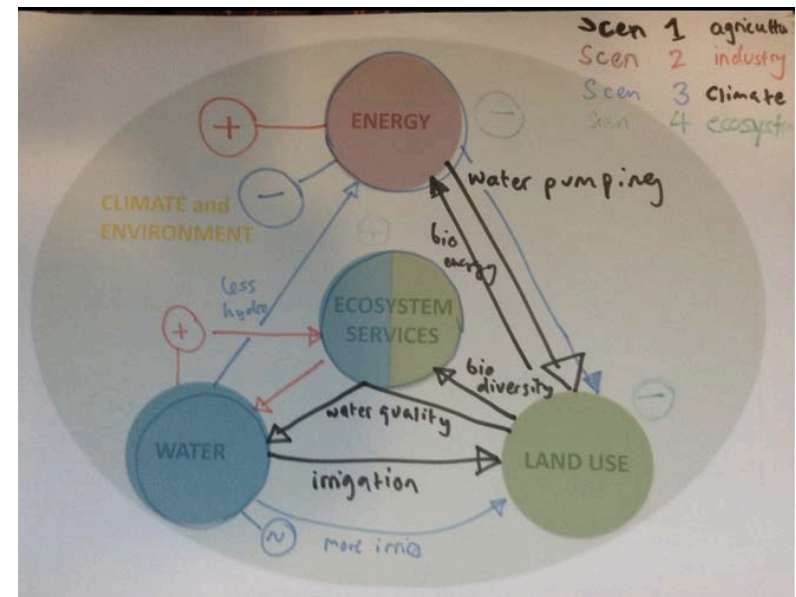
Sava nexus assessment

- **Objectives / expectations** – to contribute to:
 - **Dialogue** with sectoral stakeholders
 - **Integration** of policies
 - Inter-sectoral **coordination**
 - **RBM planning**



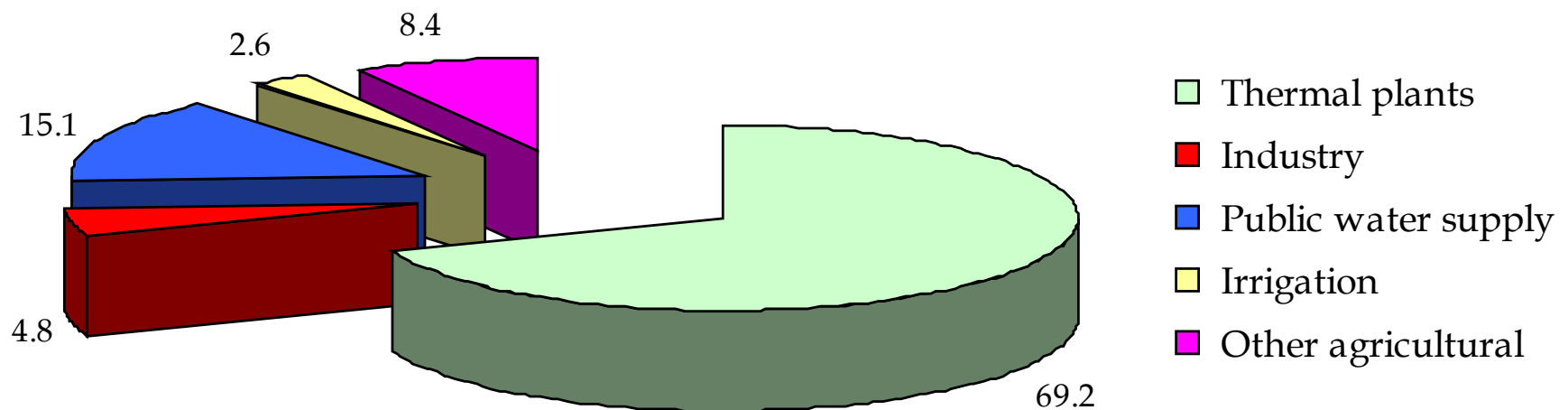
Introductory workshop

- **Development plans** and **sectoral goals** shared (national & basin level)
- Key **intersectoral linkages** identified (future development of sectors; climate change)
- **Scenarios** discussed
 - **Hydropower** development
 - **Agriculture** expansion
 - **Climate change**



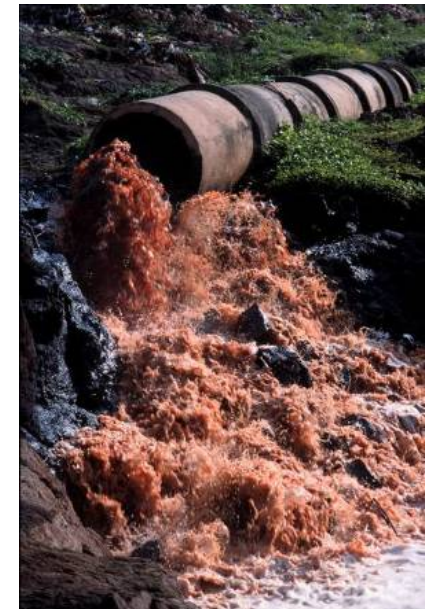
Emerging issues

- **Hydropower expansion** upstream and on tributaries
- Need for **flood protection measures** and related TB coordination
- **Agricultural land expansion** (irrigated)
- **Dependence on energy production** from thermal power plants (using water for cooling)



Emerging issues

- **Point source pollution** (lack of wastewater treatment) and **diffuse pollution** (from agriculture, in particular)
- **Sedimentation and erosion** (depending on land use and practices)
- **Hydromorphologic alterations** of the river
- **Pressure on groundwater** (increasing)
- **Climate change** (mean flow reduction; increase in frequency of extreme events)



Potential solutions

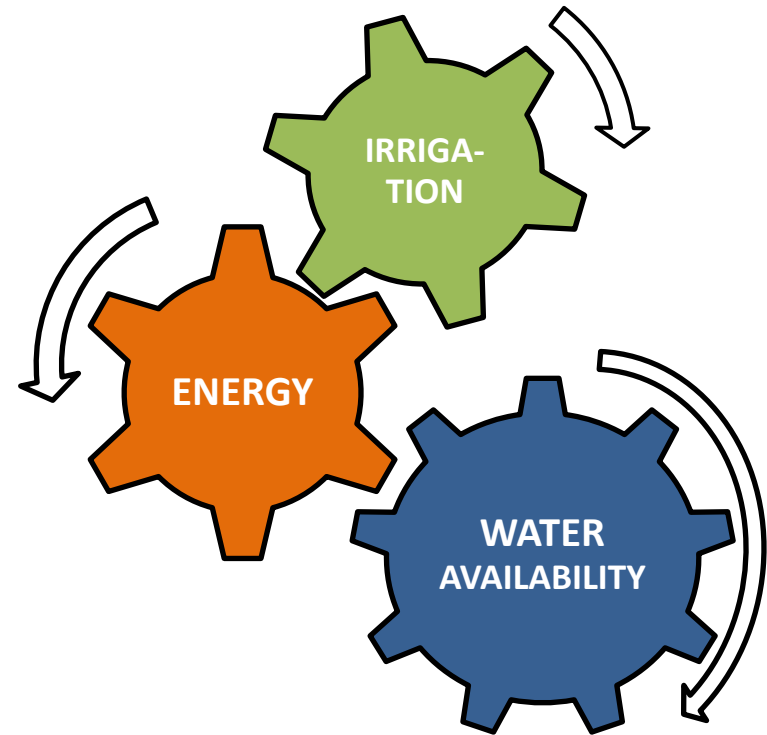
- **Multipurpose** use of the existing and planned **infrastructure** (including dams) across countries (example from Croatia and Slovenia)
- **Navigation & sediment control** at the basin level
- Targeting **energy efficiency** (proposal from Energy Community)
- Further **integration of the energy and agriculture sectors** in the RBM planning and implementation process

Potential solutions

- Improvement of **flood protection infrastructure** and **flood management** (e.g. operation of reservoirs and dams)
- **Economically valuing ecosystems** (proposal from WWF)
- **Drought resilience** – water management and in particular demand for cooling water in power plants
- Development of **renewable solutions** to supply local demand (solar and wind integrated with hydropower)

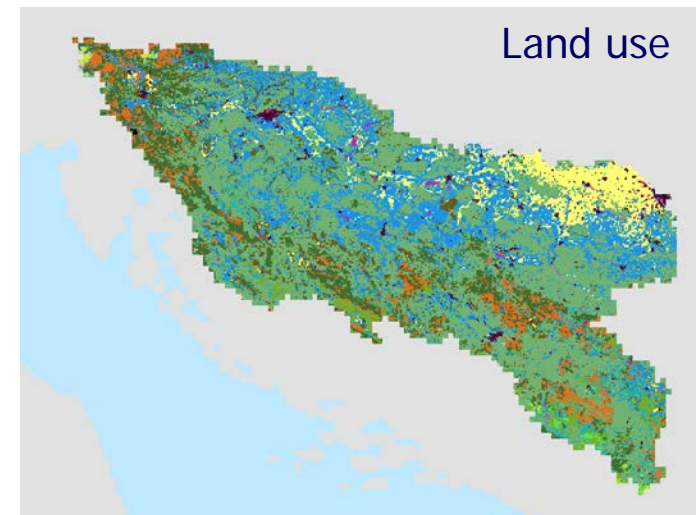
Analyses / modelling (KTH)

- Investigate the dependences between the SRB water resources and the energy sector
- Identify the **impacts of climate change on hydropower generation** through changes in water availability in the region and at a country level
- Assess the implications of an increase in **water demand for irrigation on electricity generation**
- Study the **trade dynamic-response of the multi-country energy system** under water availability constraints
- Environmental issues: **CO₂ emissions and water resources use** in electricity generation

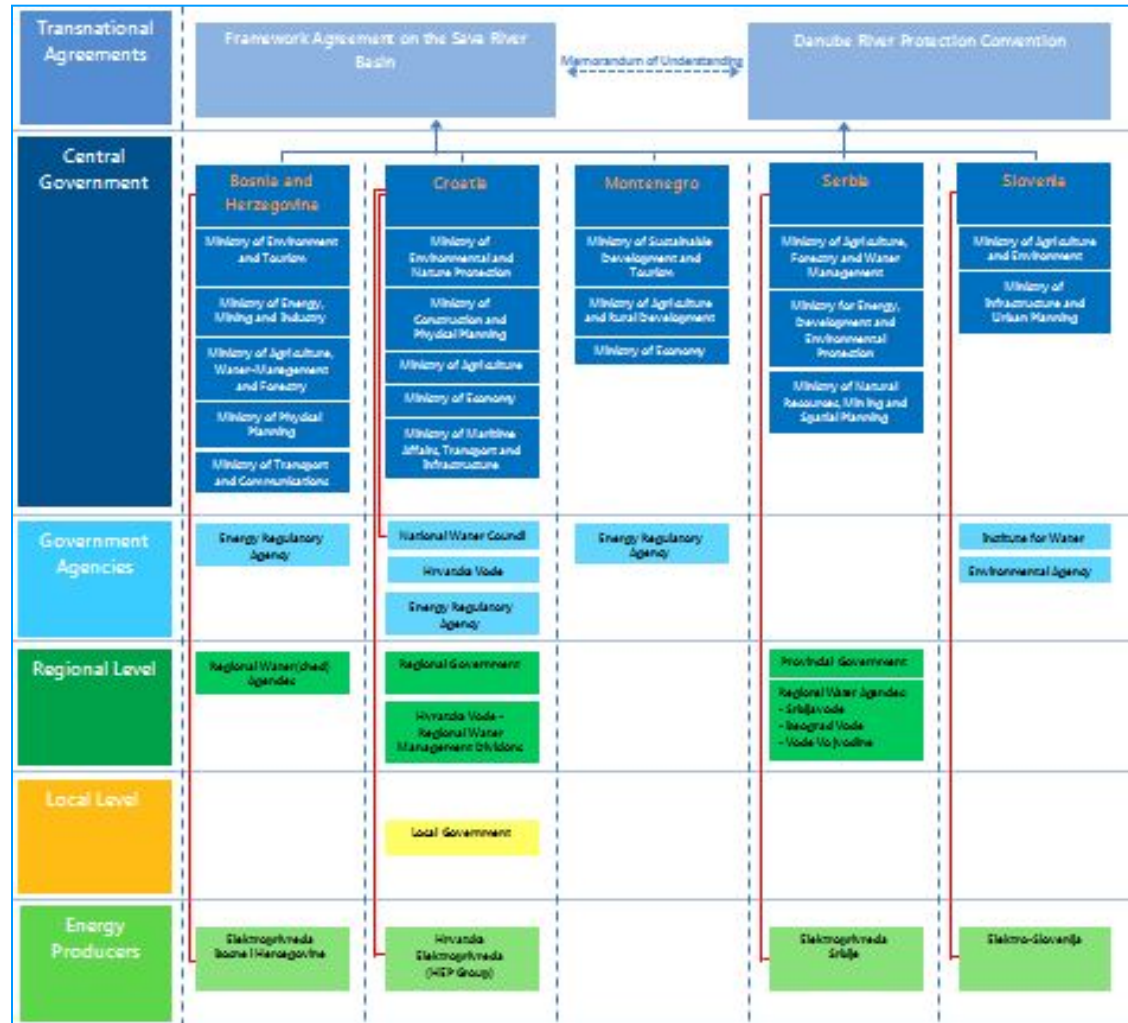


Analyses / modelling (JRC)

- Modelling **water availability** versus **water demand** (identifying areas and sectors with water scarcity) and how this might change, under
 - **Future climate** as compared to **current climate**
 - **Modified land use / measures** (e.g. increased irrigation) as compared to **current land use**
- **Water demands** (agriculture, industry, public sector) taken into account, and how they change under future GDP, population, etc.
- Addressing **ecological flow**
- Estimating **economic damage** for individual sectors (agriculture, navigation, industry, etc.) under water scarcity and how this changes after taking measures
- Including **investment** and maintenance costs

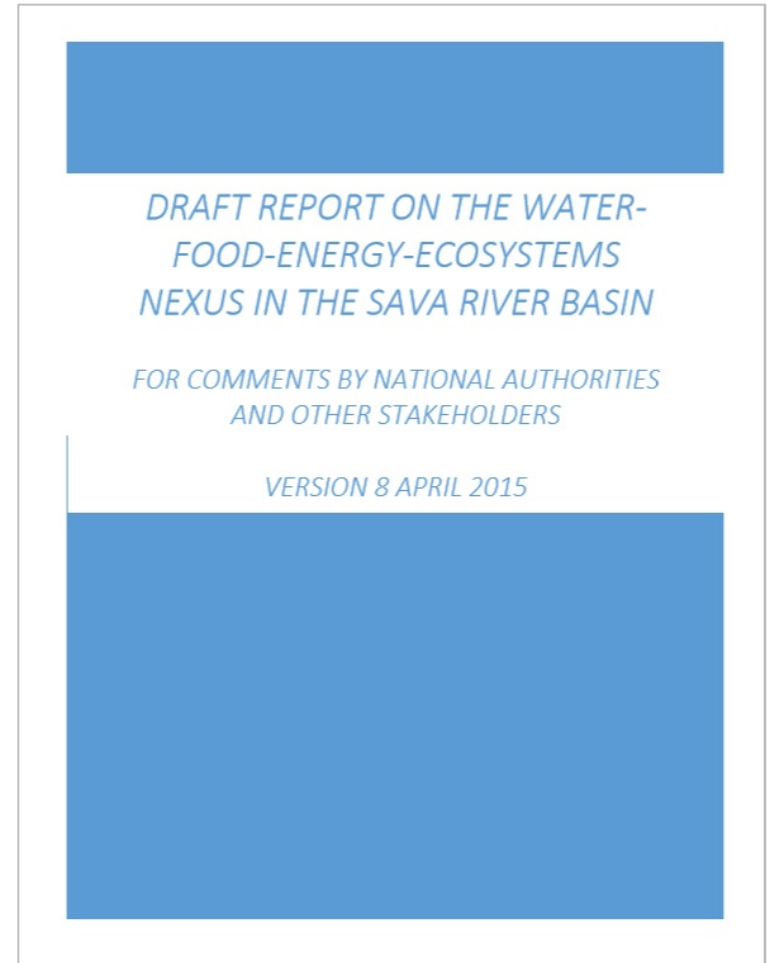


Institutional assessment



Consultation and finalization

- **Consultation** on the draft report (stakeholders from gov., non-gov., academic and business sectors)
- **Final stakeholder workshop** (Zagreb, 25 May 2015)
- **Finalization of the report** based on the stakeholders' comments
- **Publishing the report**



Lessons learned

- **Data collection** is a challenging process (amount of data, number of institutions – data owners, different level of data availability in the countries)
- **Templates for data collection**
 - Keep them as simple as possible
 - Make clear what the data will be used for
- **National ‘facilitators’** should be given an important role
- **Consultation** is extremely important to ensure the countries’ ownership and best outcome of the assessment
 - Data to be used for the assessment (workshop)
 - Draft assessment (web-based, workshop)

Contact information

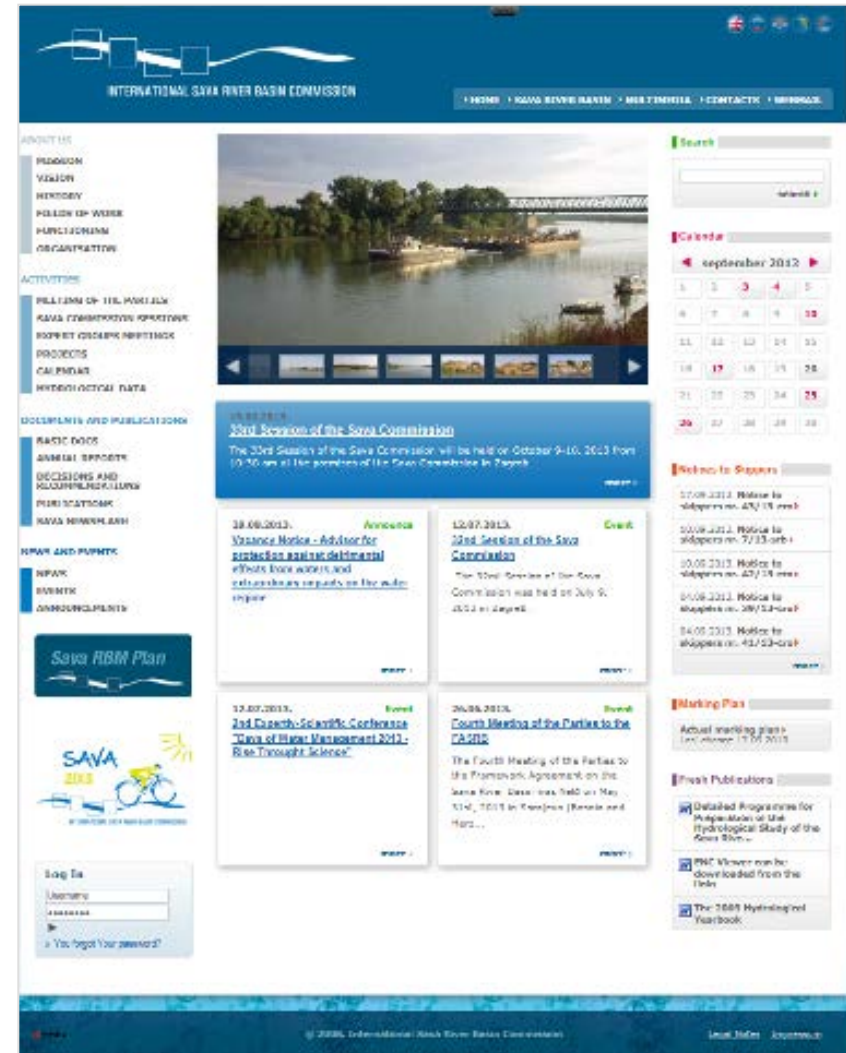
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The screenshot shows the homepage of the International Sava River Basin Commission website. The header features the organization's logo and navigation links for Home, Sava River Basin, Members, Contacts, and News. The main content area includes a large banner image of a river scene, a search bar, a calendar for September 2013, and a 'News to Sign' section listing various notices and events. A sidebar on the left contains a menu with categories like 'ABOUT US', 'ACTIVITIES', 'DOCUMENTS AND PUBLICATIONS', and 'NEWS AND EVENTS'. At the bottom, there is a 'Log In' section and a footer with copyright information for 2013.