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# Reconciling resource uses in transboundary basins: assessment of the water-food-energyecosystems nexus in the Sava River Basin





UNITED NATIONS ECONOMIC COMMISSION FOR EUROPE

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#### FOREWORD

The **Sava River Basin** is critical in ensuring energy, water and job security as well as the environmental integrity of the region. Its water resources are fundamental for economic development, and the impacts from development and water management in any of the riparian countries can be felt across borders. Sectoral and economic development decisions are commonly taken outside the sphere of water management. For this reason, this assessment of the water-food-energy-ecosystems nexus, which looks at interlinkages, is very relevant and welcome.

The agreements on water cooperation in the region contribute towards the implementation of provisions of the **Convention on the Protection and Use of Transboundary Watercourses and International Lakes** that in addition to the **International Sava River Basin Commission** (ISRBC), constitutes a common legal/institutional framework for all the riparian countries of the Sava River Basin. The related obligations concern the equitable and reasonable use of shared waters, as well as the prevention of transboundary impacts. The ISRBC's scope of work is broad in terms of economic sectors, but the need to be further informed about planned developments, and have water resource constraints reflected in such plans, prevails.

The nexus assessment process contributes to the **implementation** of the Framework Agreement on the Sava River Basin (FASRB), particularly as further integration of water policy with other policies, as well as further dialogue with key sectoral stakeholders, have been set in the Strategy on Implementation of the FASRB as specific objectives in the field of river basin management. The nexus assessment process involved reaching out to diverse sectoral stakeholders, and due its pioneering nature was a challenging learning process. It is partly because of efforts to consult – extremely important for the countries' ownership and best outcome – that it has taken time.

Ongoing policy processes present various opportunities to address intersectoral issues and to prevent related friction from developing. The second cycle of RBM planning in accordance with the EU Water Framework Directive is informed and complemented by the nexus assessment which highlights, for example, the energy and climate policy commitments and trends that water resources management does not consider. The way environmental impacts in a transboundary context are reflected in the context of ISRBC maybe be revisited. The Sava Water Council is shaping up as a forum that brings to the table all-important feedback from different and new types of actors.

**Multiple level governance is an important factor** in any management response to many of the identified intersectoral challenges. Notably a nexus approach merits attention, also in the context of the European Union's macro-regional strategies that are multi-sectoral by nature. Some valuable intersectoral work has already been undertaken in cooperation with the International Commission for the Protection of the Danube River and other key partners, involving not only the Sava but also the larger Danube Basin. Jointly formulated guiding principles for reconciling navigation and environmental protection, as well as for sustainable development of hydropower, stand as important examples. Growing pressures from development, demographics and climate change call for intersectorally coordinated, cooperative transboundary approaches to the management of water, land, energy and environmental resources. Objectives set in different areas of development may not be fully compatible and there are trade-offs involved. Considering the 2030 Agenda, the Sustainable Development Goal (SDG) on water and sanitation (SDG 6), on food security and sustainable agriculture (SDG 2), on access to energy (SDG 7), and the protection and sustainable use of ecosystems (SDG 15) are closely interlinked. Therefore, achieving the SDGs will require coordination across sectors, coherent policies, and integrated planning. The different sector authorities need to work under better coordination and involve the different key interests and stakeholders. The ISRBC provides a platform that could be used to a larger degree for intersectoral dialogue, and for assessing impacts of sectoral plans at the basin level.

The assessment of the water-food-energy-ecosystems nexus in the Sava River Basin was **a scoping level exercise** that raises new questions and points at potential cooperation opportunities to encourage action, the outcomes of which can be built upon and developed further. In the basin of the Drina tributary, a **followup** study is being extended to detail benefits linked to selected response measures, including flow regulation. With examples and exchange of experience, a more concrete picture of practical application of an intersectoral approach is emerging.

Dr. Mitja Bricelj

Chairman of the ISRBC

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## LIST OF COUNTRY CODES

BA	Bosnia and Herzegovina	RS	Serbia
HR	Croatia	SI	Slovenia
ME	Montenegro		

## **ACRONYMS AND ABBREVIATIONS**

CAP	Common Agricultural Policy
DRB	Danube River Basin
EC	European Commission
EEA	European Environment Agency
EIA	Environmental Impact Assessment
EPIC	Environmental Policy Integrated Climate
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FASRB	Framework Agreement on the Sava River Basin
GDP	Gross Domestic Product
GHG	Greenhouse gas
GIS	Geographic Information System
GWP	Global Water Partnership
HPP	Hydropower plant
ICPDR	International Commission for the Protection of the Danube River
IPCC	Intergovernmental Panel on Climate Change
IPPC	Integrated Pollution Prevention and Control
ISRBC	International Sava River Basin Commission
JRC	Joint Research Centre (European Commission)
КТН	Royal Institute of Technology, Stockholm
МоР	Meeting of the Parties
MOU	Memorandum of Understanding
NGO	Non-governmental organization
OECD	Organisation for Economic Co-operation and Development
OSeMOSYS	Open Source energy Modelling System
PES	Payment for Ecosystem Services
RBMP	River Basin Management Plan
RCP	Representative Concentration Pathways

RE	Renewable energy	
RENA	Regional Environmental Network for Accession	
RES	Renewable energy sources	
RET	Renewable Energy Target	
SEA	Strategic Environmental Assessment	
SRB	Sava River Basin	
UN	United Nations	
UNECE	United Nations Economic Commission for Europe	
UWWT	Urban Waste Water Treatment (Directive 91/271/EEC)	
WATCAP	Water and Climate Adaptation Plan (for the Sava River Basin)	
WFD	Water Framework Directive (Directive 2000/60/EC).	
WMO	World Meteorological Organization	



## **UNITS OF MEASURE**

a.s.l.	Above sea level
<b>CO</b> <sub>2</sub>	Carbon dioxide
GW	Gigawatt
GWh	Gigawatt-hour
h	Hour
ha	Hectare
km <sup>2</sup>	Square kilometre
km	Kilometre

kW	Kilowatt
<b>m</b> <sup>3</sup>	Cubic metre
Mm <sup>3</sup>	Million cubic metres
MW	Megawatt
S	Second
ŢJ	Terajoule
°C	Degree Celsius
%	Per cent

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