

DRINA RIVER BASIN

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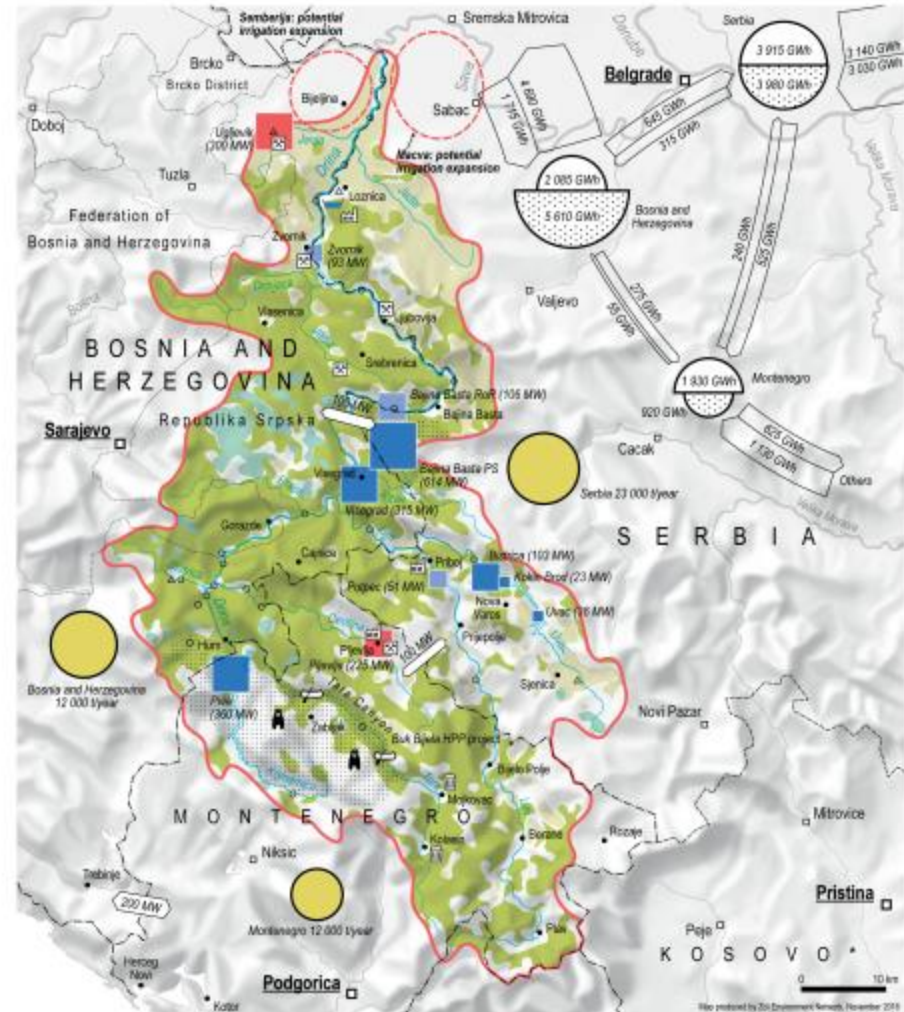
Drina River Basin

Riparian countries

- **Bosnia and Herzegovina**
- **Serbia**
- **Montenegro**

Also a key partner: **Sava Commission (ISRBC)**

- Nexus assessment funded by the **Italian Ministry for the Environment, Land and the Sea** as “Greening economic development in Western Balkans through applying a nexus approach and identification of benefits of transboundary cooperation”



Nexus Drina basin

Power plant facilities

- Thermal power plant (coal/oil/gas)
- Hydro power plant with reservoir
- Run-of-river hydro power plant
- ▲ Projected thermal power plant
- Projected hydro power plant
- Untreated waste released annually in the basin 2008

Installed capacity (MW)

- > 500 MW
- 250 - 500 MW
- 100 - 250 MW
- 50 - 100 MW
- < 50 MW

Sites of tourist interest

- Water sports
- Biodiversity
- Spe

Water-endering activities/deposition sites

- Industry / energy production
- Mining
- Municipal waste (Montenegro, only 65% coverage of sewage collection systems in urban areas)

Landcover

- Forest
- Agriculture
- Pastures

Electricity

- Electricity trade 2015 (GWh)
- Import
- Export

Protected areas

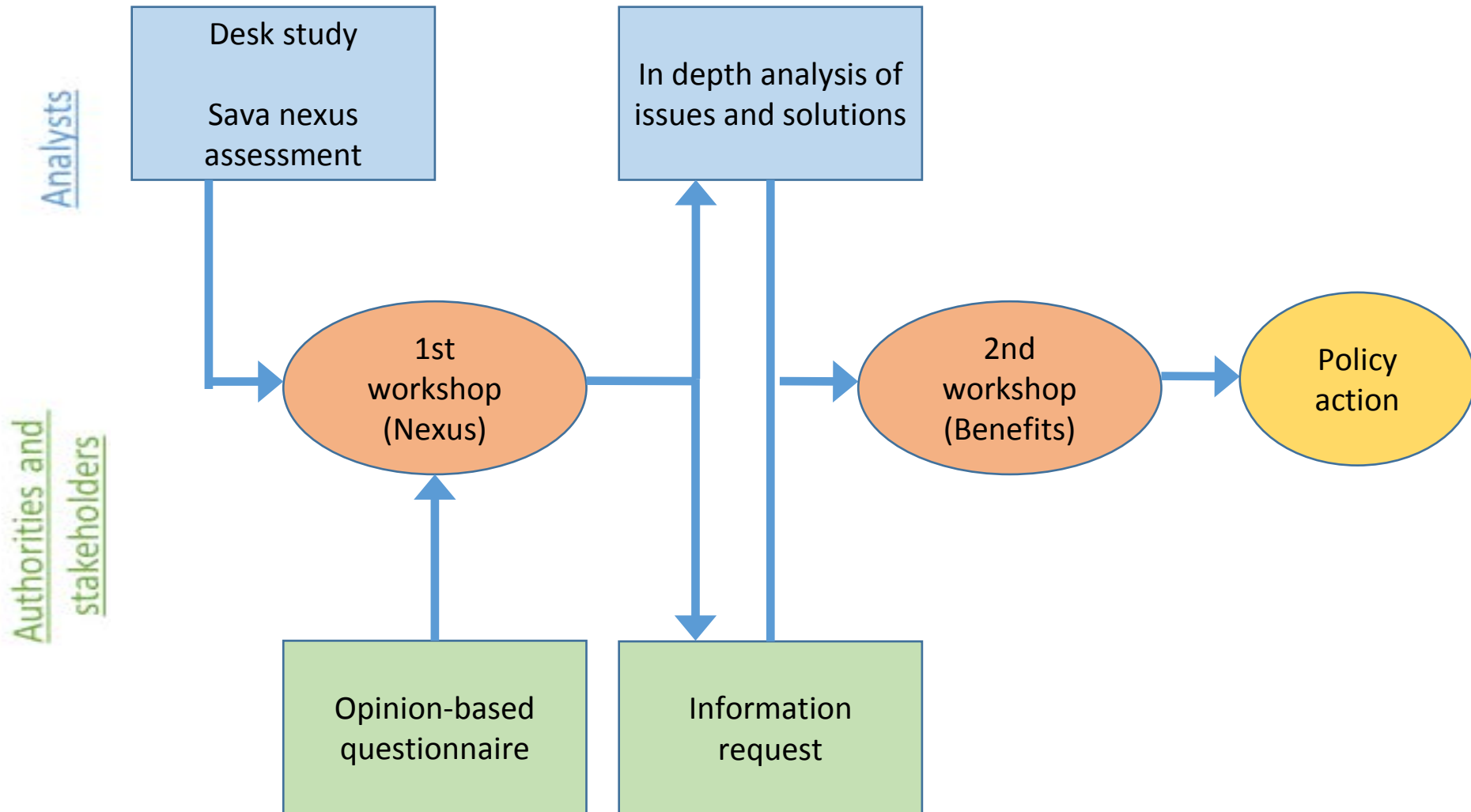
Net transfer capacities (MWh)

Sources: World Bank, Support to Water Resources Management in the Drina River Basin, Final Position Report, 2015; European Environment Agency, Corine Land Cover 2006 (2014); Pollution in the Drina River Basin, The Regional Environmental Center for Central and Eastern Europe (REC), 2011; United Nations Composite Database
*The designation is without prejudice to positions on status, and is in line with UNSC 914 and the ICJ Opinion on the Nexus Declaration of Independence.

Why the nexus assessment in the Drina?

- National & regional development has implications, also across borders and created vulnerabilities
- Natural resources that are inputs to various sectors:
 - Rich biodiversity and untouched landscapes - which make the Drina highly valuable from an environmental perspective, as well as very attractive for tourism.
 - Hydro potential - with an estimated 60% yet to be explored.
- Opportunity to combine nexus assessment and analysis of benefits of cooperation to foster transboundary cooperation:
 - Exploring policy inconsistencies and potential shared benefits
 - Informing dialogue and understanding the interconnections
 - Quantification of selected operational solutions
- Opportunity to zoom-in from the Sava nexus assessment, being more specific on possible policy and technical actions

The assessment process in the Drina



Participatory, multi-sectoral workshops

21-22 April 2016, Podgorica, Montenegro

Identification of intersectoral issues and multi-sectoral roundtables to discuss potential solutions



8-10 November 2016, Belgrade, Serbia

Review of preliminary findings and discussion on benefits of cooperation



Identified issues – Flow regulation

1. Limited cooperation among countries/operators on the operation of dams in the DRB
2. Planned expansion of hydropower in the DRB would have implications on flow regime, flooding and downstream users that should be analysed
3. Different approaches to defining environmental flows and challenges in the implementation of environmental flow regulation
4. Governance and finance issues affect development opportunities in non-hydro renewables, energy efficiency and regional trade

Identified issues – Rural development

1. Limited agricultural production
2. Limited industrial activity and high unemployment
3. Unexploited potential for eco-tourism
4. Unused land resources
5. Low competitiveness of the agricultural sector
6. Significant gaps between EU and SEE agricultural policy
7. A general lack of infrastructure
8. Land fragmentation

Identified issues – Water quality and solid waste management

- Water quality is affected at hotspots, mostly due to untreated and illegal discharge of wastewater (municipal and industrial, including mining) as well as dumping of solid waste (municipal and industrial).
- Flow regulation infrastructure traps solid waste which interferes with the dam management.

Identified issues – Governance

- Overall, there is a need to create further mechanisms for horizontal coordination between policymakers on nexus issues, and to strengthen mechanisms that already exist
- Constantly changing laws to keep pace with EU requirements creates progress, but also means implementation often lags behind law creation
- In particular, there is often a lack of necessary secondary legislation (i.e. by-laws, regulations) for key pieces of environmental legislation
- Laws on integrated permitting potentially a very good tool but not yet functioning optimally

Clusters of solutions



Modelling hydropower operations

Modelling tool
OSeMOSYS
(Open Source
Energy Modelling
System)

Scenarios investigated:

- 1) Base – no coordination in operation
- 2) Co-operation in operation
- 3) Increased electricity trade
- 4) Energy efficiency
- 5) Flood control (under development)

Co-optimizing flow regulation



Suggested direction:

- 1) Improve cooperation in the operation of dams and hydropower plants in the Drina river basin for optimized production and flood control
- 2) Improving the opportunities for electricity trade in the region (within and beyond the DRB countries) utilizing energy efficiency measures to release stress on hydro and thermal power



Promoting rural development

Suggested direction:

Promoting integrated rural development in the basin by exploiting the existing synergies between eco-tourism, sustainable agriculture, renewable energy production, at the advantage of local businesses and communities.



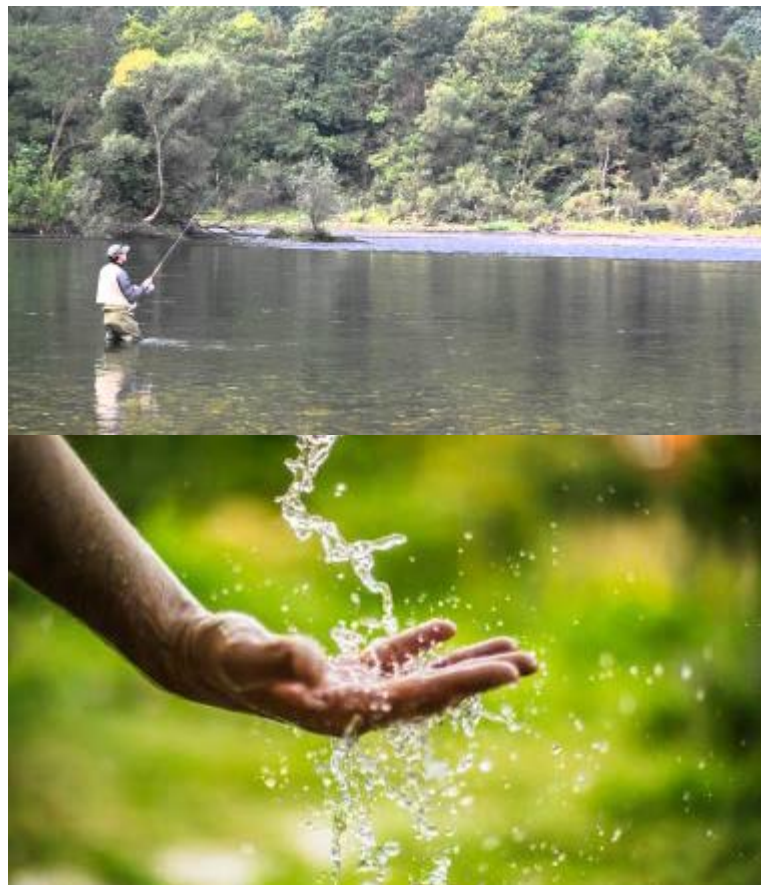
Improving water quality

Suggested direction:

1) Achieve an up-to-date, coherent and transparent picture of the water quality of the whole basin and how it affects the biodiversity and ecosystem. and getting a clear view of the spread and movement of contaminants

2) Improve treatment of wastewater and disposal of solid waste constructing and extending the necessary infrastructure, considering also decentralized and nature-based solutions wherever possible

3) Explore options for municipal waste and wastewater use in agriculture and/or for energy production



Potential benefits of increased cooperation in managing basin resources in the Drina

Economic benefits

- Increase in electricity production (e.g. by raising awareness of the opportunities)
- Reduction of the cost of electricity generation
- Increase in agricultural production (e.g. by improving irrigation systems)
- Reduced damage from floods (e.g. by better modelling, developing infrastructure)
- Development of the tourism sector

Regional economic integration benefits

- Increased transboundary cooperation in all areas by making the Drina an item of connection and not division
- Increased energy trade and integration, and energy security
- Increased number of people employed thanks to cross-border economic activity.

Social and environmental benefits

- Reduced human costs of floods
- Creation of jobs and reduced rural-urban migration (thanks to new economic opportunities)
- Increased resilience of local communities to climate change
- Protection of water quality and ecosystems (including through increased knowledge)

Geo-political benefits

- Increased trust between countries from working together in flood protection
- Facilitated compliance with international obligations to the EU targets on renewables
- Avoided conflicts and adoption of cheaper solutions, thank to the development of connections between experts and the sharing of information

Concluding remarks

- **Current status:** nexus assessment report's draft chapters to be reviewed by national authorities
- Overall a **challenging process:** complexity of multiple level interdisciplinary work, participation requires time, learning increasing ambition
- Mainly a **scoping level review and evolutionary analysis** done; **specific aspects still to be elaborated on**, and selected solutions detailed
- **Needed: feedback** (with a local knowledge) on the issues, findings
- Intersectoral (nexus) solutions called for, instead of sectoral solutions – taking into account negative and positive cross-sectoral effects
- **Potential** for applying a nexus approach further in the DRB, also nationally, and sharing experience with other basins in the region (Drin)
- **Synergy** with other initiatives: World Bank work built on, the starting GEF project can potentially use the findings